

MICHAEL V. MESSINGER  
DIRECTOR  
(202) 772-8667  
MIKEM@SKGF.COM



September 20, 2013

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Re: U.S. Non-Provisional Utility Patent Application under 37 C.F.R. § 1.53(b)  
(Continuation of Appl. No. 13/154,239; Filed: June 6, 2011)  
Appl. No. To Be Assigned; Filed: Herewith  
For: **Bandwidth Sensitive Data Compression and Decompression**  
Inventors: FALLON *et al.*  
Our Ref: 2855.0050007

Commissioner:

The following documents are transmitted herewith for appropriate action by the U.S. Patent and Trademark Office:

1. Payment made via EFS-Web for **\$7,250.00** to cover:  
**\$1,600.00** Patent Application Fee (*including basic filing, search, and examination fees*);  
**\$4,000.00** Request for Prioritized Examination Fee;  
**\$ 800.00** Excess Dependent Claims Fee;  
**\$ 420.00** Excess Independent Claims Fee;  
**\$ 300.00** Publication Fee; and  
**\$ 130.00** Processing Fee under 37 C.F.R. § 1.17(i)(1);
2. Utility Patent Application Transmittal Form (PTO/AIA/15);
3. Certification and Request for Prioritized Examination Under 37 C.F.R. § 1.102(e);
4. Authorization to Treat a Reply As Incorporating An Extension of Time Under 37 C.F.R. § 1.136(a)(3);
5. U.S. Utility Patent Application entitled:

**Bandwidth Sensitive Data Compression and Decompression**

and naming as inventors:

**James J. FALLON**  
**Stephen J. MCERLAIN**

Commissioner for Patents  
September 20, 2013  
Page 2

the application consisting of:

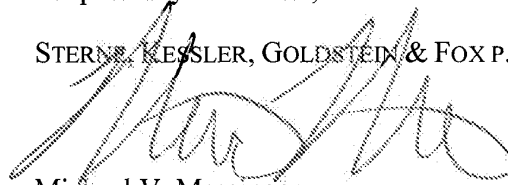
- a. An Application Data Sheet (37 C.F.R. § 1.76);
  - b. Signed Inventors' Declarations;
  - c. A specification containing:
    - i. Twenty-Nine (29) pages of description prior to the claims;
    - ii. Five (5) page of claims (thirty (30) claims); and
    - iii. A one (1) page abstract; and
  - d. Four (4) sheets of drawings: (*Figures 1, 2, 3, 4a and 4b*);
6. Power of Attorney to Prosecute Applications Before the USPTO Form (PTO/SB/80);
  7. Statement Under 37 C.F.R. § 3.73(c); and
  8. Preliminary Amendment Under 37 C.F.R. § 1.115.

***The above-listed documents are filed electronically through EFS-Web.***

Fee payment is provided via EFS-Web. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

MVM/S-B/srb  
Enclosures

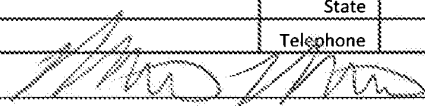
1740213.1

Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

<b>UTILITY                  PATENT APPLICATION                  TRANSMITTAL</b>  <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	2855.0050007
	First Named Inventor	James J. FALLON
	Title	See 1 in Addendum
	Express Mail Label No.	

<b>APPLICATION ELEMENTS</b> <i>See MPEP chapter 600 concerning utility patent application contents.</i>	<b>ADDRESS TO:</b> Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
1. <input type="checkbox"/> Fee Transmittal Form (PTO/SB/17 or equivalent) 2. <input type="checkbox"/> Applicant asserts small entity status. See 37 CFR 1.27 3. <input type="checkbox"/> Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. <input checked="" type="checkbox"/> Specification [Total Pages <u>35</u> ] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) 5. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets <u>4</u> ] 6. <input type="checkbox"/> Inventor's Oath or Declaration [Total Pages <u>2</u> ] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> A copy from a prior application (37 CFR 1.63(d)) 7. <input checked="" type="checkbox"/> Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 8. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table, or Computer Program (Appendix) <input type="checkbox"/> Landscape Table on CD 9. <input type="checkbox"/> Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. - c. are required) a. <input type="checkbox"/> Computer Readable Form (CRF) b. <input type="checkbox"/> Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies	<b>ACCOMPANYING APPLICATION PAPERS</b> 10. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) Name of Assignee <u>Realtime Data, LLC</u> 11. <input checked="" type="checkbox"/> 37 CFR 3.73(c) Statement <input checked="" type="checkbox"/> Power of Attorney (when there is an assignee) 12. <input type="checkbox"/> English Translation Document (if applicable) 13. <input type="checkbox"/> Information Disclosure Statement (PTO/SB/08 or PTO-1449) <input type="checkbox"/> Copies of citations attached 14. <input checked="" type="checkbox"/> Preliminary Amendment 15. <input type="checkbox"/> Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. <input type="checkbox"/> Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. <input checked="" type="checkbox"/> Other: <u>Authorization under 37 CFR 1.136(a)(3); Request for Prioritized Examination under 37 CFR 1.102(e)</u>

\*Note: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 must be included in an Application Data Sheet (ADS).  
 (2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

<b>19. CORRESPONDENCE ADDRESS</b>					
<input checked="" type="checkbox"/> The address associated with Customer Number: <u>26111</u> OR <input type="checkbox"/> Correspondence address below					
Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	
Signature 			Date <u>9/20/13</u>		
Name (Print/Type) <u>Michael V. Messinger</u>			Registration No. (Attorney/Agent) <u>37,575</u>		

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

1740070.1

## Addendum

1. Bandwidth Sensitive Data Compression and Decompression



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO**

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

Practitioners associated with Customer Number: 26111

**OR**

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

The address associated with Customer Number: 26111

**OR**

<input type="checkbox"/>	Firm or Individual Name			
	Address			
	City	State	Zip	
	Country			
	Telephone	Email		

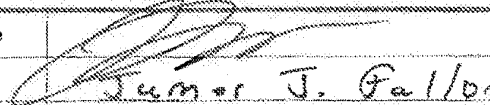
Assignee Name and Address:

**Realtime Data LLC DBA IXO**  
 11 Wampus Close, Armonk, New York 10504, USA

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/88 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	9/18/13
Name	James J. Fallon	Telephone	914.438.0233
Title	Chairman		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form, and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**STATEMENT UNDER 37 CFR 3.73(c)**

Atty. Docket No. 2855.0050007

Applicant/Patent Owner: Realtime Data, LLC

Application No./Patent No.: To Be Assigned Filed/Issue Date: Herewith

Titled: Bandwidth Sensitive Data Compression and Decompression

Realtime Data, LLC, a limited liability company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

- 1.  The assignee of the entire right, title, and interest.
- 2.  An assignee of less than the entire right, title, and interest (check applicable box):
  - The extent (by percentage) of its ownership interest is \_\_\_\_\_%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
  - There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

- 3.  The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

- 4.  The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A.  An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 030877, Frame 0211, or for which a copy thereof is attached.
- B.  A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**STATEMENT UNDER 37 CFR 3.73(c)**

3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

4. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

5. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

6. From: \_\_\_\_\_ To: \_\_\_\_\_

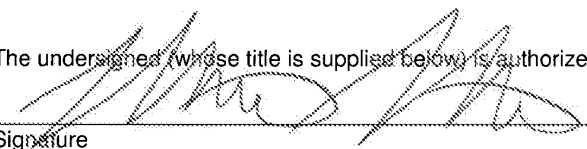
The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet(s).

As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned, whose title is supplied below, is authorized to act on behalf of the assignee.

  
\_\_\_\_\_  
Signature

9/20/13  
\_\_\_\_\_  
Date

Michael V. Messinger  
\_\_\_\_\_  
Printed or Typed Name Attorney for Applicant

37,575  
\_\_\_\_\_  
Title or Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: *To Be Assigned*

(*Continuation of Appl. No. 13/154,239;*  
*Filed: June 6, 2011*)

Filed: *Herewith*

For: **Bandwidth Sensitive Data  
Compression and Decompression**

Confirmation No.: *To Be Assigned*

Art Unit: *To Be Assigned*

Examiner: *To Be Assigned*

Atty. Docket: 2855.0050007

**Preliminary Amendment Under 37 C.F.R. § 1.115**

***Mail Stop Amendment***

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Commissioner:

In advance of prosecution, Applicants submit the following amendment.

***Amendments to the Specification***

Applicants respectfully request the title of the Specification as filed with this preliminary amendment to be amended as follows:

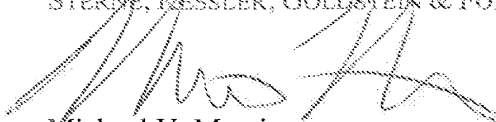
~~BANDWIDTH SENSITIVE DATA COMPRESSION~~ SYSTEMS AND  
METHODS FOR VIDEO AND ~~DECOMPRESSION~~ AUDIO DATA STORAGE AND  
DISTRIBUTION

***Conclusion***

Prompt and favorable consideration of this Preliminary Amendment is respectfully requested. Applicant believes the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

Date: 9/20/13

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600

1748302\_1.DOCX

Electronic Patent Application Fee Transmittal				
<b>Application Number:</b>				
<b>Filing Date:</b>				
<b>Title of Invention:</b>	BANDWIDTH SENSITIVE DATA COMPRESSION AND DECOMPRESSION			
<b>First Named Inventor/Applicant Name:</b>	James J. Fallon			
<b>Filer:</b>	Shawn Michael Buchanan/Jeanette Yando			
<b>Attorney Docket Number:</b>	2855.0050007			
Filed as Large Entity				
<b>Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a) Filing Fees</b>				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Basic Filing:</b>				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Request for Prioritized Examination	1817	1	4000	4000
<b>Pages:</b>				
<b>Claims:</b>				
Claims in Excess of 20	1202	10	80	800
Independent claims in excess of 3	1201	1	420	420

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous-Filing:</b>				
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300
OTHER PUBLICATION PROCESSING FEE	1808	1	130	130
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>7250</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	16919080
<b>Application Number:</b>	14033245
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	9902
<b>Title of Invention:</b>	BANDWIDTH SENSITIVE DATA COMPRESSION AND DECOMPRESSION
<b>First Named Inventor/Applicant Name:</b>	James J. Fallon
<b>Customer Number:</b>	26111
<b>Filer:</b>	Shawn Michael Buchanan/Jeanette Yando
<b>Filer Authorized By:</b>	Shawn Michael Buchanan
<b>Attorney Docket Number:</b>	2855.0050007
<b>Receipt Date:</b>	20-SEP-2013
<b>Filing Date:</b>	
<b>Time Stamp:</b>	19:16:35
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$7250
RAM confirmation Number	8337
Deposit Account	
Authorized User	

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1		28550050007-application.pdf	7671999	yes	58
			1aaa77cb7cabeb870d6aaff1e1a5f3315e310b		
<b>Multipart Description/PDF files in .zip description</b>					
		<b>Document Description</b>	<b>Start</b>	<b>End</b>	
		Transmittal of New Application	1	2	
		Transmittal of New Application	3	4	
		TrackOne Request	5	5	
		Authorization for Extension of Time all replies	6	6	
		Application Data Sheet	7	12	
		Oath or Declaration filed	13	14	
		Specification	15	43	
		Claims	44	48	
		Abstract	49	49	
		Drawings-only black and white line drawings	50	53	
		Power of Attorney	54	54	
		Assignee showing of ownership per 37 CFR 3.73.	55	56	
		Preliminary Amendment	57	58	
<b>Warnings:</b>					
<b>Information:</b>					
2	Fee Worksheet (SB06)	fee-info.pdf	43212	no	2
			b801441dda4c911e315eece1839b0f76b480127		
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			7715211		

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION  
 UNDER 37 CFR 1.102(e) (Page 1 of 1)**

First Named Inventor:	James J. FALLON	Nonprovisional Application Number (if known):	To Be Assigned
Title of Invention:	Bandwidth Sensitive Data Compression and Decompression		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1), the prioritized examination fee set forth in 37 CFR 1.17(c), and if not already paid, the publication fee set forth in 37 CFR 1.18(d) have been filed with the request. The basic filing fee, search fee, examination fee, and any required excess claims and application size fees are filed with the request or have been already been paid.
2. The application contains or is amended to contain no more than four independent claims and no more than thirty total claims, and no multiple dependent claims.
3. The applicable box is checked below:

I.  **Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)**

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.


--OR--

- (b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

- ii. The executed inventor's oath or declaration is filed with the application. (37 CFR 1.63 and 1.64)

II.  **Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)**

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature 	Date 9/20/13
Name (Print/Typed): Michael V. Messinger	Practitioner Registration Number 37,575

**Note:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.\*

\*Total of one forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: *To Be Assigned*

(Continuation of Appl. No. 13/154,239;  
Filed: June 6, 2011)

Filed: *Herewith*

For: **Bandwidth Sensitive Data Compression  
and Decompression**

Confirmation No.: *To Be Assigned*

Art Unit: *To Be Assigned*

Examiner: *To Be Assigned*

Atty. Docket: 2855.0050007

**Authorization to Treat a Reply as Incorporating an  
Extension of Time Under 37 C.F.R. § 1.136(a)(3)**

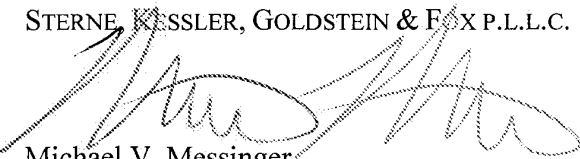
Commissioner for Patents  
PO Box 1450  
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Respectfully submitted,

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Date: September 20, 2013

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<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

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<b>Legal Name</b>					
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	Stephen	J.	McErlain		
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<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.			
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**Application Information:**

Title of the Invention	Bandwidth Sensitive Data Compression and Decompression		
Attorney Docket Number	2855.0050007	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

**Publication Information:**

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<input type="checkbox"/> <b>Request Not to Publish.</b> I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application <b>has not and will not</b> be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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Prior Application Status	Pending	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13154239	2011-06-06
Prior Application Status	Patented	<input type="button" value="Remove"/>	

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<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007		
		Application Number			
Title of Invention	Bandwidth Sensitive Data Compression and Decompression				
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13154239	Continuation of	12123081	2008-05-19	8073047	2011-12-06
Prior Application Status		Patented			<a href="#">Remove</a>
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12123081	Continuation of	10076013	2002-02-13	7386046	2008-06-10
Prior Application Status		Expired			<a href="#">Remove</a>
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10076013	non provisional of	60268394	2001-02-13		
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**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications**

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		

**Authorization to Permit Access:**

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In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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Assignee                       Legal Representative under 35 U.S.C. 117                       Joint Inventor

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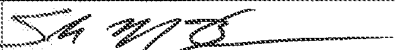


<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007	
		Application Number		
Title of Invention	Bandwidth Sensitive Data Compression and Decompression			
<b>Mailing Address Information For Applicant:</b>				
Address 1				
Address 2				
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<b>Mailing Address Information For Non-Applicant Assignee:</b>				
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Country	US	Postal Code	10504	
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<b>Application Data Sheet 37 CFR 1.76</b>		<b>Attorney Docket Number</b>	2855.0050007		
		<b>Application Number</b>			
<b>Title of Invention</b>	Bandwidth Sensitive Data Compression and Decompression				
<b>First Name</b>	Michael	<b>Last Name</b>	Messinger	<b>Registration Number</b>	37575
Additional Signature may be generated within this form by selecting the Add button.					

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	Bandwidth Sensitive Data Compression and Decompression
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As the below named inventor, I hereby declare that:

This declaration is directed to:  The attached application, or  
 United States application or PCT international application number \_\_\_\_\_  
filed on \_\_\_\_\_

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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**LEGAL NAME OF INVENTOR**

Inventor: Stephen J. McErcain Date (Optional): 9/11/2013  
Signature: [Handwritten Signature]

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## BANDWIDTH SENSITIVE DATA COMPRESSION AND DECOMPRESSION

### CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** This application is a continuation of United States Patent Application No. 13/154,239, filed on June 6, 2011, which is a continuation of United States Patent Application No. 12/123,081, filed on May 19, 2008, now U.S. Patent No. 8,073,047, which is a continuation of United States Patent Application No. 10/076,013, filed on February 13, 2002, now U.S. Patent No. 7,386,046, which claims the benefit of United States Provisional Application No. 60/268,394, filed on February 13, 2001, each of which is fully incorporated herein by reference.

### BACKGROUND

#### 1. Technical Field

**[0002]** The present invention relates generally to data compression and decompression and, in particular, to a system and method for compressing and decompressing data based on an actual or expected throughput (bandwidth) of a system that employs data compression. Additionally the present invention relates to the subsequent storage, retrieval, and management of information in data storage devices utilizing either compression and/or accelerated data storage and retrieval bandwidth.

#### 2. Description of the Related Art

**[0003]** There are a variety of data compression algorithms that are currently available, both well-defined and novel. Many compression algorithms define one or more parameters that can be varied, either dynamically or a-priori, to change the performance characteristics of the algorithm. For example, with a typical dictionary based compression algorithm such as Lempel-Ziv, the size of the dictionary can affect the performance of the algorithm. Indeed, a large dictionary may be employed to yield very good compression ratios but the algorithm may take a long time to execute. If speed were more important than compression ratio, then the algorithm can be limited by selecting a smaller dictionary, thereby obtaining a much faster compression time, but at the possible cost of a lower compression ratio. The desired performance of a compression algorithm

Atty. Dkt. No. 2855.0050007

and the system in which the data compression is employed, will vary depending on the application.

[0004] Thus, one challenge in employing data compression for a given application or system is selecting one or more optimal compression algorithms from the variety of available algorithms. Indeed, the desired balance between speed and efficiency is typically a significant factor that is considered in determining which algorithm to employ for a given set of data. Algorithms that compress particularly well usually take longer to execute whereas algorithms that execute quickly usually do not compress particularly well.

[0005] Accordingly, a system and method that would provide dynamic modification of compression system parameters so as to provide an optimal balance between execution speed of the algorithm (compression rate) and the resulting compression ratio, is highly desirable.

[0006] Yet another problem within the current art is data storage and retrieval bandwidth limitations. Modern computers utilize a hierarchy of memory devices. In order to achieve maximum performance levels, modern processors utilize onboard memory and on board cache to obtain high bandwidth access to both program and data. Limitations in process technologies currently prohibit placing a sufficient quantity of onboard memory for most applications. Thus, in order to offer sufficient memory for the operating system(s), application programs, and user data, computers often use various forms of popular off-processor high speed memory including static random access memory (SRAM), synchronous dynamic random access memory (SDRAM), synchronous burst static ram (SBSRAM). Due to the prohibitive cost of the high-speed random access memory, coupled with their power volatility, a third lower level of the hierarchy exists for non-volatile mass storage devices. While mass storage devices offer increased capacity and fairly economical data storage, their data storage and retrieval bandwidth is often much less in relation to the other elements of a computing system.

[0007] Computers systems represent information in a variety of manners. Discrete information such as text and numbers are easily represented in digital data. This type of data representation is known as symbolic digital data. Symbolic digital data is thus an absolute representation of data such as a letter, figure, character, mark, machine code, or drawing.

- [0008] Continuous information such as speech, music, audio, images and video, frequently exists in the natural world as analog information. As is well known to those skilled in the art, recent advances in very large scale integration (VLSI) digital computer technology have enabled both discrete and analog information to be represented with digital data. Continuous information represented as digital data is often referred to as diffuse data. Diffuse digital data is thus a representation of data that is of low information density and is typically not easily recognizable to humans in its native form.
- [0009] Modern computers utilize digital data representation because of its inherent advantages. For example, digital data is more readily processed, stored, and transmitted due to its inherently high noise immunity. In addition, the inclusion of redundancy in digital data representation enables error detection and/or correction. Error detection and/or correction capabilities are dependent upon the amount and type of data redundancy, available error detection and correction processing, and extent of data corruption.
- [0010] One outcome of digital data representation is the continuing need for increased capacity in data processing, storage, and transmittal. This is especially true for diffuse data where increases in fidelity and resolution create exponentially greater quantities of data. Data compression is widely used to reduce the amount of data required to process, transmit, or store a given quantity of information. In general, there are two types of data compression techniques that may be utilized either separately or jointly to encode/decode data: lossless and lossy data compression.
- [0011] Over the last decade, computer processor performance has improved by at least a factor of 50. During this same period, magnetic disk storage has only improved by a factor of 5. Thus one additional problem with the existing art is that memory storage devices severely limit the performance of consumer, entertainment, office, workstation, servers, and mainframe computers for all disk and memory intensive operations.
- [0012] For example, magnetic disk mass storage devices currently employed in a variety of home, business, and scientific computing applications suffer from significant seek-time access delays along with profound read/write data rate limitations. Currently the fastest available (15,000) rpm disk drives support only a 40.0 Megabyte per second data rate (MB/sec). This is in stark contrast to the modern Personal Computer's Peripheral

Component Interconnect (PCI) Bus's input/output capability of 512 MB/sec and internal local bus capability of 1600 MB/sec.

**[0013]** Another problem within the current art is that emergent high performance disk interface standards such as the Small Computer Systems Interface (SCSI-3), iSCSI, Fibre Channel, AT Attachment UltraDMA/100+, Serial Storage Architecture, and Universal Serial Bus offer only higher data transfer rates through intermediate data buffering in random access memory. These interconnect strategies do not address the fundamental problem that all modern magnetic disk storage devices for the personal computer marketplace are still limited by the same typical physical media restriction. In practice, faster disk access data rates are only achieved by the high cost solution of simultaneously accessing multiple disk drives with a technique known within the art as data striping and redundant array of independent disks (RAID).

**[0014]** RAID systems often afford the user the benefit of increased data bandwidth for data storage and retrieval. By simultaneously accessing two or more disk drives, data bandwidth may be increased at a maximum rate that is linear and directly proportional to the number of disks employed. Thus another problem with modern data storage systems utilizing RAID systems is that a linear increase in data bandwidth requires a proportional number of added disk storage devices.

**[0015]** Another problem with most modern mass storage devices is their inherent unreliability. Many modern mass storage devices utilize rotating assemblies and other types of electromechanical components that possess failure rates one or more orders of magnitude higher than equivalent solid state devices. RAID systems employ data redundancy distributed across multiple disks to enhance data storage and retrieval reliability. In the simplest case, data may be explicitly repeated on multiple places on a single disk drive, on multiple places on two or more independent disk drives. More complex techniques are also employed that support various trade-offs between data bandwidth and data reliability.

**[0016]** Standard types of RAID systems currently available include RAID Levels 0, 1, and 5. The configuration selected depends on the goals to be achieved. Specifically data reliability, data validation, data storage /retrieval bandwidth, and cost all play a role in defining the appropriate RAID data storage solution. RAID level 0 entails pure data striping across multiple disk drives. This increases data bandwidth at best linearly with



the number of disk drives utilized. Data reliability and validation capability are decreased. A failure of a single drive results in a complete loss of all data. Thus another problem with RAID systems is that low cost improved bandwidth requires a significant decrease in reliability.

[0017] RAID Level 1 utilizes disk mirroring where data is duplicated on an independent disk subsystem. Validation of data amongst the two independent drives is possible if the data is simultaneously accessed on both disks and subsequently compared. This tends to decrease data bandwidth from even that of a single comparable disk drive. In systems that offer hot swap capability, the failed drive is removed and a replacement drive is inserted. The data on the failed drive is then copied in the background while the entire system continues to operate in a performance degraded but fully operational mode. Once the data rebuild is complete, normal operation resumes. Hence, another problem with RAID systems is the high cost of increased reliability and associated decrease in performance.

[0018] RAID Level 5 employs disk data striping and parity error detection to increase both data bandwidth and reliability simultaneously. A minimum of three disk drives is required for this technique. In the event of a single disk drive failure, that drive may be rebuilt from parity and other data encoded on disk remaining disk drives. In systems that offer hot swap capability, the failed drive is removed and a replacement drive is inserted. The data on the failed drive is then rebuilt in the background while the entire system continues to operate in a performance degraded but fully operational mode. Once the data rebuild is complete, normal operation resumes.

[0019] Thus another problem with redundant modern mass storage devices is the degradation of data bandwidth when a storage device fails. Additional problems with bandwidth limitations and reliability similarly occur within the art by all other forms of sequential, pseudo-random, and random access mass storage devices. Typically mass storage devices include magnetic and optical tape, magnetic and optical disks, and various solid-state mass storage devices. It should be noted that the present invention applies to all forms and manners of memory devices including storage devices utilizing magnetic, optical, neural and chemical techniques or any combination thereof.

[0020] Yet another problem within the current art is the application and use of various data compression techniques. It is well known within the current art that data

compression provides several unique benefits. First, data compression can reduce the time to transmit data by more efficiently utilizing low bandwidth data links. Second, data compression economizes on data storage and allows more information to be stored for a fixed memory size by representing information more efficiently.

**[0021]** For purposes of discussion, data compression is canonically divided into lossy and lossless techniques. Lossy data compression techniques provide for an inexact representation of the original uncompressed data such that the decoded (or reconstructed) data differs from the original unencoded/uncompressed data. Lossy data compression is also known as irreversible or noisy compression. Negentropy is defined as the quantity of information in a given set of data. Thus, one obvious advantage of lossy data compression is that the compression ratios can be larger than that dictated by the negentropy limit, all at the expense of information content. Many lossy data compression techniques seek to exploit various traits within the human senses to eliminate otherwise imperceptible data. For example, lossy data compression of visual imagery might seek to delete information content in excess of the display resolution or contrast ratio of the target display device.

**[0022]** On the other hand, lossless data compression techniques provide an exact representation of the original uncompressed data. Simply stated, the decoded (or reconstructed) data is identical to the original unencoded/uncompressed data. Lossless data compression is also known as reversible or noiseless compression. Thus, lossless data compression has, as its current limit, a minimum representation defined by the entropy of a given data set.

**[0023]** A rich and highly diverse set of lossless data compression and decompression algorithms exist within the current art. These range from the simplest "ad hoc" approaches to highly sophisticated formalized techniques that span the sciences of information theory, statistics, and artificial intelligence. One fundamental problem with almost all modern approaches is the compression ratio to encoding and decoding speed achieved. As previously stated, the current theoretical limit for data compression is the entropy limit of the data set to be encoded. However, in practice, many factors actually limit the compression ratio achieved. Most modern compression algorithms are highly content dependent. Content dependency exceeds the actual statistics of individual

elements and often includes a variety of other factors including their spatial location within the data set.

**[0024]** Of popular compression techniques, arithmetic coding possesses the highest degree of algorithmic effectiveness, and as expected, is the slowest to execute. This is followed in turn by dictionary compression, Huffman coding, and run-length coding with respectively decreasing execute times. What is not apparent from these algorithms, that is also one major deficiency within the current art, is knowledge of their algorithmic efficiency. More specifically, given a compression ratio that is within the effectiveness of multiple algorithms, the question arises as their corresponding efficiency.

**[0025]** Within the current art there also presently exists a strong inverse relationship between achieving the maximum (current) theoretical compression ratio, which we define as algorithmic effectiveness, and requisite processing time. For a given single algorithm the effectiveness over a broad class of data sets including text, graphics, databases, and executable object code is highly dependent upon the processing effort applied. Given a baseline data set, processor operating speed and target architecture, along with its associated supporting memory and peripheral set, we define algorithmic efficiency as the time required to achieve a given compression ratio. Algorithmic efficiency assumes that a given algorithm is implemented in an optimum object code representation executing from the optimum places in memory. This is almost never achieved in practice due to limitations within modern optimizing software compilers. It should be further noted that an optimum algorithmic implementation for a given input data set may not be optimum for a different data set. Much work remains in developing a comprehensive set of metrics for measuring data compression algorithmic performance, however for present purposes the previously defined terms of algorithmic effectiveness and efficiency should suffice.

**[0026]** Various solutions to this problem of optimizing algorithmic implementation are found in U.S. Patent Nos. 6,195,024 and 6,309,424, issued on February 27, 2001 and October 30, 2001, respectively, to James Fallon, both of which are entitled "Content Independent Data Compression Method and System," and are incorporated herein by reference. These patents describe data compression methods that provide content-independent data compression, wherein an optimal compression ratio for an encoded stream can be achieved regardless of the data content of the input data stream. As more fully described in the above incorporated patents, a data compression protocol comprises

applying an input data stream to each of a plurality of different encoders to, in effect, generate a plurality of encoded data streams. The plurality of encoders are preferably selected based on their ability to effectively encode different types of input data. The final compressed data stream is generated by selectively combining blocks of the compressed streams output from the plurality of encoders based on one or more factors such as the optimal compression ratios obtained by the plurality of decoders. The resulting compressed output stream can achieve the greatest possible compression, preferably in real-time, regardless of the data content.

[0027] Yet another problem within the current art relates to data management and the use of existing file management systems. Present computer operating systems utilize file management systems to store and retrieve information in a uniform, easily identifiable, format. Files are collections of executable programs and/or various data objects. Files occur in a wide variety of lengths and must be stored within a data storage device. Most storage devices, and in particular, mass storage devices, work most efficiently with specific quantities of data. For example, modern magnetic disks are often divided into cylinders, heads and sectors. This breakout arises from legacy electro-mechanical considerations with the format of an individual sector often some binary multiple of bytes (512, 1024,...). A fixed or variable quantity of sectors housed on an individual track. The number of sectors permitted on a single track is limited by the number of reliable flux reversals that can be encoded on the storage media per linear inch, often referred to as linear bit density. In disk drives with multiple heads and disk media, a single cylinder is comprised of multiple tracks.

[0028] A file allocation table is often used to organize both used and unused space on a mass storage device. Since a file often comprises more than one sector of data, and individual sectors or contiguous strings of sectors may be widely dispersed over multiple tracks and cylinders, a file allocation table provides a methodology of retrieving a file or portion thereof. File allocation tables are usually comprised of strings of pointers or indices that identify where various portions of a file are stored.

[0029] In-order to provide greater flexibility in the management of disk storage at the media side of the interface, logical block addresses have been substituted for legacy cylinder, head, sector addressing. This permits the individual disk to optimize its mapping from the logical address space to the physical sectors on the disk drive.

Advantages with this technique include faster disk accesses by allowing the disk manufacturer greater flexibility in managing data interleaves and other high-speed access techniques. In addition, the replacement of bad media sectors can take place at the physical level and need not be the concern of the file allocation table or host computer. Furthermore, these bad sector replacement maps are definable on a disk by disk basis.

**[0030]** Practical limitations in the size of the data required to both represent and process an individual data block address, along with the size of individual data blocks, governs the type of file allocation tables currently in use. For example, a 4096 byte logical block size (8 sectors) employed with 32 bit logical block addresses. This yields an addressable data space of 17.59 Terabytes. Smaller logical blocks permit more efficient use of disk space. Larger logical blocks support a larger addressable data space. Thus one limitation within the current art is that disk file allocation tables and associated file management systems are a compromise between efficient data storage, access speed, and addressable data space.

**[0031]** Data in a computer has various levels of information content. Even within a single file, many data types and formats are utilized. Each data representation has specific meaning and each may hold differing quantities of information. Within the current art, computers process data in a native, uncompressed, format. Thus compressed data must often be decompressed prior to performing various data processing functions or operations. Modern file systems have been designed to work with data in its native format. Thus another significant problem within the current art is that file systems are not able to randomly access compressed data in an efficient manner.

**[0032]** Further aggravating this problem is the fact that when data is decompressed, processed and recompressed it may not fit back into its original disk space, causing disk fragmentation or complex disk space reallocation requirements. Several solutions exist within the current art including file by file and block structured compressed data management.

**[0033]** In file by file compression, each file is compressed when stored on disk and decompressed when retrieved. For very small files this technique is often adequate, however for larger files the compression and decompression times are too slow, resulting in inadequate system level performance. In addition, the ability to access randomly access data within a specific file is lost. The one advantage to file by file compression

techniques is that they are easy to develop and are compatible with existing file systems. Thus file by file compressed data management is not an adequate solution.

[0034] Block structured disk compression operates by compressing and decompressing fixed block sizes of data. Block sizes are often fixed, but may be variable in size. A single file usually is comprised of multiple blocks, however a file may be so small as to fit within a single block. Blocks are grouped together and stored in one or more disk sectors as a group of Blocks (GOBs). A group of blocks is compressed and decompressed as a unit, thus there exists practical limitations on the size of GOBs. Most compression algorithms achieve a higher level of algorithmic effectiveness when operating on larger quantities of data. Restated, the larger the quantity of data processed with a uniform information density, the higher the compressions ratio achieved. If GOBs are small compression ratios are low and processing time short. Conversely, when GOBS are large compression ratios are higher and processing time is longer. Large GOBs tend to perform in a manner analogous to file by file compression. The two obvious benefits to block structured disk compression are psuedo-random data access and reduced data compression/decompression processing time.

[0035] Several problems exist within the current art for the management of compressed blocks. One method for storage of compressed files on disk is by contiguously storing all GOBs corresponding to a single file. However as files are processed within the computers, files may grow or shrink in size. Inefficient disk storage results when a substantial file size reduction occurs. Conversely when a file grows substantially, the additional space required to store the data may not be available contiguously. The result of this process is substantial disk fragmentation and slower access times.

[0036] An alternate method is to map compressed GOBs into the next logical free space on the disk. One problem with this method is that average file access times are substantially increased by this technique due to the random data storage. Peak access delays may be reduced since the statistics behave with a more uniform white spectral density, however this is not guaranteed.

[0037] A further layer of complexity is encountered when compressed information is to be managed on more than one data storage device. Competing requirements of data access bandwidth, data reliability/redundancy, and efficiency of storage space are encountered.

[0038] These and other limitations within the current art are solved with the present invention.

## SUMMARY OF THE INVENTION

[0039] The present invention is directed to a system and method for compressing and decompressing based on the actual or expected throughput (bandwidth) of a system employing data compression and a technique of optimizing based upon planned, expected, predicted, or actual usage.

[0040] In one aspect of the present invention, a system for providing bandwidth sensitive data compression comprises:

a data compression system for compressing and decompressing data input to the system;

a plurality of compression routines selectively utilized by the data compression system; and

a controller for tracking the throughput of the system and generating a control signal to select a compression routine based on the system throughput. In a preferred embodiment, when the controller determines that the system throughput falls below a predetermined throughput threshold, the controller commands the data compression engine to use a compression routine providing a faster rate of compression so as to increase the throughput.

[0041] In another aspect, a system for providing bandwidth sensitive data compression comprises a plurality of access profiles, operatively accessible by the controller that enables the controller to determine a compression routine that is associated with a data type of the data to be compressed. The access profiles comprise information that enables the controller to select a suitable compression algorithm that provides a desired balance between execution speed (rate of compression) and efficiency (compression ratio).

[0042] In yet another aspect, a system comprises a data storage controller for controlling the compression and storage of compressed data to a storage device and the retrieval and decompression of compressed data from the storage device. The system throughput tracked by the controller preferably comprises a number of pending access requests to a storage device.

- [0043] In another aspect, the system comprises a data transmission controller for controlling the compression and transmission of compressed data, as well as the decompression of compressed data received over a communication channel. The system throughput tracked by the controller comprises a number of pending transmission requests over the communication channel.
- [0044] In yet another aspect of the present invention, a method for providing bandwidth sensitive data compression in a data processing system, comprises the steps of:  
compressing data using a first compression routine providing a first compression rate;  
tracking the throughput of the data processing system to determine if the first compression rate provides a throughput that meets a predetermined throughput threshold;  
and  
compressing data using a second compression routine providing a second compression rate that is greater than the first compression rate, if the tracked throughput does not meet the predetermined throughput threshold.
- [0045] Preferably, the first compression routine comprises a default asymmetric routine and wherein the second compression routine comprises a symmetric routine.
- [0046] In another aspect, the method comprises processing a user command to load a user-selected compression routine for compressing data.
- [0047] In another aspect, the method further comprises processing a user command to compress user-provided data and automatically selecting a compression routine associated with a data type of the user-provided data.
- [0048] These and other aspects, features and advantages of the present invention will become apparent from the following detailed description of preferred embodiments, which is to be read in connection with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

- [0049] Fig. 1 is a high-level block diagram of a system for providing bandwidth sensitive data compression/decompression according to an embodiment of the present invention.
- [0050] Fig. 2 is a flow diagram of a method for providing bandwidth sensitive data compression/decompression according to one aspect of the present invention.



- [0051] Fig. 3 is a block diagram of a preferred system for implementing a bandwidth sensitive data compression/decompression method according to an embodiment of the present invention.
- [0052] Fig. 4A is a diagram of a file system format of a virtual and/or physical disk according to an embodiment of the present invention.
- [0053] Fig. 4B is a diagram of a data structure of a sector map entry of a virtual block table according to an embodiment of the present invention.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

- [0054] The present invention is directed to a system and method for compressing and decompressing based on the actual or expected throughput (bandwidth) of a system employing data compression. Although one of ordinary skill in the art could readily envision various implementations for the present invention, a preferred system in which this invention is employed comprises a data storage controller that preferably utilizes a real-time data compression system to provide “accelerated” data storage and retrieval bandwidths. The concept of “accelerated” data storage and retrieval was introduced in co-pending U.S. Patent Application Serial No. 09/266,394, filed March 11, 1999, entitled “System and Methods For Accelerated Data Storage and Retrieval” and co-pending U.S. Patent Application Serial No. 09/481,243, filed January 11, 2000, entitled “System and Methods For Accelerated Data Storage and Retrieval,” both of which are commonly assigned and incorporated herein by reference.
- [0055] In general, as described in the above-incorporated applications, “accelerated” data storage comprises receiving a digital data stream at a data transmission rate which is greater than the data storage rate of a target storage device, compressing the input stream at a compression rate that increases the effective data storage rate of the target storage device and storing the compressed data in the target storage device. For instance, assume that a mass storage device (such as a hard disk) has a data storage rate of 20 megabytes per second. If a storage controller for the mass storage device is capable of compressing (in real time) an input data stream with an average compression rate of 3:1, then data can be stored in the mass storage device at a rate of 60 megabytes per second, thereby effectively increasing the storage bandwidth (“storewidth”) of the mass storage device by a factor of three. Similarly, accelerated data retrieval comprises retrieving a compressed

digital data stream from a target storage device at the rate equal to, e.g., the data access rate of the target storage device and then decompressing the compressed data at a rate that increases the effective data access rate of the target storage device. Advantageously, providing accelerated data storage and retrieval at (or close to) real-time can reduce or eliminate traditional bottlenecks associated with, e.g., local and network disk accesses.

[0056] In a preferred embodiment, the present invention is implemented for providing accelerated data storage and retrieval. In one embodiment, a controller tracks and monitors the throughput (data storage and retrieval) of a data compression system and generates control signals to enable/disable different compression algorithms when, e.g., a bottleneck occurs so as to increase the throughput and eliminate the bottleneck.

[0057] In the following description of preferred embodiments, two categories of compression algorithms are defined - an "asymmetrical" data compression algorithm and a "symmetrical data compression algorithms. An asymmetrical data compression algorithm is referred to herein as one in which the execution time for the compression and decompression routines differ significantly. In particular, with an asymmetrical algorithm, either the compression routine is slow and the decompression routine is fast or the compression routine is fast and the decompression routine is slow. Examples of asymmetrical compression algorithms include dictionary-based compression schemes such as Lempel-Ziv.

[0058] On the other hand, a "symmetrical" data compression algorithm is referred to herein as one in which the execution time for the compression and the decompression routines are substantially similar. Examples of symmetrical algorithms include table-based compression schemes such as Huffman. For asymmetrical algorithms, the total execution time to perform one compress and one decompress of a data set is typically greater than the total execution time of symmetrical algorithms. But an asymmetrical algorithm typically achieves higher compression ratios than a symmetrical algorithm.

[0059] It is to be appreciated that in accordance with the present invention, symmetry may be defined in terms of overall effective bandwidth, compression ratio, or time or any combination thereof. In particular, in instances of frequent data read/writes, bandwidth is the optimal parameter for symmetry. In asymmetric applications such as operating systems and programs, the governing factor is net decompression bandwidth, which is a function of both compression speed, which governs data retrieval time, and

decompression speed, wherein the total governs the net effective data read bandwidth. These factors work in an analogous manner for data storage where the governing factors are both compression ratio (storage time) and compression speed. The present invention applies to any combination or subset thereof, which is utilized to optimize overall bandwidth, storage space, or any operating point in between.

**[0060]** Referring now to Fig. 1, a high-level block diagram illustrates a system for providing bandwidth sensitive data compression/decompression according to an embodiment of the present invention. In particular, Fig. 1 depicts a host system 10 comprising a controller 11 (e.g., a file management system), a compression/decompression system 12, a plurality of compression algorithms 13, a storage medium 14, and a plurality of data profiles 15. The controller tracks and monitors the throughput (e.g., data storage and retrieval) of the data compression system 12 and generates control signals to enable/disable different compression algorithms 13 when the throughput falls below a predetermined threshold. In one embodiment, the system throughput that is tracked by the controller 11 preferably comprises a number of pending access requests to the memory system.

**[0061]** The compression system 12 is operatively connected to the storage medium 14 using suitable protocols to write and read compressed data to and from the storage medium 14. It is to be understood that the storage medium 14 may comprise any form of memory device including all forms of sequential, pseudo-random, and random access storage devices. The memory storage device 14 may be volatile or non-volatile in nature, or any combination thereof. Storage devices as known within the current art include all forms of random access memory, magnetic and optical tape, magnetic and optical disks, along with various other forms of solid-state mass storage devices. Thus it should be noted that the current invention applies to all forms and manners of memory devices including, but not limited to, storage devices utilizing magnetic, optical, and chemical techniques, or any combination thereof. The data compression system 12 preferably operates in real-time (or substantially real-time) to compress data to be stored on the storage device 14 and to decompress data that is retrieved from the storage device 14. In addition, the compression system 12 may receive data (compressed or not compressed) via an I/O (input/output) port 16 that is transmitted over a transmission line or communication channel from a remote location, and then process such data (e.g.,

decompress or compress the data). The compression system 12 may further transmit data (compressed or decompressed) via the I/O port 16 to another network device for remote processing or storage.

[0062] The controller 11 utilizes information comprising a plurality of data profiles 15 to determine which compression algorithms 13 should be used by the compression system 12. In a preferred embodiment, the compression algorithms 13 comprise one or more asymmetric algorithms. As noted above, with asymmetric algorithms, the compression ratio is typically greater than the compression ratios obtained using symmetrical algorithms. Preferably, a plurality of asymmetric algorithms are selected to provide one or more asymmetric algorithms comprising a slow compress and fast decompress routine, as well as one or more asymmetric algorithms comprising a fast compress and slow decompress routine.

[0063] The compression algorithms 14 further comprise one or more symmetric algorithms, each having a compression rate and corresponding decompression rate that is substantially equal. Preferably, a plurality of symmetric algorithms are selected to provide a desired range of compression and decompression rates for data to be processed by a symmetric algorithm.

[0064] In a preferred embodiment, the overall throughput (bandwidth) of the system 10 is one factor considered by the controller 11 in deciding whether to use an asymmetrical or symmetrical compression algorithm for processing data stored to, and retrieved from, the storage device 14. Another factor that is used to determine the compression algorithm is the type of data to be processed. In a preferred embodiment, the data profiles 15 comprise information regarding predetermined access profiles of different data sets, which enables the controller 11 to select a suitable compression algorithm based on the data type. For instance, the data profiles may comprise a map that associates different data types (based on, e.g., a file extension) with preferred one(s) of the compression algorithms 13. For example, preferred access profiles considered by the controller 11 are set forth in the following table.

<b>Access Profile 1:</b>	<b>Access Profile 2</b>	<b>Access Profile 3</b>
Data is written to a storage medium once (or very few times) but is read from the storage medium many times	Data is written to the storage medium often but read few Times	The amount of times data is read from and written to the storage medium is substantially the same.

[0065] With Access Profile 1, the decompression routine would be executed significantly more times than the corresponding compression routine. This is typical with operating systems, applications and websites, for example. Indeed, an asymmetrical application can be used to (offline) compress an (OS) operating system, application or Website using a slow compression routine to achieve a high compression ratio. After the compressed OS, application or website is stored, the asymmetric algorithm is then used during runtime to decompress, at a significant rate, the OS, application or website launched or accessed by a user.

[0066] Therefore, with data sets falling within Access Profile 1, it is preferable to utilize an asymmetrical algorithm that provides a slow compression routine and a fast decompression routine so as to provide an increase in the overall system performance as compared the performance that would be obtained using a symmetrical algorithm. Further, the compression ratio obtained using the asymmetrical algorithm would likely be higher than that obtained using a symmetrical algorithm (thus effectively increasing the storage capacity of the storage device).

[0067] With Access Profile 2, the compression routine would be executed significantly more times than the decompression routine. This is typical with a system for automatically updating an inventory database, for example, wherein an asymmetric algorithm that provides a fast compression routine and a slow decompression routine would provide an overall faster (higher throughput) and efficient (higher compression ratio) system performance than would be obtained using a symmetrical algorithm.

[0068] With Access Profile 3, where data is accessed with a similar number of reads and writes, the compression routine would be executed approximately the same number of times as the decompression routine. This is typical of most user-generated data such as documents and spreadsheets. Therefore, it is preferable to utilize a symmetrical algorithm that provides a relatively fast compression and decompression routine. This would result in an overall system performance that would be faster as compared to using an asymmetrical algorithm (although the compression ratio achieved may be lower).

[0069] The following table summarizes the three data access profiles and the type of compression algorithm that would produce optimum throughput.

Access Profile	Example Data Types	Compression Algorithm	Compressed Data	Decompression Algorithm
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			<b>Characteristics</b>	
<b>1. Write few, Read many</b>	<b>Operating systems, Programs, Web sites</b>	<b>Asymmetrical (Slow compress)</b>	<b>Very high compression ratio</b>	<b>Asymmetrical (Fast decompress)</b>
<b>2. Write many, Read few</b>	<b>Automatically updated inventory database</b>	<b>Asymmetrical (Fast compress)</b>	<b>Very high compression ratio</b>	<b>Asymmetrical (Slow decompress)</b>
<b>3. Similar number of Reads and Writes</b>	<b>User generated documents</b>	<b>Symmetrical</b>	<b>Standard compression ratio</b>	<b>Symmetrical</b>

[0070] In accordance with the present invention, the access profile of a given data set is known a priori or determined prior to compression so that the optimum category of compression algorithm can be selected. As explained below, the selection process may be performed either manually or automatically by the controller 11 of the data compression system 12. Further, the decision regarding which routines will be used at compression time (write) and at decompression time (read) is preferably made before or at the time of compression. This is because once data is compressed using a certain algorithm, only the matching decompression routine can be used to decompress the data, regardless of how much processing time is available at the time of decompression.

[0071] Referring now to Fig. 2, a flow diagram illustrates a method for providing bandwidth sensitive data compression according to one aspect of the present invention. For purposes of illustration, it is assumed that the method depicted in Fig. 2 is implemented with a disk controller for providing accelerated data storage and retrieval from a hard disk on a PC (personal computer). The data compression system is initialized during a boot-up process after the PC is powered-on and a default compression/decompression routine is instantiated (step 20).

[0072] In a preferred embodiment, the default algorithm comprises an asymmetrical algorithm since an operating system and application programs will be read from hard disk memory and decompressed during the initial use of the system 10. Indeed, as discussed above, an asymmetric algorithm that provides slow compression and fast decompression is preferable for compressing operating systems and applications so as to obtain a high compression ratio (to effectively increase the storage capacity of the hard disk) and fast data access (to effectively increase the retrieval rate from the hard disk). The initial

asymmetric routine that is applied (by, e.g., a vendor) to compress the operating system and applications is preferably set as the default. The operating system will be retrieved and then decompressed using the default asymmetric routine (step 21).

[0073] During initial runtime, the controller will maintain use the default algorithm until certain conditions are met. For instance, if a read command is received (affirmative result in step 22), the controller will determine whether the data to be read from disk can be compressed using the current routine (step 23). For this determination, the controller could, e.g., read a flag value that indicates the algorithm that was used to compress the file. If the data can be decompressed using the current algorithm (affirmative determination in step 23), then the file will be retrieved and decompressed (step 25). On the other hand, if the data cannot be decompressed using the current algorithm (negative determination in step 23), the controller will issue the appropriate control signal to the compression system to load the algorithm associated with the file (step 24) and, subsequently, decompress the file (step 25).

[0074] If a write command is received (affirmative result in step 26), the data to be stored will be compressed using the current algorithm (step 27). During the process of compression and storing the compressed data, the controller will track the throughput to determine whether the throughput is meeting a predetermined threshold (step 28). For example, the controller may track the number of pending disk accesses (access requests) to determine whether a bottleneck is occurring. If the throughput of the system is not meeting the desired threshold (e.g., the compression system cannot maintain the required or requested data rates)(negative determination in step 28), then the controller will command the data compression system to utilize a compression routine providing faster compression (e.g., a fast symmetric compression algorithm) (step 29) so as to mitigate or eliminate the bottleneck.

[0075] If, on the other hand, the system throughput is meeting or exceeding the threshold (affirmative determination in step 28) and the current algorithm being used is a symmetrical routine (affirmative determination in step 30), in an effort to achieve optimal compression ratios, the controller will command the data compression system to use an asymmetric compression algorithm (step 31) that may provide a slower rate of compression, but provide efficient compression.

**[0076]** This process is repeated such that whenever the controller determines that the compression system can maintain the required/requested data throughput using a slow (highly efficient) asymmetrical compression algorithm, the controller will allow the compression system to operate in the asymmetrical mode. This will allow the system to obtain maximum storage capacity on the disk. Further, the controller will command the compression system to use a symmetric routine comprising a fast compression routine when the desired throughput is not met. This will allow the system to, e.g., service the backlogged disk accesses. Then, when the controller determines that the required/requested data rates are subsequently lower and the compression system can maintain the data rate, the controller can command the compression system to use a slower (but more efficient) asymmetric compression algorithm.

**[0077]** With the above-described method depicted in Fig. 2, the selection of the compression routine is performed automatically by the controller so as to optimize system throughput. In another embodiment, a user that desires to install a program or text files, for example, can command the system (via a software utility) to utilize a desired compression routine for compressing and storing the compressed program or files to disk. For example, for a power user, a GUI menu can be displayed that allows the user to directly select a given algorithm. Alternatively, the system can detect the type of data being installed or stored to disk (via file extension, etc.) and automatically select an appropriate algorithm using the Access Profile information as described above. For instance, the user could indicate to the controller that the data being installed comprises an application program which the controller would determine falls under Access Profile 1. The controller would then command the compression engine to utilize an asymmetric compression algorithm employing a slow compression routine and a fast decompression routine. The result would be a one-time penalty during program installation (slow compression), but with fast access to the data on all subsequent executions (reads) of the program, as well as a high compression ratio.

**[0078]** It is to be appreciated that the present invention may be implemented in any data processing system, device, or apparatus using data compression. For instance, the present invention may be employed in a data transmission controller in a network environment to provide accelerated data transmission over a communication channel (i.e., effectively



increase the transmission bandwidth by compressing the data at the source and decompressing data at the receiver, in real-time).

**[0079]** Further, the present invention can be implemented with a data storage controller utilizing data compression and decompression to provided accelerated data storage and retrieval from a mass storage device. Exemplary embodiments of preferred data storage controllers in which the present invention may be implemented are described, for example, in U.S. Patent Application Serial No. 09/775,905, filed on February 2, 2001, entitled "Data Storewidth Accelerator", which is commonly assigned and fully incorporated herein by reference.

**[0080]** Fig. 3 illustrates a preferred embodiment of a data storage controller 120 as described in the above-incorporated U.S. Serial No. 09/775,905 for implementing a bandwidth sensitive data compression protocol as described herein. The storage controller 120 comprises a DSP (digital signal processor) 121 (or any other micro-processor device) that implements a data compression/decompression routine. The DSP 121 preferably employs a plurality of symmetric and asymmetric compression/decompression as described herein. The data storage controller 120 further comprises at least one programmable logic device 122 (or volatile logic device). The programmable logic device 122 preferably implements the logic (program code) for instantiating and driving both a disk interface 114 and a bus interface 115 and for providing full DMA (direct memory access) capability for the disk and bus interfaces 114, 115. Further, upon host computer power-up and/or assertion of a system-level "reset" (e.g., PCI Bus reset), the DSP 121 initializes and programs the programmable logic device 122 before of the completion of initialization of the host computer. This advantageously allows the data storage controller 120 to be ready to accept and process commands from the host computer (via the bus 116) and retrieve boot data from the disk (assuming the data storage controller 120 is implemented as the boot device and the hard disk stores the boot data (e.g., operating system, etc.))

**[0081]** The data storage controller 120 further comprises a plurality of memory devices including a RAM (random access memory) device 123 and a ROM (read only memory) device 124 (or FLASH memory or other types of non-volatile memory). The RAM device 123 is utilized as on-board cache and is preferably implemented as SDRAM. The ROM device 124 is utilized for non-volatile storage of logic code associated with the DSP

121 and configuration data used by the DSP 121 to program the programmable logic device 122.

**[0082]** The DSP 121 is operatively connected to the memory devices 123, 124 and the programmable logic device 122 via a local bus 125. The DSP 121 is also operatively connected to the programmable logic device 122 via an independent control bus 126. The programmable logic device 122 provides data flow control between the DSP 121 and the host computer system attached to the bus 116, as well as data flow control between the DSP 121 and the storage device. A plurality of external I/O ports 127 are included for data transmission and/or loading of one or more programmable logic devices. Preferably, the disk interface 114 driven by the programmable logic device 122 supports a plurality of hard drives.

**[0083]** The storage controller 120 further comprises computer reset and power up circuitry 128 (or “boot configuration circuit”) for controlling initialization (either cold or warm boots) of the host computer system and storage controller 120. A preferred boot configuration circuit and preferred computer initialization systems and protocols are described in U.S. Patent Application Serial No. 09/775,897, filed on February 2, 2001, entitled “System and Methods For Computer Initialization,” which is commonly assigned and incorporated herein by reference. Preferably, the boot configuration circuit 128 is employed for controlling the initializing and programming the programmable logic device 122 during configuration of the host computer system (i.e., while the CPU of the host is held in reset). The boot configuration circuit 128 ensures that the programmable logic device 122 (and possibly other volatile or partially volatile logic devices) is initialized and programmed before the bus 116 (such as a PCI bus) is fully reset. In particular, when power is first applied to the boot configuration circuit 128, the boot configuration circuit 28 generates a control signal to reset the local system (e.g., storage controller 120) devices such as a DSP, memory, and I/O interfaces. Once the local system is powered-up and reset, the controlling device (such as the DSP 121) will then proceed to automatically determine the system environment and configure the local system to work within that environment. By way of example, the DSP 121 of the disk storage controller 120 would sense that the data storage controller 120 is on a PCI computer bus (expansion bus) and has attached to it a hard disk on an IDE interface. The DSP 121 would then load the appropriate PCI and IDE interfaces into the programmable logic device 122 prior to

completion of the host system reset. Once the programmable logic device 122 is configured for its environment, the boot device controller is reset and ready to accept commands over the computer/expansion bus 116.

[0084] It is to be understood that the data storage controller 120 may be utilized as a controller for transmitting data (compressed or uncompressed) to and from remote locations over the DSP I/O ports 127 or system bus 116, for example. Indeed, the I/O ports 127 of the DSP 121 may be used for transmitting data (compressed or uncompressed) that is either retrieved from the disk or received from the host system via the bus 116, to remote locations for processing and/or storage. Indeed, the I/O ports may be operatively connected to other data storage controllers or to a network communication channels. Likewise, the data storage controller 120 may receive data (compressed or uncompressed) over the I/O ports 127 of the DSP 121 from remote systems that are connected to the I/O ports 127 of the DSP, for local processing by the data storage controller 120. For instance, a remote system may remotely access the data storage controller 120 (via the I/O ports of the DSP or system bus 116) to utilize the data compression, in which case the data storage controller 120 would transmit the compressed data back to the system that requested compression.

[0085] In accordance with the present invention, the system (e.g., data storage controller 120) preferably boots-up in a mode using asymmetrical data compression. It is to be understood that the boot process would not be affected whether the system boots up defaulting to an asymmetrical mode or to a symmetrical mode. This is because during the boot process of the computer, it is reading the operating system from the disk, not writing. However, once data is written to the disk using a compression algorithm, it must retrieve and read the data using the corresponding decompression algorithm.

[0086] As the user creates, deletes and edits files, the disk controller 120 will preferably utilize an asymmetrical compression routine that provides slow compression and fast decompression. Since using the asymmetrical compression algorithm will provide slower compression than a symmetrical algorithm, the file system of the computer will track whether the disk controller 120 has disk accesses pending. If the disk controller 120 does have disk accesses pending and the system is starting to slow down, the file management system will command the disk controller 120 to use a faster symmetrical compression

algorithm. If there are no disk access requests pending, the file management system will leave the disk controller in the mode of using the asymmetrical compression algorithm.

**[0087]** If the disk controller 120 was switched to using a symmetrical algorithm, the file management system will preferably signal the controller to switch back to a default asymmetrical algorithm when, e.g., the rate of the disk access requests slow to the point where there are no pending disk accesses.

**[0088]** At some point a user may decide to install software or load files onto the hard disk. Before installing the software, for example, as described above, the user could indicate to the disk controller 120 (via a software utility) to enter and remain in an asymmetric mode using an asymmetric compression algorithm with a slow compression routine and a very fast decompression routine. The disk controller would continue to use the asymmetrical algorithm until commanded otherwise, regardless of the number of pending disk accesses. Then, after completing the software installation, the user would then release the disk controller from this "asymmetrical only" mode of operation (via the software utility).

**[0089]** Again, when the user is not commanding the disk controller 120 to remain in a certain mode, the file management system will determine whether the disk controller should use the asymmetrical compression algorithms or the symmetrical compression algorithms based on the amount of backlogged disk activity. If the backlogged disk activity exceeds a threshold, then the file management system will preferably command the disk controller to use a faster compression algorithm, even though compression performance may suffer. Otherwise, the file management system will command the disk controller to use the asymmetrical algorithm that will yield greater compression performance.

**[0090]** It is to be appreciated that the data compression methods described herein by be integrated or otherwise implemented with the content independent data compression methods described in the above-incorporated U.S. Patent Nos. 6,195,024 and 6,309,424.

**[0091]** Fig. 4A is a diagram of a file system format of a virtual and/or physical disk according to an embodiment of the present invention.

**[0092]** In yet another embodiment of the present invention, a virtual file management system is utilized to store, retrieve, or transmit compressed and/or accelerated data. In one embodiment of the present invention, a physical or virtual disk is utilized employing

a representative file system format as illustrated in Fig. 4A. As shown in Fig. 4A, a virtual file system format comprises one or more data items. For instance, a "Superblock" denotes a grouping of configuration information necessary for the operation of the disk management system. The Superblock typically resides in the first sector of the disk. Additional copies of the Superblock are preferably maintained on the disk for backup purposes. The number of copies will depend on the size of the disk. One sector is preferably allocated for each copy of the Superblock on the disk, which allows storage to add additional parameters for various applications. The Superblock preferably comprises information such as (i) compress size; (ii) virtual block table address; (iii) virtual block table size; (iv) allocation size; (v) number of free sectors (approximate); (vi) ID ("Magic") number; and (vii) checksum.

**[0093]** The "compress size" refers to the maximum uncompressed size of data that is grouped together for compression (referred to as a "data chunk"). For example, if the compress size is set to 16k and a 40k data block is sent to the disk controller for storage, it would be divided into two 16k chunks and one 8k chunk. Each chunk would be compressed separately and possess its own header. As noted above, for many compression algorithms, increasing the compression size will increase the compression ratio obtained. However, even when a single byte is needed from a compressed data chunk, the entire chunk must be decompressed, which is a tradeoff with respect to using a very large compression size.

**[0094]** The "virtual block table address" denotes the physical address of the virtual block table. The "virtual block table size" denotes the size of the virtual block table.

**[0095]** The "allocation size" refers to the minimum number of contiguous sectors on the disk to reserve for each new data entry. For example, assuming that 4 sectors are allowed for each allocation and that a compressed data entry requires only 1 sector, then the remaining 3 sectors would be left unused. Then, if that piece of data were to be appended, there would be room to increase the data while remaining contiguous on the disk. Indeed, by maintaining the data contiguously, the speed at which the disk can read and write the data will increase. Although the controller preferably attempts to keep these unused sectors available for expansion of the data, if the disk were to fill up, the controller could use such sectors to store new data entries. In this way, a system can be

configured to achieve greater speed, while not sacrificing disk space. Setting the allocation size to 1 sector would effectively disable this feature.

[0096] The “number Of free sectors” denotes the number of physical free sectors remaining on the disk. The ID (“Magic) number” identifies this data as a Superblock. The “checksum” comprises a number that changes based on the data in the Superblock and is used for error checking. Preferably, this number is chosen so that all of the words in the Superblock (including the checksum) added up are equal to zero.

[0097] Fig. 4B is a diagram of a data structure of a sector map entry of a virtual block table according to an embodiment of the present invention.

[0098] The “virtual block table” (VET) comprises a number of “sector map” entries, one for each grouping of compressed data (or chunks). The VET may reside anywhere on the disk. The size of the VBT will depend on how much data is on the disk. Each sector map entry comprises 8 bytes. Although there is preferably only one VBT on the disk, each chunk of compressed data will have a copy of its sector map entry in its header. If the VBT were to become corrupted, scanning the disk for all sector maps could create a new one.

[0099] The term “type” refers to the sector map type. For example, a value of “00” corresponds to this sector map definition. Other values are preferably reserved for future redefinitions of the sector map.

[00100] A “C Type” denotes a compression type. A value of “000” will correspond to no compression. Other values are defined as required depending on the application. This function supports the use of multiple compression algorithms along with the use of various forms of asymmetric data compression.

[00101] The “C Info” comprises the compression information needed for the given compression type. These values are defined depending on the application. In addition, the data may be tagged based on its use - for example operating system “00”, Program “01”, or data “10”. Frequency of use or access codes may also be included. The size of this field may be greatly expanded to encode statistics supporting these items including, for example, cumulative number of times accessed, number of times accessed within a given time period or CPU clock cycles, and other related data.

- [0100] The “sector count” comprises the number of physical sectors on the disk that are used for this chunk of compressed data. The “LBA” refers to the logical block address, or physical disk address, for this chunk of compressed data.
- [0101] Referring back to Fig. 4A, each “Data” block represent each data chunk comprising a header and compressed data. The data chunk may up anywhere from 1 to 256 sectors on the disk. Each compressed chunk of data is preferably preceded on the disk by a data block header that preferably comprises the following information: (i) sector map; (ii) VBI; (iii) ID (“Magic”) Number; and (iv) checksum.
- [0102] The “sector map” comprises a copy of the sector map entry in the VBT for this data chunk. The “VBI” is the Virtual Block Index, which is the index into the VBT that corresponds to this data chunk. The “ID (“Magic) Number” identifies this data as a data block header. The “checksum” number will change based on the data in the header and is used for error checking. This number is preferably chosen such that the addition of all the words in the header (including the checksum) will equal zero.
- [0103] It should be noted that the present invention is not limited to checksums but may employ any manner of error detection and correction techniques, utilizing greatly expanded fields error detection and/or correction.
- [0104] It should be further noted that additional fields may be employed to support encryption, specifically an identifier for encrypted or unencrypted data along with any parameters necessary for routing or processing the data to an appropriate decryption module or user.
- [0105] The virtual size of the disk will depend on the physical size of the disk, the compress size selected, and the expected compression ratio. For example, assume there is a 75GB disk with a selected compress size expecting a 3:1 compression ratio, the virtual disk size would be 225GB. This will be the maximum amount of uncompressed data that the file system will be able to store on the disk.
- [0106] If the number chosen is too small, then the entire disk will not be utilized. Consider the above example where a system comprises a 75GB disk and a 225GB virtual size. Assume that in actuality during operation the average compression ratio obtained is 5:1. Whereas this could theoretically allow 375GB to be stored on the 75GB disk, in practice, only 225GB would be able to be stored on the disk before a “disk full” message is received. Indeed, with a 5:1 compression ratio, the 225GB of data would only take up

45GB on the disk leaving 30GB unused. Since the operating system would think the disk is full, it would not attempt to write any more information to the disk.

[0107] On the other hand, if the number chosen is too large, then the disk will fill up when the operating system would still indicate that there was space available on the disk. Again consider the above example where a system comprises a 75GB disk and a 225GB virtual size. Assume further that during operation, the average compression ratio actually obtained is only 2:1. In this case, the physical disk would be full after writing 150GB to it, but the operating system would still think there is 75GB remaining. If the operating system tried to write more information to the disk, an error would occur.

[0108] Thus, in another embodiment of the present invention, the virtual size of the disk is dynamically altered based upon the achieved compression ratio. In one embodiment, a running average may be utilized to reallocate the virtual disk size. Alternatively, certain portions of the ratios may already be known - such as a preinstalled operating system and programs. Thus, this ratio is utilized for that portion of the disk, and predictive techniques are utilized for the balance of the disk or disks.

[0109] Yet in another embodiment, users are prompted for setup information and the computer selects the appropriate virtual disk(s) size or selects the best method of estimation based on, e.g., a high level menu of what is the purpose of this computer: home, home office, business, server. Another submenu may ask for the expected data mix, word, excel, video, music, etc. Then, based upon expected usage and associated compression ratios (or the use of already compressed data in the event of certain forms of music and video) the results are utilized to set the virtual disk size.

[0110] It should be noted that the present invention is independent of the number or types of physical or virtual disks, and indeed may be utilized with any type of storage.

[0111] It is to be understood that the systems and methods described herein may be implemented in various forms of hardware, software, firmware, special purpose processors, or a combination thereof. In particular, the present invention may be implemented as an application comprising program instructions that are tangibly embodied on a program storage device (e.g., magnetic floppy disk, RAM, ROM, CD ROM, etc.) and executable by any device or machine comprising suitable architecture. It is to be further understood that, because some of the constituent system components and process steps depicted in the accompanying Figures are preferably implemented in



software, the actual connections between such components and steps may differ depending upon the manner in which the present invention is programmed. Given the teachings herein, one of ordinary skill in the related art will be able to contemplate these and similar implementations or configurations of the present invention.

**[0112]** Although illustrative embodiments have been described herein with reference to the accompanying drawings, it is to be understood that the present system and method is not limited to those precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A method comprising:  
determining a parameter or attribute of a data block;  
selecting an access profile from among a plurality of access profiles based on the parameter or attribute; and  
compressing the data block with one or more compressors utilizing information from the selected access profile to create one or more compressed data blocks, the information being indicative of the one or more compressors to apply to the data block to create the one or more compressed data blocks.
2. The method of claim 1, wherein the compressing comprises:  
compressing the data block with the one or more compressors using asymmetric data compression, and wherein the data block includes audio or video data.
3. The method of claim 1, wherein the compressing comprises:  
compressing the data block with the one or more compressors,  
wherein the one or more compressors utilize slow compress encoders and fast decompress decoders, and  
wherein compressing the data block with the slow compress encoders takes more time than decompressing the data block with the fast decompress decoders if the time were measured with the slow compress encoders and fast decompress decoders running on a common host system.
4. The method of claim 1, wherein the compressing comprises:  
compressing one or more data blocks to create the one or more compressed data blocks.
5. The method of claim 4, wherein the one or more data blocks comprise one or more files.
6. The method of claim 4, wherein the one or more compressed data blocks comprise one or more files.

7. The method of claim 1, further comprising:  
storing the one or more compressed data blocks in one or more files.

8. The method of claim 1, further comprising:  
storing the one or more compressed data blocks.

9. The method of claim 8, further comprising:  
retrieving the one or more compressed stored data blocks;  
transmitting the retrieved compressed one or more data blocks over the Internet; and  
decompressing the transmitted and compressed one more data blocks in real-time.

10. The method of claim 1, wherein the one or more compressors is selected based upon a number of reads of the data block to provide a compressed data block.

11. The method of claim 1, further comprising:  
decompressing the compressed data block to provide a decompressed data block based on a first number of reads of the compressed data block; and  
recompressing the decompressed data block with the selected one or more compressors based on a second number of reads of the compressed data block to provide a recompressed data block,  
wherein the first and second number of reads may be the same or different from one another.

12. A method, comprising:  
determining one or more parameters or attributes of a data block;  
selecting one or more asymmetric compressors based upon the one or more parameters or attributes;  
compressing the data block with the selected one or more asymmetric compressors to provide one or more compressed data blocks; and  
storing the one or more compressed data blocks.

13. The method of claim 12, further comprising:  
retrieving and transmitting the one or more of the compressed data blocks based, at least in part, upon a user command.

14. The method of claim 12, further comprising:  
retrieving and transmitting the one or more stored compressed data blocks based upon, at least in part, a user value.

15. The method of claim 12, further comprising:  
retrieving and transmitting the one or more of the compressed data blocks based upon a utilized capacity of a portion of a memory device.

16. The method of claim 12, further comprising:  
retrieving and transmitting the one or more of the compressed data blocks based upon a bandwidth of a transmission link used for transmission of the one or more compressed data blocks.

17. The method of claim 12, wherein the data block comprises audio or video information.

18. The method of claim 12, wherein the compressing comprises:  
compressing the data block with multiple compressors to create multiple compressed data blocks, and further comprising:  
storing the multiple compressed data blocks in one file.

19. The method of claim 12, further comprising:  
retrieving and transmitting the one or more compressed data blocks occurs in real-time;  
and  
decompressing the one or more compressed data blocks after transmission in real-time.

20. The method of claim 12, wherein the one or more asymmetric compressors is selected, at least in part, based upon a number of reads of the data block to provide the one or

more compressed data blocks.

21. The method of claim 12, further comprising:

decompressing the one or more compressed data blocks to provide a decompressed data block based on a first number of reads of the one or more compressed data blocks; and

recompressing the decompressed data block with one or more asymmetric compressors to provide a recompressed data block.

22. The method of claim 21, wherein the selection of one or more asymmetric encoders for recompressing the decompressed data block is based on a second number of reads of the one or more compressed data blocks, and

wherein the first and second number of reads may be the same or different from one another.

23. A method, comprising:

compressing a data block using a first asymmetric lossy compression routine to provide a first compressed data block having a first compression ratio,

storing the first compressed data block;

compressing the data block using a second asymmetric lossy compression routine to provide a second compressed data block having a second compression ratio; and

storing the second compressed data block.

24. The method of claim 23, further comprising:

retrieving and transmitting the first or the second compressed data block based upon a user command.

25. The method of claim 23, further comprising:

retrieving and transmitting the first or the second compressed data block based upon a user supplied value.

26. The method of claim 23, further comprising:

retrieving and transmitting the first or the second compressed data block based upon a

utilized capacity of a portion of a memory device.

27. The method of claim 23, further comprising:

retrieving and transmitting the first or the second compressed data block based upon a bandwidth of a transmission link used for transmission of the first or the second compressed data block.

28. A method, comprising:

compressing a data block with a compressor that is selected based upon a number of reads of the data block to provide a compressed data block; and

if the number of reads of the data block exceeds a threshold:

decompressing the compressed data block to provide a decompressed data block;

and

recompressing the decompressed data block with the selected compressor based on the number of reads to provide a recompressed data block.

29. The method of claim 28, wherein the number of reads occur within a given period of time.

30. The method of claim 28, further comprising:

retrieving and transmitting the compressed or the recompressed data block based upon a user command.

### ABSTRACT OF THE DISCLOSURE

Data compression and decompression methods for compressing and decompressing data based on an actual or expected throughput (bandwidth) of a system. In one embodiment, a controller tracks and monitors the throughput (data storage and retrieval) of a data compression system and generates control signals to enable/disable different compression algorithms when, e.g., a bottleneck occurs so as to increase the throughput and eliminate the bottleneck.

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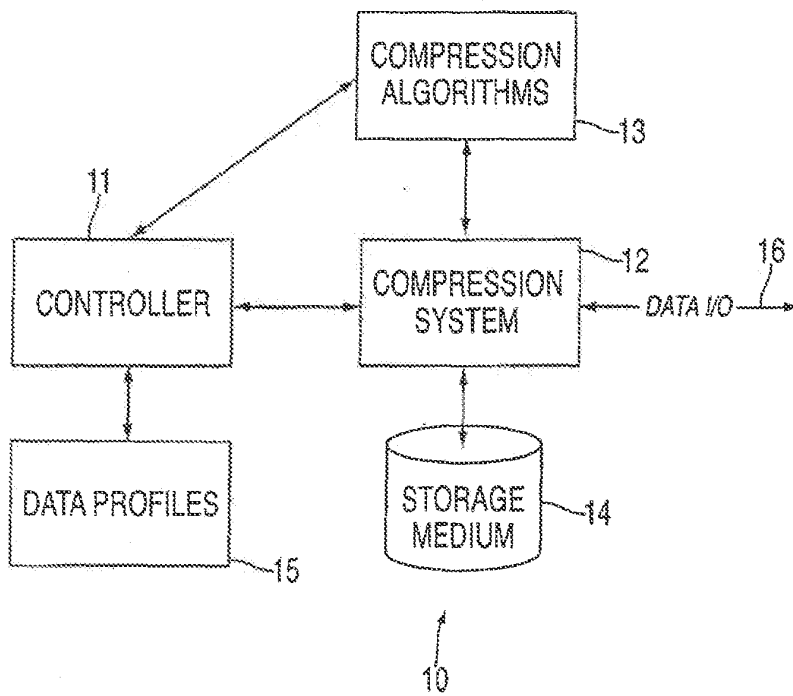


FIG. 1



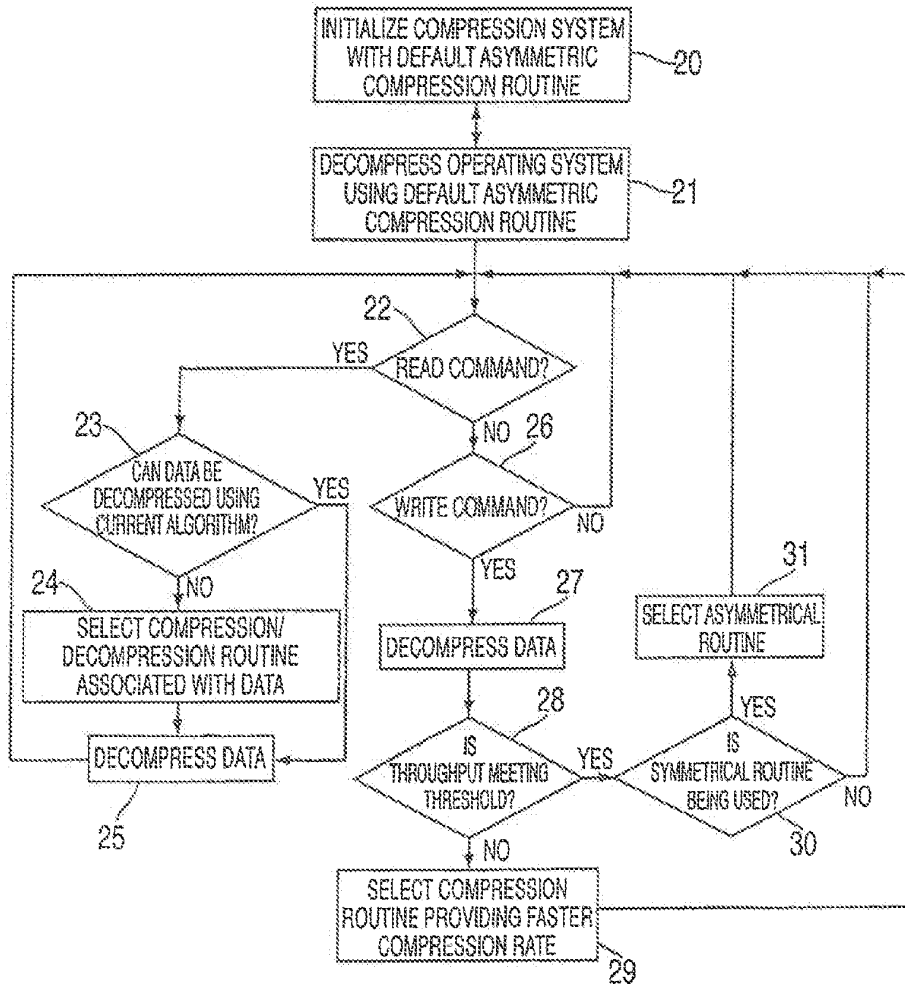


FIG. 2

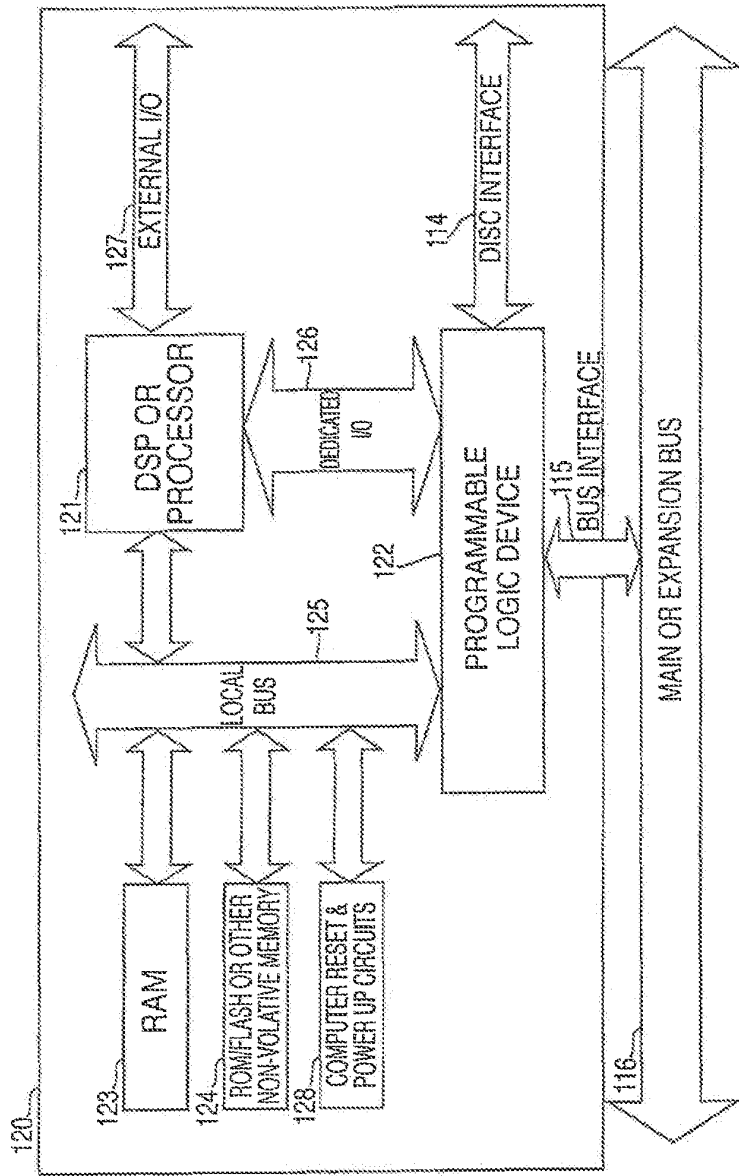


FIG. 3

PHYSICAL DISK

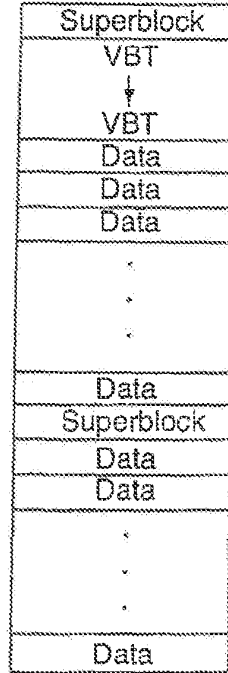


FIG. 4A

SECTOR MAP DEFINITION

SECTOR MAP

Type	2 bits
C Type	3 bits
C Info	19 bits
Sector Count	8 bits
LBA	32 bits

FIG. 4B

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**APPLICATION AS FILED – PART I**

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(c), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X \$ =	
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<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
			TOTAL	

\* If the difference in column 1 is less than zero, enter "0" in column 2.

**APPLICATION AS AMENDED – PART II**

	(Column 1)	(Column 2)	(Column 3)	(Column 4)	RATE (\$)	ADDITIONAL FEE (\$)
<b>AMENDMENT</b>	<b>09/20/2013</b>	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(j))	* 30	Minus ** 30	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus ***4	= 0	X \$420 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	<b>0</b>

	(Column 1)	(Column 2)	(Column 3)	(Column 4)	RATE (\$)	ADDITIONAL FEE (\$)
<b>AMENDMENT</b>		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(j))	*	Minus **	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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CONFIRMATION NO. 9902

IMPROPER CFR REQUEST

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005



Date Mailed: 10/11/2013

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In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

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14/033,245	09/20/2013	James J. Fallon	2855.0050007

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**CONFIRMATION NO. 9902  
IMPROPER CPOA LETTER**



Date Mailed: 10/11/2013

**NOTICE REGARDING POWER OF ATTORNEY**

This is in response to the power of attorney filed 09/20/2013. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

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FILING RECEIPT



Date Mailed: 10/11/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Inventor(s)

James J. Fallon, Armonk, NY;
Stephen J. McErlain, New York, NY;

Applicant(s)

James J. Fallon, Armonk, NY;
Stephen J. McErlain, New York, NY;

Assignment For Published Patent Application

Realtime Data, LLC, Armonk, NY

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/154,239 06/06/2011 PAT 8553759
which is a CON of 12/123,081 05/19/2008 PAT 8073047
which is a CON of 10/076,013 02/13/2002 PAT 7386046
which claims benefit of 60/268,394 02/13/2001

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper Authorization to Permit Access to Application by Participating Offices (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 10/08/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/033,245**

**Projected Publication Date:** 01/23/2014

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

Systems and Methods for Video and Audio data Storage and Distribution.

**Preliminary Class**

365

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

## **PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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**Title 35, United States Code, Section 184**  
**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

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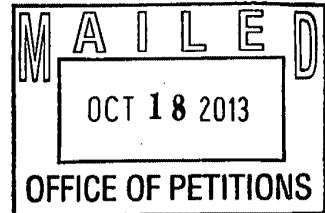
<b>PATENT APPLICATION FEE DETERMINATION RECORD</b> Substitute for Form PTO-875						Application or Docket Number 14/033,245				
<b>APPLICATION AS FILED - PART I</b>										
(Column 1)		(Column 2)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	RATE(\$)	FEE(\$)	RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	280	N/A	600		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	720	N/A	720		
EXAMINATION FEE (37 CFR 1.16(c), (p), or (q))	N/A	N/A	N/A		N/A	800	x 80 =	800		
TOTAL CLAIMS (37 CFR 1.16(j))	30	minus 20 = *	10			420	x 420 =	420		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1					0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))								0.00		
						TOTAL		TOTAL 2820		
* If the difference in column 1 is less than zero, enter "0" in column 2.										
<b>APPLICATION AS AMENDED - PART II</b>										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	x =	x =	x =	x =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	x =	x =	x =	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		TOTAL ADD'L FEE		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	x =	x =	x =	x =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	x =	x =	x =	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.										
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".										
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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WASHINGTON DC 20005



Doc Code: TRACK1.GRANT

<b>Decision Granting Request for Prioritized Examination (Track I or After RCE)</b>	Application No.: 14/033,245
<p>1. THE REQUEST FILED <u>September 20, 2013</u> IS <b>GRANTED</b>.</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. <input checked="" type="checkbox"/> for an original nonprovisional application (Track I).</p> <p>B. <input type="checkbox"/> for an application undergoing continued examination (RCE).</p> <p>2. <b>The above-identified application will undergo prioritized examination.</b> The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a <b>petition for extension of time</b> to extend the time period for filing a reply;</p> <p>B. filing an <b>amendment to amend the application to contain more than four independent claims, more than thirty total claims</b>, or a multiple dependent claim;</p> <p>C. filing a <b>request for continued examination</b>;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to <b>Michelle R. Eason</b> at (571) 272-4231. In his/her absence, calls may be directed to Brian W. Brown at (571) 272-5338.</p> <p><u>/Michelle R. Eason/</u> (Signature)</p> <p><u>Paralegal Specialist, Office of Petitions</u> (Title)</p>	

Substitute for form 1449/PTO				<b>Complete if Known</b>	
				Application Number	14/033,245
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
Sheet	1	of	29		

U.S. PATENT DOCUMENTS						
Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US1	3,394,352		07-23-1968	Wernikoff et al.	
	US2	3,490,690		01-20-1970	Apple et al.	
	US3	4,021,782		05-03-1977	Hoerning	
	US4	4,032,893		06-28-1977	Moran	
	US5	4,054,951		10-18-1977	Jackson et al.	
	US6	4,127,518		11-28-1978	Coy et al.	
	US7	4,302,775		11-24-1981	Widergren et al.	
	US8	4,325,085		04-13-1982	Gooch	
	US9	4,360,840		11-23-1982	Wolfrun et al.	
	US10	4,386,416		05-31-1983	Giltner et al.	
	US11	4,394,774		07-19-1983	Widergren et al.	
	US12	4,464,650		08-07-1984	Eastman	
	US13	4,494,108		01-15-1985	Langdon, Jr. et al.	
	US14	4,499,499		02-12-1985	Brickman et al.	
	US15	4,574,351		03-04-1986	Dang et al.	
	US16	4,593,324		06-03-1986	Ohkubo et al.	
	US17	4,626,829		12-02-1986	Hauck	
	US18	4,646,061		02-24-1987	Bledsoe	
	US19	4,682,150		07-21-1987	Mathes et al.	
	US20	4,701,745		10-20-1987	Waterworth	

FOREIGN PATENT DOCUMENTS							
Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP1	DE	4127518	02-27-1992	Tokico Ltd.		
	FP2	EP	0 164677	12-18-1985	Texas Instruments Inc.		
	FP3	EP	0 185098	06-25-1986	Hitachi Ltd.		
	FP4	EP	0283798	09-28-1988	International Business Machines Corporation		
	FP5	EP	0405572	01-02-1991	Fujitsu Limited		
	FP6	EP	0493130	07-01-1992	Canon Kabushiki Kaisha		
	FP7	EP	0587437	03-16-1994	International Business Machines Corporation		
	FP8	EP	0595406	05-04-1994	Philips Electronics		

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Filing Date	September 20, 2013
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				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
Sheet	2	of	29		

U.S. PATENT DOCUMENTS						
Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US21	4,729,020		03-01-1988	Schaphorst et al.	
	US22	4,730,348		03-08-1988	MacCrisken	
	US23	4,745,559		05-17-1988	Willis et al.	
	US24	4,748,638		05-31-1988	Freidman et al.	
	US25	4,750,135		06-07-1988	Boilen	
	US26	4,754,351		06-28-1988	Wright	
	US27	4,804,959		02-14-1989	Makansi et al.	
	US28	4,813,040		03-14-1989	Futato	
	US29	4,814,746		03-21-1989	Miller et al.	
	US30	4,862,167		08-29-1989	Copeland, III	
	US31	4,866,601		09-12-1989	DuLac et al.	
	US32	4,870,415		09-26-1989	Van Maren et al.	
	US33	4,872,009		10-03-1989	Tsukiyama et al.	
	US34	4,876,541		10-24-1989	Storer	
	US35	4,888,812		12-19-1989	Dinan et al.	
	US36	4,890,282		12-26-1989	Lambert et al.	
	US37	4,897,717		01-30-1990	Hamilton et al.	
	US38	4,906,991		03-06-1990	Fiala et al.	
	US39	4,906,995		03-06-1990	Swanson	
	US40	4,929,946		05-29-1990	O'Brien et al.	

FOREIGN PATENT DOCUMENTS							
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP9	EP 0718751		06-26-1996	International Business Machines Corporation		
	FP10	EP 0 928 070 A2		07-07-1999	Unwired Planet, Inc.		
	FP11	GB 2162025		01-22-1986	King Reginald Alfred		
	FP12	JP 6051989		02-25-1994	NEC Corp		
	FP13	JP 9188009		07-22-1997	Canon Inc.		
	FP14	JP 11149376		06-02-1999	Toyo Commun Equip Co. Ltd.		
	FP15	WO 9414273		06-23-1994	Voxson International Pty Ltd.		
	FP16	WO 9429852		12-22-1994	Maxtor Corp		

Examiner Signature		Date Considered	
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				Examiner Name	BOCURE, Tesfaldet
Sheet	3	of	29	Attorney Docket Number	2855.0050007

U.S. PATENT DOCUMENTS						
Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US41	4,953,324		09-04-1990	Hermann	
	US42	4,956,808		09-11-1990	Aakre et al.	
	US43	4,965,675		10-23-1990	Hori et al.	
	US44	4,988,998		01-29-1991	O'Brien	
	US45	5,003,307		03-26-1991	Whiting et al.	
	US46	5,016,009		05-14-1991	Whiting et al.	
	US47	5,027,376		06-25-1991	Freidman et al.	
	US48	5,028,922		07-02-1991	Huang	
	US49	5,045,848		09-03-1991	Fascenda	
	US50	5,045,852		09-03-1991	Mitchell et al.	
	US51	5,046,027		09-03-1991	Taaffe et al.	
	US52	5,049,881		09-17-1991	Gibson et al.	
	US53	5,091,782		02-25-1992	Krause et al.	
	US54	5,097,261		03-17-1992	Langdon, Jr. et al.	
	US55	5,109,226		04-28-1992	MacLean, Jr. et al.	
	US56	5,109,433		04-28-1992	Notenboom	
	US57	5,113,522		05-12-1992	Dinwiddie, Jr. et al.	
	US58	5,115,309		05-19-1992	Hang	
	US59	5,121,342		06-09-1992	Szymborski	
	US60	5,126,739		06-30-1992	Whiting et al.	

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Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP17	WO	9502873	01-26-1995	Philips Electronics		
	FP18	WO	95/29437 A1	11-02-1995	Sony Corp		
	FP19	WO	9748212	12-18-1997	Nokia Telecommunications		
	FP20	WO	9839699 A2	09-11-1998	Intelligent Compression Technologies		
	FP21	WO	9908186	02-18-1999	Macronix International Co, Ltd		
	FP22	WO	0036754 A1	06-22-2000	Microsoft Corporation		
	FP23	WO	01/057642	08-09-2001	Realtime Data LLC		
	FP24	WO	01/057659	08-09-2001	Realtime Data LLC		

Examiner Signature		Date Considered	
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U.S. PATENT DOCUMENTS						
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		Number-Kind Code <sup>2</sup> (if known)				
	US61	5,128,963		07-07-1992	Akagiri	
	US62	5,132,992		07-21-1992	Yurt et al.	
	US63	5,146,221		09-08-1992	Whiting et al.	
	US64	5,150,430		09-22-1992	Chu	
	US65	5,155,484		10-13-1992	Chambers, IV	
	US66	5,159,336		10-27-1992	Rabin et al.	
	US67	5,167,034		11-24-1992	MacLean, Jr. et al.	
	US68	5,175,543		12-29-1992	Lantz	
	US69	5,179,651		01-12-1993	Taaffe et al.	
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP25	WO	01/63772	08-30-2001	Physical Optics Corporation		
	FP26	WO	02/39591	05-16-2002	Realtime Data LLC		
	FP27	JP	04-241681	08-28-1992	Fujitsu Limited		

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				Application Number	14/033,245
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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		Number-Kind Code <sup>2</sup> (if known)				
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		Number-Kind Code <sup>2</sup> (if known)				
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				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
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		Number-Kind Code <sup>2</sup> (if known)				
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		Number-Kind Code <sup>2</sup> (if known)				
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Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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		Number-Kind Code <sup>2</sup> (if known)				
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	US222	5,740,395		04-14-1998	Wells et al.	
	US223	5,742,773		04-21-1998	Blomfield-Brown et al.	
	US224	5,748,904		05-05-1998	Huang et al.	
	US225	5,757,852		05-26-1998	Jericevic et al.	
	US226	5,765,027		06-09-1998	Wang et al.	
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	US231	5,774,715		06-30-1998	Madany et al.	
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	US238	5,799,110		08-25-1998	Israelsen et al.	
	US239	5,805,834		09-08-1998	McKinley et al.	
	US240	5,805,932		09-08-1998	Kawashima et al.	

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	US242	5,809,176		09-15-1998	Yajima	
	US243	5,809,299		09-15-1998	Cloutier et al.	
	US244	5,809,337		09-15-1998	Hannah et al.	
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	US250	5,819,215		10-06-1998	Dobson et al.	
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		Number-Kind Code <sup>2</sup> (if known)				
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	US292	5,936,616		08-10-1999	Torborg, Jr. et al.	
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	US296	5,949,355		09-07-1999	Panaoussis	
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	US309	5,978,483		11-02-1999	Thompson, Jr. et al.	
	US310	5,982,360		11-09-1999	Wu et al.	
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	US312	5,987,022		11-16-1999	Geiger et al.	
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	US318	6,000,009		12-07-1999	Brady	
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	US338	6,078,958		06-20-2000	Echeita et al.	
	US339	6,091,777		07-18-2000	Guetz et al.	
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	US358	6,173,381		01-09-2001	Dye	
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				Art Unit	2634	
				Examiner Name	BOCURE, Tesfaldet	
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Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
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	US362	6,185,625		02-06-2001	Tso et al.	
	US363	6,185,659		02-06-2001	Milillo et al.	
	US364	6,192,082		02-20-2001	Moriarty et al.	
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	US367	6,195,125		02-27-2001	Udagawa et al.	
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	US378	6,230,223		05-08-2001	Olarig	
	US379	6,237,054		05-22-2001	Freitag, Jr.	
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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				First Named Inventor	James J. FALLON	
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	US382	6,272,178	08-07-2001	Nieweglowski et al.	
	US383	6,272,627	08-07-2001	Mann	
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		Number-Kind Code <sup>2</sup> (if known)				
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				Filing Date	September 20, 2013	
				First Named Inventor	James J. FALLON	
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		Number-Kind Code <sup>2</sup> (if known)				
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	US508	5,982,937		11-09-1999	Accad	
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Application Number	14/033,245	
			Filing Date	September 20, 2013	
			First Named Inventor	James J. FALLON	
			Art Unit	2634	
			Examiner Name	BOCURE, Tesfaldet	
Sheet	27	of	29	Attorney Docket Number	2855.0050007

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	NPL10	Asserted Claims Chart for U.S. Patent No. 7,417,568, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 13 pages.	

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			Examiner Name	BOCURE, Tesfaldet
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	NPL11	Asserted Claims Chart for U.S. Patent No. 7,714,747, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 19 pages.	
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			First Named Inventor	James J. FALLON
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	NPL29	Exhibit E, Invalidity Claim Charts E1-E7, E9, E11, E13-E15, E17-E30, E32-E45 for U.S. Patent 7,714,747, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 3312 pages.	
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	NPL31	HELCK, Christopher J., "Encapsulated Ticker: Ver 1.0," July 14, 1993, 22 pages.	
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	NPL44	McGREGOR, Glenn, "The PPP Internet Protocol Control Protocol (IPCP)", Network Working Group Request for Comments: 1332, Obsoletes: RFC 1172, May 1992, 14 pages.	
	NPL45	Obviousness Chart for U.S. Pat. No. 6,624,761, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 19 pages.	
	NPL46	Obviousness Chart for U.S. Pat. No. 7,161,506, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 49 pages.	
	NPL47	Obviousness Chart for U.S. Pat. No. 7,400,274, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 41 pages.	
	NPL48	Obviousness Chart for U.S. Pat. No. 7,417,568, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 75 pages.	
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	NPL51	RAND, Dave, "The PPP Compression Control Protocol (CCP)", Network Working Group Request for Comments: 1962, Category: Standards Track, June 1996, 9 pages.	
	NPL52	ROGERS, Amy, "Bandwidth Bargain IT hot on products that squeeze more out of the pipe", Number 673, July 21, 1997, pages 1 and 65.	
	NPL53	ROTH, Mark A. and Scott J. Van Horn, "Database Compression", SIGMOD Record, Vol. 22, No. 3, September 1993, pages 31-39.	
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	NPL55	"Scrolling News", Inside Market Data, February 27, 1995, 2 pages.	
	NPL56	SIMPSON, W., "PPP in HDLC-like Framing", Network Working Group Request for Comments: 1662, STD 51, Obsoletes 1549, Category: Standards Track, July 1994, 26 pages.	
	NPL57	SUCIU, Dan, Data Management on the Web, AT&T Labs, April 4, 2000, 52 slides.	
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	NPL59	"Telekurs Buys S&P Trading Systems And Its Ticker III Feed", Inside Market Data, Vol. 4, No. 11, July 10, 1989, 1 page.	
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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	7	of	94	Attorney Docket Number	2855.0050007

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	NPL61	"Telekurs Now Carries All Dow Jones' News on 56-Kbps Ticker," Inside Market Data, December 20, 1993, 2 pages.	
	NPL62	"Telekurs Sells No. American Division in Mgmt. Buyout", Inside Market Data, October 23, 1995, 2 pages.	
	NPL63	"Telekurs to Launch New Int'l Feed/Internet Server", Wall Street & Technology, Volume 15, No. 1, January 1997, page 14.	
	NPL64	"The Technology Behind XpressFiles", Intelligent Compression Technologies, <a href="http://web.archive.org/web/19980518053634/ictcompress.com/technical_X.html">http://web.archive.org/web/19980518053634/ictcompress.com/technical_X.html</a> , 1998, 1 page.	
	NPL65	TID Information: Revisions to TID Program Since the Dawn of Time!!! Version 1.0, 23 pages; TID Codes 1, 1 page; TID Codes 2, 1 page, purportedly by July 19, 1995.	
	NPL66	TypeWorld: The First and Only Newspaper for Electronic Publishing, Volume 16 Number 9, June 17, 1992, 3 pages.	
	NPL67	"XpressFiles White Paper", Intelligent Compression Technologies, 1999-2001, 3 pages.	
	NPL68	United States Provisional Patent Application No. 60/309,218, filed July 31, 2001.	
	NPL69	Telekurs Manual, January 11, 1993, 184 pages.	
	NPL70	DANSKIN, et al., "Fast Higher Bandwidth X," Dartmouth College, Hanover, NH, 1995, 8 pages.	

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	NPL71	HOFFMAN, Roy, "Data Compression in Digital Systems," Digital Multimedia Standards Series, Chapman & Hall, 1997, 426 pages.	
	NPL72	Defendants' Invalidity Contentions, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 34 pages.	
	NPL73	Appendix A, Obviousness Chart for U.S. Patent No. 7,777,651, not dated, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 466 pages.	
	NPL74	Appendix B, § 112 Invalidity Arguments for U.S. Pat. No. 7,777,651, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 75 pages.	
	NPL75	Exhibit 1, Prior Art Chart for U.S. Pat. No. 7,777,651, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 161 pages, citing Aakre et al., U.S. Patent No. 4,956,808.	
	NPL76	Exhibit 2, Prior Art Chart for U.S. Pat. No. 7,777,651, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 206 pages, citing Albert et al., U.S. Patent No. 5,907,801.	
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	NPL77	Exhibit 3, Prior Art Chart for U.S. Pat. No. 7,777,651, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 95 pages, citing B. Andrews, P. Chou, M. Effros and R. Gray "A Mean-Removed Variation of Weighted Universal Vector Quantization for Image Coding," IEEE 0-8186-3392-1/93, 302-309 (1993).	
	NPL78	Exhibit 4, Prior Art Chart for U.S. Pat. No. 7,777,651, 144 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Barnes et al., U.S. Patent No. 6,792,151.	
	NPL79	Exhibit 5, Prior Art Chart for U.S. Pat. No. 7,777,651, 216 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Birdwell et al., U.S. Patent No. 6,032,197.	
	NPL80	Exhibit 6, Prior Art Chart for U.S. Pat. No. 7,777,651, 257 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Bledsoe, U.S. Patent No. 4,646,061.	
	NPL81	Exhibit 7, Prior Art Chart for U.S. Pat. No. 7,777,651, 169 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Brickman et al., U.S. Patent No. 4,499,499.	
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	NPL82	Exhibit 8, Prior Art Chart for U.S. Pat. No. 7,777,651, 396 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing C. Bormann et al., "Robust Header Compression (ROHC)," Network Working Group Internet-Draft Sept. 18, 2000.	
	NPL83	Exhibit 9, Prior Art Chart for U.S. Pat. No. 7,777,651, 253 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Carr, U.S. Patent No. 5,293,379.	
	NPL84	Exhibit 10, Prior Art Chart for U.S. Pat. No. 7,777,651, 205 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Cellier et al., U.S. Patent No. 5,884,269.	
	NPL85	Exhibit 11, Prior Art Chart for U.S. Pat. No. 7,777,651, 181 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Chu, U.S. Patent Nos. 5,374,916 & 5,467,087.	
	NPL86	Exhibit 12, Prior Art Chart for U.S. Pat. No. 7,777,651, 175 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Cisco IOS Data Compression White Paper (Cisco Systems Inc., 1997).	

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	NPL87	Exhibit 13, Prior Art Chart for U.S. Pat. No. 7,777,651, 590 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Comstock - S&P ComStock Developers Guides (McGraw-Hill, 1994); Rich Barton, "S&P ComStock Network Character Set Definition" (February 10, 1995).	
	NPL88	Exhibit 14, Prior Art Chart for U.S. Pat. No. 7,777,651, 186 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing D.J. Craft, "A fast hardware data compression algorithm and some algorithmic extensions," IBM J. Res. Develop. Vol. 42, No. 6 (November 1998).	
	NPL89	Exhibit 15, Prior Art Chart for U.S. Pat. No. 7,777,651, 142 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Deering, U.S. Patent No. 6,459,429.	
	NPL90	Exhibit 16, Prior Art Chart for U.S. Pat. No. 7,777,651, 284 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Dye et al., U.S. Patent No. 7,190,284 and International Publication No. WO 00/45516.	
	NPL91	Exhibit 17, Prior Art Chart for U.S. Pat. No. 7,777,651, 269 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Earl et al., U.S. Patent No. 5,341,440.	

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	NPL92	Exhibit 18, Prior Art Chart for U.S. Pat. No. 7,777,651, 132 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Eastman et al., U.S. Patent No. 4,464,650.	
	NPL93	Exhibit 19, Prior Art Chart for U.S. Pat. No. 7,777,651, 125 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Elgamal et al., U.S. Patent No. 5,410,671.	
	NPL94	Exhibit 20, Prior Art Chart for U.S. Pat. No. 7,777,651, 122 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Enari et al., EP 0493103.	
	NPL95	Exhibit 21, Prior Art Chart for U.S. Pat. No. 7,777,651, 379 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Fascenda, U.S. Patent No. 5,045,848.	
	NPL96	Exhibit 22, Prior Art Chart for U.S. Pat. No. 7,777,651, 218 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Frachtenberg et al., U.S. Patent. Pub. 2003/0030575.	

Examiner Signature		Date Considered	
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	13	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL97	Exhibit 23, Prior Art Chart for U.S. Pat. No. 7,777,651, 247 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Franaszek et al., U. S. Patent No. 5,870,036.	
	NPL98	Exhibit 24, Prior Art Chart for U.S. Pat. No. 7,777,651, 327 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing French et al., U.S. Patent No. 5,794,229.	
	NPL99	Exhibit 25, Prior Art Chart for U.S. Pat. No. 7,777,651, 225 pages, Exhibit 24, Prior Art Chart for U.S. Pat. No. 7,777,651, 327 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Geiger et al., U.S. Patent No. 5,987,022.	
	NPL100	Exhibit 26, Prior Art Chart for U.S. Pat. No. 7,777,651, 219 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Gentile, U.S. Patent No. 5,504,842.	
	NPL101	Exhibit 27, Prior Art Chart for U.S. Pat. No. 7,777,651, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, 167 pages, citing Giltner et al., U.S. Patent No. 4,386,416.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	14	of	94	Attorney Docket Number	2855.0050007

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	NPL102	Exhibit 28, Prior Art Chart for U.S. Pat. No. 7,777,651, 156 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Gooch, U.S. Patent No. 4,325,085.	
	NPL103	Exhibit 29, Prior Art Chart for U.S. Pat. No. 7,777,651, 132 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Hauck, U.S. Patent No. 4,626,829.	
	NPL104	Exhibit 30, Prior Art Chart for U.S. Pat. No. 7,777,651, 161 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Heath, U.S. Patent No. 5,955,976.	
	NPL105	Exhibit 31, Prior Art Chart for U.S. Pat. No. 7,777,651, 359 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Hewlett-Packard Company, "Installing and Administering PPP," B2355-90137, HP 9000 Networking, E0948 (1st Ed. 1997).	
	NPL106	Exhibit 32, Prior Art Chart for U.S. Pat. No. 7,777,651, 229 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Hsu & Zwarico, Automatic Synthesis of Compression Techniques for Heterogeneous Files, Software-Practice & Experience, vol. 25(10), pp.1097-1116 (October 1995).	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	15	of	94	Attorney Docket Number	2855.0050007

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL107	Exhibit 33, Prior Art Chart for U.S. Pat. No. 7,777,651, 206 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing ICT XML-Xpress White Paper (Intelligent Compression Technologies Inc., 2000) & website.	
	NPL108	Exhibit 34, Prior Art Chart for U.S. Pat. No. 7,777,651, 138 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing ICT XpressFiles White Paper (Intelligent Compression Technologies Inc., 1999) & website.	
	NPL109	Exhibit 35, Prior Art Chart for U.S. Pat. No. 7,777,651, 128 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Iseda et al., E.P. 0405572 A2.	
	NPL110	Exhibit 36, Prior Art Chart for U.S. Pat. No. 7,777,651, 205 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing J. Danskin. "Compressing the X Graphics Protocol," Princeton University (Jan. 1995).	
	NPL111	Exhibit 37, Prior Art Chart for U.S. Pat. No. 7,777,651, 159 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Kalkstein, U.S. Patent No. 5,945,933.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	16	of	94	Attorney Docket Number	2855.0050007

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL112	Exhibit 38, Prior Art Chart for U.S. Pat. No. 7,777,651, 402 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Kari, U.S. Patent No. 6,434,168; International Publication No. WO97/48212 A1.	
	NPL113	Exhibit 39, Prior Art Chart for U.S. Pat. No. 7,777,651, 209 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Koopmas et al., U.S. Patent No. 7,024,460.	
	NPL114	Exhibit 40, Prior Art Chart for U.S. Pat. No. 7,777,651, 214 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Kopf, U.S. Patent No. 5,825,830.	
	NPL115	Exhibit 41, Prior Art Chart for U.S. Pat. No. 7,777,651, 281 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Kopf, U.S. Patent No. 5,825,830.	
	NPL116	Exhibit 42, Prior Art Chart for U.S. Pat. No. 7,777,651, 340 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Lane et al., U.S. Patent No. 5,521,940.	

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Sheet	17	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL117	Exhibit 43, Prior Art Chart for U.S. Pat. No. 7,777,651, 164 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Langdon, Jr. et al., U.S. Patent No. 4,494,108.	
	NPL118	Exhibit 44, Prior Art Chart for U.S. Pat. No. 7,777,651, 211 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Lavallee, U.S. Patent No. 6,215,904.	
	NPL119	Exhibit 45, Prior Art Chart for U.S. Pat. No. 7,777,651, 103 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing M. Effros, P. Chou & R.M. Gray. "Variable Dimension Weighted Universal Vector Quantization and Noiseless Coding," IEEE 1068-0314/94 (1994).	
	NPL120	Exhibit 46, Prior Art Chart for U.S. Pat. No. 7,777,651, 414 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing MacCrisken, U.S. Patent No. 4,730,348.	
	NPL121	Exhibit 47, Prior Art Chart for U.S. Pat. No. 7,777,651, 319 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Madany et al., U.S. Patent No. 5,774,715.	
Examiner Signature		Date Considered	

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO			<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Application Number	14/033,245
			Filing Date	September 20, 2013
			First Named Inventor	James J. FALLON
			Art Unit	2634
			Examiner Name	BOCURE, Tesfaldet
			Attorney Docket Number	2855.0050007
Sheet	18	of	94	

NON PATENT LITERATURE DOCUMENTS			
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	NPL122	Exhibit 48, Prior Art Chart for U.S. Pat. No. 7,777,651, 228 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Mark A. Roth and Scott J. Van Horn, "Database Compression" SIGMOD Record, Vol. 22, No. 3 (1993).	
	NPL123	Exhibit 49, Prior Art Chart for U.S. Pat. No. 7,777,651, 235 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Miller et al., U.S. Patent No. 4,814,746.	
	NPL124	Exhibit 50, Prior Art Chart for U.S. Pat. No. 7,777,651, 172 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing O'Brien et al., U.S. Patent No. 4,929,946.	
	NPL125	Exhibit 51, Prior Art Chart for U.S. Pat. No. 7,777,651, 30 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Osler et al., U.S. Patent No. 6,768,749.	
	NPL126	Exhibit 52, Prior Art Chart for U.S. Pat. No. 7,777,651, 103 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing P. G. Howard, F. Kossenti, S. Forchammer, and W. J. Rucklidge [1998]. "The Emerging JBIG2 Standard", IEEE Transactions On Circuits And Systems For Video Technology 8:7, 838-848.	
Examiner Signature		Date Considered	

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

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			Filing Date	September 20, 2013	
			First Named Inventor	James J. FALLON	
			Art Unit	2634	
			Examiner Name	BOCURE, Tesfaldet	
Sheet	19	of	94	Attorney Docket Number	2855.0050007

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	NPL127	Exhibit 53, Prior Art Chart for U.S. Pat. No. 7,777,651, 218 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Panaoussis, U.S. Patent No. 5,949,355.	
	NPL128	Exhibit 54, Prior Art Chart for U.S. Pat. No. 7,777,651, 335 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Payne et al, U.S. Patent No. 6,021,433.	
	NPL129	Exhibit 55, Prior Art Chart for U.S. Pat. No. 7,777,651, 273 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Reynar et al, U. S. Patent No. 5,951,623.	
	NPL130	Exhibit 56, Prior Art Chart for U.S. Pat. No. 7,777,651, 399 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing RFC 1144: V. Jacobson, "Compressing TCP/IP Headers for Low-Speed Serial Links," Network Working Group, Request for Comments: 1144 (February 1990).	
	NPL131	Exhibit 57, Prior Art Chart for U.S. Pat. No. 7,777,651, 103 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing RFC 1661: Point-to-Point Protocol Working Group, "The Point-to-Point Protocol," RFC 1661 (William Simpson ed., Internet Engineering Task Force 1994); RFC 1662: Point-to-Point Protocol Working Group, "PPP in HDLC-like Framing," RFC 1662 (William Simpson ed., Internet Engineering Task Force 1994); RFC 1962: Dave Rand, "The PPP compression Control Protocol (CCP)," RFC 1962 (Internet Engineering Task Force 1996); RFC 1332: Glenn McGregor, "The PPP Internet Protocol Control Protocol (IPCP)," RFC 1332 (Internet Engineering Task Force 1992); RFC 2509: Mathias Engan et al., "IP Header Compression over IP," RFC 2509 (Internet Society 1999).	
Examiner Signature		Date Considered	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	20	of	94	Attorney Docket Number	2855.0050007

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	NPL132	Exhibit 58, Prior Art Chart for U.S. Pat. No. 7,777,651, 218 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing RFC 2507: Mikael Degermark et al., "IP Header Compression," RFC 2507 (Internet Society 1999).	
	NPL133	Exhibit 59, Prior Art Chart for U.S. Pat. No. 7,777,651, 335 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Roper et al., U.S. Patent No. 5,454,079.	
	NPL134	Exhibit 60, Prior Art Chart for U.S. Pat. No. 7,777,651, 273 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Sebastian, U.S. Patent No. 6,253,264 and International Publication No. WO/1998/039699.	
	NPL135	Exhibit 61, Prior Art Chart for U.S. Pat. No. 7,777,651, 399 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Seroussi et al., U.S. Patent No. 5,243,341.	
	NPL136	Exhibit 62, Prior Art Chart for U.S. Pat. No. 7,777,651, 322 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Seroussi et al., U.S. Patent No. 5,389,922.	

Examiner Signature	Date Considered	
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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	21	of	94	Attorney Docket Number	2855.0050007

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL137	Exhibit 63, Prior Art Chart for U.S. Pat. No. 7,777,651, 102 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Shin, U.S. Patent No. 5,455,680.	
	NPL138	Exhibit 64, Prior Art Chart for U.S. Pat. No. 7,777,651, 126 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Taaffe et al., U.S. Patent No. 5,179,651.	
	NPL139	Exhibit 65, Prior Art Chart for U.S. Pat. No. 7,777,651, 313 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Telekurs Ticker - "Telekurs Ticker Service: Programmer's Reference," Telekurs (North America), Inc. (January 11, 1993); C. Helck. "Encapsulated Ticker: Ver. 1.0," Telekurs NA, 1-22 (July 14, 1993); A-T FINANCIAL OFFERS MANIPULATION, REDISTRIBUTION OF TICKER III, Micro Ticker Report, v 4, n 14 (Sept 5, 1989); V. Kulkosky, "Upping the Ante" Wall Street & Technology, v11 n5 pp: 8-11 (Oct 1993); "Telekurs to Launch New Int'l Feed/Internet Server," Wall Street & Technology, v15 n1 pp: 14 (Jan 1997); I. Schmerken, "Time running out for old technologies", Wall Street Computer Review, v7 n7 p14(7) (April, 1990); SCROLLING NEWS, Inside Market Data, v 10, n 11 (Feb 27, 1995); TELEKURS BUYS S&P TRADING SYSTEMS AND ITS TICKER III FEED, Micro Ticker Report, v 4, n 11 (July 10, 1989); TELEKURS MAY DEBUT 128 KPS TICKER BY YEAR'S END, Inside Market Data, v 9, n 21 (July 18, 1994); TELEKURS NOW CARRIES ALL DOW JONES' NEWS ON 56-KBPS TICKER, Inside Market Data, v9, n7 (Dec 20, 1993); TELEKURS SELLS NO. AMERICAN DIVISION IN MGMT. BUYOUT, Inside Market Data, v11, n3 (Oct 23, 1995).	
	NPL140	Exhibit 66, Prior Art Chart for U.S. Pat. No. 7,777,651, 265 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Tyler et al., U.S. Patent No. 5,638,498.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	22	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL141	Exhibit 67, Prior Art Chart for U.S. Pat. No. 7,777,651, 86 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing UNI International Standard ISO 3309-1984 (E) [1984]. "Information Processing Systems -- Data Communication -- High-level Data Link Control Procedures --Frame Structure," 1-6 (1984).	
	NPL142	Exhibit 68, Prior Art Chart for U.S. Pat. No. 7,777,651, 236 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Unwired Planet, EP 0928070 A2.	
	NPL143	Exhibit 69, Prior Art Chart for U.S. Pat. No. 7,777,651, 80 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Vange et al., U.S. Patent No. 7,127,518.	
	NPL144	Exhibit 70, Prior Art Chart for U.S. Pat. No. 7,777,651, 197 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Wernikoff et al., U.S. Patent No. 3,394,352.	
	NPL145	Exhibit 71, Prior Art Chart for U.S. Pat. No. 7,777,651, 253 pages, Exhibit 70, Prior Art Chart for U.S. Pat. No. 7,777,651, 197 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing Willis et al., U.S. Patent No. 4,745,559; Boilen, U.S. Patent No. 4,750,135.	

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	NPL146	Exhibit 72, Prior Art Chart for U.S. Pat. No. 7,777,651, 277 pages, Exhibit 71, Prior Art Chart for U.S. Pat. No. 7,777,651, 253 pages, Exhibit 70, Prior Art Chart for U.S. Pat. No. 7,777,651, 197 pages, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al., 6:09-cv-326-LED-JDL, 6:10-cv-248-LED-JDL, 6:10-cv-426-LED-JDL, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, 6:10-cv-424-LED-JDL, Realtime Data, LLC D/B/A IXO v. Thomson Reuters Corp., et al., 6:09-cv-333-LED-JDL, 6:10-cv-247-LED-JDL, 6:10-cv-425-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, February 4, 2011, citing XMill - Hartmut Liefke & Dan Suciu, "XMill: an Efficient Compressor for XML Data," University of Pennsylvania, Philadelphia, Pennsylvania, MS-CIS-99-26 (October 18, 1999); Hartmut Liefke & Dan Suciu, "XMill: an Efficient Compressor for XML Data," Proceedings of SIGMOD, 2000; Hartmut Liefke & Dan Suciu, "An Extensible Compressor for XML Data," SIGMOD Record, Vol. 29, No. 1 (March 2000); Dan Suciu, "Data Management on the Web," Presentation at University of Washington College of Computer Science & Engineering, Seattle, WA (April 4, 2000).	
	NPL147	BORMANN et al., "Robust Header Compression (ROHC)," Network Working Group Internet-Draft, September 18, 2000, 111 pages.	
	NPL148	EFFROS, M., P.A. CHOU and R.M. GRAY, "Variable Dimension Weighted Universal Vector Quantization and Noiseless Coding," IEEE 1068-0314/94, 1994, pages 2-11.	
	NPL149	Defendant Bloomberg L.P.'s Invalidity Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 17 pages.	
	NPL150	Appendix A: U.S. Patent No. 6,624,761 (The "761 Patent"), from Defendant Bloomberg L.P.'s Invalidity Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 37 pages.	
	NPL151	Appendix B: U.S. Patent No. 7,161,506 (The "506 Patent"), from Defendant Bloomberg L.P.'s Invalidity Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 63 pages.	
	NPL152	Appendix C: U.S. Patent No. 7,400,274 (The 274 Patent), from Defendant Bloomberg L.P.'s Invalidity Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 95 pages.	

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	NPL153	Appendix D: U.S. Patent No. 7,417,568 (The 568 Patent), from Defendant Bloomberg L.P.'s Invalidation Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 147 pages.	
	NPL154	Appendix E: U.S. Patent No. 7,714,747 (The "747 Patent"), from Defendant Bloomberg L.P.'s Invalidation Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 137 pages.	
	NPL155	Appendix F: Comparison of FAST to the Prior Art, from Defendant Bloomberg L.P.'s Invalidation Contentions Pursuant to Patent Local Rule 3-3, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, October 29, 2010, 7 pages.	
	NPL156	Defendant Bloomberg L.P.'s Invalidation Contentions Pursuant to Patent Local Rule 3-3 Regarding U.S. Patent No. 7,777,651, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, February 4, 2011, 21 pages.	
	NPL157	Appendix G: U.S. Patent No. 7,777,651 (The 651 Patent), Defendant Bloomberg L.P.'s Invalidation Contentions Pursuant to Patent Local Rule 3-3 Regarding U.S. Patent No. 7,777,651, Realtime Data, LLC d/b/a IXO vs. Thomson Reuters Corp., et al., 6:2009-cv-00333 LED-JDL, 6:2010-cv-00247 LED-JDL, 6:2010-cv-00425 LED-JDL, February 4, 2011, 480 pages.	
	NPL158	RICE, ROBERT F., "Some Practical Universal Noiseless Coding Techniques", Jet Propulsion Laboratory, Pasadena, California, JPL Publication 79-22, March 15, 1979; 140 pgs.	
	NPL159	ANDERSON, J., et al. "Codec squeezes color teleconferencing through digital telephone lines," Electronics 1984, pp. 13-15.	
	NPL160	VENBRUX, JACK, "A VLSI Chip Set for High-Speed Lossless Data Compression", IEEE Trans. On Circuits and Systems for Video Technology, Vol. 2, No. 4, December 1992, pp. 381-391.	
	NPL161	"Fast Dos Soft Boot", IBM Technical Disclosure Bulletin, Feb. 1994, Vol. 37, Issue No. 2B, pp. 185-186.	
	NPL162	"Operating System Platform Abstraction Method", IBM Technical Disclosure Bulletin, Feb. 1995, Vol. 38, Issue No. 2, pp 343-344.	

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	NPL163	MURASHITA, K., et al., "High-Speed Statistical Compression using Self-Organized Rules and Predetermined Code Tables", IEEE, 1996 Data Compression Conference.	
	NPL164	COENE, W., et al. "A Fast Route For Application of Rate-distortion Optimal Quantization in an MPEG Video Encoder" Proceedings of the International Conference on Image Processing, US., New York, IEEE, 16 September 1996, pp. 825-828.	
	NPL165	RICE, ROBERT, "Lossless Coding Standards for Space Data Systems", IEEE 1058-6393 197, Nov. 3-6, 1996, pp. 577-585.	
	NPL166	MILLMAN, HOWARD, "Image and video compression", Computerworld, Vol. 33, Issue No. 3, January 18, 1999, pp. 78.	
	NPL167	"IBM boosts your memory", Geek.com [online], June 26, 2000 [retrieved on July 6, 2007, www.geek.com/ibm-boosts-your-memory/, 7 pages.	
	NPL168	"IBM Research Breakthrough Doubles Computer Memory Capacity", IBM Press Release [online], June 26, 2000 [retrieved on July 6, 2007, www-03.ibm.com/press/us/en/pressrelease/1653.wss, 3 pages.	
	NPL169	"ServerWorks To Deliver IBM's Memory expansion Technology in Next-Generation Core Logic for Servers", ServerWorks Press Release [online], June 27, 2000 [retrieved on July 14, 2000, http://www.serverworks.com/news/press/000627.html, 1 page.	
	NPL170	ABALI, B., et al., "Memory Expansion Technology (MXT) Software support and performance", IBM Journal of Research and Development, Vol. 45, Issue No. 2, March 2001, pp. 287-301.	
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	NPL172	FRANASZEK, P. A., et al., "On internal organization in compressed random-access memories", IBM Journal of Research and Development, Vol. 45, Issue No. 2, March 2001, pp. 259-270.	

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	NPL173	SMITH, T.B., et al., "Memory Expansion Technology (MXT) Competitive impact", IBM Journal of Research and Development, Vol. 45, Issue No. 2, March 2001, pp. 303-309.	
	NPL174	TREMAINE, R. B., et al., "IBM Memory Expansion Technology (MXT)", IBM Journal of Research and Development, Vol. 45, Issue No. 2, March 2001, pp. 271-285.	
	NPL175	YEH, PEN-SHU, "The CCSDS Lossless Data Compression Recommendation for Space Applications", Chapter 16, Lossless Compression Handbook, Elsevier Science (USA), 2003, PP. 311-326.	
	NPL176	Expand Networks Accelerator 4000 Series User's Guide, 1999, 101 pgs.	
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	NPL178	Jung, et al.; "Performance optimization of wireless local area networks through VLSI data compression"; Wireless Networks, Volume 4, 1998; pages 27-39.	
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	NPL182	Welch, Terry A.; "A Technique for High-Performance Data Compression"; IEEE; June 1984; pages 8-19.	

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	NPL183	ALDC: Adaptive Lossless Data Compression; IBM; 1994, 2 pgs.	
	NPL184	ALDC-Macro: Adaptive Lossless Data Compression; IBM Corporation; 1994, 2 pgs.	
	NPL185	ALDC1-20S: Adaptive Lossless Data Compression; IBM Corporation; 1994, 2 pgs.	
	NPL186	ALDC1-40S: Adaptive Lossless Data Compression; IBM Corporation; 1994, 2 pgs.	
	NPL187	ALDC1-5S: Adaptive Lossless Data Compression; IBM Corporation; 1994, 2 pgs.	
	NPL188	Craft, David J.; "Data Compression Choice No Easy Call"; Computer Technology Review; Volume XIV, Number 1; January 1994, 2 pgs.	
	NPL189	Costlow, Terry; "Sony designs faster, denser tape drive"; Electronic Engineering Times; May 20, 1996, pages 86-87.	
	NPL190	Wilson, Ron; "IBM ups compression ante"; Electronic Engineering Times; August 16, 1993; pages 1-94.	
	NPL191	"IBM Announces New Feature for 3480 Subsystem"; Tucson Today; Volume 12, Number 337, July 25, 1989, 1 pg.	
	NPL192	Syngress Media, Inc.; "CCA Citrix Certified Administrator for MetaFrame 1.8 Study Guide"; 2000, 568 pgs.	

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	NPL205	IBM Microelectronics Comdex Fall '93 Booth Location, 1 pg.	
	NPL206	Disz, et al.; "Performance Model of the Argonne Voyager Multimedia Server"; IEEE; 1997; pages 316-327.	
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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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NON PATENT LITERATURE DOCUMENTS			
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	NPL213	Howard, et al.; "The Emerging JBIG2 Standard"; IEEE Transactions on Circuits and Systems for Video Technology, Vol. 8, No. 7, November 1998; pages 838-848.	
	NPL214	Craft, D. J.; "A fast hardware data compression algorithm and some algorithmic extensions"; Journal of Research and Development; Vol. 42, No. 6, November 1998; pages 733-745.	
	NPL215	"Direct Access Storage Device Compression and Decompression Data Flow"; IBM Technical Disclosure Bulletin; Vol. 38, No. 11; November 1995; pages 291-295.	
	NPL216	ICA Timeline, September 24, 2007, 3 pgs.	
	NPL217	Converse, et al.; "Low Bandwidth X Extension"; Protocol Version 1 .O; X Consortium; December 21, 1996, 55 pgs.	
	NPL218	Magstar and IBM 3590 High Performance Tape Subsystem Technical Guide; November 1996; IBM International Technical Support Organization, 288 pgs.	
	NPL219	MetaFrame Administration Student Workbook; June 1998; Citrix Professional Courseware; Citrix Systems, Inc, 113 pgs.	
	NPL220	NCD Wincenter 3.1 : Bringing Windows to Every Desktop, 1998; 2 pgs.	
	NPL221	Overview NetMeeting 2.1; Microsoft TechNet; technet.microsoft.com/en-us/library/cc767141 (printer).aspx; accessed December 2, 2008; 7 pgs.	
	NPL222	NetMeeting 2.1 Resource Kit; Microsoft TechNet; technet.microsoft.com/en-us/library/cc767142(printer).aspx; accessed on December 2, 2008, 34 pgs.	

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	NPL223	Conferencing Standards: NetMeeting 2.1 Resource Kit: Microsoft TechNet; technet.microsoft.com/--us/library/cc767150(printer).aspx; accessed December 2, 2008, 14 pgs.	
	NPL224	Summers, Bob; "Official Microsoft NetMeeting Book," Microsoft Press, 1998, 374 pgs.	
	NPL225	Zebrose, Katherine L.; "Integrating Hardware Accelerators into Internetworking Switches"; Telco Systems, 1995, 10 pages.	
	NPL226	Simpson, et al.; "A Multiple Processor Approach to Data Compression"; ACM; 1998; pages 641-649, 9 pgs.	
	NPL227	"IBM Technology Products Introduces New Family of High-Performance Data Compression Products"; IBM; August 16, 1993, 6 pgs.	
	NPL228	ReadMe; PowerQuest Drive Image Pro; Version 3.00; 1994-1999; PowerQuest Corporation; page 1-6.	
	NPL229	Schulzrinne, et al., "RTP Profile for Audio and Video Conferences with Minimal Control," January 1996, www.ietf.org/rfc/rfc1890.txt, accessed on December 3, 2008; 17 pgs.	
	NPL230	Zhu, C., "RTP Payload Format for H.263 Video Streams," Standards Track, September 1997, pages 1-12.	
	NPL231	Simpson, W., "The Point-To-Point Protocol (PPP)," Standards Track, July 1994, pages i-52.	
	NPL232	Reynolds, et al., "Assigned Numbers," Standards Track, October 1994, pages 1-230.	

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	NPL233	Deutsch, et al., "ZLIB Compressed Data Format Specification version 3.3," Informational, May 1996, pages 1-10.	
	NPL234	Deutsch, P., "DEFLATE Compressed Data Format Specification version 1.3," Informational, May 1996, pages 1-15.	
	NPL235	Rand, D., "The PPP Compression Control Protocol (CCP)," Standards Track, June 1996, pages 1-9.	
	NPL236	Schneider, et al., "PPP LZS-DCP Compression Protocol (LZS-DCP)," Informational, August 1996, pages 1-18.	
	NPL237	Friend, et al., "PPP Stac LZS Compression Protocol," Informational, August 1996; pages 1-20.	
	NPL238	Schneider, et al., "PPP for Data Compression in Data Circuit-Terminating Equipment (DCE)," Informational, August 1996, pages 1-10.	
	NPL239	Atkins, et al., "PGP Message Exchange Formats," Informational, August 1996, pages 1-21.	
	NPL240	Castineyra, et al., "The Nimrod Routing Architecture," Informational, August 1996, pages 1-27.	
	NPL241	Freed, et al., "Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures," Best Current Practice, November 1996, pages 1-21.	
	NPL242	Shacham, et al., "IP Payload Compression Protocol (IPComp)," Standards Track, December 1998, pages 1-10.	

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	NPL243	Sidewinder 50 Product Manual, Seagate Technology, Inc., 1997, 189 pgs.	
	NPL244	IBM RAMAC Virtual Array, IBM, July 1997, 490 pgs.	
	NPL245	Bruni, et al., "DB2 for OS/390 and Data Compression" IBM Corporation, November 1998, 172 pgs.	
	NPL246	Smith, Mark, "Thin Client/Server Computing Works," WindowsITPro, November 1, 1998, pages 1-13, license.icopyright.net/user/downloadLicense.act?lic=3.7009-8355, accessed December 2, 2008.	
	NPL247	International Telecommunication Union, "Information Technology - Digital Compression and Coding of Continuous-Tone Still Images-Requirements and Guidelines," 1993, 186 pgs.	
	NPL248	International Telecommunications Union, "Information technology - Lossless and near-lossless compression of continuous-tone still images - Baseline," 1999, 75 pgs.	
	NPL249	Davis, Andrew W., "The Video Answering Machine: Intel Proshare's Next Step," Advanced Imaging, Vol. 12, No. 3, March 1997, pages 28, 30.	
	NPL250	Abbott, III, Walter D., "A Simple, Low Overhead Data Compression Algorithm for Converting Lossy Compression Processes to Lossless," Naval Postgraduate School Thesis; December 1993, 93 pgs.	
	NPL251	Thomborson, Clark, "V.42bis and Other Ziv-Lemoel Variants," IEEE, 1991, page 460.	
	NPL252	Thomborson, Clark, "The V.42bis Standard for Data-Compressing Modems," IEEE, October 1992, pages 41-53.	

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	NPL253	Sun, Andrew, "Using and Managing PPP," O'Reilly & Associates, Inc., 1999, 89 pgs.	
	NPL254	"What is the V42bis Standard?," www.faqs.org/faqs/compression-faq/part1/section-10.html, accessed on December 2, 2008, 2 pgs.	
	NPL255	"The WSDC Download Guide: Drive Image Professional for DOS, OS/2, and Windows," wsdc01.watson.ibm.com/WSDC.nsf/Guides/Download/Applications-DriveImage.htm, Accessed November 22, 1999, 4 pgs.	
	NPL256	"The WSDC Download Guide: Drive Image Professional," wsdc01.watson.ibm.com/wsdc.nsf/Guides/Download/Applications-DriveImage.htm, accessed on May 3, 2001, 5 pgs.	
	NPL257	APPNOTE-TXT from pkware.txt, Version 6.3.2, PKWARE Inc., 1989, 52 pgs.	
	NPL258	CU-SeeMe readme.txt, December 2, 1995, 9 pgs.	
	NPL259	CU-seeme txt from indstate.txt, README.TXT for CU-SeeMe version 0.90bl, March 23, 1997, 5 pgs.	
	NPL260	Cuseeme txt 19960221 .txt; CUSEEME.TXT, February 21, 1996, 9 pgs.	
	NPL261	Citrix Technology Guide, 1997, 413 pgs.	
	NPL262	Lettieri, et al., "Data Compression in the V.42bis Modems," 1992, pages 398-403.	

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	NPL263	High Performance x2/V.34+N.42bis 56K BPS Plug & Play External Voice/FAX/Data Modem User's Manual, 1997, 27 pgs.	
	NPL264	H.323 Protocols Suite, www.protocols.com/pbook~h323.htm, 26 pages (referenced in Expert Report of Dr. James A. Storer on Invalidity filed on behalf of some of the defendants, filed in Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED, U.S. District Court for the Eastern District of Texas, June 10, 2009, and indicated as being last accessed in 2008, see e.g., Exhibit E, page 12).	
	NPL265	LBX X Consortium Algorithms; rzd docs.uni-hohenheim.de/aix~4.33/ext~doc/usr/share/man/info/en~US/a~doc~lib/.x."!;1 X I 1R 6 Technical Specifications, December 1996, 3 pgs.	
	NPL266	Basics of Images; www.geom.uiuc.edu/events/courses/1996/cmwh/Still/basics.html, 1996, 5 pgs.	
	NPL267	Parties' Joint Claim Construction and Prehearing Statement Pursuant to P.R. 4-3, filed in Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 18, 2009, 168 pages.	
	NPL268	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 6,604,158, March 18, 2009, 10 pgs.	
	NPL269	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 6,601,104, March 18, 2009, 8 pgs.	
	NPL270	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 7,321,937, May 4, 2009, 15 pgs.	
	NPL271	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 6,624,761, May 4, 2009, 6 pgs.	
	NPL272	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 7,378,992, May 20, 2009, 6 pgs.	

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	NPL273	Declaration of Professor James A. Storer, Ph.D., relating to U.S. Patent No. 7,161,506, May 26, 2009, 5 pgs.	
	NPL274	"Video Coding for Low Bit Rate Communication", International Telecommunication Union (ITU), Recommendation H.263, §3.4 (March 1996) ("ITU H.263"), 52 pgs.	
	NPL275	Order Adopting Report and Recommendation of United States Magistrate Judge, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, August 24, 2009, 2 pgs.	
	NPL276	Second Amended Answer filed on behalf of Citrix Systems, Inc. (includes allegations of inequitable conduct on at least pages 24-43) filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 10, 2009, 45 pgs.	
	NPL277	Expert Report of James B. Gambrell on Inequitable Conduct filed on behalf of some of the defendants [Includes Appendices - Exhibits A-I] filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, June 10, 2009, 199 pgs.	
	NPL278	Expert Report of Dr. James A. Storer on Invalidity filed on behalf of some of the defendants [Includes Appendices - Exhibits A-K (Exhibit A has been redacted pursuant to a protective order)] filed in Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, June 10, 2009, 1090 pgs.	
	NPL279	Supplemental Expert Report of Dr. James A. Storer on Invalidity filed on behalf of some of the defendants [Includes Appendices - Exhibits 1-8] filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, June 19, 2009, 301 pgs.	
	NPL280	Deposition of Dr. James A. Storer conducted on behalf of the plaintiffs filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 27, 2009, 242 pgs.	
	NPL281	Deposition of Brian Von Herzen conducted on behalf of the plaintiffs filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 26, 2009, 241 pgs.	
	NPL282	Second Amended Complaint filed on behalf of the Plaintiff in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 10, 2009, 28 pgs.	

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	NPL283	Answers to the Second Amended Complaint and Counterclaims filed by Citrix Systems, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 17, 2009, 46 pgs.	
	NPL284	Answers to the Second Amended Complaint and Counterclaims filed by F5 Networks, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 17, 2009, 17 pgs.	
	NPL285	Answers to the Second Amended Complaint and Counterclaims filed by Averitt Express, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 17, 2009, 17 pgs.	
	NPL286	Answers to the Second Amended Complaint and Counterclaims filed by DHL Express, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 17, 2009, 37 pgs.	
	NPL287	Answers to the Second Amended Complaint and Counterclaims filed by Expand Networks, Inc, Interstate Battery System of America, Inc., and O'Reilly Automotive, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 17, 2009, 21 pgs.	
	NPL288	Answers to the Second Amended Complaint and Counterclaims filed by Blue Coat Systems, Inc., Packeteer, Inc., 7-Eleven, Inc., ABM Industries, Inc., ABM Janitorial Services-South Central, Inc., and Build -A-Bear Workshop, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, February 18, 2009, 84 pgs.	
	NPL289	Plaintiff's Response to the Answers to the Second Amended Complaint and Counterclaims filed by Citrix Systems, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 4, 2009, 24 pgs.	
	NPL290	Plaintiff's Responses to the Answers to the Second Amended Complaint and Counterclaims filed by F5 Networks, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 4, 2009, 5 pgs.	
	NPL291	Plaintiff's Responses to the Answers to the Second Amended Complaint and Counterclaims filed by Averitt Express, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 4, 2009, 5 pgs.	
	NPL292	Plaintiff's Responses to the Answers to the Second Amended Complaint and Counterclaims filed by DHL Express, Inc, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 4, 2009, 17 pgs.	

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	NPL294	Plaintiff's Responses to the Answers to the Second Amended Complaint and Counterclaims filed by Blue Coat Systems, Inc., Packeteer, Inc., 7-Eleven, Inc., ABM Industries, Inc., ABM Janitorial Services-South Central, Inc., and Build -A-Bear Workshop, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 4, 2009, 34 pgs.	
	NPL295	Opening Claim Construction Brief filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 5, 2009, 36 pgs.	
	NPL296	Declaration of Jordan Adler in support of the Opening Claim Construction Brief filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 5, 2009, 214 pgs.	
	NPL297	Motion for Partial Summary Judgment for Invalidity of some of the Patents in Suit for Indefiniteness, including the '104 patent, filed on behalf of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 16, 2009, 22 pgs.	
	NPL298	Declaration of Michele E. Moreland in support Motion for Partial Summary Judgment for Invalidity of some of the Patents in Suit for Indefiniteness, including the '104 patent, filed on behalf of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LE, March 16, 2009, 168 pgs.	
	NPL299	Declaration of James A. Storer in support Motion for Partial Summary Judgment for Invalidity of some of the Patents in Suit for Indefiniteness, including the '104 patent, filed on behalf of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LE, March 16, 2009, 27 pgs.	
	NPL300	Joint Defendants Reply regarding Motion for Partial Summary Judgment for Invalidity of some of the Patents in Suit for Indefiniteness, including the '104 patent, filed on behalf of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LE, April 2, 2009, 20 pgs.	
	NPL301	Responsive Briefs in Support of Claim Construction filed by Blue Coats Systems, Inc., Packeteer, Inc., 7-Eleven, Inc., ABM Industries, Inc., ABM Janitorial Services-South Central, Inc. and Build-A-Bear Workshop, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 19, 2009, 451 pgs.	
	NPL302	Responsive Briefs in Support of Claim Construction filed by F5 Networks, Inc. and Averitt Express, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 19, 2009, 20 pgs.	
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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	39	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL303	Responsive Briefs in Support of Claim Construction filed by Citrix Systems, Inc., Expand Networks, Inc., DHL Express (USA), Inc., Interstate Battery System of America, Inc., and O'Reilly Automotive Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 19, 2009, 377 pgs.	
	NPL304	Declaration of Dr. James A. Storer filed in Support of the Brief in Support of Claim Construction filed on behalf of F5 Networks, Inc. in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 19, 2009, 778 pgs.	
	NPL305	Defendant Citrix Systems, Inc.'s Motion to Exclude Dr. Brian Von Herzen's Opinions Regarding Claim Construction filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 20, 2009, 244 pgs.	
	NPL306	Plaintiff's Opposition to Defendant Citrix Systems, Inc.'s Motion to Exclude Dr. Brian Von Herzen's Opinions Regarding Claim Construction filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 6, 2009, 20 pgs.	
	NPL307	Declaration of Karim Oussayef submitted in support of the Opposition of Plaintiff's Opposition to Defendant Citrix Systems, Inc.'s Motion to Exclude Dr. Brian Von Herzen's Opinions Regarding Claim Construction filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 6, 2009, 119 pgs.	
	NPL308	Order of the Court Denying Defendant Citrix Systems, Inc.'s Motion to Exclude Dr. Brian Von Herzen's Opinions Regarding Claim Construction, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, April 6, 2009, 1 pg.	
	NPL309	Parties Joint Submission of Terms to be Heard at the Markman Hearing filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 24, 2009, 5 pgs.	
	NPL310	Order of the Court Regarding the terms to be heard at the Markman Hearing in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 24, 2009, 2 pgs.	
	NPL311	Transcript of the Markman Hearing held on April 9, 2009 in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, 174 pgs.	
	NPL312	Plaintiff's Reply Claim Construction Brief filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 30, 2009, 30 pgs.	

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	NPL313	Declaration of Brian von Herzen in Support of the Plaintiff's Reply Claim Construction Brief filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 30, 2009, 25 pgs.	
	NPL314	F5 Sur-Reply to Plaintiff's Claim Construction Brief filed by some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 3, 2009, 12 pg	
	NPL315	Citrix Sur-Reply to Plaintiff's Claim Construction Brief filed by some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 3, 2009, 13 pgs.	
	NPL316	Blue Coat Sur-Reply to Plaintiff's Claim Construction Brief filed by some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 3, 2009, 12 pgs.	
	NPL317	Declaration of Michele Moreland in Support of Sur-Replies to Plaintiff's Claim Construction Brief filed by some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 3, 2009, 8 pgs.	
	NPL318	Declaration of James Storer in Support of Sur-Replies to Plaintiff's Claim Construction Brief filed by some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 7, 2009, 6 pgs.	
	NPL319	Plaintiff's Motion for Leave to Supplement the Parties' Joint Claim Construction and Prehearing Statement filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 8, 2009, 123 pgs.	
	NPL320	Motion for Reconsideration of the Court's Order Denying Plaintiff's Motion for Leave to Supplement the Parties' Joint Claim Construction and Prehearing Statement filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 13, 2009, 3 pgs.	
	NPL321	Citrix Systems' Opposition to Realtime Data's Motion for Reconsideration of Realtime's Motion for Leave to Supplement the Parties' Joint Claim Construction, filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 6 pgs.	
	NPL322	Notice of Agreement to Claim Term between Plaintiff and Defendant filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 22, 2009, 3 pgs.	

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	NPL323	Provisional Claim Construction Order issued by the Court on June 2, 2009 in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, 28 pgs.	
	NPL324	Citrix Request for Consideration and Objections to the Provisional Claim Construction Order issued by the Court on June 22, 2009 filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 9, 2009, 22 pgs.	
	NPL325	Blue Coat Request for Consideration and Objections to the Provisional Claim Construction Order issued by the Court on June 22, 2009 filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED, U.S. District Court for the Eastern District of Texas, July 10, 2009, 9 pgs.	
	NPL326	F5 Request for Consideration and Objections to the Provisional Claim Construction Order issued by the Court on June 22, 2009 filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 10, 2009, 15 pgs.	
	NPL327	Comtech AHA Corporation's Complaint in Intervention against the Plaintiff filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, April 6, 2009, 8 pgs.	
	NPL328	Report and Recommendation of United States Magistrate Judge on Motion for Partial Summary Judgment issued on June 23, 2009, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, 22 pgs.	
	NPL329	Blue Coat Defendants' Report and Recommendations Regarding Motion for Partial Summary Judgment of Invalidity for Indefiniteness in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 8, 2009, 18 pgs.	
	NPL330	Plaintiff's Objections To and Partially Unopposed Motion for Reconsideration of United States Magistrate Judge's Claim Construction Memorandum and Order, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 13, 2009, 11 pgs.	
	NPL331	Defendant Citrix Opposition to Realtime's Objections to and Partially Unopposed Motion for Reconsideration of Magistrate Love's Claim Construction Memorandum and Order filed by Citrix Systems, Inc., filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 8 pgs.	

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	NPL332	Defendant F5 Networks, Inc.'s Opposition to Plaintiff's Objections and Partially Unopposed Motion for Reconsideration of Magistrate Judge Love's Claim Construction and Order, filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 4 pgs.	
	NPL333	Defendants' Response in Opposition to Realtime Data's Objections to and Partially Unopposed Motion for Reconsideration of Magistrate Judge Love's Claim Construction Memorandum and Order, filed on behalf of some of the defendants in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 9 pgs.	
	NPL334	Realtime Data's Response in Opposition to Defendant Citrix Systems Objections to and Request for Reconsideration of Magistrate's Order Regarding Claim Construction, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 13 pgs.	
	NPL335	Plaintiff Realtime Data's Response in Opposition to Blue Coat Defendants' Objection to Magistrate's Memorandum Opinion and Order Regarding Claim Construction, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 9 pgs.	
	NPL336	Plaintiff's selected Responses to Defendant Citrix System's Interrogatories and First Set of Requests for Admission filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 15, 2009, 151 pgs.	
	NPL337	Script for Defendants' Joint Claim Construction Technology Tutorial Presented to the Magistrate Judge in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed on April 18, 2008 and terminated February 2, 95 pgs.	
	NPL338	Preliminary Data Sheet, 9600 Data Compressor Processor, Hi/fn, 1997-99, HIFN 000001-68, 68 pgs.	
	NPL339	Data Sheet, 9751 Data Compression Processor, 1997-99, HIFN 000069-187, 119 pgs.	
	NPL340	Signal Termination Guide, Application Note, Hi/fn, 1997-98, HIFN 000188-194, 7 pgs.	
	NPL341	How LZS Data Compression Works, Application Note, Hi/fn, 1997-99, HIFN 000195-207, 13 pgs.	

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	NPL342	Reference Hardware, 9751 Compression Processor, Hi/fn, 1997-99, HIFN 000208-221, 14 pgs.	
	NPL343	Using 9751 in Big Endian Systems, Application Note, Hi/fn, 1997-99, HIFN 000222-234, 13 pgs.	
	NPL344	Specification Update, 9751 Compression Processor, Hi/fn, 1997-2000, HIFN 000235-245, 11 pgs.	
	NPL345	9732AM Product Release, Hi/fn, 1994-99, HIFN 000246-302, 57 pgs.	
	NPL346	Data Sheet, 9732A Data Compression Processor, Hi/fn, 1997-99, HIFN 000303-353, 51 pgs.	
	NPL347	9711 to 7711 Migration, Application Note, Hi/fn, 1997-99, HIFN 000354-361, 8 pgs.	
	NPL348	Specification Update, 9711 Data Compression Processor, Hi/fn, 1997-99, HIFN 000362-370, 9 pgs.	
	NPL349	Differences Between the 9710 & 9711 Processors, Application Note, Hi/fn, 1997-99, HIFN 000371-77, 7 pgs.	
	NPL350	Specification Update, 9710 Data Compression Processor, Hi/fn, 1997-99, HIFN 000378-388, 11 pgs.	
	NPL351	9706/9706A Data Compression Coprocessor Data Sheet, Stac Electronics, 1991-97, HIFN 000389-473, 85 pgs.	

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	NPL352	9705/9705A Data Compression Coprocessor, Stac Electronics, 1988-96, HIFN 000474-562, 88 pgs.	
	NPL353	9705/9705A Data Compression Coprocessor Data Sheet, Stac Electronics, 1988-96, HIFN 000563-649, 87 pgs.	
	NPL354	9700/9701 Compression Coprocessors, Hi/fn, 1997, HIFN 000650-702, 53 pgs.	
	NPL355	Data Sheet 9610 Data Compression Processor, Hi/fn, 1997-98, HIFN 000703-744, 42 pgs.	
	NPL356	Specification Update 9610 Data Compression Processor, Hi/fn, 1997-99, HIFN 000745-751, 7 pgs.	
	NPL357	9705 Data Compression Coprocessor, Stac Electronics, 1988-92, HIFN 000752-831, 80 pgs.	
	NPL358	9705 Network Software Design Guide, Application Note, Stac Electronics, 1990-91, HIFN 000832-861, 30 pgs.	
	NPL359	Data Sheet 9601 Data Compression Processor, Hi/fn, May 21, 1998, HIFN 000862-920, 59 pgs.	
	NPL360	7751 Encryption Processor Reference Kit, Hi/fn, April 1999, HIFN 000921-1114, 194 pgs.	
	NPL361	Hardware Data Book, Hi/fn, November 1998, HIFN 001115-1430, 316 pgs.	

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	NPL362	Data Compression Data Book, Hi/fn, January 1999, HIFN 001431-1889, 459 pgs.	
	NPL363	Reference Software 7751 Encryption Processor, Hi/fn, November 1998, HIFN 002164-2201, 38 pgs.	
	NPL364	Interface Specification for Synergize Encoding/Decoding Program, JPB, October 10, 1997, HIFN 002215-2216, 2 pgs.	
	NPL365	Anderson, Chip, Extended Memory Specification Driver, 1998, HIFN 002217-2264, 48 pgs.	
	NPL366	Whiting, Doug, LZS Hardware API, March 12, 1993, HIFN 002265-68, 4 pgs.	
	NPL367	Whiting, Doug, Encryption in Sequoia, April 28, 1997, HIFN 002309-2313, 5 pgs.	
	NPL368	LZS221-C Version 4 Data Compression Software, Data Sheet, Hi/fn, 1994-97, HIFN 002508-2525, 18 pgs.	
	NPL369	eXtended Memory Specification (XMS), ver. 2.0, Microsoft, July 19, 1988, HIFN 002670-2683, 14 pgs.	
	NPL370	King, Stanley, Just for Your Info – From Microsoft 2, May 4, 1992, HIFN 002684-2710, 27 pgs.	
	NPL371	eXtended Memory Specification (XMS), ver. 2.0, Microsoft, July 19, 1988, HIFN 002711-2724, 14 pgs.	

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	NPL372	Advanced LZS Technology (ALZS), Whitepaper, Hi/fn, June 1, 1998, HIFN 002725-2727, 3 pgs.	
	NPL373	Secure Tape Technology (STT) Whitepaper, Hi/fn, June 1, 1998, HIFN 002728-2733, 6 pgs.	
	NPL374	SSLRef 3.0 API Details, Netscape, November 19, 1996, HIFN 002734-2778, 45 pgs.	
	NPL375	LZS221-C Version 4 Data Compression Software Data Sheet , Hi/fn, 1994-97, HIFN 002779-2796, 18 pgs.	
	NPL376	MPPC-C Version 4 Data Compression Software Data Sheet, Hi/fn, 1994-1997, HIFN 002797-2810, 14 pgs.	
	NPL377	Magstar MP Hardware Reference B Series Models Document GA32-0365-01, 1996-1997, [IBM_1_601 pages 1-338], 338 pages.	
	NPL378	Magstar MP 3570 Tape Subsystem, Operator Guide, B-Series Models, 1998-1999, [IBM_1_601 pages 339-525], 188 pages.	
	NPL379	Preview, IBM Magstar 3590 Tape System Enhancements, Hardware Announcement, February 16, 1999, [IBM_1_601 pages 526-527], 2 pgs.	
	NPL380	New IBM Magstar 3590 Models E11 and E1A Enhance Tape Drive Performance, Hardware Announcement, April 20, 1999, [IBM_1_601 pages 528-540] 13 pgs.	
	NPL381	NEW IBM Magstar 3590 Model A60 Dramatically Enhances Tape Drive Performance, Hardware Announcement July 27, 1999, [IBM_1_601 pages 541-550] 10 pgs.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	47	of	94	Attorney Docket Number	2855.0050007

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	NPL382	The IBM Magstar MP Tape Subsystem Provides Fast Access to Data, September 3, 1996, Announcement No. 196-176, [IBM_1_601 pages 551-563] 13 pgs.	
	NPL383	IBM 3590 High Performance Tape Subsystem, April 10, 1995, Announcement 195-106, [IBM_1_601 pages 564-581] 18 pgs.	
	NPL384	Standard ECMA-222 (June 1995): ECMA – Standardizing Information and Communications Systems, Adaptive Lossless Data Compression Algorithm, [IBM_1_601 pages 582-601] 20 pgs.	
	NPL385	IBM 3590 and 3494 Revised Availability, Hardware Announcement August 8, 1995, [IBM_743_1241 page 1] 1 pg.	
	NPL386	Direct Delivery of IBM 3494, 3466, and 3590 Storage Products, Hardware Announcement, September 30, 1997, Announcement 197-297, [IBM_743_1241 pages 2-3] 2 pgs.	
	NPL387	IBM Magstar 3590 Enhances Open Systems, Hardware Announcement February 9, 1996, Announcement 198-014, [IBM_743_1241 pages 4-7] 4 pgs.	
	NPL388	Hardware Withdrawal: IBM Magstar 3590 A00 Controller – Replacement Available, Announcement Number 197-267, Withdrawal Announcement, December 9, 1997, [IBM_743_1241 page 9] 1 pg.	
	NPL389	IBM Magstar 3590 Tape Subsystem, Introduction and Planning Guide, Document No. GA32-0329007, [IBM_743_1241 pages 10-499] 490 pgs.	
	NPL390	NetMeeting 2.0 Reviewers Guide, April 1997, [MSCS_298_339] 42 pgs.	
	NPL391	Microsoft NetMeeting Compatible Products and Services Directory, April 1997, [MSCS_242_297] 56 pgs.	

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	NPL392	Microsoft NetMeeting "Try This!" Guide, 1997, [MSCS_340_345] 6 pgs.	
	NPL393	The Professional Companion to NetMeeting 2 – The Technical Guide to Installing, Configuring, and Supporting NetMeeting 2.0 in Your Organization -Microsoft NetMeeting 2.0, 1996-97, [MSCS_2_241] 240 pgs.	
	NPL394	CUSEE Me 3.1.2 User Guide, November 1998, [RAD_1_220] 220 pgs.	
	NPL395	MeetingPoint Conference Server Users Guide 3.0, November 1997, [RAD_221_548] 328 pgs.	
	NPL396	MeetingPoint Conference Server Users Guide 4.0.2, December 1999, [RAD_549_818] 270 pgs.	
	NPL397	MeetingPoint Conference Service Users Guide 3.5.1, December 1998, [RAD_819_1062] 244 pgs.	
	NPL398	Enhanced CUSEE Me – Authorized Guide, 1995-1996, [RAD_1063_1372] 310 pgs.	
	NPL399	Meeting Point Reader File, June 1999, [RAD_1437_1445] 9 pgs.	
	NPL400	Press Release - White Pine Announces Launch of MeetingPoint Conferences Server, October 9, 1997, [RAD_1738_1739] 2 pgs.	
	NPL401	Press Release - Leading Network Service Providers Line Up to Support White Pine's MeetingPoint Conference Server Technology, October 9, 1997, [RAD_1740_1743] 4 pgs.	

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	NPL402	BYTE - A New MeetingPoint for Videoconferencing, October 9, 1997, [RAD_1744_1750] 7 pgs.	
	NPL403	Declaration of Patrick Gogerty, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, executed May 8, 2009, 3 pgs.	
	NPL404	Other Responses to Interrogatories, Requests for Admission, and Objections to Requests for Admission filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL405	Deposition Transcript of persons involved in litigation, including inventor James Fallon, and third-party witnesses Jim Karp, Ke-Chiang Chu, and Frank V. DeRosa filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL406	Office of Rebuttal Expert Reports of Dr. Brian Von Herzen, Lester L. Hewitt and Dr. James A. Storer, and Expert Reports of Dr. James A. Storer and Dr. Nathaniel Polish filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL407	Proposed Amended Infringement Contentions filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL408	Documents Concerning Agreements for Mediations and Mediation Proceedings Between Plaintiffs and Some of the Defendants filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL409	Plaintiff's Opposition to Joint Defendants' Motion for Parital Summary Judgment of Invalidity of some of the patents in Suit for indefiniteness, including the '104 patent, Blue Coat's response to this objection, Blue Coat's Reply to Plaintiff's response and Plaintiff's Sur-Reply to Blue Coat's Reply filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	

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	NPL410	Plaintiff's Amended P.R. 3-1 Disclosures and Infringement Contentions, Defendants' Motions to Strick unauthorized portions of these disclosures, and Sur-Replies to these Motions filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL411	Expert Report of Dr. James A. Storer Regarding Non-Infringement that contains positions related to the validity of the patents in suit filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, filed April 18, 2008 and terminated February 2, 2010. (PTO Notified -- Document NOT submitted)	
	NPL412	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.09.23 Order Dismissing Case in Favor of Texas Action, 1 pg.	
	NPL413	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.09.30 Response to Order re Transfer, 103 pgs.	
	NPL414	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.10.07 Reply Letter regarding Judge Berman 2009.09.23 Order re Transfer, 182 pgs.	
	NPL415	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.10.15 Order Staying Case Until TX Action Decided, 3 pgs.	
	NPL416	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.09.11 Complaint - DJ SD NY, 41 pgs.	
	NPL417	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) 2009.09.11 Rule 7.1 Disclosure Statement for Thomson Reuters, 1 pg.	
	NPL418	Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, No. 09 CV 7868 (S.D.N.Y.) Order- Stay Pending Transfer Motion Confirmed 10_15_09, 3 pgs.	
	NPL419	Opinion and Order of United States Magistrate Judge regarding Claim Construction, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, issued June 22, 2009, 75 pgs.	

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	NPL420	Script for Realties' Technology Tutorial Presented to the Magistrate Judge in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, March 16, 2009, 69 pgs.	
	NPL421	Opinion and Order of United States Magistrate Judge regarding Plaintiff's Motion to Strike Unauthorized New Invalidity Theories from Defendant Citrix's Opening and Reply Briefs in Support of its Motion for Summary Judgment of Invalidity, Realtime Data, LLD/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, issued Dec. 8, 2009, 10 pgs	
	NPL422	Defendant Citrix Systems, Inc.'s Notice Pursuant to 35 U.S.C. Section 282 Disclosures, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 11, 2009, 7 pgs.	
	NPL423	Blue Coat Defendants' Notice Pursuant to 35 U.S.C. Section 282 Disclosures, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 11, 2009, 7 pgs.	
	NPL424	Expand Networks' 35 U.S.C. Section 282 Disclosures, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 11, 2009, 4 pgs.	
	NPL425	Expand Networks' 35 U.S.C. Section 282 Disclosures (Amended), Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 11, 2009, 5 pgs.	
	NPL426	Defendant Citrix Systems, Inc.'s Notice of Obviousness Combinations Pursuant to Court Order, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 11, 2009, 3 pgs.	
	NPL427	Order of United States Magistrate Judge regarding Motion to Limit the Number of Prior Art References to be Asserted at Trial, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 21, 2009, 6 pgs.	
	NPL428	Expand Defendants' Notice of Obviousness Combinations Pursuant to Court Order, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 22, 2009, 3 pgs.	
	NPL429	Blue Coat Systems, Inc. and 7-Eleven, Inc.'s Notice of Obviousness Combinations to be Used at Trial, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 22, 2009, 38 pgs.	

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	NPL430	Defendant Citrix Systems, Inc's Notice of Other Prior Art References Within the Scope of the References Discussed at the Dec. 17, 2009 Hearing, Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed December 29, 2009, 6 pgs.	
	NPL431	Docket Listing downloaded March 10, 2010 for Realtime Data, LLC D/B/A Ixo v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08cv144, filed April 18, 2008, 165 pgs.	
	NPL432	CCITT Draft Recommendation T.4, RFC 804, January 1981, 12 pgs.	
	NPL433	SNA Formats, IBM Corporation, 14th Ed., November 1993, 3 pgs.	
	NPL434	Munteanu et al, "Wavelet-Based Lossless Compression Scheme with Progressive Transmission Capability," John Wiley & Sons, Inc., Int'l J. Imaging Sys. Tech., vol. 10, (1999) pgs 76-85.	
	NPL435	Forchhammer and Jensen, "Data Compression of Scanned Halftone Images," IEEE Trans. Commun., vol. 42, Feb.-Apr. 1994, pgs 1881-1893.	
	NPL436	Christopher Eoyang et al., "The Birth of the Second Generation: The Hitachi S-820/80," Proceedings of the 1998 ACM/IEEE Conference on Supercomputing, pgs 296-303 (1998)	
	NPL437	Transcript for Hearing on Motions for Summary Judgment, Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al, Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, 133 pgs, November 8, 2009.	
	NPL438	Transcript for Motions Hearing (Including Supplemental Claim Construction Hearing), Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al, Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, 88 pgs, November 10, 2009	
	NPL439	Nelson, "The Data Compression Book," M&T Books (2nd Ed. 1996), 283 pgs.	

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	NPL440	"The Authoritative Dictionary of IEEE Standards Terms," 7th Ed. 2000, pg. 273.	
	NPL441	Larousse Dictionary of Science and Technology, 1st Ed., 1995, pg. 916.	
	NPL442	Plaintiff Realtime Data's Motion to Strike Unauthorized New Invalidity Theories from Defendant Citrix's Opening and Reply Briefs in Support Its Motion for Summary Judgment of Invalidity of U.S. Patent No. 7,352,300 (September 22, 2009), 14 pgs.	
	NPL443	Realtime Data's Reply in Support of Its Motion to Strike Unauthorized New Invalidity Theories from Defendant Citrix's Opening and Reply Briefs in Support of Its Motion for Summary Judgment of Invalidity of U.S. Patent No. 7,352,300 (October 19, 2009), 17 pgs.	
	NPL444	Defendant Citrix Systems, Inc.'s Sur-Reply in Opposition to Realtime Data LLC's Motion to Strike Unauthorized New Invalidity Theories from Citrix's Opening and Reply Briefs in Support of Its Motion for Summary Judgment of Invalidity of U.S. Patent No. 7,352,300 (October 30, 2009), 9 pgs.	
	NPL445	Blue Coat Defendants' Response to Realtime Data, LLC's Notice Re Proposed Construction of "Data Storage Rate" (November 11, 2009), 3 pgs.	
	NPL446	Order for Supplemental Briefing on Blue Coat 7-11 Motion for Partial SJ on Non-infringement of Pat 6,601,104 (November 13, 2009), 6 pgs.	
	NPL447	Memorandum Opinion and Order (November 23, 2009), 15 pgs.	
	NPL448	Memorandum Opinion and Order (December 8, 2009), 10 pgs.	
	NPL449	Expand's Conclusions of Fact and Law Regarding Defense of Inequitable Conduct Concerning the Unenforceability of U.S. Patent No. 7,321,937 (November 12, 2009), 3 pgs.	

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	NPL450	Realtime Data's Sur-reply Supplemental Claim Construction Brief Concerning Whether the Asserted Claims of the '104 Patent are Product Claims (December 23, 2009), 6 pgs.	
	NPL451	Order regarding Defendant Citrix Systems, Inc's Notice of Other Prior Art References Within the Scope of the References Discussed at the December 17, 2009 Hearing (December 30, 2009), 3 pgs.	
	NPL452	Network Working group RFC 2068 (Jan. 1997), 163 pgs.	
	NPL453	Network Working group RFC 2616 (Jun. 1999), 114 pgs.	
	NPL454	Network Working group RFC 1945 (May 1996), 61 pgs.	
	NPL455	Network Working group RFC 1950 (May 1996), 10 pgs.	
	NPL456	Network Working group RFC 1951 (May 1996), 15 pgs.	
	NPL457	Network Working group RFC 1952 (May 1996), 12 pgs.	
	NPL458	Notice of Plaintiff Realtime Data LLC's Proposed Supplemental Construction of "Data Storage Rate" In Response to the Court's Comments During the November 10, 2009 Supplemental Claim Construction Hearing (November 10, 2009), 4 pgs.	
	NPL459	Citrix's Amended Invalidity Contentions, Including Appendices G2-G8 (December 15, 2009), 509 pgs.	

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Sheet	55	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL460	"Plaintiff Realtime Data's Opposition to Defendant F5 Networks' Motion for Summary Judgment that Claims 18-20 of U.S. Patent No. 7,321,937 are Invalid (August 25, 2009)" Civil Action No. 6:08-cv-00144-LED Jury Trial Demanded Filed Under Seal; In the United States District Court for the Eastern District of Texas Tyler Division. [Under Seal - Document NOT Submitted]	
	NPL461	Declaration of Dr. James W. Modestino relating to U.S. Patent No. 7,161,506, March 15, 2010, 49 pgs.	
	NPL462	Second Declaration of Dr. George T. Ligler under 37 C.F.R. §1.132 relating to U.S. Patent No. 6,601,104, executed May 5, 2010, 3 pgs.	
	NPL463	Realtime Data, LLC Complaint for Patent Infringement, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. (II), District Court for the Eastern District of Texas, No. 6:10-cv-246, filed May 11, 2010, 24 pages.	
	NPL464	Realtime Data, LLC Complaint for Patent Infringement, Realtime Data, LLC D/B/A IXO v. Thompson Reuters Corporation, et al. (II), District Court for the Eastern District of Texas, No. 6:10-cv-247, filed May 11, 2010, 15 pages.	
	NPL465	Realtime Data, LLC Complaint for Patent Infringement, Realtime Data, LLC D/B/A IXO v. Morgan Stanley, et al. (II), District Court for the Eastern District of Texas, No. 6:10-cv-248, filed May 11, 2010, 27 pages.	
	NPL466	Declaration of Padmaja Chinta In Support of Realtime Data's Reply Claim Construction Brief (including Exhibits A-S), Realtime Data, LLC D/B/A IXO v. Packeteer, Inc., et al., District Court for the Eastern District of Texas, No. 6:08-cv-00144-LED, dated March 30, 2009, 217 pgs.	
	NPL467	Extended European search report issuing from European Patent Application 09150508.1, August 3, 2010, 5 pgs.	
	NPL468	Complaint, Thomson Reuters Corporation v. Realtime Data, LLC D/B/A IXO, Southern District of New York, No. 2:09-cv-7868-RMB, filed September 11, 2009, 6 pages.	
	NPL469	Realtime Data, LLC Complaint for Patent Infringement, Realtime Data, LLC D/B/A IXO v. MetroPCS Texas, LLC et al., District Court for the Eastern District of Texas, No. 6:10-cv-00493, filed September 23, 2010, 14 pages.	

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			Filing Date	September 20, 2013
			First Named Inventor	James J. FALLON
			Art Unit	2634
			Examiner Name	BOCURE, Tesfaldet
			Attorney Docket Number	2855.0050007
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	NPL470	Complaint and Demand for Jury Trial, Chicago Board Options Exchange, Incorporated v. Realtime Data, LLC D/B/A IXO, United States District Court for the Northern District of Illinois, No. 09 CV 4486, filed July 24, 2009, 6 pages.	
	NPL471	Realtime's Response in Opposition to the Defendants' Joint Objections to Report and Recommendation of Magistrate Regarding Motion for Partial Summary Judgment of Invalidity for Indefiniteness, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 27, 2009, 15 pgs.	
	NPL472	Reply to Realtime's Response to Blue Coat Defendants' Objections to Report and Recommendation of United States Magistrate Judge Regarding Motion for Partial Summary Judgment of Invalidity for Indefiniteness Entered June 23, 2009, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, July 31, 2009, 3 pgs.	
	NPL473	Realtime Data's Sur-Reply in Opposition to the Defendants' Joint Objections to Report and Recommendation of Magistrate Regarding Motion for Partial Summary Judgment of Invalidity for Indefiniteness, in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc. et al., Civil Action No. 6:08-cv-00144-LED; U.S. District Court for the Eastern District of Texas, August 3, 2009, 3 pgs.	
	NPL474	Defendants' Invalidity Contentions, Realtime Data, LLC d/b/a IXO, vs. MetroPCS Texas, LLC, et al., Case No. 6:10-CV-00493-LED, In the United States District Court Eastern District of Texas Tyler Division, June 17, 2011, 138 pages.	
	NPL475	Appendix A, Claim Charts A-1 to A-25, from Invalidity Contentions, Realtime Data LLC v. MetroPCS Texas, LLC, et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 173 pages.	
	NPL476	Appendix B, Claim Charts B-1 to B-23, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 809 pages.	
	NPL477	Appendix C, Claim Charts C-1 to C-22, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 530 pages.	
	NPL478	Appendix D, Claim Charts D-1 to D-16, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 253 pages.	
	NPL479	Appendix E, Claim Charts E-1 to E-20, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 397 pages.	

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	NPL480	Appendix F, Claim Charts F-1 to F-19, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 462 pages.	
	NPL481	Appendix G, Claim Charts G-1 to G-18, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 548 pages.	
	NPL482	Appendix H, Claim Charts H-1 to H-22, from Realtime Data LLC v. MetroPCS Texas, LLC et al., Case No. 6:10-CV-00493-LED, June 17, 2011, 151 pages.	
	NPL483	AMIR et al., "An Application Level Video Gateway," 1995, 11 pages.	
	NPL484	KATZ, Randy H. and Eric A. Brewer, "The Bay Area Research Wireless Access Network: Towards a Wireless Overlay Internetworking Architecture," Computer Science Division, EECS Department, U.C. Berkeley, 1995, 56 pages.	
	NPL485	KATZ, R.H. and E.A. Brewer, "The Bay Area Research Wireless Access Network (BARWAN)," UC Berkeley, 1995, 68 pages.	
	NPL486	BRUCKMAN, Alfred and Andreas UHL, "Selective Medical Image Compression Using Wavelet Techniques," June 1998, 23 pages.	
	NPL487	CROWLEY et al., "Dynamic Compression During System Save Operations," May 1, 1984, 3 pages.	
	NPL488	HERSHKOVITS, "Universal Data Compression with Finite-Memory," February 1995, 99 pages.	
	NPL489	KATZ et al., "The Bay Area Research Wireless Access Networks (BARWAN)," 1996, 6 pages.	

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	NPL490	KLEIN, "Compression and Coding in Information Retrieval Systems," June 1987, pages vii-viii, 1-4, 10-15, 22-30, 43-48, 62-66, 86-89, 108-111.	
	NPL491	REGHBATI, "An Overview of Data Compression Techniques," April 1981, pages 71-75.	
	NPL492	Defendants' Joint Preliminary Invalidity Contentions filed in Realtime Data, LLC D/B/A IXO v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, United States District Court for the Eastern District of Texas Tyler Division, December 8, 2008, 19 pages.	
	NPL493	Appendix A, Claim Charts A-1 to A-46, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 345 pages.	
	NPL494	Appendix B, Claim Charts B-1 to B-17, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 1893 pages.	
	NPL495	Appendix C, Claim Charts C-1 to C-34, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 1,055 pages.	
	NPL496	Appendix D, Claim Charts D-1 to D-14, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 197 pages.	
	NPL497	Appendix E, Claim Charts E-1 to E-11, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 735 pages.	
	NPL498	Appendix F, Claim Charts F-1 to F-11, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 775 pages.	
	NPL499	Appendix G Claim Charts G-1 to G-8 from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 567 pages.	

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	NPL500	Appendix H, Claim Charts H-1 to H-18, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 97 pages.	
	NPL501	Appendix I, Claim Charts I-1 to I-18, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 146 pages.	
	NPL502	Appendix J, Prior Art Chart, from Realtime Data, LLC v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-144-LED, December 8, 2008, 25 pages.	
	NPL503	Realtime Data, LLC's [Corrected] P.R. 3-1 Disclosures and Preliminary Infringement Contentions filed in Realtime Data, LLC D/B/A/IXO v. Packeteer, Inc., et al., Civil Action No. 6:08-cv-00144-LED, United States District Court for the Eastern District of Texas Tyler Division, October 8, 2008, 591 pages.	
	NPL504	Amended Answer and Counterclaims of Defendants Blue Coat Systems, Inc., Packeteer, Inc., 7-Eleven, Inc., ABM Industries, Inc., ABM Janitorial Services-South Central, Inc., and Build-A-Bear Workshop, Inc. to Plaintiff's First Amended Complaint for Patent Infringement filed in Realtime Data, LLC d/b/a/IXO v. Packeteer, Inc., et al., Civil Action No. 6:08cv144-LED, United States District Court for the Eastern District of Texas Tyler Division, October 28, 2008, 81 pages.	
	NPL505	"Packeteer iShaper, PacketShaper and iShared Appliances Drive Intelligent Application Acceleration Across Coogee Resources Wide Area Network", Business Wire, accessed on August 25, 2008, 2 pages.	
	NPL506	WHITING, Doug, "Deflate vs. LZS", November, 2000, 2 pages.	
	NPL507	"The Packeteer Q4 2005 Financial Conference Call", January 26, 2006, 9 pages.	
	NPL508	"Data Compression Ratio", Wikipedia, the free encyclopedia, accessed on August 10, 2011 from <a href="http://en.wikipedia.org/wiki/Data_compression_ratio">http://en.wikipedia.org/wiki/Data_compression_ratio</a> , 2 pages.	
	NPL509	"Hard Disk Data Control Method", IBM Technical Disclosure Bulletin NN9302301, Vol. 36, No. 2, February 1993, pages 301-302.	

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	NPL510	Defendants' Supplemental Invalidity Contentions, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed May 17, 2012, 54 pages.	
	NPL511	Expert Report of Michael Brogioli Regarding Asserted Claims of U.S. Patent Nos. 7,417,568 and 7,777,651, with Exhibit A: List of Materials Reviewed, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 26 pages.	
	NPL512	Exhibit 1, Curriculum Vitae of Michael C. Brogioli, from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 9 pages.	
	NPL513	Exhibit 2, [Proposed] Order Adopting the Parties' Agreed Claim Constructions, from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 6 pages.	
	NPL514	Exhibit 3, The Parties' Disputed Claim Constructions, revised May 3, 2012, from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 6 pages.	
	NPL515	Exhibit 4, E-Mail Correspondence between James Shalek and Brett Cooper, dated May 17 and 18, 2012, from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 3 pages.	
	NPL516	Exhibit 5, Source Code Chart for U.S. Pat. No. 7,417,568 comparing representative elements of the NQDSLIB source code (April 29, 2002 or earlier), from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 3 pages.	

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	NPL517	Exhibit 6, Source Code Chart for U.S. Pat. No. 7,417,568 comparing representative elements of the NQDSLIB source code (May 02, 2002 or earlier), from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 3 pages.	
	NPL518	Exhibit 7, Source Code Chart for U.S. Pat. No. 7,777,651 comparing representative elements of the NQDSLIB source code (April 29, 2002 or earlier), from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 21 pages.	
	NPL519	Exhibit 8, Source Code Chart for U.S. Pat. No. 7,777,651 comparing representative elements of the NQDSLIB source code (May 02, 2002 or earlier), from Expert Report, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 21 pages.	
	NPL520	Invalidity Expert Report of Dr. James A. Storer (Redacted), filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 227 pages.	
	NPL521	Defendants' Claim Construction Tutorial, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 15, 2012, 54 pages.	
	NPL522	Opinion and Order (Markman), filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 22, 2012, 41 pages.	
	NPL523	Opinion and Order (Partial Motion for Summary Judgment re Written Description: "Data Packets"), filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 26, 2012, 8 pages.	

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	NPL524	Opinion and Order (Partial Motion for Summary Judgment re Data Decompression) filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 27, 2012, 21 pages.	
	NPL525	Technology Tutorial (.exe file), presentation filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed June 2012 (submitted on accompanying CD-ROM).	
	NPL526	Lilley, J., et al., "A Unified Header Compression Framework for Low-Bandwidth Links," MobiCom 2000, August 6-11, 2000. Boston, MA, 12 pages.	
	NPL527	"WAN Link Compression on HP Routers," Hewlett Packard Application Note, May 1995, 7 pages.	
	NPL528	"User Manual for XMill," 2001, 21 pages.	
	NPL529	"High Speed Network, Developer's Guide," Standard & Poor's Comstock, Version 1.1, 1994, pages 1-42, and 53-124.	
	NPL530	Larmouth, J., "ASN.1 Complete", Academic Press, 2000, pages xxi-xxvii, 1-45, 115-130, 168-172, 174, 270-276, and 443-472.	
	NPL531	Petty, J., "PPP Hewlett-Packard Packet-by-Packet Compression (HP PPC) Protocol," draft-ietf-ppext-hpppc-00.txt., October 1993, 7 pages.	
	NPL532	Friend, R., et al., "IP Payload Compression Using LZS," Network Working Group, Request for Comments: 2395, Category: Informational, December 1998; 9 pages.	
	NPL533	"Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation," Series X: Data Networks and Open System Communications, OSI networking and system aspects - Abstract Syntax Notation One (ASN.1), International Telecommunication Union, ITU-T Recommendation X.680, December 1997, 109 pages.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	63	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL534	"Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER), Series X: Data Networks and Open System Communications, OSI networking and system aspects - Abstract Syntax Notation One (ASN.1), International Telecommunication Union, ITU-T Recommendation X.691, December 1997, 51 pages.	
	NPL535	Opinion and Order, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed September 24, 2012, 48 pages.	
	NPL536	Memorandum Opinion and Order, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed October 1, 2012, 22 pages.	
	NPL537	T-Mobile's Motion for Leave to Supplement Trial Witness List & Invalidity Contentions, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 16 pages.	
	NPL538	Exhibit 2, Defendant T-Mobile's Supplemental Invalidity Contentions, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 13 pages.	
	NPL539	Exhibit 3, FNLTD-74478, Flash Networks: Commercial Part Written by Flash Networks for Cegetel, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 6 pages.	
	NPL540	Exhibit 4, FNLTD-74444, Response to Cegetel RFP: Technical Section, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 5 pages.	
	NPL541	Exhibit 5, FNLTD-74926, Flash Networks Optimization Products Selected by AT&T Wireless, Flash Networks, Inc. Press Release, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 3 pages.	
	NPL542	Exhibit 6, Flash Networks: Harmony, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 6 pages.	
	NPL543	Exhibit 7, Declaration of Adi Weiser, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 4 pages.	
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	NPL544	Exhibit 8, Declaration of Yoav Weiss, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 4 pages.	
	NPL545	Exhibit 9, Declaration of Richard Luthi, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 4 pages.	
	NPL546	Exhibit 13, Declaration of Gali Weiss, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 4 pages.	
	NPL547	Exhibit 17, P.R. 3-1 Claim Chart for T-Mobile, U.S. Patent No. 7,161,506, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed December 17, 2012, 33 pages.	
	NPL548	"Flash Networks Introduces NettGain 1100, New Products for Carriers & Enterprises that Enables Immediate Deployment of Wireless Data Solutions," Press Release, dated March 20, 2001, 2 pages.	
	NPL549	Amended Expert Report of Dr. Cliff Reader, filed in Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC, et al., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed July 30, 2012, 205 pages.	
	NPL550	Final Judgment, filed in Realtime Data, LLC, d/b/a IXO, v. T-Mobile USA, Inc., Civil Action No. 6:10-cv-00493, United States District Court for the Eastern District of Texas, filed March 28, 2013, 1 page.	
	NPL551	Final Judgment Pursuant to Fed. R. Civ. P. 45(b), filed in Realtime Data LLC, d/b/a IXO, v. CME Group Inc., et al., Civil Action No. 1:11-cv-06697, United States District Court Southern District of New York, dated November 9, 2012, 10 pages.	
	NPL552	Final Judgment Pursuant to Fed. R. Civ. P. 45(b), filed in Realtime Data LLC, d/b/a IXO, v. Morgan Stanley, et al., Civil Action No. 1:11-cv-06696, United States District Court Southern District of New York, dated November 9, 2012, 10 pages.	
	NPL553	Final Judgment Pursuant to Fed. R. Civ. P. 45(b), filed in Realtime Data LLC, d/b/a IXO, v. Thomson Reuters Corporation, et al., Civil Action No. 1:11-cv-06698, United States District Court Southern District of New York, dated November 9, 2012, 6 pages.	

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	NPL554	Opinion and Order (Motion 10), filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed August 2, 2012, 13 pages.	
	NPL555	Supplemental Order, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed November 9, 2012, 5 pages.	
	NPL556	Memorandum & Order, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed August 2, 2012, 13 pages.	
	NPL557	Amended Opinion & Order, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Civil Action No. 1:11-cv-6696, Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al., Civil Action No. 1:11-cv-6697, and Realtime Data, LLC d/b/a IXO v. Thomson Reuters, et al., Civil Action No. 1:11-cv-6698, United States District Court Southern District of New York, filed August 15, 2012, 48 pages.	
	NPL558	Non-Confidential Brief for Plaintiff-Appellant Realtime Data, LLC d/b/a IXO, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley et al., Case Nos. 2013-1092, -1093, -1095, -1097, -1098, -1099, -1100, -1101, and -1103, United States Court of Appeals for the Federal Circuit, filed March 6, 2013, 80 pages.	
	NPL559	Non-Confidential Brief for Defendants - Appellees CME Group, Inc., Board of Trade of the City of Chicago, Inc., The New York Mercantile Exchange, Inc., BATS Trading, Inc., and NASDAQ OMX Group, Inc. and NASDAQ OMX PHLX, Inc., filed in Realtime Data, LLC d/b/a IXO v. CME Group, Inc., et al., Case Nos. 13-1093, -1097, and -1100, United States Court of Appeals for the Federal Circuit, filed May 20, 2013, 74 pages.	
	NPL560	Non-Confidential Reply Brief for Plaintiff-Appellant Realtime Data, LLC d/b/a IXO, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Case Nos. 13-1092, -1093, -1095, -1097, -1098, -1099, -1100, -1101, and -1103, United States Court of Appeals for the Federal Circuit, filed June 19, 2013, 53 pages.	
	NPL561	ChangeLog file for zlib, zlib.net/ChangeLog.txt file, accessed on May 23, 2013, with date references April 11, 1995 - April 28, 2013, 26 pages.	
	NPL562	2.0.39 Kernel Release History, accessed at lwn.net/2001/1018/a/hist-2.0.39.php3, dated October 14, 2001, 8 pages.	

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	NPL563	"Linux Kernel," Wikipedia - the Free Encyclopedia, accessed at en.wikipedia.org/wiki/Linux_kernel, accessed on May 9, 2013, 20 pages.	
	NPL564	RUBINI, A., "Booting the Kernel," accessed at www.linux.it/~rubini/docs/boot/, June 1997, 6 pages.	
	NPL565	ZADOK, E., et al., "Fast Indexing: Support for Size-Changing Algorithms in Stackable File Systems," Proceedings of the 2001 Annual USENIX Technical Conference, June 2001, 16 pages.	
	NPL566	Court Docket History for 6:10-cv-00493-LED Realtime Data, LLC d/b/a IXO, v. MetroPCS Texas, LLC et al., downloaded August 9, 2013, 78 pages.	
	NPL567	Court Docket History for 1:09-cv-04486 Chicago Board Options Exchange, Incorporated v. Realtime Data, LLC, downloaded August 9, 2013, 7 pages.	
	NPL568	Court Docket History for 6:08-cv-00144-LED-JDL Realtime Data, LLC d/b/a IXO v. Packeteer, Inc. et al., downloaded August 9, 2013, 119 pages.	
	NPL569	Court Docket History for 6:09-cv-00326-LED-JDL Realtime Data, LLC d/b/a IXO, v. Morgan Stanley et al., downloaded August 9, 2013, 45 pages.	
	NPL570	Court Docket History for 6:09-cv-00327-LED-JDL Realtime Data, LLC d/b/a IXO, v. CME Group Inc. et al., downloaded August 9, 2013, 56 pages.	
	NPL571	Court Docket History for 6:09-cv-00333-LED-JDL Realtime Data, LLC d/b/a IXO v. Thomson Reuters et al., downloaded August 9, 2013, 30 pages.	
	NPL572	Court Docket History for 1:09-cv-07868-RMB Thomson Reuters Corporation v. Realtime Data, LLC, downloaded August 9, 2013, 3 pages.	
	NPL573	Notice of Allowance in Commonly-Assigned U.S. Application. No. 11/651,366, issued April 10, 2009, 7 pgs.	

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	NPL574	Copy of Non-Final Office Action for U.S. Appl. No. 12/684,624, mailed November 10, 2010, 5 pgs.	
	NPL575	Copy of Notice of Allowance for U.S. Appl. No. 12/123,081, mailed February 17, 2011, 7 pgs.	
	NPL576	Copy of Non-Final Office Action for U.S. Appl. No. 12/688,413, mailed September 27, 2010, 13 pgs.	
	NPL577	Copy of Notice of Allowance for U.S. Appl. No. 11/551,211, mailed January 31, 2011, 4 pgs.	
	NPL578	Copy of Notice of Allowance for U.S. Appl. No. 11/551,211, mailed September 22, 2010, 4 pgs.	
	NPL579	Copy of Notice of Allowance for U.S. Appl. No. 11/551,204, mailed January 11, 2011, 4 pgs.	
	NPL580	Copy of Notice of Allowance for U.S. Appl. No. 11/553,419, mailed September 22, 2010, 4 pgs.	
	NPL581	Copy of Non-Final Office Action for U.S. Appl. No. 11/400,008, mailed November 23, 2010, 7 pgs.	
	NPL582	Copy of Notice of Allowance for U.S. Appl. No. 11/651,365, mailed February 4, 2010, 8 pgs.	
	NPL583	Copy of Notice of Allowance for U.S. Appl. No. 11/651,365, mailed November 19, 2009, 8 pgs.	

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	NPL584	Copy of Non-Final Office Action for U.S. Appl. No. 09/969,987, mailed August 27, 2010, 13 pgs.	
	NPL585	Copy of Final Office Action for U.S. Appl. No. 09/969,987, mailed January 28, 2010, 11 pgs.	
	NPL586	Copy of Notice of Allowance for U.S. Appl. No. 12/131,631, mailed June 22, 2010, 5 pgs.	
	NPL587	Copy of Final Office Action for U.S. Appl. No. 11/400,008, mailed October 30, 2009, 7 pgs.	
	NPL588	Copy of Final Office Action for U.S. Appl. No. 11/400,008, mailed May 11, 2010, 7 pgs.	
	NPL589	Copy of Notice of Allowance for U.S. Appl. No 11/551,204, mailed September 30, 2010; 4 pages	
	NPL590	Copy of Non-Final Office Action for U.S. Appl. No.11/551,204, mailed June 16, 2009, 5 pgs.	
	NPL591	Copy of Notice of Allowance for U.S. Appl. No. 11/551,204, mailed June 21, 2010, 4 pgs.	
	NPL592	Copy of Non-Final Office Action for U.S. Appl. No.11/551,204, mailed September 22, 2008, 9 pgs.	
	NPL593	Copy of Notice of Allowance for U.S. Appl. No. 11/551,204, mailed January 27, 2010, 4 pgs.	

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	NPL594	Copy of Non-Final Office Action for U.S. Appl. No.12/690,125, mailed September 21, 2010, 12 pgs.	
	NPL595	Copy of Notice of Allowance for U.S. Appl. No 11/553,427, mailed March 24, 2011, 5 pages	
	NPL596	Copy of Notice of Allowance for U.S. Appl. No 12/703,042, mailed May 5, 2011, 8 pages.	
	NPL597	Copy of Notice of Allowance for U.S. Appl. No 11/551,211, mailed May 6, 2011, 5 pages	
	NPL598	Copy of Notice of Allowance for U.S. Appl. No 11/553,419, mailed May 20, 2011, 5 pages	
	NPL599	Copy of Final Office Action for U.S. Appl. No. 09/969,987, mailed May 24, 2011, 17 pgs.	
	NPL600	Copy of Notice of Allowance for U.S. Appl. No. 11/553,427, mailed May 31, 2011, 5 pages.	
	NPL601	Copy of Final Office Action for U.S. Appl. No. 12/690,125, mailed June 7, 2011, 11 pages.	
	NPL602	Copy of Final Office Action for U.S. Appl. No. 12/688,413, mailed June 7, 2011, 15 pages.	
	NPL603	Copy of Final Office Action for U.S. Appl. No. 11/400,008, mailed June 27, 2011, 6 pages.	

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	NPL604	Copy of Notice of Allowance for U.S. Appl. No. 11/551,204, mailed July 11, 2011, 5 pages.	
	NPL605	Copy of Notice of Allowance for U.S. Appl. No. 12/684,624, mailed July 25, 2011, 5 pages.	
	NPL606	Copy of Non-Final Office Action for U.S. Appl. No. 12/703,042, mailed July 28, 2011, 5 pages.	
	NPL607	Copy of Non-Final Office Action for U.S. Appl. No. 12/857,238, mailed August 10, 2011, 6 pages.	
	NPL608	Copy of Non-Final Office Action for U.S. Appl. No. 13/101,994, mailed August 16, 2011, 10 pages.	
	NPL609	Copy of Notice of Allowance for U.S. Appl. No. 11/551,211, mailed August 24, 2011, 5 pages.	
	NPL610	Copy of Notice of Allowance for U.S. Appl. No. 12/684,624, mailed September 1, 2011, 9 pages.	
	NPL611	Copy of Notice of Allowance for U.S. Appl. No. 12/123,081, mailed September 26, 2011, 9 pages.	
	NPL612	Copy of Notice of Allowance for U.S. Appl. No. 11/551,204, mailed September 28, 2011, 5 pages.	
	NPL613	Copy of Notice of Allowance for U.S. Appl. No. 11/551,211, mailed October 18, 2011, 5 pages.	

Examiner Signature		Date Considered	
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Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
Sheet	71	of	94		

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL614	Copy of Non-Final Office Action for U.S. Appl. No. 13/154,239, mailed November 2, 2011, 6 pages.	
	NPL615	Copy of Notice of Allowance for U.S. Appl. No. 12/703,042, mailed November 15, 2011, 8 pages.	
	NPL616	Copy of Non-Final Office Action for U.S. Appl. No. 12/688,413, mailed November 28, 2011, 14 pages.	
	NPL617	Copy of Notice of Allowance for U.S. Appl. No. 12/857,238, mailed December 30, 2011, 5 pages.	
	NPL618	Copy of Notice of Allowance for U.S. Appl. No. 11/400,008, mailed February 6, 2012, 8 pages.	
	NPL619	Copy of Non-Final Office Action for U.S. Appl. No. 12/690,125, mailed March 8, 2012, 7 pages.	
	NPL620	Copy of Notice of Allowance for U.S. Patent Appl. No. 12/703,042, mailed March 30, 2012, 8 pages.	
	NPL621	Copy of Non-Final Office Action for U.S. Appl. No. 09/969,987, mailed April 11, 2012, 6 pages.	
	NPL622	Copy of Notice of Allowance for U.S. Appl. No. 11/553,419, mailed April 23, 2012, 6 pages.	
	NPL623	Copy of Notice of Allowance for U.S. Appl. No. 11/553,427, mailed May 7, 2012, 7 pages.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	72	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL624	Copy of Non-Final Office Action for U.S. Appl. No. 13/118,122, mailed May 16, 2012, 9 pages.	
	NPL625	Copy of Non-Final Office Action for U.S. Appl. No. 13/101,994, mailed May 23, 2012, 12 pages.	
	NPL626	Copy of Notice of Allowance for U.S. Appl. No. 12/857,238, mailed May 29, 2012, 5 pages.	
	NPL627	Copy of Notice of Allowance for U.S. Appl. No. 11/400,008, mailed June 21, 2012, 8 pages.	
	NPL628	Copy of Final Office Action for U.S. Appl. No. 13/154,239, mailed June 26, 2012, 14 pages.	
	NPL629	Copy of Notice of Allowance for U.S. Appl. No. 12/857,238, mailed July 12, 2012, 5 pages.	
	NPL630	Copy of Notice of Allowance for U.S. Appl. No. 12/703,042, mailed July 16, 2012, 8 pages.	
	NPL631	Copy of Non-Final Office Action for U.S. Appl. No. 13/482,800, mailed July 20, 2012, 14 pages.	
	NPL632	Copy of Notice of Allowance for U.S. Appl. No. 11/553,427, mailed November 6, 2012, 5 pages.	
	NPL633	Copy of Notice of Allowance for U.S. Appl. No. 12/703,042, mailed November 15, 2012, 9 pages.	

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				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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NON PATENT LITERATURE DOCUMENTS			
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	NPL634	Copy of Non-Final Office Action for U.S. Appl. No. 12/857,238, mailed November 29, 2012, 17 pages.	
	NPL635	Copy of Final Office Action for U.S. Appl. No. 09/969,987, mailed December 4, 2012, 7 pages.	
	NPL636	Copy of Final Office Action for U.S. Appl. No. 13/101,994, mailed December 13, 2012, 5 pages.	
	NPL637	Copy of Supplemental Notice of Allowability for U.S. Appl. No. 12/703,042, mailed December 18, 2012, 6 pages.	
	NPL638	Copy of Notice of Allowance for U.S. Appl. No. 12/690,125, mailed December 28, 2012, 5 pages.	
	NPL639	Copy of Final Office Action for U.S. Appl. No. 13/118,122, mailed January 9, 2013, 11 pages.	
	NPL640	Copy of Non-Final Office Action for U.S. Appl. No. 11/553,419, mailed January 15, 2013, 4 pages.	
	NPL641	Copy of Non-Final Office Action for U.S. Appl. No. 13/482,800, mailed February 19, 2013, 15 pages.	
	NPL642	Copy of Notice of Allowance for U.S. Appl. No. 12/703,042, mailed March 4, 2013, 9 pages.	
	NPL643	Copy of Non-Final Office Action for U.S. Appl. No. 12/690,125, mailed April 15, 2013, 11 pages.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
Sheet	74	of	94		

NON PATENT LITERATURE DOCUMENTS			
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	NPL644	Copy of Notice of Allowance for U.S. Appl. No. 13/154,239, mailed April 24, 2013, 10 pages.	
	NPL645	Copy of Notice of Allowance for U.S. Appl. No. 11/553,427, mailed May 14, 2013, 6 pages.	
	NPL646	Copy of Supplemental Notice of Allowance for U.S. Appl. No. 11/553,427, mailed May 15, 2013, 6 pages.	
	NPL647	Copy of Notice of Allowance for U.S. Appl. No. 12/857,238, mailed June 17, 2013, 6 pages.	
	NPL648	Copy of Supplemental Notice of Allowance for U.S. Appl. No. 12/703,042, mailed June 18, 2013, 6 pages.	
	NPL649	Copy of Supplemental Notice of Allowance for U.S. Appl. No. 11/553,427, mailed July 2, 2013, 2 pages.	
	NPL650	Copy of Non-Final Office Action for U.S. Appl. No. 09/969,987, mailed July 3, 2013, 8 pages.	
	NPL651	Copy of Notice of Allowance for U.S. Appl. No. 13/154,211, mailed July 11, 2013, 10 pages.	
	NPL652	Copy of Non-Final Office Action for U.S. Appl. No. 13/118,122, mailed July 19, 2013, 12 pages.	
	NPL653	Copy of Notice of Allowance for U.S. Appl. No. 13/154,239, mailed August 2, 2013, 9 pages.	

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Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
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NON PATENT LITERATURE DOCUMENTS			
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	NPL654	Copy of Notice of Allowance for U.S. Appl. No. 13/118,122, mailed September 19, 2013, 6 pages.	
	NPL655	Copy of Notice of Allowance for U.S. Appl. No. 11/553,419, mailed October 17, 2013, 7 pages.	
	NPL656	Copy of Notice of Allowance for U.S. Appl. No. 12/857,238, mailed October 23, 2013, 7 pages.	
	NPL657	Copy of Notice of Allowance for U.S. Appl. No. 13/154,211, mailed October 24, 2013, 9 pages.	
	NPL658	Copy of Final Office Action for U.S. Appl. No. 13/482,800, mailed October 25, 2013, 21 pages.	
	NPL659	International Search Report for PCT/US00/42018, mailed July 31, 2001, 3 pages.	
	NPL660	International Search Report for PCT/US01/03712, mailed May 10, 2002, 2 pages.	
	NPL661	International Search Report for PCT/US01/03711, mailed January 28, 2001, 5 pages.	
	NPL662	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 6,604,158, March 3, 2011, 5 pgs.	
	NPL663	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,415,530, March 3, 2011, 14 pgs.	

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Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
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NON PATENT LITERATURE DOCUMENTS			
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	NPL664	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 6,601,104, March 3, 2011, 5 pgs.	
	NPL665	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,161,506, March 3, 2011, 12 pgs.	
	NPL666	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,395,345, March 3, 2011, 14 pgs.	
	NPL667	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,321,937, March 3, 2011, 14 pgs.	
	NPL668	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,352,300, March 3, 2011, 14 pgs.	
	NPL669	Copy of submission of prior art under 37 CFR 1.501, for U.S. Pat. No. 7,378,992, March 3, 2011, 14 pgs.	
	NPL670	Ex Parte Reexamination Interview Summary, mailed December 3, 2009, for U.S. Reexam App. No. 90/009,428, 4 pgs.	
	NPL671	Request for Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed December 30, 2010, 696 pages.	
	NPL672	Replacement Request for Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, filed March 1, 2011, 357 pages.	
	NPL673	L. Gannoun, "RTP Payload Format for X Protocol Media Streams," Audio-Visual Transport WG Internet Draft, Internet Engineering Task Force, March 11, 1998, 15 pgs.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	77	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL674	Official Order Granting Request for Inter Partes Reexamination of U.S. Pat. No. 6,624,761, Control No. 95/000,464, issued July 24, 2009, 29 pgs.	
	NPL675	Non-Final Office Action in Inter Partes Reexamination of U.S. Pat. No. 6,624,761, Control No. 95/000,464, issued December 15, 2009, 20 pgs.	
	NPL676	Non-Final Office Action in Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466, issued June 22, 2009, 11 pgs.	
	NPL677	Official Order Granting Request for Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466, issued June 22, 2009, 16 pgs.	
	NPL678	Official Action Closing Prosecution for Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466, issued December 22, 2009, 20 pgs.	
	NPL679	Comments by Third Party Requester to Patent Owner's Response Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, filed November 10, 2009, 30 pgs.	
	NPL680	Supplemental Declaration of Professor James A. Storer, Ph.D. under 37 C.F.R. §1.132 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, executed on November 10, 2009, 16 pgs.	
	NPL681	Examiner Interview Summary in Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, issued December 3, 2009, 3 pgs.	
	NPL682	Non-Final Office Action in Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, issued November 2, 2009, 13 pgs.	
	NPL683	Official Order Granting Request for Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, issued June 1, 2009, 12 pgs.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	78	of	94	Attorney Docket Number	2855.0050007

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	NPL684	Declaration of Dr. George T. Ligler under 37 C.F.R. §1.132 in Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, executed December 28, 2009 16 pgs.	
	NPL685	Supplementary Declaration of Dr. George T. Ligler under 37 C.F.R. §1.132 in Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, executed December 30, 2009 1 pg.	
	NPL686	Declaration of Dr. George T. Ligler under 37 C.F.R. §1.132 in Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466, executed August 24, 2009, 30 pgs.	
	NPL687	Official Order Granting Request for Inter Partes Reexamination of U.S. Pat. No. 7,161,506, Control No. 95/000,479, issued August 14, 2009, 41 pgs.	
	NPL688	Non-Final Office Action in Inter Partes Reexamination of U.S. Pat. No. 7,161,506, Control No. 95/000,479, issued December 15, 2009, 37 pgs.	
	NPL689	Official Order Granting Request for Inter Partes Reexamination of U.S. Pat. No. 7,378,992, Control No. 95/000,478, issued August 13, 2009, 60 pgs.	
	NPL690	Non-Final Office Action in Inter Partes Reexamination of U.S. Pat. No. 7,378,992, Control No. 95/000,478, issued December 15, 2009, 27 pgs.	
	NPL691	Official Order Granting Request for Inter Partes Reexamination of U.S. Pat. No. 6,604,158 Control No. 95/000,486, issued August 14, 2009, 35 pgs.	
	NPL692	Non-Final Office Action in Inter Partes Reexamination of U.S. Pat. No. 6,604,158, Control No. 95/000,486, issued November 12, 2009, 199 pgs.	
	NPL693	Right of Appeal Notice in Inter Partes Reexamination of U.S. Pat. No. 6,624,761, Control No. 95/000,464, issued January 6, 2011, 15 pgs.	

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				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	79	of	94	Attorney Docket Number	2855.0050007

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	NPL694	Action Closing Prosecution in Inter Partes Reexamination of U.S. Pat. No. 6,624,761, Control No. 95/000,464, issued August 27, 2010, 25 pgs.	
	NPL695	Right of Appeal Notice in Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466, issued May 24, 2010, 23 pgs.	
	NPL696	Final Office Action in Ex Parte Reexamination of U.S. Pat. No. 6,601,104, Control No. 90/009,428, issued February 5, 2010, 16 pgs.	
	NPL697	Right of Appeal Notice for Inter Partes Reexamination of U.S. Pat. No. 7,161,506, Control No. 95/000,479, issued January 6, 2011, 18 pgs.	
	NPL698	Action Closing Prosecution in Inter Partes Reexamination of U.S. Pat. No. 7,161,506, Control No. 95/000,479, issued August 27, 2010, 34 pgs.	
	NPL699	Right of Appeal Notice for Inter Partes Reexamination of U.S. Pat. No. 7,378,992, Control No. 95/000,478, issued January 6, 2011, 15 pgs.	
	NPL700	Action Closing Prosecution in Inter Partes Reexamination of U.S. Pat. No. 7,378,992, Control No. 95/000,478, issued August 23, 2010, 31 pgs.	
	NPL701	Action Closing Prosecution in Inter Partes Reexamination of U.S. Pat. No. 6,604,158 Control No. 95/000,486, issued March 7, 2011, 257 pgs.	
	NPL702	Patent Owner's reply to Office Action in Inter Partes Reexamination of U.S. Patent No. 7,378,992, mailed March 15, 2010, 23 pages.	
	NPL703	Patent Owner's Reply to Office Action in Inter Partes Reexamination of U.S. Patent No. 7,161,506, mailed March 15, 2010, 23 pages.	

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				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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	NPL704	Patent Owner's Reply to Action Closing Prosecution of August 23, 2010 in Inter Partes Reexamination of U.S. Patent 7,378,992, mailed September 23, 2010, 23 pages.	
	NPL705	Patent Owner's Reply to Action Closing Prosecution of August 27, 2010 in Inter Partes Reexamination of U.S. Patent No. 7,161,506, mailed September 27, 2010, 26 pages.	
	NPL706	Patent Owner's reply to Action Closing Prosecution of August 27, 2010 in Inter Partes Reexamination of U.S. Patent No. 6,624,761, mailed September 27, 2010, 20 pages.	
	NPL707	Corrected Request for Inter Partes Reexamination of U.S. Patent No. 6,624,761, filed June 15, 2009, 241 pages.	
	NPL708	Request for Inter Partes Reexamination of U.S. Patent No. 7,378,992, filed May 21, 2009, 255 pages.	
	NPL709	Request for Inter Partes Reexamination of U.S. Patent No. 7,161,506, filed May 28, 2009, 455 pages.	
	NPL710	Request for Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, filed March 21, 2011, 2,136 pages.	
	NPL711	Request for Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, filed February 14, 2011, 420 pages.	
	NPL712	Action Closing Prosecution in Inter Partes Reexamination of U.S. Pat. No. 7,321,937, Control No. 95/000,466 issued December 22, 2009, 20 pages.	
	NPL713	Order Granting request for inter partes reexamination of U.S. Patent No. 7,400,274 and Non-Final Office Action in Inter Partes reexam of U.S. Patent No. 7,400,274, Control No. 95/001,544, issued March 25, 2011, 47 pages.	

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	81	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL714	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed May 20, 2011, 47 pages.	
	NPL715	Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed June 15, 2011, 22 pages.	
	NPL716	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,553, mailed May 6, 2011, 105 pages.	
	NPL717	Order Granting Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed March 9, 2011, 21 pages.	
	NPL718	Appeal Brief filed in Inter Partes Reexamination of U.S. Patent No. 6,601,104, Control no. 90/009,428, mailed September 2, 2010, 28 pages	
	NPL719	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, mailed July 18, 2011, 33 pages.	
	NPL720	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed July 25, 2011, 274 pages.	
	NPL721	Non-Final Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed September 21, 2011, 29 pages.	
	NPL722	Definition of "data packet", Academic Press Dictionary of Science and Technology, Copyright 1992, 1996, cited by Examiner in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed September 21, 2011, 2 pages.	
	NPL723	Patent Owner's Reply to Office Action in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed September 26, 2011, 44 pages.	

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	NPL724	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 6,624,761, Control No. 95/000,464, mailed September 28, 2011, 20 pages.	
	NPL725	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control no. 95/000,479, mailed September 28, 2011, 25 pages.	
	NPL726	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, mailed September 29, 2011, 27 pages.	
	NPL727	Decision on Appeal in Ex parte Reexamination of U.S. Patent No. 6,601,104 B1, Control No. 90/009,428, dated March 18, 2011, 14 pages.	
	NPL728	Patent Owner's Rebuttal Brief Under 37 C.F.R § 41.71 Retracting the Arguments Made to Overcome the Claim Rejections and Thereby Eliminating the Issues on Appeal in Inter Partes Reexamination of U.S. Patent No, 6,624,761, Control No. 95/000,464, dated October 28, 2011, 9 pages.	
	NPL729	Patent Owner's Rebuttal Brief Under 37 C.F.R § 41.71 Retracting the Arguments Made to Overcome the Claim Rejections and Thereby Eliminating the Issues on Appeal in Inter Partes Reexamination of U.S. Patent No, 7,378,992, Control No. 95/000,478, dated October 28, 2011, 10 pages.	
	NPL730	Patent Owner's Rebuttal Brief Under 37 C.F.R § 41.71 Retracting the Arguments Made to Overcome the Claim Rejections and Thereby Eliminating the Issues on Appeal in Inter Partes Reexamination of U.S. Patent No, 7,161,506, Control No. 95/000,479, dated October 28, 2011, 9 pages.	
	NPL731	Non-Final Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed November 18, 2011, 39 pages.	
	NPL732	Non-Final Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed December 9, 2011, 42 pages.	
	NPL733	Patent Owner's Reply to Action Closing Prosecution of November 18, 2011 in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed December 19, 2011, 9 pages.	

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				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	83	of	94	Attorney Docket Number	2855.0050007

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	NPL734	Patent Owner's Reply to Action Closing Prosecution of December 9, 2011 in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed December 29, 2011, 14 pages.	
	NPL735	Notice of Intent to Issue Ex Parte Reexamination Certificate in Ex Parte Reexamination of U.S. Patent No. 6,601,104, Control No. 90/009,428, mailed January 13, 2012, 5 pages.	
	NPL736	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 6,624,761, Control No. 95/000,464, mailed January 18, 2012, 5 pages.	
	NPL737	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, mailed January 18, 2012, 8 pages.	
	NPL738	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, mailed January 18, 2012, 5 pages.	
	NPL739	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/000,479, mailed January 18, 2012, 6 pages.	
	NPL740	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed January 27, 2012, 152 pages.	
	NPL741	Patent Owner's Respondent Brief on Appeal Under 37 C.F.R. § 41.68 in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed February 17, 2012, 20 pages.	
	NPL742	Patent Owner's Reply to Second Non-Final Office Action of January 27, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, filed February 24, 2012, 30 pages.	
	NPL743	Ex Parte Reexamination Certificate in Ex Parte Reexamination of U.S. Patent No. 6,601,104, Control No. 90/009,428, issued February 28, 2012, 2 pages.	

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				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	84	of	94	Attorney Docket Number	2855.0050007

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	NPL744	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed March 1, 2012, 4 pages.	
	NPL745	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed March 1, 2012, 8 pages.	
	NPL746	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed March 6, 2012, 7 pages.	
	NPL747	Request for Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed March 2, 2012, including accompanying Exhibits PA-A to PA-D, PAT-A to PAT-C, CC-A to CC-D, Oth-A, and Form PTO/SB/08a, 2865 pages.	
	NPL748	Request for Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, filed March 2, 2012, including accompanying Exhibits PA-A to PA-D, PAT-A to PAT-B, CC-A to CC-F, Oth-A, and Form PTO/SB/08a, 560 pages.	
	NPL749	Request for Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,924, filed March 2, 2012, including accompanying Exhibits PA-A to PA-H, PAT-A to PAT-B, CC-A to CC-F, Oth-A, and Form PTO/SB/08a, 1012 pages.	
	NPL750	Request for Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, filed March 2, 2012, including accompanying Exhibits PA-A to PA-C, PAT-A, CC-A to CC-C, Oth-A, and Form PTO/SB/08a, 204 pages.	
	NPL751	Request for Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, filed March 2, 2012, with accompanying Exhibits PA-A to PA-C, PAT-A to PAT-C, CC-A to CC-B, Oth-A to Oth-B, and Form PTO/SB/08a, 2651 pages.	
	NPL752	Request for Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, filed March 2, 2012, including accompanying Exhibits PA-A to PA-F, PAT-A to PAT-B, CC-A to CC-O, Oth-A, and Form PTO/SB/08a, 700 pages.	
	NPL753	Request for Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, filed March 2, 2012, including Exhibits PA-A to PA-D, PAT-A to PAT-C, CC-A to CC-B, Oth-A, and Form PTO/SB/08a, 2316 pages.	

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			Examiner Name	BOCURE, Tesfaldet
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Sheet	85	of	94	

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	NPL754	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, mailed March 19, 2012, 11 pages.	
	NPL755	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, mailed March 19, 2012, 20 pages.	
	NPL756	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, mailed March 21, 2012, 7 pages.	
	NPL757	Right of Appeal Notice for Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/000,486, mailed March 26, 2012, 253 pages.	
	NPL758	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 6,624,761, Control No. 95/000,464, mailed April 3, 2012, 7 pages.	
	NPL759	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/000,479, mailed April 4, 2012, 15 pages.	
	NPL760	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, mailed April 6, 2012, 5 pages.	
	NPL761	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control no. 95/001,922, mailed April 20, 2012, 17 pages.	
	NPL762	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed April 20, 2012, 8 pages.	
	NPL763	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed April 25, 2012, 9 pages.	

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	NPL764	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed April 25, 2012, 7 pages.	
	NPL765	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed April 25, 2012, 8 pages.	
	NPL766	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed April 25, 2012, 8 pages.	
	NPL767	Official Order Denying Request for Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed April 27, 2012, 52 pages.	
	NPL768	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, mailed May 7, 2012, 14 pages.	
	NPL769	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, mailed May 7, 2012, 8 pages.	
	NPL770	Petition Under 37 C.F.R. §§ 1.181 and 1.182 for Correction of Notice of Intent to Issue Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, filed May 9, 2012, 8 pages.	
	NPL771	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/000,466, issued May 15, 2012, 2 pages.	
	NPL772	Official Order Granting Request for Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,924, mailed May 17, 2012, 12 pages.	
	NPL773	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,924, mailed May 17, 2012, 18 pages.	

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	NPL774	Patent Owner's Response to Office Action of March 19, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, filed May 21, 2012, 21 pages.	
	NPL775	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/000,479, issued May 22, 2012, 2 pages.	
	NPL776	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 6,624,761, Control No. 95/000,464, issued June 12, 2012, 2 pages.	
	NPL777	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed June 18, 2012, 45 pages.	
	NPL778	Patent Owner's Response to Office Action of April 20, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed June 20, 2012, 11 pages.	
	NPL779	Patent Owner's Response to Office Action of April 25, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, filed June 25, 2012, 20 pages.	
	NPL780	Patent Owner's Response to Office Action of April 25, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, filed June 25, 2012, 20 pages.	
	NPL781	Patent Owner's Response to Office Action of May 7, 2012 in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, filed July 9, 2012, 19 pages.	
	NPL782	Patent Owner's Response to Office Action of May 17, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control. No. 95/001,924, filed July 17, 2012, 31 pages.	
	NPL783	New Decision on Appeal after Board Decision in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control. No. 95/001,517, mailed July 24, 2012, 24 pages.	

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	NPL784	Right of Appeal Notice for Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed August 3, 2012, 7 pages.	
	NPL785	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/000,486, mailed August 30, 2012, 5 pages.	
	NPL786	Notice of Intent to Issue Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, mailed August 31, 2012, 6 pages.	
	NPL787	Decision on Petition for Supervisory Review of Refusal to Order Reexamination for Claims 1-2, 16-21, and 23 (37 CFR §§ 1.927 and 1.181) in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed August 31, 2012, 10 pages.	
	NPL788	Decision on Petition Under 37 C.F.R. §§ 1.181 and 1.182 for Correction of Notice of Intent to Issue Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, mailed September 10, 2012, 6 pages.	
	NPL789	Decision on Petition for Supervisory Review of Refusal to Order Reexamination of Claims 5-7, 14-16, and 18-19 (37 CFR §§ 1.927 and 1.181) in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed September 10, 2012, 12 pages.	
	NPL790	Decision on Petition for Supervisory Review of Refusal to Order Reexamination for Claims 86, 89, 90, 92-96, and 98 (37 CFR §§ 1.927 and 1.181) in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed September 21, 2012, 10 pages.	
	NPL791	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed September 21, 2012, 15 pages.	
	NPL792	Patent Owner's Request to Reopen Prosecution Before the Examiner Under 37 C.F.R. § 41.77(b) in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed September 24, 2012, 29 pages.	
	NPL793	Examiner's Answer to Appeal Brief in Ex Parte Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed October 1, 2012, 17 pages.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	89	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL794	Inter Partes Reexam Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/000,478, issued October 4, 2012, 2 pages.	
	NPL795	Inter Partes Reexam Certificate in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/000,486, issued October 10, 2012, 2 pages.	
	NPL796	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed October 15, 2012, 44 pages.	
	NPL797	Non-Final Office Action in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed October 18, 2012, 10 pages.	
	NPL798	Patent Owner's Rebuttal Brief Under 37 C.F.R § 41.71 in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, filed November 15, 2012, 15 pages.	
	NPL799	Patent Owner's Response to Office Action of October 18, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed November 19, 2012, 30 pages.	
	NPL800	Patent Owner's Supplemental Amendment Subsequent to Timely Submission of Response to Office Action of October 18, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed November 27, 2012, 6 pages.	
	NPL801	Patent Owner's Response to Office Action of September 21, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, filed December 21, 2012, 51 pages.	
	NPL802	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed March 5, 2013, 23 pages.	
	NPL803	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed March 5, 2013, 29 pages.	

Examiner Signature		Date Considered	
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	90	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL804	Examiner's Answer to Appeal Brief in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed March 14, 2013, 21 pages.	
	NPL805	Decision on Petition to Strike Patent Owner's Rebuttal Brief in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed March 15, 2013, 7 pages.	
	NPL806	Order Remanding Inter Partes Reexamination Under 37 C.F.R. § 41.77(d) to the Examiner in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed March 18, 2013, 3 pages.	
	NPL807	Decision on Petition Under 37 C.F.R. § 1.183 to Request Examiner Enter Evidence in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed March 20, 2013, 7 pages.	
	NPL808	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed April 3, 2013, 24 pages.	
	NPL809	Patent Owner's Reply to Action Closing Prosecution of March 5, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, filed April 5, 2013, 19 pages.	
	NPL810	Patent Owner's Reply to Action Closing Prosecution of March 5, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, filed April 5, 2013, 23 pages.	
	NPL811	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed April 9, 2013, 59 pages.	
	NPL812	"Data Transfer Rate (DTR)," accessed at <a href="http://searchunifiedcommunications.techtarget.com/definition/data-transfer-rate">http://searchunifiedcommunications.techtarget.com/definition/data-transfer-rate</a> , published May 18, 2011, 1 page.	
	NPL813	"Bandwidth - technical definition," accessed at <a href="http://computer.yourdictionary.com/bandwidth">http://computer.yourdictionary.com/bandwidth</a> , accessed on March 7, 2013, 4 pages.	

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Substitute for form 1449/PTO			<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Application Number	14/033,245
			Filing Date	September 20, 2013
			First Named Inventor	James J. FALLON
			Art Unit	2634
			Examiner Name	BOCURE, Tesfaldet
			Attorney Docket Number	2855.0050007
Sheet	91	of	94	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL814	"Bandwidth - Definition," accessed at <a href="http://www.yourdictionary.com/bandwidth">http://www.yourdictionary.com/bandwidth</a> , accessed on March 7, 2013, 2 pages.	
	NPL815	"Bandwidth," accessed at <a href="http://searchenterprisewan.techtarget.com/definitions/bandwidth">http://searchenterprisewan.techtarget.com/definitions/bandwidth</a> , published March 24, 2010, 1 page.	
	NPL816	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,924, mailed April 9, 2013, 30 pages.	
	NPL817	Examiner's Determination Under 37 C.F.R. § 41.77(d) in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed April 10, 2013, 7 pages.	
	NPL818	Patent Owner's Supplemental Response to Office Action of May 7, 2012 in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, filed April 29, 2013, 20 pages.	
	NPL819	Patent Owner's Supplemental Response to Office Action of March 19, 2012 in Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, filed May 6, 2013, 24 pages.	
	NPL820	Patent Owner's Response to Action Closing Prosecution of April 9, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed May 9, 2013, 13 pages.	
	NPL821	Patent Owner's Response to Action Closing Prosecution of April 9, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,924, filed May 9, 2013, 29 pages.	
	NPL822	Patent Owner's Comments in Response to Examiner's Determination Under 37 C.F.R. § 41.77(e) in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed May 10, 2013, 20 pages.	
	NPL823	Patent Owner's Supplemental Response to Action Closing Prosecution of April 9, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, filed May 15, 2013, 13 pages.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	92	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
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	NPL824	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed May 31, 2013, 26 pages.	
	NPL825	Petition Under 37 C.F.R. § 1.181 to Expunge Third Party Requester's Improper Submission of Declarations Under 37 C.F.R. § 1.132 and Strike Comments Directed to Examiner's Determination in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed June 26, 2013, 6 pages.	
	NPL826	Notice of Intent to Issue A Reexam Certificate in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, mailed July 19, 2013, 5 pages.	
	NPL827	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed August 15, 2013, 12 pages.	
	NPL828	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed August 16, 2013, 11 pages.	
	NPL829	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,415,530, Control No. 95/001,927, issued August 16, 2013, 2 pages.	
	NPL830	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed August 16, 2013, 11 pages.	
	NPL831	Right of Appeal Notice in Inter Partes Reexamination of U.S. Patent No. 7,352,300, Control No. 95/001,925, mailed August 29, 2013, 23 pages.	
	NPL832	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, mailed September 20, 2013, 47 pages.	
	NPL833	Decision on Petition(s) Decided Under 37 C.F.R. 1.181 in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed September 23, 2013, 3 pages.	

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
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				Examiner Name	BOCURE, Tesfaldet
Sheet	93	of	94	Attorney Docket Number	2855.0050007

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL834	Action Closing Prosecution in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, mailed October 2, 2013, 18 pages.	
	NPL835	Patent Owner's Reply to Action Closing Prosecution of September 20, 2013 in Inter Partes Reexamination of U.S. Patent No. 7,395,345, Control No. 95/001,925, filed October 21, 2013, 9 pages.	
	NPL836	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed November 1, 2013, 18 pages.	
	NPL837	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed November 1, 2013, 12 pages.	
	NPL838	Decision on Appeal in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed November 1, 2013, 15 pages.	
	NPL839	Patent Owner's Reply to Action Closing Prosecution of October 2, 2013 in Inter Partes Reexamination of U.S. Patent No. 6,604,158, Control No. 95/001,923, filed November 4, 2013, 9 pages.	
	NPL840	Notice of Intent to Issue A Reexam Certificate in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed November 13, 2013, 8 pages.	
	NPL841	Court Docket History for 6:10-cv-00493-LED-JDL, Realtime Data, LLC d/b/a IXO, v. T-Mobile, USA Inc., dated July 8, 2013, 77 pages.	
	NPL842	Court Docket History for 1:11-cv-06696-RJH, Realtime Data, LLC d/b/a IXO, v. Morgan Stanley et al., dated July 8, 2013, 80 pages.	
	NPL843	Court Docket History for 1:11-cv-06697-UA, Realtime Data, LLC d/b/a IXO, v. CME Group Inc. et al., dated July 8, 2013, 105 pages.	

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				Attorney Docket Number	2855.0050007
Sheet	94	of	94		

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	NPL844	Court Docket History for 1:11-cv-06698-UA, Realtime Data, LLC d/b/a IXO, v. Thomson Reuters et al., dated July 8, 2013, 59 pages.	
	NPL845	U.S. Patent Application No. 14/035,561, James J. FALLON, "Data Compression Systems and Methods," filed September 24, 2013.	
	NPL846	U.S. Patent Application No. 14/035,712, FALLON et al., "Methods for Encoding and Decoding Data," filed September 24, 2013.	
	NPL847	U.S. Patent Application No. 14/035,716, FALLON et al., "Methods for Encoding and Decoding Data," filed September 24, 2013.	
	NPL848	U.S. Patent Application No. 14/035,719, FALLON et al., "Methods for Encoding and Decoding Data," filed September 24, 2013.	

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.





US007415530C1

(12) **INTER PARTES REEXAMINATION CERTIFICATE** (671st)

**United States Patent**

(10) **Number:** **US 7,415,530 C1**

**Fallon**

(45) **Certificate Issued:** **Aug. 16, 2013**

(54) **SYSTEM AND METHODS FOR ACCELERATED DATA STORAGE AND RETRIEVAL**

(56) **References Cited**

(75) Inventor: **James J Fallon**, Armonk, NY (US)

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/001,927, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

(73) Assignee: **Realtime Data LLC**, New York, NY (US)

*Primary Examiner* — Mark Sager

**Reexamination Request:**

No. 95/001,927, Mar. 2, 2012

(57) **ABSTRACT**

**Reexamination Certificate for:**

Patent No.: **7,415,530**  
Issued: **Aug. 19, 2008**  
Appl. No.: **11/553,426**  
Filed: **Oct. 26, 2006**

Systems and methods for providing accelerated data storage and retrieval utilizing lossless data compression and decompression. A data storage accelerator includes one or a plurality of high speed data compression encoders that are configured to simultaneously or sequentially losslessly compress data at a rate equivalent to or faster than the transmission rate of an input data stream. The compressed data is subsequently stored in a target memory or other storage device whose input data storage bandwidth is lower than the original input data stream bandwidth. Similarly, a data retrieval accelerator includes one or a plurality of high speed data decompression decoders that are configured to simultaneously or sequentially losslessly decompress data at a rate equivalent to or faster than the input data stream from the target memory or storage device. The decompressed data is then output at rate data that is greater than the output rate from the target memory or data storage device. The data storage and retrieval accelerator method and system may employed: in a disk storage adapter to reduce the time required to store and retrieve data from computer to disk; in conjunction with random access memory to reduce the time required to store and retrieve data from random access memory; in a display controller to reduce the time required to send display data to the display controller or processor; and/or in an input/output controller to reduce the time required to store, retrieve, or transmit data.

Certificate of Correction issued Dec. 2, 2008

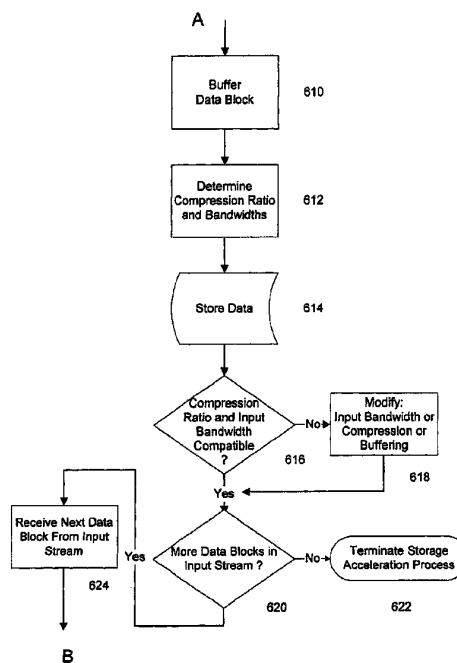
**Related U.S. Application Data**

(63) Continuation of application No. 10/628,795, filed on Jul. 28, 2003, now Pat. No. 7,130,913, which is a continuation of application No. 09/266,394, filed on Mar. 11, 1999, now Pat. No. 6,601,104.

(51) **Int. Cl.**  
**G06F 15/16** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **709/231**

(58) **Field of Classification Search**  
None  
See application file for complete search history.



1

**INTER PARTES  
REEXAMINATION CERTIFICATE  
ISSUED UNDER 35 U.S.C. 316**

THE PATENT IS HEREBY AMENDED AS  
INDICATED BELOW.

**Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1, 2, 16-21** and **23** is confirmed. New claims **24-26** are added and determined to be patentable.

Claims **3-15** and **22** were not reexamined.

24. *A system comprising:  
a memory device; and*

*a data accelerator, wherein said data accelerator is coupled to said memory device, a data stream is received by said data accelerator in received form, wherein a bandwidth of the received data stream is determined, said data stream includes a first data block and a second data block, said data stream is compressed by said data*

2

*accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, wherein a data rate of the compressed data stream is adjusted, by modifying a system parameter, to make a bandwidth of the compressed data stream compatible with a bandwidth of the memory device, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said first data block.*

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25. *The system of claim 1, wherein the data accelerator is configured to append a type descriptor to the first and second compressed data blocks in the compressed data stream, and wherein the type descriptor includes values corresponding to a plurality of encoding techniques that were applied to the compressed data stream.*

26. *The system of claim 1, wherein the data accelerator is configured to adjust the data rate of the compressed data stream by adjusting a compression ratio of a lossless encoder.*

\* \* \* \* \*

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	17476829
<b>Application Number:</b>	14033245
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	9902
<b>Title of Invention:</b>	Systems and Methods for Video and Audio data Storage and Distribution.
<b>First Named Inventor/Applicant Name:</b>	James J. Fallon
<b>Customer Number:</b>	26111
<b>Filer:</b>	Michael V. Messinger/Stacy Jen
<b>Filer Authorized By:</b>	Michael V. Messinger
<b>Attorney Docket Number:</b>	2855.0050007
<b>Receipt Date:</b>	22-NOV-2013
<b>Filing Date:</b>	20-SEP-2013
<b>Time Stamp:</b>	17:19:31
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		28550050007_IDS.pdf	2103637 <small>df8aff46bbfca3c23db8e03fcs15216300927c1</small>	yes	131

Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Miscellaneous Incoming Letter			1	1	
Transmittal Letter			2	8	
Information Disclosure Statement (IDS) Form (SB08)			9	131	
<b>Warnings:</b>					
<b>Information:</b>					
2	Non Patent Literature	NPL551_Final_Judgment_CME Group_11092012.pdf	1344649 373fe4f6fbdf5ff6dcbdd3a9fc3d48a80345f c3	no	10
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<b>Information:</b>					
3	Non Patent Literature	NPL552_Final_Judgment_Morgan_Stanley_11092012.pdf	1069805 41e76c1cbd2d75e159a83fada0c4a02d7ee 78746	no	8
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<b>Information:</b>					
4	Non Patent Literature	NPL553_Final_Judgment_Reuters_11092012.pdf	799270 d9e05acce05f0666fc613f90d626932fb905 b33e	no	6
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<b>Information:</b>					
5	Non Patent Literature	NPL554_Opinion_and_Order_Motion10_11092012.pdf	1816205 3601487059305ac57bfad8433d5ef9d2ac2 5451	no	13
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<b>Information:</b>					
6	Non Patent Literature	NPL555_Suppl_Order_11092012.pdf	738190 61c7538770e931714bb5b8e759ba1a8fed6 9cebc	no	5
<b>Warnings:</b>					
<b>Information:</b>					
7	Non Patent Literature	NPL556_Memorandum_Opinion_re_Shamos_Decl_08022012.pdf	1873341 4f7eddd0bdec6795f329e54e872babb3054 09303	no	13
<b>Warnings:</b>					
<b>Information:</b>					
8	Non Patent Literature	NPL557_Amended_Opinion_and_Order_11152012.pdf	321164 ea65f366aef22a03c5061abd0d11a690094 d8fc	no	48
<b>Warnings:</b>					

<b>Information:</b>					
9	Non Patent Literature	NPL558_Realtime_Opening_Appeal_Brief_FC_03062013.pdf	570728 c1dac3335e654b00ecb07b3e8e03cd2d27e4f74f	no	80
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<b>Information:</b>					
10	Non Patent Literature	NPL559_13_1093_1097_1100_Defendants_Brief_05202013.pdf	374328 452d1365ca9464b1f92f9488142d3ee93232e2db	no	74
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<b>Information:</b>					
11	Non Patent Literature	NPL560_Realtime_Reply_Brief_FC_06192013.pdf	245540 c1ae4da8040c3bd5928d5fd1cf87abc54a462f83	no	53
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<b>Information:</b>					
12	Non Patent Literature	NPL566_MetroPCS_Court_Docket_History_08092013.pdf	544360 66118984dd3d2473bedd07151a9cbf8015c9d54f	no	78
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<b>Information:</b>					
13	Non Patent Literature	NPL567_CBOE_Court_Docket_History_08092013.pdf	218428 d68728b3e9a8257ed3351076d4a5776bd0f534ca	no	7
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<b>Information:</b>					
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<b>Warnings:</b>					
<b>Information:</b>					
15	Non Patent Literature	NPL569_Morgan_Stanley_Court_Docket_History_08092013.pdf	385600 cf7f774638308706145dcb4b292500e626473d5	no	45
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16	Non Patent Literature	NPL570_CME_Court_Docket_History_08092013.pdf	433514 ac50cf2311170a4bde64b723ec5f83c85315d89	no	56
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17	Non Patent Literature	NPL571_Thomson_Reuters_Court_Docket_History_08092013.pdf	318481 d1ad9413ec0b12978a48112f3a73cc0487f39525	no	30
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18	Non Patent Literature	NPL572_07868_Thomson_Court_Docket_History_08092013.pdf	197904 8e279312444b9fd6d1001ef70716db0af7988a2e	no	3
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19	Non Patent Literature	NPL653_NOA_13154239_08022013.pdf	414586 d98f5d6c2da56740604f5fc9a1d57a8a9fbbbafl	no	9
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20	Non Patent Literature	NPL654_NOA_13118122_09192013.pdf	341506 9a0a4d3f1a76ca5d170426689a09e01fb671d1ff	no	6
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21	Non Patent Literature	NPL655_NOA_11553419_10172013.pdf	354839 6d2763490f2702e2c512616f2319a6f2d5b6a53e	no	7
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22	Non Patent Literature	NPL656_NOA_12857238_10232013.pdf	353942 178fd0a84800f5ed91681eb043dfddc2dde b023d	no	7
<b>Warnings:</b>					
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23	Non Patent Literature	NPL657_NOA_13154211_10242013.pdf	416268 518c46b9275d9d28a0ee053e60d909a98a955192	no	9
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24	Non Patent Literature	NPL658_FOA_13482800_10252013.pdf	789005 87a9f4e7ccc0be6466335ab242db6e5d8d46d757	no	21
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25	Non Patent Literature	NPL826_NIIRC_95001927_07192013.pdf	173370 f857861aa7dd83d461807f127b49cb01dca63587	no	5
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26	Non Patent Literature	NPL827_Right_of_Appeal_Notice_95001922_08152013.pdf	406321 1e5b30bc6c5d3b3c54095ac6454ddb5e5f39d10	no	12
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27	Non Patent Literature	NPL828_Right_of_Appeal_Notice_95001926_08162013.pdf	384675 014249c6cf4fbec658379dbfd06d7aa0369529db	no	11
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28	Non Patent Literature	NPL829_Reexam_Certificate_95001927_08162013.pdf	101168 ca06d7a002351e6094fd4f4333c26905ae757b71	no	2
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29	Non Patent Literature	NPL830_Right_of_Appeal_Notice_95001928_08162013.pdf	440915 6d37682c3f839f195702c1b1ab11e73b1abfe34	no	11
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30	Non Patent Literature	NPL831_Right_of_Appeal_Notice_95001924_08292013.pdf	888486 6262979377575e4988485139729e8023b0e8f38b	no	23
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31	Non Patent Literature	NPL832_ACP_95001925_09202013.pdf	2945982 87703c7552f1971faa9ed8671aa0ea119991fd65	no	47
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32	Non Patent Literature	NPL833_Petition_Decision_Dismissed_95001517_09232013.pdf	113785 951e8543c9dee7d847b47d8232ab1ec9268999e	no	3
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33	Non Patent Literature	NPL834_ACP_95001923_10022013.pdf	677602 077622ca7b48b22b8efbfbb5fa3906ce51f55833	no	18
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34	Non Patent Literature	NPL835_PO_Reply_ACP_95001925_10212013.pdf	482168 5303ba1d23458604bcc55649bf1e87e7ee89fa97	no	9
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35	Non Patent Literature	NPL836_Board_Decision_95001533_11012013.pdf	679650 97338b3f45338b9b2bbcl6643a2d234f3f49647a	no	18
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36	Non Patent Literature	NPL837_Board_Decision_95001544_11012013.pdf	397667 a7e8ea01fa47033ad846c1a52108b36551392a62	no	12
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37	Non Patent Literature	NPL838_Board_Decision_95001581_11012013.pdf	544263 8770484906e3abe570e3eaa6f8b50ac5e3a82d7f	no	15
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38	Non Patent Literature	NPL839_PO_Comments_to_AC P_95001923_11042013.pdf	452144 0aac3156bd5966c73e71eb93ddb3b1e67ff27246	no	9
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39	Non Patent Literature	NPL840_NIIRC_95001922_11132013.pdf	252931 c7d78495e67ee1dd4dec32737666af85ddc1c10b	no	8
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40	Non Patent Literature	NPL841_610cv00493_Court_Docket_History_07082013.pdf	540991 c3ab7973bfaf147058299e1b2776ab2a54eb79b0	no	77
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41	Non Patent Literature	NPL842_111cv06696_Court_Docket_History_07082013.pdf	536740 e6ce62ee66db82ca5418ff66024fa86bf1eaf442	no	80
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42	Non Patent Literature	NPL843_111cv06697_Court_Docket_History_07082013.pdf	697204 f67aa3d4d4cd4dccc9d9f6c8fa0c9c94f1aa302d2	no	105
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43	Non Patent Literature	NPL844_111cv06698_Court_Docket_History_07082013.pdf	449060 3932cc4478c447b20f40f373692f5bf6bd207a	no	59
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>					27920220



**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

MICHAEL V. MESSINGER  
DIRECTOR  
(202) 772-8667  
MIKEM@SKGF.COM



November 22, 2013

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

**Confirmation No. 9902**  
**Art Unit 2634**  
**Attn: Mail Stop Amendment**

Re: U.S. Utility Patent Application  
Application No. 14/033,245; Filing Date: September 20, 2013  
For: **Bandwidth Sensitive Data Compression and Decompression**  
Inventors: FALLON *et al.*  
Our Ref: 2855.0050007

Commissioner:

Transmitted herewith for appropriate action are the following documents:

1. Information Disclosure Statement;
2. Form PTO/SB/08a (29 sheets) listing 593 documents (**US1-US566** and **FP1-FP27**);
3. Form PTO/SB/08b (94 sheets) listing 848 documents (**NPL1-NPL848**); and
4. Copies of cited documents (**NPL551-NPL560**, **NPL566-NPL572**, **NPL653-NPL658**, and **NPL826-NPL844**).

***The above-listed documents are filed electronically through EFS-Web.***

In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

MVM/ssj  
Enclosures

1777969\_1.DOCX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: 14/033,245

Filed: September 20, 2013

For: **Bandwidth Sensitive Data  
Compression and Decompression**

Confirmation No.: 9902

Art Unit: 2634

Examiner: BOCURE, Tesfaldet

Atty. Docket: 2855.0050007

**Information Disclosure Statement**

*Mail Stop Amendment*

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Notice of Prior and Concurrent Proceedings

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,486)	Inter Partes Reexamination Certificate issued 10/10/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/000,466)	Inter Partes Reexamination Certificate issued 05/15/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,453)	Terminated
<i>Ex Parte</i> Reexamination of U.S. Patent No. 6,601,104 (Control No. 90/009,428)	Ex Parte Reexamination Certificate issued 02/28/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/000,478)	Inter Partes Reexamination Certificate issued 10/04/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,624,761 (Control No. 95/000,464)	Inter Partes Reexamination Certificate issued 06/12/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/000,479)	Inter Partes Reexamination Certificate issued 05/22/2012

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,714,747 (Control No. 95/001,517)	Decision on Petition Under 37 C.F.R. § 1.181 mailed 09/23/2013; Petition to Expunge Third Party Requester's Improper Submission of Declarations and Strike Comments Directed to Examiner's Determination filed 06/26/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,417,568 (Control No. 95/001,533)	Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,777,651 (Control No. 95/001,581)	Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,400,274 (Control No. 95/001,544)	Decision on Appeal mailed 11/01/2013

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings filed by Cellco Partnership d/b/a Verizon Wireless, involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/001,922)	Notice of Intent to Issue a Reexam Certificate mailed 11/13/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/001,923)	Patent Owner's Reply to Action Closing Prosecution filed 11/04/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,352,300 (Control No. 95/001,924)	Right of Appeal Notice mailed 08/29/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,395,345 (Control No. 95/001,925)	Patent Owner's Reply to Action Closing Prosecution filed 10/21/2013; Action Closing Prosecution mailed 09/20/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/001,926)	Right of Appeal Notice mailed 08/16/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,415,530 (Control No. 95/001,927)	<i>Inter Partes</i> Reexamination Certificate issued 08/16/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/001,928)	Right of Appeal Notice mailed 08/16/2013

Applicants invite the Examiner to review the Requests for Reexamination, issued Office Actions, replies, and any other papers in the above-identified reexamination proceedings. If the Examiner is unable to obtain copies of papers in any reexamination proceeding, copies can be provided to the Examiner upon request. Those documents which may be material that are not already of record in this patent application are listed on the accompanying Form PTO/SB/08. For example, documents related to the reexaminations are listed at NPL670-NPL840.

Notice of Related Litigation

Applicants notify the Patent and Trademark Office of the following litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

No.	Case	Status
1	<i>Realtime Data LLC d/b/a IXO v. Packeteer, Inc. et al.</i> , No. 6:08-cv-00144-LED (E.D. Texas)	Dismissed

Applicants also notify the Patent and Trademark Office of the following additional litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

No.	Case	Status
2	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al.</i> No. 1:11-cv-06698-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00333-LED)	Notice of Appeal Filed
3	<i>Realtime Data LLC d/b/a IXO v. Morgan Stanley et al.</i> , No. 1:11-cv-06696-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00326-LED)	Notice of Appeal Filed
4	<i>Realtime Data LLC d/b/a IXO v. CME Group Inc., et al.</i> , No. 1:11-cv-06697-RJH (S.D. New York)	Notice of Appeal Filed

	(transferred from E.D. Texas; No. 6:09-cv-00327-LED)	
5	<i>Chicago Board Options Exchange, Inc., v. Realtime Data LLC d/b/a IXO</i> , No. 09-cv-4486 (N.D. Ill.)	Dismissed
6	<i>Thomson Reuters Corporation v. Realtime Data, LLC d/b/a IXO</i> , No. 1:09-cv-07868-RMB (S.D.N.Y)	Consolidated with Case No. 2
7	<i>Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al. (II)</i> , No. 6:10-cv-246 (E.D. Texas)	Consolidated with Case No. 4
8	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al. (II)</i> , No. 6:10-cv-247 (E.D. Texas)	Consolidated with Case No. 2
9	<i>Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al. (II)</i> , No. 6:10-cv-248 (E.D. Texas)	Consolidated with Case No. 3
10	<i>Realtime Data, LLC d/b/a IXO v. MetroPCS Texas, LLC et al.</i> , No. 6:10-cv-00493 (E.D. Texas)	Notice of Appeal Filed

Updated court docket for litigations previously disclosed and pending are submitted herewith as NPL566-NPL572 and NPL841-NPL844.

Information Disclosure Statement

Listed on accompanying IDS Forms PTO/SB/08a equivalent and/or PTO/SB/08b equivalent are documents that may be considered material to the patentability of this application as defined in 37 C.F.R. §1.56, and in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing of a first Office Action and after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.

Documents US1-US566 and FP1-FP27 are cited on the attached form PTO/SB/08A. Documents NPL1-NPL848 are cited on the attached form PTO/SB/08B. Copies of documents NPL551-NPL560, NPL566-NPL572, NPL653-NPL658, and NPL826-NPL844 are submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited on the attached IDS Forms are submitted.

Copies of documents FP1-FP27, NPL1-NPL550, NPL561-NPL565, NPL573-NPL652, and NPL659-NPL825 and concise explanations of the relevance of non-English language documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. 13/154,239, filed June 6, 2011 (now U.S. Patent No. 8,553,759), which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

Additionally, copies of documents NPL845-NPL848, cited on the attached IDS Form, are not provided in accordance with the U.S. Patent and Trademark Office Official Gazette notice of October 19, 2004, which states: "the requirement in 37 C.F.R. § 1.98(a)(2)(iii) for a legible copy of the specification, including the claims, and drawings of each cited pending U.S. patent application (or portion of the application which caused it to be listed) is *sua sponte* waived where the cited pending application is stored in the USPTO's IFW system."

Applicants submit herewith actions from co-pending, commonly assigned U.S. Patent Applications as documents NPL573-NPL658. The identification of these actions is not to be construed as a waiver of secrecy as to those applications now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited applications and the art cited therein during examination.

It is expected that the examiner will review the prosecution and cited art in the parent application nos. 10/076,013, filed February 13, 2002 (now U.S. Patent No. 7,386,046); 12/123,081, filed May 19, 2008 (now U.S. Patent No. 8,073,047); and 13/154,239, filed June 6, 2011 (now U.S. Patent No. 8,553,759), in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

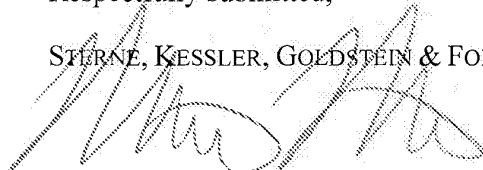
It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.



The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

Date: \_\_\_\_\_

*Nov. 22, 2013*

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/033,245	09/20/2013	James J. Fallon	2855.0050007	9902

26111                      7590                      12/05/2013  
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER

BOCURE, TESFALDET

ART UNIT	PAPER NUMBER
2634	

MAIL DATE	DELIVERY MODE
12/05/2013	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



**DETAILED ACTION**

1. The present application is being examined under the pre-AIA first to invent provisions.
2. This office action (Restriction/Election Requirements) is in response to the application as originally filed on 9/20/2013.

***Election/Restrictions***

3. This application contains claims directed to the following patentable distinct species: Claims 1-22 and 28-30, Group I and Claims 23-27, Group II. The species are independent or distinct because the different species recited the mutually exclusive characteristics of such species, and provide a description of the mutually exclusive characteristics of each species or grouping of species. In other word, the claimed "compressing data block using first and second asymmetric lossy compression routing having a corresponding storing device claimed in Group II is not required by Group I. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic. There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply: the

Art Unit: 2634

grouping, Group I and Group II, having patentably indistinct species have acquired a separate status in the art due to their recognized divergent subject matter.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the

evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TESHALDET BOCURE whose telephone number is (571)272-3015. The examiner can normally be reached on Mon-Th, 8:30-6:00 and 8:30-5:00 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DANIEL C. WASHBURN can be reached on (571)272-5551. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number: 14/033,245  
Art Unit: 2634

Page 5

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TESFALDET BOCURE/  
Primary Examiner, Art Unit 2634

/T. B. /  
Primary Examiner, Art Unit 2634



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**BIB DATA SHEET**
**CONFIRMATION NO. 9902**

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
14/033,245	09/20/2013	375	2634	2855.0050007		
<b>APPLICANTS</b> <b>INVENTORS</b> James J. Fallon, Armonk, NY; Stephen J. McErlain, New York, NY;						
<b>** CONTINUING DATA *****</b> This application is a CON of 13/154,239 06/06/2011 PAT 8553759 which is a CON of 12/123,081 05/19/2008 PAT 8073047 which is a CON of 10/076,013 02/13/2002 PAT 7386046 which claims benefit of 60/268,394 02/13/2001						
<b>** FOREIGN APPLICATIONS *****</b>						
<b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **</b> 10/08/2013						
Foreign Priority claimed	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Met after Allowance	<b>STATE OR COUNTRY</b>	<b>SHEETS DRAWINGS</b>	<b>TOTAL CLAIMS</b>	<b>INDEPENDENT CLAIMS</b>
35 USC 119(a-d) conditions met	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Verified and	/TESFALDET BOCURE/	Initials	NY	4	30	4
Acknowledged	Examiner's Signature					
<b>ADDRESS</b> STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 UNITED STATES						
<b>TITLE</b> Systems and Methods for Video and Audio data Storage and Distribution.						
<b>FILING FEE RECEIVED</b> 3120	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees			
			<input type="checkbox"/> 1.16 Fees (Filing)			
			<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)			
			<input type="checkbox"/> 1.18 Fees (Issue)			
			<input type="checkbox"/> Other _____			
		<input type="checkbox"/> Credit				



<b>Index of Claims</b>  	<b>Application/Control No.</b> 14033245	<b>Applicant(s)/Patent Under Reexamination</b> FALLON ET AL.
	<b>Examiner</b> TESFALDET BOCURE	<b>Art Unit</b> 2634

✓	<b>Rejected</b>
=	<b>Allowed</b>

-	<b>Cancelled</b>
÷	<b>Restricted</b>

N	<b>Non-Elected</b>
I	<b>Interference</b>

A	<b>Appeal</b>
O	<b>Objected</b>

Claims renumbered in the same order as presented by applicant
  CPA
  T.D.
  R.1.47

CLAIM		DATE							
Final	Original	12/03/2013							
	1	÷							
	2	÷							
	3	÷							
	4	÷							
	5	÷							
	6	÷							
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	30	÷							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: 14/033,245

Filed: September 20, 2013

For: **Bandwidth Sensitive Data  
Compression and Decompression**

Confirmation No.: 9902

Art Unit: 2634

Examiner: BOCURE, Tesfaldet

Atty. Docket: 2855.0050007

**Reply to Requirement For Election of Species**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Commissioner:

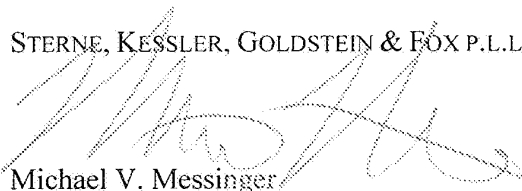
In reply to the Office Action dated December 5, 2013, Applicants hereby provisionally elect Group I. Claim 1-22 and 28-30 read on such species. This election is made without prejudice to or disclaimer of the other claims or inventions disclosed.

Applicants assert the right to claim additional species in the event that a generic claim thereto is found to be allowable in accordance with 37 C.F.R. § 1.141(a). This election is made **without traverse**. Consideration and allowance of all pending claims, are respectfully requested.

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any additional fees required to continue prosecution or appeal of this application (including issue fee, fees for net addition of claims or forwarding to appeal) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

Date: December 19, 2013

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600  
1787456\_1

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	17714712
<b>Application Number:</b>	14033245
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	9902
<b>Title of Invention:</b>	Systems and Methods for Video and Audio data Storage and Distribution.
<b>First Named Inventor/Applicant Name:</b>	James J. Fallon
<b>Customer Number:</b>	26111
<b>Filer:</b>	Michael V. Messinger/Lauren Harrison
<b>Filer Authorized By:</b>	Michael V. Messinger
<b>Attorney Docket Number:</b>	2855.0050007
<b>Receipt Date:</b>	19-DEC-2013
<b>Filing Date:</b>	20-SEP-2013
<b>Time Stamp:</b>	17:19:17
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
------------------------	----

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		28550050007adspoareplyrr.pdf	6783401 <small>28e5cb56776c9768afac7a55c9f73b078dd 8768</small>	yes	11

<b>Multipart Description/PDF files in .zip description</b>			
<b>Document Description</b>		<b>Start</b>	<b>End</b>
Miscellaneous Incoming Letter		1	1
Application Data Sheet		2	7
Power of Attorney		8	9
Response to Election / Restriction Filed		10	11

**Warnings:**

**Information:**

<b>Total Files Size (in bytes):</b>	6783401
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**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

MICHAEL V. MESSINGER  
DIRECTOR  
(202) 772-8667  
MIKEM@SKGF.COM



December 19, 2013

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Confirmation No. 9902  
Art Unit 2634

Re: U.S. Utility Patent Application  
Appl. No. 14/033,245; Filing Date: September 20, 2013  
For: **Bandwidth Sensitive Data Compression and Decompression**  
Inventors: FALLON *et al.*  
Our Ref: 2855.0050007

Commissioner:

Transmitted herewith for appropriate action are the following documents:

1. Application Data Sheet 37 C.F.R. 1.76;
2. An executed Power of Attorney by Applicant (PTO/AIA/82B) and the Transmittal for Power of Attorney form (PTO/AIA/82A); and
3. Reply to Requirement For Election of Species.

The above-listed documents are filed electronically through EFS-Web.

In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read 'Michael V. Messinger', written over a faint dotted line.

Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

MVM/MRM/leh  
Enclosures

1781501\_1

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

**Secrecy Order 37 CFR 5.2**

Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

**Inventor Information:**

Inventor 1						Remove	
Legal Name							
Prefix	Given Name	Middle Name	Family Name	Suffix			
	James	J.	FALLON				
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service							
City	Armonk	State/Province	NY	Country of Residence	US		
Mailing Address of Inventor:							
Address 1	11 Wampus Close						
Address 2							
City	Armonk	State/Province	NY				
Postal Code	10504	Country i	US				
Inventor 2						Remove	
Legal Name							
Prefix	Given Name	Middle Name	Family Name	Suffix			
	Stephen	J.	McErlain				
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service							
City	New York	State/Province	NY	Country of Residence	US		
Mailing Address of Inventor:							
Address 1	351 West 22nd Street						
Address 2							
City	New York	State/Province	NY				
Postal Code	10011	Country i	US				
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						Add	

**Correspondence Information:**

Enter either Customer Number or complete the Correspondence Information section below.  
For further information see 37 CFR 1.33(a).

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		

<input type="checkbox"/> An Address is being provided for the correspondence information of this application.			
Customer Number	26111		
Email Address		<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

**Application Information:**

Title of the Invention	Bandwidth Sensitive Data Compression and Decompression		
Attorney Docket Number	2855.0050007	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

**Publication Information:**

<input type="checkbox"/> Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/> <b>Request Not to Publish.</b> I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application <b>has not and will not</b> be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

**Representative Information:**

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	26111		

**Domestic Benefit/National Stage Information:**

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13154239	2011-06-06
Prior Application Status	Patented	<input type="button" value="Remove"/>	



<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007		
		Application Number			
Title of Invention	Bandwidth Sensitive Data Compression and Decompression				
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13154239		12123081	2008-05-19	8073047	2011-12-06
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12123081	Continuation of	10076013	2002-02-13	7386046	2008-06-10
Prior Application Status	Expired			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10076013	non provisional of	60268394	2001-02-13		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the <b>Add</b> button.					

### Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)<sup>i</sup> the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

				Remove
Application Number	Country <sup>i</sup>	Filing Date (YYYY-MM-DD)	Access Code <sup>i</sup> (if applicable)	
Additional Foreign Priority Data may be generated within this form by selecting the <b>Add</b> button.				

### Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

<b>Application Data Sheet 37 CFR 1.76</b>	Attorney Docket Number	2855.0050007
	Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression	

### Authorization to Permit Access:

<input checked="" type="checkbox"/> Authorization to Permit Access to the Instant Application by the Participating Offices
<p>If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>

### Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.				
<b>Applicant 1</b>				
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>				
<input type="button" value="Clear"/>				
<input checked="" type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Joint Inventor		
<input type="radio"/> Person to whom the inventor is obligated to assign.	<input type="radio"/> Person who shows sufficient proprietary interest			
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:				
<table border="1" style="width: 100%;"> <tr> <td style="width: 80%;">Name of the Deceased or Legally Incapacitated Inventor :</td> <td></td> </tr> </table>			Name of the Deceased or Legally Incapacitated Inventor :	
Name of the Deceased or Legally Incapacitated Inventor :				
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>				
Organization Name	Realtime Data LLC			

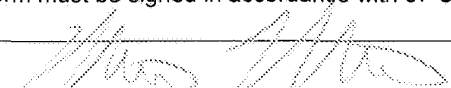
<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007
		Application Number	
Title of Invention	Bandwidth Sensitive Data Compression and Decompression		

<b>Mailing Address Information For Applicant:</b>			
Address 1	11 Wampus Close		
Address 2			
City	Armonk	State/Province	NY
Country	US	Postal Code	10504
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

### Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
<b>Assignee 1</b>			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
If the Assignee is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	<del>Realtime Data, LLC</del>		
<b>Mailing Address Information For Non-Applicant Assignee:</b>			
Address 1	<del>11 Wampus Close</del>		
Address 2			
City	<del>Armonk</del>	State/Province	<del>NY</del>
Country	<del>US</del>	Postal Code	<del>10504</del>
Phone Number		Fax Number	
Email Address			
Additional Assignee Data may be generated within this form by selecting the Add button.			

### Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.			
Signature		Date (YYYY-MM-DD)	12/13-12-19

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

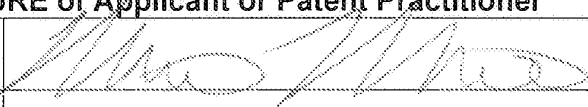
<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	2855.0050007		
		Application Number			
Title of Invention	Bandwidth Sensitive Data Compression and Decompression				
First Name	Michael	Last Name	Messinger	Registration Number	37575
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/033,245
Filing Date	September 20, 2013
First Named Inventor	James J. FALLON
Title	Bandwidth Sensitive Data Compression and Decompression
Art Unit	2827
Examiner Name	To Be Assigned
Attorney Docket Number	2855.0050007

SIGNATURE of Applicant or Patent Practitioner			
Signature		Date (Optional)	12/17/2013
Name	Michael V. Messinger	Registration Number	37,575
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

\*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Table with 2 columns: Application Number, Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

[X] I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

26111

OR

[ ] I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

[X] The address associated with the above-mentioned Customer Number

OR

[ ] The address associated with Customer Number:

26111

OR

Form fields for Firm or Individual Name, Address, City, State, Zip, Country, Telephone, Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Realtime Data, LLC

- [ ] Inventor or Joint Inventor (title not required below)
[ ] Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
[X] Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
[ ] Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature [Signature] Date (Optional) 11/22/11

Name James J. Fallon

Title Director, Realtime Data, LLC

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

[X] Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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<b>PATENT APPLICATION FEE DETERMINATION RECORD</b> Substitute for Form PTO-875	Application or Docket Number <b>14/033,245</b>	Filing Date <b>09/20/2013</b>	<input type="checkbox"/> To be Mailed
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ENTITY:  LARGE  SMALL  MICRO

**APPLICATION AS FILED – PART I**

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(c), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

**APPLICATION AS AMENDED – PART II**

	(Column 1)	(Column 2)	(Column 3)	(Column 3)	RATE (\$)	ADDITIONAL FEE (\$)
<b>AMENDMENT</b>	<b>12/19/2013</b>	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))	* 30	Minus ** 30	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus ***4	= 0	X \$420 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	<b>0</b>

	(Column 1)	(Column 2)	(Column 3)	(Column 3)	RATE (\$)	ADDITIONAL FEE (\$)
<b>AMENDMENT</b>		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))	*	Minus **	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE  
/DEANNA RORIE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY.DOCKET.NO, TOT CLAIMS, IND CLAIMS. Row 1: 14/033,245, 09/20/2013, 2634, 3120, 2855.0050007, 30, 4

CONFIRMATION NO. 9902

CORRECTED FILING RECEIPT

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005



Date Mailed: 12/23/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Inventor(s)

James J. Fallon, Armonk, NY;
Stephen J. McErlain, New York, NY;

Applicant(s)

Realtime Data, LLC, Armonk, NY

Power of Attorney: The patent practitioners associated with Customer Number 26111

Domestic Priority data as claimed by applicant

This application is a CON of 13/154,239 06/06/2011 PAT 8553759
which is a CON of 12/123,081 05/19/2008 PAT 8073047
which is a CON of 10/076,013 02/13/2002 PAT 7386046
which claims benefit of 60/268,394 02/13/2001

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper Authorization to Permit Access to Application by Participating Offices (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 10/08/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 14/033,245

Projected Publication Date: 01/23/2014



**Non-Publication Request:** No

**Early Publication Request:** No  
**Title**

Systems and Methods for Video and Audio data Storage and Distribution.

**Preliminary Class**

375

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

## **PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/033,245	09/20/2013	James J. Fallon	2855.0050007

**CONFIRMATION NO. 9902**

**POA ACCEPTANCE LETTER**

26111  
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005



Date Mailed: 12/23/2013

**NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY**

This is in response to the Power of Attorney filed 12/19/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/zmoguss/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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Table with 4 columns: APPLICATION NUMBER (14/033,245), FILING OR 371(C) DATE (09/20/2013), FIRST NAMED APPLICANT (James J. Fallon), ATTY. DOCKET NO./TITLE (2855.0050007)

CONFIRMATION NO. 9902

PUBLICATION NOTICE

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005



Title: Systems and Methods for Video and Audio data Storage and Distribution.

Publication No. US-2014-0023135-A1

Publication Date: 01/23/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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Substitute for form 1449/PTO			<b>Complete if Known</b>	
<b>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Application Number	14/033,245
			Filing Date	September 20, 2013
			First Named Inventor	James J. FALLON
			Art Unit	2634
			Examiner Name	BOCURE, Tesfaldet
			Attorney Docket Number	2855.0050007
Sheet	1	of	4	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	NPL1	Opinion, with Errata, filed in Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al., Case Nos. 13-1092, -1093, -1095, -1097, -1098, -1099, -1100, -1101, and -1103, United States Court of Appeals for the Federal Circuit, filed January 27, 2014, 41 pages.	
	NPL2	Copy of Supplemental Notice of Allowability for U.S. Appl. No. 13/154,211, mailed November 26, 2013, 4 pages.	
	NPL3	Copy of Notice of Allowance for U.S. Appl. No. 13/101,994, mailed December 2, 2013, 7 pages.	
	NPL4	Copy of Notice of Allowance for U.S. Appl. No. 11/553,419, mailed December 18, 2013, 6 pages.	
	NPL5	Copy of Supplemental Notice of Allowability for U.S. Appl. No. 13/154,211, mailed December 19, 2013, 4 pages.	
	NPL6	Copy of Non-Final Office Action for U.S. Appl. No. 14/035,716, mailed December 20, 2013, 12 pages.	
	NPL7	Copy of Notice of Allowance for U.S. Appl. No. 14/035,712, mailed December 20, 2013, 8 pages.	
	NPL8	Copy of Non-Final Office Action for U.S. Appl. No. 14/035,719, mailed December 20, 2013, 11 pages.	
	NPL9	Copy of Final Office Action for U.S. Appl. No. 12/690,125, mailed December 27, 2013, 12 pages.	
	NPL10	Copy of Corrected Notice of Allowability for U.S. Appl. No. 11/553,419, mailed January 14, 2014, 2 pages.	

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	2	of	4	Attorney Docket Number	2855.0050007
<b>NON PATENT LITERATURE DOCUMENTS</b>					
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published			T <sup>2</sup>
	NPL11	Copy of Notice of Allowance for U.S. Appl. No. 14/035,561, mailed January 16, 2014, 9 pages.			
	NPL12	Copy of Corrected Notice of Allowability for U.S. Application No. 11/553,419, mailed January 31, 2014, 2 pages.			
	NPL13	Copy of Non-Final Office Action for U.S. Appl. No. 13/118,122, mailed February 19, 2014, 23 pages.			
	NPL14	Notice of Intent to Issue an Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed November 21, 2013, 10 pages.			
	NPL15	Notice of Intent to Issue an Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed November 27, 2013, 10 pages.			
	NPL16	Patent Owner's Request to Reopen Prosecution Before the Examiner under 37 C.F.R. § 41.77(b) in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, filed December 2, 2013, 41 pages.			
	NPL17	Patent Owner's Request to Reopen Prosecution Before the Examiner under 37 C.F.R. § 41.77(b) in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, filed December 2, 2013, 57 pages.			
	NPL18	Patent Owner's Request to Reopen Prosecution Before the Examiner under 37 C.F.R. § 41.77(b) in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, filed December 2, 2013, 33 pages.			
	NPL19	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,321,937, Control No. 95/001,922, mailed December 5, 2013, 2 pages.			
	NPL20	Patent Owner's Petition Under 37 C.F.R. § 1.182 in Opposition to CME Group's Petition to Strike Patent Owner's Proposed New Claims, in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed January 2, 2014, 8 pages.			

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO		<b>Complete if Known</b>	
<b>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Application Number	14/033,245
		Filing Date	September 20, 2013
		First Named Inventor	James J. FALLON
		Art Unit	2634
		Examiner Name	BOCURE, Tesfaldet
		Attorney Docket Number	2855.0050007
Sheet	3 of 4		
<b>NON PATENT LITERATURE DOCUMENTS</b>			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL21	Patent Owner's Petition Under 37 C.F.R. § 1.182 in Opposition to CME Group's Petition to Strike Patent Owner's Proposed New Claims, in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed January 2, 2014, 8 pages.	
	NPL22	Patent Owner's Petition Under 37 C.F.R. § 1.182 in Opposition to CME Group's Petition to Strike Patent Owner's Proposed New Claims, in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed January 2, 2014, 10 pages.	
	NPL23	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,161,506, Control No. 95/001,926, mailed January 8, 2014, 2 pages.	
	NPL24	Inter Partes Reexamination Certificate in Inter Partes Reexamination of U.S. Patent No. 7,378,992, Control No. 95/001,928, mailed January 8, 2014, 3 pages.	
	NPL25	Examiner's Determination Under 37 C.F.R. § 41.77(d) in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, mailed January 14, 2014, 11 pages.	
	NPL26	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 41.77(c), in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed January 22, 2014, 3 pages.	
	NPL27	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 41.77(c), in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed January 22, 2014, 3 pages.	
	NPL28	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 41.77(c), in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed January 22, 2014, 3 pages.	
	NPL29	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 1.132, in Inter Partes Reexamination of U.S. Patent No. 7,417,568, Control No. 95/001,533, mailed January 22, 2014, 3 pages.	
	NPL30	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 1.132, in Inter Partes Reexamination of U.S. Patent No. 7,400,274, Control No. 95/001,544, mailed January 22, 2014, 3 pages.	

Examiner Signature		Date Considered	
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				<b>Complete if Known</b>	
<b>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	14/033,245
				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
Sheet	4	of	4	Attorney Docket Number	2855.0050007

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	T <sup>2</sup>
	NPL31	Patent Owner's Petition Under 37 C.F.R. § 1.181 to Strike Third Party Requester's Improper Response Under 37 C.F.R. § 1.132, in Inter Partes Reexamination of U.S. Patent No. 7,777,651, Control No. 95/001,581, mailed January 22, 2014, 3 pages.	
	NPL32	Patent Owner's Request For Rehearing Under 37 C.F.R. § 41.79, in Inter Partes Reexamination of U.S. Patent No. 7,714,747, Control No. 95/001,517, filed February 14, 2014, 11 pages.	
	NPL33	Court Docket History for 6:10-cv-00493-LED-JDL, Realtime Data, LLC d/b/a IXO, v. T-Mobile, USA Inc., downloaded January 30, 2014, 78 pages.	
	NPL34	Court Docket History for 1:11-cv-06696-RJH, Realtime Data, LLC d/b/a IXO, v. Morgan Stanley et al., downloaded January 30, 2014, 80 pages.	
	NPL35	Court Docket History for 1:11-cv-06697-UA, Realtime Data, LLC d/b/a IXO, v. CME Group Inc. et al., downloaded January 30, 2014, 105 pages.	
	NPL36	Court Docket History for 1:11-cv-06698-UA, Realtime Data, LLC d/b/a IXO, v. Thomson Reuters et al., downloaded January 30, 2014, 59 pages.	
	NPL37	U.S. Patent Application No. 14/134,926, FALLON, et al., "System and Methods for Video and Audio Data Distribution," filed December 19, 2013.	
	NPL38	U.S. Patent Application No. 14/134,933, FALLON, et al., "System and Methods for Video and Audio Data Distribution," filed December 19, 2013.	

1814266\_1

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.



Substitute for form 1449/PTO		<i>Complete if Known</i>	
<b>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Application Number	14/033,245
		Filing Date	September 20, 2013
		First Named Inventor	James J. FALLON
		Art Unit	2634
		Examiner Name	BOCURE, Tesfaldet
		Attorney Docket Number	2855.0050007
Sheet	1 of 1		

U.S. PATENT DOCUMENTS						
Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US1	5,784,631		07-21-1998	Wise	
	US2	5,807,036		09-15-1998	Lostlen	
	US3	5,856,797		01-05-1999	Kawauchi	
	US4	6,009,491		12-28-1999	Roppel et al.	
	US5	7,327,287 B2		02-05-2008	Martinian et al.	
	US6	7,711,938 B2		05-04-2010	Wise et al.	
	US7	8,004,431 B2		08-23-2011	Reznik	
	US8	2001/0019630 A1		09-06-2001	Johnson	

FOREIGN PATENT DOCUMENTS							
Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

1814261\_1

Examiner Signature	Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.



US007321937C2

(12) **INTER PARTES REEXAMINATION CERTIFICATE (755th)**

**United States Patent**

(10) **Number:** **US 7,321,937 C2**

**Fallon**

(45) **Certificate Issued:** **\*Dec. 5, 2013**

(54) **SYSTEM AND METHODS FOR ACCELERATED DATA STORAGE AND RETRIEVAL**

(56) **References Cited**

(75) Inventor: **James J. Fallon**, Bronxville, NY (US)

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/001,922, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

(73) Assignee: **Realtime Data LLC**, New York, NY (US)

*Primary Examiner* — Karin Reichle

**Reexamination Request:**

No. 95/001,922, Mar. 2, 2012

(57) **ABSTRACT**

**Reexamination Certificate for:**

Patent No.: **7,321,937**  
Issued: **Jan. 22, 2008**  
Appl. No.: **11/400,674**  
Filed: **Apr. 8, 2006**

Systems and methods for providing accelerated data storage and retrieval utilizing lossless data compression and decompression. A data storage accelerator includes one or a plurality of high speed data compression encoders that are configured to simultaneously or sequentially losslessly compress data at a rate equivalent to or faster than the transmission rate of an input data stream. The compressed data is subsequently stored in a target memory or other storage device whose input data storage bandwidth is lower than the original input data stream bandwidth. Similarly, a data retrieval accelerator includes one or a plurality of high speed data decompression decoders that are configured to simultaneously or sequentially losslessly decompress data at a rate equivalent to or faster than the input data stream from the target memory or storage device. The decompressed data is then output at rate data that is greater than the output rate from the target memory or data storage device. The data storage and retrieval accelerator method and system may employed: in a disk storage adapter to reduce the time required to store and retrieve data from computer to disk; in conjunction with random access memory to reduce the time required to store and retrieve data from random access memory; in a display controller to reduce the time required to send display data to the display controller or processor; and/or in an input/output controller to reduce the time required to store, retrieve, or transmit data.

Reexamination Certificate C1 7,321,937 issued May 15, 2012

(\*) Notice: This patent is subject to a terminal disclaimer.

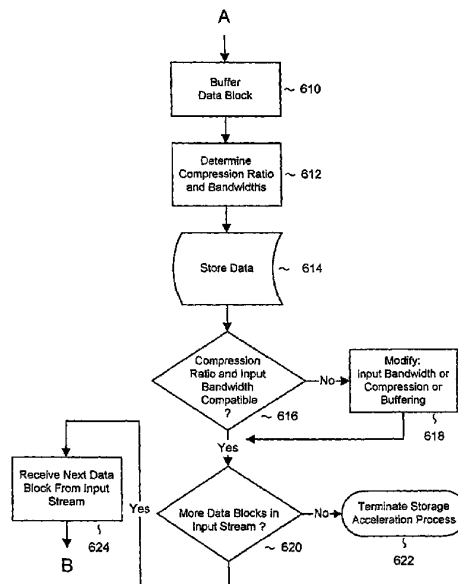
**Related U.S. Application Data**

(63) Continuation of application No. 10/628,795, filed on Jul. 28, 2003, now Pat. No. 7,130,913, which is a continuation of application No. 09/266,394, filed on Mar. 11, 1999, now Pat. No. 6,601,104.

(51) **Int. Cl.**  
**G06F 13/00** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **709/231**

(58) **Field of Classification Search**  
None  
See application file for complete search history.



1

2

**INTER PARTES  
REEXAMINATION CERTIFICATE  
ISSUED UNDER 35 U.S.C. 316**

5

THE PATENT IS HEREBY AMENDED AS  
INDICATED BELOW.

AS A RESULT OF REEXAMINATION, IT HAS BEEN  
DETERMINED THAT:

10

The patentability of claim **8** is confirmed.  
Claims **17-20** were previously cancelled.  
Claims **1, 5-7, 11** and **14-16** are cancelled.  
Claims **2-4, 9-10** and **12-13** were not reexamined.

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\* \* \* \* \*



US007161506C2

(12) **INTER PARTES REEXAMINATION CERTIFICATE (784th)**

**United States Patent**

**Fallon**

(10) **Number:** **US 7,161,506 C2**

(45) **Certificate Issued:** **\*Jan. 8, 2014**

(54) **SYSTEM AND METHODS FOR DATA COMPRESSION SUCH AS CONTENT DEPENDENT DATA COMPRESSION**

(75) Inventor: **James J. Fallon**, Armonk, NY (US)

(73) Assignee: **Realtime Data, LLC**, New York, NY (US)

(51) **Int. Cl.**  
**H03M 7/34** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **341/51; 341/79**

(58) **Field of Classification Search**  
None  
See application file for complete search history.

**Reexamination Request:**  
No. 95/001,926, Mar. 2, 2012

**Reexamination Certificate for:**  
Patent No.: **7,161,506**  
Issued: **Jan. 9, 2007**  
Appl. No.: **10/668,768**  
Filed: **Sep. 22, 2003**

Reexamination Certificate C1 7,161,506 issued May 22, 2012

(\* ) Notice: This patent is subject to a terminal disclaimer.

**Related U.S. Application Data**

(63) Continuation of application No. 10/016,355, filed on Oct. 29, 2010, now Pat. No. 6,624,761, which is a continuation-in-part of application No. 09/705,446, filed on Nov. 3, 2000, now Pat. No. 6,309,424, which is a continuation of application No. 09/210,491, filed on Dec. 11, 1998, now Pat. No. 6,195,024.

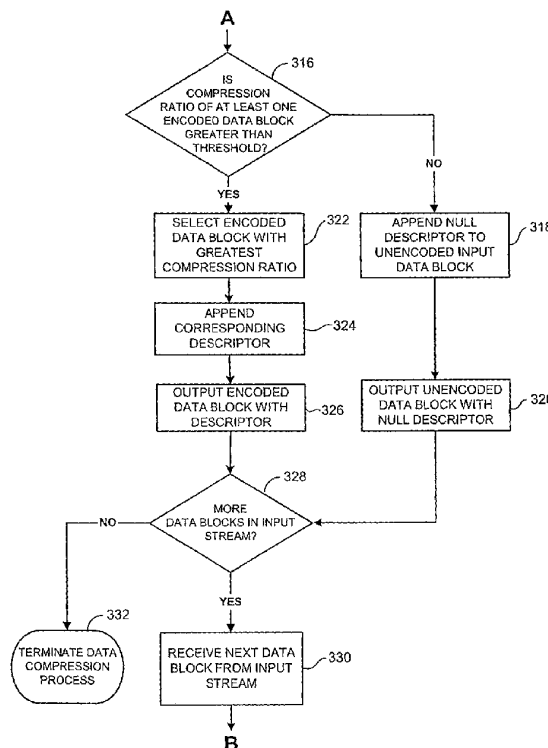
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/001,926, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

*Primary Examiner* — Christina Y Leung

(57) **ABSTRACT**

Systems and methods for providing fast and efficient data compression using a combination of content independent data compression and content dependent data compression. In one aspect, a method for compressing data comprises the steps of: analyzing a data block of an input data stream to identify a data type of the data block, the input data stream comprising a plurality of disparate data types; performing content dependent data compression on the data block; if the data type of the data block is identified; performing content independent data compression on the data block, if the data type of the data block is not identified.



1  
INTER PARTES  
REEXAMINATION CERTIFICATE  
ISSUED UNDER 35 U.S.C. 316

THE PATENT IS HEREBY AMENDED AS  
INDICATED BELOW.

**Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1-5, 8, 9, 11, 17, 20-23, 27, 39, 43, 69-73, 79, 81, 82, 84-90, 96 and 98 were previously cancelled.

Claims 91, 97 and 99 are determined to be patentable as amended.

New claims 100-105 are added and determined to be patentable.

Claims 6, 7, 10, 12-16, 18, 19, 24-26, 28-38, 40-42, 44-68, 74-78, 80, 83 and 92-95 were not reexamined.

91. The method of claim 86, further comprising:  
compressing said data block to provide said data block in said compressed form in accordance with said determination whether to compress said data block with content dependent data compression or said single data compression encoder, wherein said data block in said compressed form is provided by a lossy compression technique; and

*analyzing data within the data block to identify one or more data types of the data within the data block, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

97. The method of claim 86, further comprising:  
*analyzing data within the data block to identify one or more data types of the data within the data block, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block, and*  
wherein said single data compression encoder is lossless and at least one encoder associated with said content dependent data compression is lossy.

99. The method of claim 86, further comprising:  
*analyzing within the data block to identify one or more data types of the data within the data block, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block, and*  
wherein said single data compression encoder is lossless, at least one encoder associated with said content dependent data compression is lossless, and at least another one encoder associated with said content dependent data compression is lossy.

100. A computer implemented method comprising:  
*receiving, a data block, wherein the data block is included in a data stream;*  
*analyzing data within the data block to identify one or more data types of the data within the data block;*

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*determining whether to output said data block in received form or in a compressed form; and*  
*outputting the data block in received form or the compressed form based on the determination,*

5 *wherein outputting the data block in the compressed form comprises determining whether to compress the data block with a content dependent data compression encoder based on the type of the data block or to compress the data block with a single data compression encoder; and*

10 *wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

15 101. The computer implemented method of claim 100, further comprising:

*compressing the data block to provide the data block in the compressed form in accordance with the determination whether to compress the data block with a content dependent data compression encoder or the single data compression encoder, wherein the data block is compressed using a lossy compression encoder.*

20 102. The computer implemented method of claim 100, wherein the single data compression encoder is lossless and at least one encoder associated with the content dependent data compression is lossy.

25 103. The computer implemented method of claim 100, wherein the single data compression encoder is lossless, at least one encoder associated with the content dependent data compression is lossless, and at least another one encoder associated with the content dependent data compression is lossy.

30 104. A computer implemented method for compressing data, comprising:

*analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types;*

35 *performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified; and*  
*performing data compression with a single data compression encoder, if a data type of the data block is not identified,*

40 *wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

45 105. A computer implemented method comprising:  
*receiving a data block in an uncompressed form, said data block being included in a data stream;*  
*analyzing data within the data block to determine a type of said data block; and*

50 *compressing said data block to provide a compressed data block,*  
*wherein if one or more encoders are associated to said type, compressing said data block with at least one of said one or more encoders, otherwise compressing said data block with a default data compression encoder, and*  
*wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

\* \* \* \* \*



US007378992C2

(12) **INTER PARTES REEXAMINATION CERTIFICATE (785th)**

**United States Patent**

**Fallon**

(10) **Number:** **US 7,378,992 C2**

(45) **Certificate Issued:** **\*Jan. 8, 2014**

(54) **CONTENT INDEPENDENT DATA  
COMPRESSION METHOD AND SYSTEM**

(75) Inventor: **James J. Fallon**, Armonk, NY (US)

(73) Assignee: **Realtime Data, LLC**, New York, NY (US)

(51) **Int. Cl.**  
**H03M 7/34** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **341/51; 341/65; 341/67; 341/87**

(58) **Field of Classification Search**  
None  
See application file for complete search history.

**Reexamination Request:**  
No. 95/001,928, Mar. 2, 2012

**Reexamination Certificate for:**  
Patent No.: **7,378,992**  
Issued: **May 27, 2008**  
Appl. No.: **11/400,533**  
Filed: **Apr. 8, 2006**

Reexamination Certificate C1 7,378,992 issued Oct. 4, 2012

(\*) Notice: This patent is subject to a terminal disclaimer.

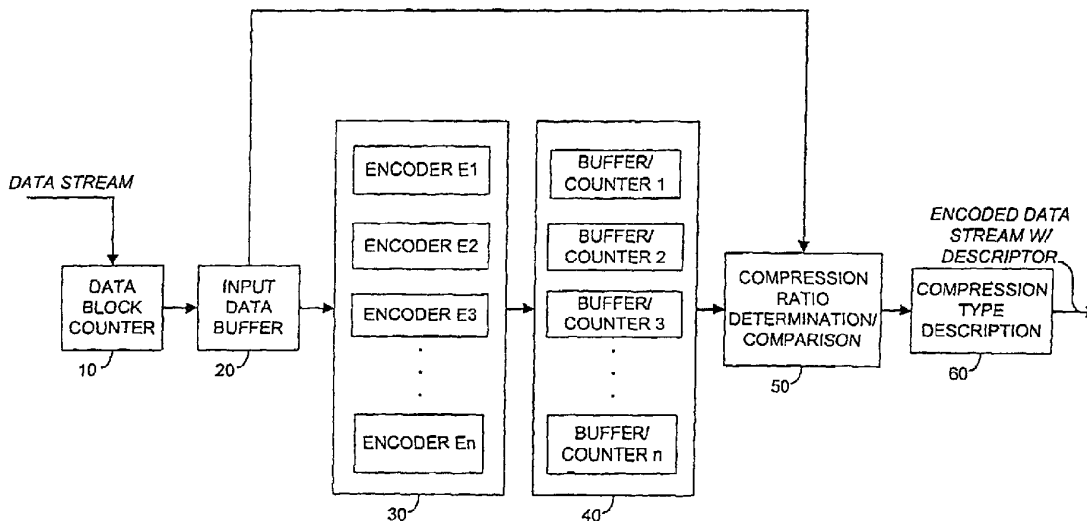
**Related U.S. Application Data**

(63) Continuation of application No. 10/668,768, filed on Sep. 22, 2003, now Pat. No. 7,161,506, which is a continuation of application No. 10/016,355, filed on Oct. 29, 2001, now Pat. No. 6,624,761, which is a continuation-in-part of application No. 09/705,446, filed on Nov. 3, 2000, now Pat. No. 6,309,424, which is a continuation of application No. 09/210,491, filed on Dec. 11, 1998, now Pat. No. 6,195,024.

(56) **References Cited**  
  
To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/001,928, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

*Primary Examiner* — Christina Y Leung

(57) **ABSTRACT**  
Systems and methods for providing fast and efficient data compression using a combination of content independent data compression and content dependent data compression. In one aspect, a method for compressing data comprises the steps of: analyzing a data block of an input data stream to identify a data type of the data block, the input data stream comprising a plurality of disparate data types; performing content dependent data compression on the data block, if the data type of the data block is identified, performing content independent data compression on the data block, if the data type of the data block is not identified.



**1**  
**INTER PARTES**  
**REEXAMINATION CERTIFICATE**  
**ISSUED UNDER 35 U.S.C. 316**

THE PATENT IS HEREBY AMENDED AS  
INDICATED BELOW.

**Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1, 3, 7, 9-15, 18-21, 26-29, 32, 33 and 36 were previously cancelled.

Claim 35 is determined to be patentable as amended.

New claims 46-51 are added and determined to be patentable.

Claims 2, 4, 5, 6, 8, 16, 17, 22-25, 30, 31, 34 and 37-45 were not reexamined.

35. The method of claim 33, [wherein the size of said data block is variable] further comprising:

*analyzing data within the data block to identify one or more data types of the data within the data block, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

46. A computer implemented method comprising: receiving a data block; analyzing data within the data block to determine whether or not a data type is identified for the data within the data block;

*compressing, if said data type is identified, said data block with at least one encoder associated with said data type to provide a compressed data block;*

*compressing, if said data type is not identified, said data block with at least one encoder associated with a non-identifiable data type to provide said compressed data block; and*

*storing said compressed data block, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

47. A computer implemented method comprising: receiving a data block; analyzing data within the data block to determine whether or not a data type is identified for the data within the data block;

*compressing, if said data type is identified, said data block with at least one encoder associated with said data type to provide a compressed data block;*

*compressing, if said data type is not identified, said data block with at least one encoder associated with a non-identifiable data type to provide said compressed data block;*

*storing said compressed data block; transmitting a data compression type descriptor, indicative of the compression utilized to provide said compressed data block, with said compressed data block; receiving said compressed data block and said data compression type descriptor; and*

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*decompressing said compressed data block based on said data compression type descriptor;*

*wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

48. A computer implemented method comprising: receiving a data block;

*associating at least one encoder to each one of several data types;*

*analyzing data within the data block to identify a first data type of the data within the data block;*

*compressing, if said first data type is the same as one of said several data types, said data block with said at least one encoder associated with said one of said several data types that is the same as said first data type to provide a compressed data block; and*

*compressing, if said first data type is not the same as one of said several data types, said data block with a default encoder to provide said compressed data block,*

*wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

49. A computer implemented method comprising: receiving a data block;

*associating at least one encoder to each one of several data types;*

*analyzing data within the data block to identify a first data type of the data within the data block;*

*compressing, if said first data type is the same as one of said several data types, said data block with said at least one encoder associated with said one of said several data types that is the same as said first data type to provide a compressed data block;*

*compressing, if said first data type is not the same as one of said several data types, said data block with a default encoder to provide said compressed data block;*

*transmitting a data compression type descriptor, indicative of the compression utilized to provide said compressed data block, with said compressed data block;*

*receiving said compressed data block and said data compression type descriptor; and*

*decompressing said compressed data block based on said data compression type descriptor;*

*wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

50. A computer implemented method comprising:

*associating a first encoder to a first data type;*

*associating a second encoder to a second data type;*

*receiving a data block;*

*analyzing data within the data block to determine a data type of the data within the data block;*

*compressing said data block with said first encoder if said data type is the same as said first data type;*

*compressing said data block with said second encoder if said data type is the same as said second data type; and compressing said data block with a third encoder if said data type cannot be identified,*

*wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block.*

51. A computer implemented method comprising:  
 associating at least one of several first encoders to each  
 one of several data types;  
 associating at least one second encoder to a non-identifi-  
 cable data type; 5  
 receiving a data block from an input stream of data;  
 analyzing data within the data block to determine whether  
 a data type is identified for the data within the data  
 block;  
 compressing, if a data type is identified as being associated 10  
 with said at least one of several first encoders, said data  
 block with said at least one of several first encoders  
 associated with said data type to provide a compressed  
 data block;  
 compressing, if a data type is not identified, said data block 15  
 with said at least one second encoder to provide said  
 compressed data block; and  
 transmitting said compressed data block with a data com-  
 pression type descriptor indicative of the compression  
 utilized to provide said compressed data block, 20  
 wherein the analyzing of the data within the data block to  
 identify one or more data types excludes analyzing  
 based only on a descriptor that is indicative of the data  
 type of the data within the data block.

\* \* \* \* \*

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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	18254832
<b>Application Number:</b>	14033245
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	9902
<b>Title of Invention:</b>	Systems and Methods for Video and Audio data Storage and Distribution.
<b>First Named Inventor/Applicant Name:</b>	James J. Fallon
<b>Customer Number:</b>	26111
<b>Filer:</b>	Michael V. Messinger/William Flanigen
<b>Filer Authorized By:</b>	Michael V. Messinger
<b>Attorney Docket Number:</b>	2855.0050007
<b>Receipt Date:</b>	20-FEB-2014
<b>Filing Date:</b>	20-SEP-2013
<b>Time Stamp:</b>	17:21:14
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		28550050007_1SIDS.pdf	2087999 <small>e5bb49fcab5dc7ed86578511736b7868ac7faa55</small>	yes	15

Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Miscellaneous Incoming Letter			1	2	
Transmittal Letter			3	10	
Information Disclosure Statement (IDS) Form (SB08)			11	15	
<b>Warnings:</b>					
<b>Information:</b>					
2	Non Patent Literature	NPL1_CAFc_Opinion_with_Err ata_01272014.pdf	280049 9cecff362f26c5d3e56c906207acc4687c95 094	no	41
<b>Warnings:</b>					
<b>Information:</b>					
3	Non Patent Literature	NPL2_Suppl_NOA_13154211_1 1262013.pdf	144974 a9103434e8afd959889ade5f1b689bd3561 c05c	no	4
<b>Warnings:</b>					
<b>Information:</b>					
4	Non Patent Literature	NPL3_NOA_13101994_120220 13.pdf	357744 582333ad6514884d169d91daf79c27f46aa 7b876	no	7
<b>Warnings:</b>					
<b>Information:</b>					
5	Non Patent Literature	NPL4_NOA_11553419_121820 13.pdf	367165 7f74269501288c431f402d7d281946e254c be2b9	no	6
<b>Warnings:</b>					
<b>Information:</b>					
6	Non Patent Literature	NPL5_SNOA_13154211_12192 013.pdf	142681 298ec5b20c1db060c33beb915efa7840a39 67e7e	no	4
<b>Warnings:</b>					
<b>Information:</b>					
7	Non Patent Literature	NPL6_NFOA_14035716_12202 013.pdf	467371 8edd163a56abc0425585c8eeca01ef8e37ac 18b1	no	12
<b>Warnings:</b>					
<b>Information:</b>					
8	Non Patent Literature	NPL7_NOA_14035712_122020 13.pdf	420186 936fe02e7a3dc6e8130c9ba29ef380214cd cc6f	no	8
<b>Warnings:</b>					

<b>Information:</b>					
9	Non Patent Literature	NPL8_NFOA_14035719_1222013.pdf	421462 09783619f347eedcd0e8877d601ee59c74ec196	no	11
<b>Warnings:</b>					
<b>Information:</b>					
10	Non Patent Literature	NPL9_FOA_12690125_12272013.pdf	473762 ce358200b7a99a2872a2c8702054bd9ee78e566	no	12
<b>Warnings:</b>					
<b>Information:</b>					
11	Non Patent Literature	NPL10_Corrected_Notice_of_Allowability_11553419_01142014.pdf	81773 971704a955a120b682e652c8c335594d2bed5cde	no	2
<b>Warnings:</b>					
<b>Information:</b>					
12	Non Patent Literature	NPL11_NOA_14035561_01162014.pdf	472710 04b935a329b9cd72295d4b56aee8078d7f9e9e65	no	9
<b>Warnings:</b>					
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13	Non Patent Literature	NPL12_Corrected_Notice_of_Allowability_11553419_01312014.pdf	81748 5361907463b01a7d500b2dd1fa31c541500175f6	no	2
<b>Warnings:</b>					
<b>Information:</b>					
14	Non Patent Literature	NPL13_NFOA_13118122_02192014.pdf	693866 2f4e8f1acb794ec463a1908c43a5cda9a91afce0	no	23
<b>Warnings:</b>					
<b>Information:</b>					
15	Non Patent Literature	NPL14_NIIRC_95001928_11212013.pdf	433755 85016735b146496754f31a9c141f4ef483eb5b06	no	10
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16	Non Patent Literature	NPL15_NIIRC_95001926_11272013.pdf	373351 80da79249dbb40c2109028f888aaa9fa1898fe45	no	10
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<b>Information:</b>					
17	Non Patent Literature	NPL16_PO_Request_to_Reopen_Prosecution_95001533_12022013.pdf	2635289 3ec79873065da3f1516cf764d001dfb214105355	no	41
<b>Warnings:</b>					

<b>Information:</b>					
18	Non Patent Literature	NPL17_PO_Request_to_Reopen_Prosecution_95001581_12022013.pdf	3818680 a46b71e59d6740ba45e2e9a48813457d58f15d80	no	57
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<b>Information:</b>					
19	Non Patent Literature	NPL18_PO_Request_to_Reopen_Prosecution_95001544_12022013.pdf	2020684 680f9dccb84b0f8e5c531e17518702ca62a3e	no	33
<b>Warnings:</b>					
<b>Information:</b>					
20	Non Patent Literature	NPL19_Reexam_Certificate_95001922_12052013.pdf	71603 cc553b7adbe768d9d55c539e9b824d9391f1d0ee	no	2
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<b>Information:</b>					
21	Non Patent Literature	NPL20_PO_Petition_95001533_01022014.pdf	413963 69d97556181aa7a771f131246c9f8f98c42920d	no	8
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22	Non Patent Literature	NPL21_PO_Petition_95001544_01022014.pdf	489952 e0ecf85b4ec041c9372d2146ecf43802158ffc58	no	8
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<b>Information:</b>					
23	Non Patent Literature	NPL22_PO_Petition_95001581_01022014.pdf	602107 4762c199c04d7016fe13e0166520b71bb7a174bc	no	10
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<b>Information:</b>					
24	Non Patent Literature	NPL23_Reexam_Certificate_95001926_01082014.pdf	161500 a223751a5884ec0c60c55a83969fd40edd e3712	no	2
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25	Non Patent Literature	NPL24_Reexam_Certificate_95001928_01082014.pdf	186438 3af03b5ea620162506014cc66b092cab41f5878d	no	3
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26	Non Patent Literature	NPL25_Examiners_Determination_95001517_01142014.pdf	430917 fd578c681303647ae252d7860e9a60c60183369c	no	11
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27	Non Patent Literature	NPL26_PO_Petition_1_950015 33_01222014.pdf	180700 64dea460e6a026800900e78d8740ab35049 05a84	no	3
<b>Warnings:</b>					
<b>Information:</b>					
28	Non Patent Literature	NPL27_PO_Petition_1_950015 44_01222014.pdf	168213 70351bce1472f47e7c4f3cc8468cf49b71f95 3f9	no	3
<b>Warnings:</b>					
<b>Information:</b>					
29	Non Patent Literature	NPL28_PO_Petition_1_950015 81_01222014.pdf	139339 fb0203c32a43ccdb85be279c7a478a9f1a8b f664	no	3
<b>Warnings:</b>					
<b>Information:</b>					
30	Non Patent Literature	NPL29_PO_Petition_2_950015 33_01222014.pdf	165413 174419facd0ccc5908e03d9ce964f9a81408 e2a5	no	3
<b>Warnings:</b>					
<b>Information:</b>					
31	Non Patent Literature	NPL30_PO_Petition_2_950015 44_01222014.pdf	146892 8fb4c97282863132a65885f96bc8a183cc8 e8a5	no	3
<b>Warnings:</b>					
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32	Non Patent Literature	NPL31_PO_Petition_2_950015 81_01222014.pdf	126169 80e1c8842bfcaaf1e673d628094778edccd0 acab	no	3
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33	Non Patent Literature	NPL32_PO_Request_for_Rehea ring_95001517_02142014.pdf	732966 4fad4885ee41bf9d9a705222c94aa39b0c79 2d9b	no	11
<b>Warnings:</b>					
<b>Information:</b>					
34	Non Patent Literature	NPL33_MetroPCS_Court_Dock et_Listing_01302014.pdf	614866 9c803dca7ad3d225e6f1045a23c4db047ce afc3c	no	78
<b>Warnings:</b>					
<b>Information:</b>					
35	Non Patent Literature	NPL34_Morgan_Stanley_Court _Docket_Listing_01302014.pdf	976198 1f3f5f9484e03f7995dc3655863a7b173687 e6d5	no	80
<b>Warnings:</b>					

<b>Information:</b>					
36	Non Patent Literature	NPL35_CME_Court_Docket_Listing_01302014.pdf	783350 c1ffa6fc6dff0d16686ae07a9f4c71212413fefed	no	105
<b>Warnings:</b>					
<b>Information:</b>					
37	Non Patent Literature	NPL36_Thompson_Reuters_Court_Docket_Listing_01302014.pdf	772832 5769c695e531cda945fd4c13f0ebc6e669b4368	no	59
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>				22938667	
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					

**MICHAEL V. MESSINGER**  
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MIKEM@SKGF.COM



February 20, 2014

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

**Confirmation No. 9902**  
**Art Unit 2634**  
**Attn: Mail Stop Amendment**

Re: U.S. Utility Patent Application  
Application No. 14/033,245; Filing Date: September 20, 2013  
For: **Systems and Methods for Video and Audio Data Storage and  
Distribution**  
Inventors: FALLON *et al.*  
Our Ref: 2855.0050007

Commissioner:

Transmitted herewith for appropriate action are the following documents:

1. First Supplemental Information Disclosure Statement;
2. Form PTO/SB/08a (1 sheet) listing 8 documents (**US1-US8**);
3. Form PTO/SB/08b (4 sheets) listing 38 documents (**NPL1-NPL38**); and
4. Copies of cited documents (**NPL1-NPL36**).

***The above-listed documents are filed electronically through EFS-Web.***

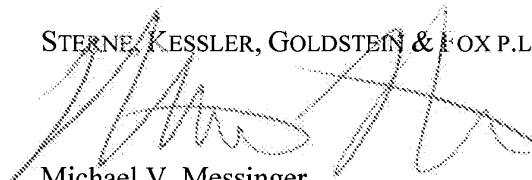
In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Commissioner for Patents  
February 20, 2014  
Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

MVM/MRM/wcf  
Enclosures



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: 14/033,245

Filed: September 20, 2013

For: **Systems and Methods for Video  
and Audio Data Storage and  
Distribution**

Confirmation No.: 9902

Art Unit: 2634

Examiner: BOCURE, Tesfaldet

Atty. Docket: 2855.0050007

**First Supplemental Information Disclosure Statement**

***Mail Stop Amendment***

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Notice of Prior and Concurrent Proceedings

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,486)	Inter Partes Reexamination Certificate issued 10/10/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/000,466)	Inter Partes Reexamination Certificate issued 05/15/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,453)	Terminated
<i>Ex Parte</i> Reexamination of U.S. Patent No. 6,601,104 (Control No. 90/009,428)	Ex Parte Reexamination Certificate issued 02/28/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/000,478)	Inter Partes Reexamination Certificate issued 10/04/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,624,761 (Control No. 95/000,464)	Inter Partes Reexamination Certificate issued 06/12/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/000,479)	Inter Partes Reexamination Certificate issued 05/22/2012

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,714,747 (Control No. 95/001,517)	Patent Owner's Request for Rehearing Under 37 C.F.R. § 41.79 mailed 02/14/2014
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,417,568 (Control No. 95/001,533)	Patent Owner's Request to Reopen Prosecution filed 12/02/2013; Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,777,651 (Control No. 95/001,581)	Patent Owner's Request to Reopen Prosecution filed 12/02/2013; Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,400,274 (Control No. 95/001,544)	Patent Owner's Request to Reopen Prosecution filed 12/02/2013; Decision on Appeal mailed 11/01/2013

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings filed by Cellco Partnership d/b/a Verizon Wireless, involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/001,922)	Inter Partes Reexamination Certificate issued 12/05/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/001,923)	Patent Owner's Reply to Action Closing Prosecution filed 11/04/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,352,300 (Control No. 95/001,924)	Right of Appeal Notice mailed 08/29/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,395,345 (Control No. 95/001,925)	Patent Owner's Reply to Action Closing Prosecution filed 10/21/2013; Action Closing Prosecution mailed 09/20/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/001,926)	Inter Partes Reexamination Certificate issued 01/08/2014
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,415,530 (Control No. 95/001,927)	Inter Partes Reexamination Certificate issued 08/16/2013

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/001,928)	Inter Partes Reexamination Certificate issued 01/08/2014

Applicants invite the Examiner to review the Requests for Reexamination, issued Office Actions, replies, and any other papers in the above-identified reexamination proceedings. If the Examiner is unable to obtain copies of papers in any reexamination proceeding, copies can be provided to the Examiner upon request. Those documents which may be material that are not already of record in this patent application are listed on the accompanying Form PTO/SB/08. For example, documents related to the reexaminations are listed as **NPL14-NPL32**.

Notice of Related Litigation

Applicants notify the Patent and Trademark Office of the following litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

<b>No.</b>	<b>Case</b>	<b>Status</b>
1	<i>Realtime Data LLC d/b/a IXO v. Packeteer, Inc. et al.</i> , No. 6:08-cv-00144-LED (E.D. Texas)	Dismissed

Applicants also notify the Patent and Trademark Office of the following additional litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

<b>No.</b>	<b>Case</b>	<b>Status</b>
2	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al.</i> No. 1:11-cv-06698-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00333-LED)	Opinion of the Court of Appeals for the Federal Circuit received 01/27/2014

3	<i>Realtime Data LLC d/b/a IXO v. Morgan Stanley et al.</i> , No. 1:11-cv-06696-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00326-LED)	Opinion of the Court of Appeals for the Federal Circuit received 01/27/2014
4	<i>Realtime Data LLC d/b/a IXO v. CME Group Inc., et al.</i> , No. 1:11-cv-06697-RJH (S.D. New York) (transferred from E.D. Texas; No. 6:09-cv-00327-LED)	Opinion of the Court of Appeals for the Federal Circuit received 01/27/2014
5	<i>Chicago Board Options Exchange, Inc., v. Realtime Data LLC d/b/a IXO</i> , No. 09-cv-4486 (N.D. Ill.)	Dismissed
6	<i>Thomson Reuters Corporation v. Realtime Data, LLC d/b/a IXO</i> , No. 1:09-cv-07868-RMB (S.D.N.Y)	Consolidated with Case No. 2
7	<i>Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al. (II)</i> , No. 6:10-cv-246 (E.D. Texas)	Consolidated with Case No. 4
8	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al. (II)</i> , No. 6:10-cv-247 (E.D. Texas)	Consolidated with Case No. 2
9	<i>Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al. (II)</i> , No. 6:10-cv-248 (E.D. Texas)	Consolidated with Case No. 3
10	<i>Realtime Data, LLC d/b/a IXO v. MetroPCS Texas, LLC et al.</i> , No. 6:10-cv-00493 (E.D. Texas)	Notice of Appeal Filed

Updated court docket listings for litigations previously disclosed and pending are submitted herewith as **NPL33-NPL36**.

*Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al.*

*Realtime Data LLC d/b/a IXO v. Morgan Stanley et al.*

*Realtime Data LLC d/b/a IXO v. CME Group Inc., et al.*

Applicants submit herewith a document related to the above-listed litigations as **NPL1**.

Information Disclosure Statement

Listed on accompanying IDS Forms PTO/SB/08a equivalent and PTO/SB/08b equivalent are documents that may be considered material to the patentability of this

application as defined in 37 C.F.R. §1.56, and in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.

Copies of documents **NPL1-NPL34** are submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2), no copies of documents **US1-US8** are submitted.

Additionally, copies of documents **NPL35-NPL36**, cited on the attached IDS Forms, are not provided in accordance with the U.S. Patent and Trademark Office

Official Gazette notice of October 19, 2004, which states: "the requirement in 37 C.F.R. § 1.98(a)(2)(iii) for a legible copy of the specification, including the claims, and drawings of each cited pending U.S. patent application (or portion of the application which caused it to be listed) is *sua sponte* waived where the cited pending application is stored in the USPTO's IFW system."

Applicants submit herewith actions from the following co-pending, commonly-assigned U.S. Patent Application Nos.:

Document **NPL2** is a copy of a Supplemental Notice of Allowability mailed November 26, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 13/154,211.

Document **NPL3** is a copy of a Notice of Allowance mailed December 2, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 13/101,994.

Document **NPL4** is a copy of a Notice of Allowance mailed December 18, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 11/553,419.

Document **NPL5** is a copy of a Supplemental Notice of Allowability mailed December 19, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 13/154,211.

Document **NPL6** is a copy of a Non-Final Office Action mailed December 20, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 14/035,716.

Document **NPL7** is a copy of a Notice of Allowance mailed December 20, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 14/035,712.

Document **NPL8** is a copy of a Non-Final Office Action mailed December 20, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 14/035,719.

Document **NPL9** is a copy of a Final Office Action mailed December 27, 2013, in the prosecution of co-pending, commonly-assigned U.S. Application No. 12/690,125.

Document **NPL10** is a copy of a Corrected Notice of Allowability mailed January 14, 2014, in the prosecution of co-pending, commonly-assigned U.S. Application No. 11/553,419.

Document **NPL11** is a copy of a Notice of Allowance mailed January 16, 2014, in the prosecution of co-pending, commonly-assigned U.S. Application No. 14/035,561.

Document **NPL12** is a copy of a Corrected Notice of Allowability mailed January 31, 2014, in the prosecution of co-pending, commonly-assigned U.S. Application No. 11/553,419.

Document **NPL13** is a copy of a Non-Final Office Action mailed February 19, 2014, in the prosecution of co-pending, commonly-assigned U.S. Application No. 13/118,122.

The identification of these Office Actions is not to be construed as a waiver of secrecy as to those applications now or upon issuance of the present application as a

patent. The Examiner is respectfully requested to consider the cited applications and the art cited therein during examination.

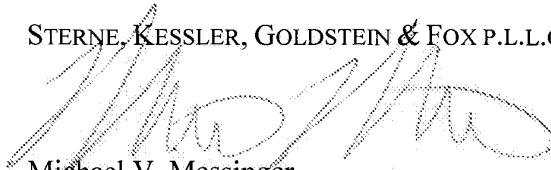
It is expected that the examiner will review the prosecution and cited art in the parent application nos. 10/076,013, filed February 13, 2002 (now U.S. Patent No. 7,386,046); 12/123,081, filed May 19, 2008 (now U.S. Patent No. 8,073,047); and 13/154,239, filed June 6, 2011 (now U.S. Patent No. 8,553,759), in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

Date: February 20, 2014

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/033,245	09/20/2013	James J. Fallon	2855.0050007	9902

26111                      7590                      02/26/2014  
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1100 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER

BOCURE, TESFALDET

ART UNIT	PAPER NUMBER
2634	

MAIL DATE	DELIVERY MODE
02/26/2014	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



### **DETAILED ACTION**

1. The present application is being examined under the pre-AIA first to invent provisions.
2. This office action is in response to the application as originally filed on 9/20/2013. The status of the claims is: claims 1-22 and 28-30 are pending; and claims 23-27 have been withdrawn from consideration.

In response to this office action, Examiner is kindly requesting Applicant to cancel the non-elected claims 23-27.

### ***Information Disclosure Statement***

3. The information disclosure statements (IDSs) submitted on 11/22/2013 (two IDSs submitted on the same date) and 2/20/2014 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Attached with this correspondence are the initialed copies of the IDSs.

### ***Drawings***

4. The drawings were received on 9/20/2013. These drawings are accepted by the Examiner.

### ***Specification***

5. The disclosure is objected to because of the following informalities:

a. The patent application S/N 13/154,239 disclosed in ¶ [0001] should be updated as---now issued as US patent number 8,553,759 on 10/8/2013---.

Appropriate correction is required.

b. The incorporated by reference to US patent application S/Ns 09/266,394 and 09/481,243 in ¶ [0052] and S/N 09/775,905 in ¶ [0080] and ¶ [0083] should be updated by their corresponding US patent numbers.

Examiner would like to bring to the attention of the applicant that the incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(g).

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

Art Unit: 2634

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 11 and 28-30 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed “---decompressing the compressed data block to provide a decompressed data block based on a first number of reads of the compressed data block; and

recompressing the decompressed data block with the selected one or more compressors based on a second number of reads of the compressed data block to provide a recompressed data block,

wherein the first and second number of reads may be the same or different from one another” in claim 11 and “A method, comprising: compressing a data block with a compressor that is selected based upon a number of reads of the data block to provide a compressed data block; and if the number of reads of the data block exceeds a threshold: decompressing the compressed data block to provide a decompressed data block; and recompressing the decompressed data block with the selected compressor based on the number of reads to provide a recompressed data block” in claim 28 is not

disclosed. If Applicant believe that there is a disclosure to support the above mentioned limitation, Examiner has exhausted the specification to find a fair support to the above mentioned claimed limitation to no avail and is kindly asking Applicant to point where such a support is found in the specification.

8. Claims 29 and 30 are inherently rejected as being dependent on the rejected base claim.

***Claim Rejections - 35 USC § 102***

9. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (**pre-AIPA** 35 U.S.C. 102(e)).

10. Claims 1, 4-10 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Vishwanath et al., Vishwanath hereinafter (US patent number 6,216,157).

Vishwanath teaches a method comprising:

determining a parameter or attribute of a data block (see types of data, text, graphics, image, audio or video disclosed in col. 2 and the disclosed subject matter with respect to different types of data and shown in fig. 7) ;

selecting an access profile from among a plurality of access profiles based on the parameter or attribute; and

compressing the data block with one or more compressors utilizing information from the selected access profile to create one or more compressed data blocks, the information being indicative of the one or more compressors to apply to the data block to create the one or more compressed data blocks (selection of compression type according to the data type disclosed in col. 6, lines 15-66 and as shown in figures 6, 9A and 9B).

Further to claims 4-10, Vishwanath teaches:

The method of claim 1, wherein the compressing comprises:

compressing one or more data blocks to create the one or more compressed data blocks (see the types of data, text, graphics, image, audio or video disclosed), as in claim 4.

The method of claim 4, wherein the one or more data blocks comprise one or more

Files (see the types of data, text, graphics, image, audio or video having corresponding file), as in claim 5.

The method of claim 4, wherein the one or more compressed data blocks comprise one or more files (see the types of data, text, graphics, image, audio or video having corresponding file), as in claim 6.

The method of claim 1, further comprising:

storing the one or more compressed data blocks in one or more files (see data to be transmitted to the client in future time according to the profile of the end-user disclosed in col. 2, lines 42-53 is inherently stored at the server which performs the compression and transmission), as in claim 6.

The method of claim 1, further comprising:

storing the one or more compressed data blocks (see data to be transmitted to the client in future time according to the profile of the end-user disclosed in col. 2, lines 42-53 is inherently stored at the server which performs the compression and transmission), as in claim 8.

The method of claim 8, further comprising:

retrieving the one or more compressed stored data blocks;



transmitting the retrieved compressed one or more data blocks over the Internet See disclosed server transmitting the data to user over the internet in col. 4); and decompressing the transmitted and compressed one more data blocks in real-time (see disclosed client receiving and decoding the transmitted data in col. 2, lines 54-59), as in claim 9.

The method of claim 1, wherein the one or more compressors is selected based upon a number of reads of the data block to provide a compressed data block(see the different types of informations: data, text, graphics, image, audio or video having corresponding size and inherent read number), as in claim 10.

#### ***Allowable Subject Matter***

11. Claims 12-22 are allowed.
12. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent numbers 5,812,883 (see also 5,930,358 by the same inventive entity), 5,901,278, 6,257,693, 6,792,151, 6,938,073 and 7,245,636 issued to Rao, Kurihara et al., Miller et al., Barnes et al., Mendhekar et al and Hans et al.

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respectively disclose selection of compression method according to the data type (claimed attribute and parameter) .

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TESHALDET BOCURE whose telephone number is (571)272-3015. The examiner can normally be reached on Mon-Th, 8:30-6:00 and 8:30-5:00 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DANIEL C. WASHBURN can be reached on (571)272-5551. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TESHALDET BOCURE/  
Primary Examiner, Art Unit 2634

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/T. B./  
Primary Examiner, Art Unit 2634

<b>Notice of References Cited</b>	Application/Control No. 14/033,245	Applicant(s)/Patent Under Reexamination FALLON ET AL.	
	Examiner TESFALDET BOCURE	Art Unit 2634	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-5,812,883	09-1998	Rao, Mahesh Chandra	710/74
*	B US-5,901,278	05-1999	Kurihara et al.	358/1.15
*	C US-6,216,157	04-2001	Vishwanath et al.	709/208
*	D US-6,257,693	07-2001	Miller et al.	347/19
*	E US-6,792,151	09-2004	Barnes et al.	382/239
*	F US-6,938,073	08-2005	Mendhekar et al.	709/217
*	G US-7,245,636	07-2007	Hans et al.	370/474
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			


**FOREIGN PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

**NON-PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	U	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)			
	V				
	W				
	X				

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<b>Search Notes</b>  	<b>Application/Control No.</b>  14033245	<b>Applicant(s)/Patent Under Reexamination</b>  FALLON ET AL.
	<b>Examiner</b>  TESFALDET BOCURE	<b>Art Unit</b>  2634

CPC- SEARCHED		
Symbol	Date	Examiner
((H03M7/30; H03M7/3084; 03M7/3059; G06F17/30153; G06F2212/40; G06F12/0246; G06F17/30501; G06F3/0679; G06F3/0688; H04L69/04; Y10S707/99931; Y10S707/99942;H04W28/06 H04N1/00236;H04N2201/3283; G11C29/40;	2/20/2014	TB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
375	240, E7.094	2/20/2014	TB
707	E17.001	2/20/2014	TB
711	E12.008, 154,	2/20/2014	TB
709	247	2/20/2014	TB
708	203	2/20/2014	TB
375, 370, 348, 341, 711, 709, 382,358	Searched ALL (\$8.ccls.)	2/21/2014	TB

SEARCH NOTES		
Search Notes	Date	Examiner
EAST and Inventor's name Searched	2/20/2104	TB
EAST Updated	2/21/2014	TB
IPCR Search Note: (G06F17/30 OR G06F12/00 OR G06F12/02 OR H03M7/30 OR H04B1/66 OR H04N7/26 OR H04N11/02 OR H04J3/18).IPCR. )	2/21/2014	TB

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**INTERFERENCE SEARCH**

<b>US Class/ CPC Symbol</b>	<b>US Subclass / CPC Group</b>	<b>Date</b>	<b>Examiner</b>

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**EAST Search History**

**EAST Search History (Prior Art)**

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EAST Search History

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EAST Search History

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**2/ 21/ 2014 7:53:02 PM**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

FALLON *et al.*

Appl. No.: 14/033,245

Filed: September 20, 2013

For: **Bandwidth Sensitive Data  
Compression and Decompression**

Confirmation No.: 9902

Art Unit: 2634

Examiner: BOCURE, Tesfaldet

Atty. Docket: 2855.0050007

**Information Disclosure Statement**

*Mail Stop Amendment*

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Notice of Prior and Concurrent Proceedings

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,486)	Inter Partes Reexamination Certificate issued 10/10/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/000,466)	Inter Partes Reexamination Certificate issued 05/15/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/000,453)	Terminated
<i>Ex Parte</i> Reexamination of U.S. Patent No. 6,601,104 (Control No. 90/009,428)	Ex Parte Reexamination Certificate issued 02/28/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/000,478)	Inter Partes Reexamination Certificate issued 10/04/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,624,761 (Control No. 95/000,464)	Inter Partes Reexamination Certificate issued 06/12/2012
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/000,479)	Inter Partes Reexamination Certificate issued 05/22/2012

/Tesfaldet Bocure/

02/22/2014

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.B./

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,714,747 (Control No. 95/001,517)	Decision on Petition Under 37 C.F.R. § 1.181 mailed 09/23/2013; Petition to Expunge Third Party Requester's Improper Submission of Declarations and Strike Comments Directed to Examiner's Determination filed 06/26/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,417,568 (Control No. 95/001,533)	Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,777,651 (Control No. 95/001,581)	Decision on Appeal mailed 11/01/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,400,274 (Control No. 95/001,544)	Decision on Appeal mailed 11/01/2013

Applicants hereby call to the attention of the Patent and Trademark Office the following reexamination proceedings filed by Cellco Partnership d/b/a Verizon Wireless, involving patents that are commonly-assigned with the patent in the above-identified patent application:

<b>Proceeding</b>	<b>Status</b>
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,321,937 (Control No. 95/001,922)	Notice of Intent to Issue a Reexam Certificate mailed 11/13/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 6,604,158 (Control No. 95/001,923)	Patent Owner's Reply to Action Closing Prosecution filed 11/04/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,352,300 (Control No. 95/001,924)	Right of Appeal Notice mailed 08/29/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,395,345 (Control No. 95/001,925)	Patent Owner's Reply to Action Closing Prosecution filed 10/21/2013; Action Closing Prosecution mailed 09/20/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,161,506 (Control No. 95/001,926)	Right of Appeal Notice mailed 08/16/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,415,530 (Control No. 95/001,927)	<i>Inter Partes</i> Reexamination Certificate issued 08/16/2013
<i>Inter Partes</i> Reexamination of U.S. Patent No. 7,378,992 (Control No. 95/001,928)	Right of Appeal Notice mailed 08/16/2013

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02/22/2014

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Atty. Dkt. No. 2855.0050007

Applicants invite the Examiner to review the Requests for Reexamination, issued Office Actions, replies, and any other papers in the above-identified reexamination proceedings. If the Examiner is unable to obtain copies of papers in any reexamination proceeding, copies can be provided to the Examiner upon request. Those documents which may be material that are not already of record in this patent application are listed on the accompanying Form PTO/SB/08. For example, documents related to the reexaminations are listed at NPL670-NPL840.

Notice of Related Litigation

Applicants notify the Patent and Trademark Office of the following litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

No.	Case	Status
1	<i>Realtime Data LLC d/b/a IXO v. Packeteer, Inc. et al.</i> , No. 6:08-cv-00144-LED (E.D. Texas)	Dismissed

Applicants also notify the Patent and Trademark Office of the following additional litigation involving U.S. Patents commonly-owned with the current patent application, the subject matter of which may be related to the present patent application:

No.	Case	Status
2	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al.</i> No. 1:11-cv-06698-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00333-LED)	Notice of Appeal Filed
3	<i>Realtime Data LLC d/b/a IXO v. Morgan Stanley et al.</i> , No. 1:11-cv-06696-RJH (S.D. New York) (transferred from E.D. Texas; 6:09-cv-00326-LED)	Notice of Appeal Filed
4	<i>Realtime Data LLC d/b/a IXO v. CME Group Inc., et al.</i> , No. 1:11-cv-06697-RJH (S.D. New York)	Notice of Appeal Filed

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Atty. Dkt. No. 2855 0050007

	(transferred from E.D. Texas; No. 6:09-cv-00327-LED)	
5	<i>Chicago Board Options Exchange, Inc., v. Realtime Data LLC d/b/a IXO</i> , No. 09-cv-4486 (N.D. Ill.)	Dismissed
6	<i>Thomson Reuters Corporation v. Realtime Data, LLC d/b/a IXO</i> , No. 1:09-cv-07868-RMB (S.D.N.Y)	Consolidated with Case No. 2
7	<i>Realtime Data, LLC d/b/a IXO v. CME Group Inc., et al. (II)</i> , No. 6:10-cv-246 (E.D. Texas)	Consolidated with Case No. 4
8	<i>Realtime Data LLC d/b/a IXO v. Thomson Reuters Corporation et al. (II)</i> , No. 6:10-cv-247 (E.D. Texas)	Consolidated with Case No. 2
9	<i>Realtime Data, LLC d/b/a IXO v. Morgan Stanley, et al. (II)</i> , No. 6:10-cv-248 (E.D. Texas)	Consolidated with Case No. 3
10	<i>Realtime Data, LLC d/b/a IXO v. MetroPCS Texas, LLC et al.</i> , No. 6:10-cv-00493 (E.D. Texas)	Notice of Appeal Filed

Updated court docket for litigations previously disclosed and pending are submitted herewith as NPL566-NPL572 and NPL841-NPL844.

Information Disclosure Statement

Listed on accompanying IDS Forms PTO/SB/08a equivalent and/or PTO/SB/08b equivalent are documents that may be considered material to the patentability of this application as defined in 37 C.F.R. §1.56, and in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

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not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing of a first Office Action and after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.

Documents US1-US566 and FP1-FP27 are cited on the attached form PTO/SB/08A. Documents NPL1-NPL848 are cited on the attached form PTO/SB/08B. Copies of documents NPL551-NPL560, NPL566-NPL572, NPL653-NPL658, and NPL826-NPL844 are submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited on the attached IDS Forms are submitted.

Copies of documents FP1-FP27, NPL1-NPL550, NPL561-NPL565, NPL573-NPL652, and NPL659-NPL825 and concise explanations of the relevance of non-English language documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. 13/154,239, filed June 6, 2011 (now U.S. Patent No. 8,553,759), which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

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Additionally, copies of documents NPL845-NPL848, cited on the attached IDS Form, are not provided in accordance with the U.S. Patent and Trademark Office Official Gazette notice of October 19, 2004, which states: "the requirement in 37 C.F.R. § 1.98(a)(2)(iii) for a legible copy of the specification, including the claims, and drawings of each cited pending U.S. patent application (or portion of the application which caused it to be listed) is *sua sponte* waived where the cited pending application is stored in the USPTO's IFW system."

Applicants submit herewith actions from co-pending, commonly assigned U.S. Patent Applications as documents NPL573-NPL658. The identification of these actions is not to be construed as a waiver of secrecy as to those applications now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited applications and the art cited therein during examination.

It is expected that the examiner will review the prosecution and cited art in the parent application nos. 10/076,013, filed February 13, 2002 (now U.S. Patent No. 7,386,046); 12/123,081, filed May 19, 2008 (now U.S. Patent No. 8,073,047); and 13/154,239, filed June 6, 2011 (now U.S. Patent No. 8,553,759), in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

/Tesfaldet Bocure/

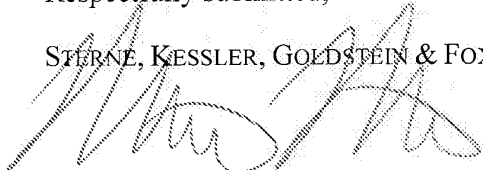
02/22/2014

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The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger  
Attorney for Applicants  
Registration No. 37,575

Date: Nov. 22, 2013

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## UNITED STATES PATENT AND TRADEMARK OFFICE

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 United States Patent and Trademark Office  
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 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

## BIB DATA SHEET

CONFIRMATION NO. 9902

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
14/033,245	09/20/2013	375	2634	2855.0050007		
<b>RULE</b>						
<b>APPLICANTS</b> Realtime Data, LLC, Armonk, NY, Assignee (with 37 CFR 1.172 Interest); <b>INVENTORS</b> James J. Fallon, Armonk, NY; Stephen J. McErlain, New York, NY;						
<b>** CONTINUING DATA *****</b> This application is a CON of 13/154,239 06/06/2011 PAT 8553759 which is a CON of 12/123,081 05/19/2008 PAT 8073047 which is a CON of 10/076,013 02/13/2002 PAT 7386046 which claims benefit of 60/268,394 02/13/2001						
<b>** FOREIGN APPLICATIONS *****</b>						
<b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **</b> 10/08/2013						
Foreign Priority claimed	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Met after Allowance	<b>STATE OR COUNTRY</b>	<b>SHEETS DRAWINGS</b>	<b>TOTAL CLAIMS</b>	<b>INDEPENDENT CLAIMS</b>
35 USC 119(a-d) conditions met	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Verified and	/TESFALDET BOCURE/	_____	NY	4	30	4
Acknowledged	Examiner's Signature	Initials				
<b>ADDRESS</b> STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 UNITED STATES						
<b>TITLE</b> Systems and Methods for Video and Audio data Storage and Distribution.						
<b>FILING FEE RECEIVED</b> 3120	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees			
			<input type="checkbox"/> 1.16 Fees (Filing)			
			<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)			
			<input type="checkbox"/> 1.18 Fees (Issue)			
			<input type="checkbox"/> Other _____			
			<input type="checkbox"/> Credit			

Substitute for form 1449/PTO			<b>Complete if Known</b>		
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Filing Date	September 20, 2013	
			First Named Inventor	James J. FALLON	
			Art Unit	2634	
			Examiner Name	BOCURE, Tesfaldet	
			Attorney Docket Number	2855.0050007	
Sheet	1	of	29		

**U.S. PATENT DOCUMENTS**

Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US1	3,394,352		07-23-1968	Wernikoff et al.	
	US2	3,490,690		01-20-1970	Apple et al.	
	US3	4,021,782		05-03-1977	Hocrning	
	US4	4,032,893		06-28-1977	Moran	
	US5	4,054,951		10-18-1977	Jackson et al.	
	US6	4,127,518		11-28-1978	Coy et al.	
	US7	4,302,775		11-24-1981	Widergren et al.	
	US8	4,325,085		04-13-1982	Gooch	
	US9	4,360,840		11-23-1982	Wolfrun et al.	
	US10	4,386,416		05-31-1983	Giltner et al.	
	US11	4,394,774		07-19-1983	Widergren et al.	
	US12	4,464,650		08-07-1984	Eastman	
	US13	4,494,108		01-15-1985	Langdon, Jr. et al.	
	US14	4,499,499		02-12-1985	Brickman et al.	
	US15	4,574,351		03-04-1986	Dang et al.	
	US16	4,593,324		06-03-1986	Ohkubo et al.	
	US17	4,626,829		12-02-1986	Hauck	
	US18	4,646,061		02-24-1987	Bledsoe	
	US19	4,682,150		07-21-1987	Mathes et al.	
	US20	4,701,745		10-20-1987	Waterworth	

**FOREIGN PATENT DOCUMENTS**

Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP1	DE 4127518		02-27-1992	Tokico Ltd.		
	FP2	EP 0 164677		12-18-1985	Texas Instruments Inc.		
	FP3	EP 0 185098		06-25-1986	Hitachi Ltd.		
	FP4	EP 0283798		09-28-1988	International Business Machines Corporation		
	FP5	EP 0405572		01-02-1991	Fujitsu Limited		
	FP6	EP 0493130		07-01-1992	Canon Kabushiki Kaisha		
	FP7	EP 0587437		03-16-1994	International Business Machines Corporation		
	FP8	EP 0595406		05-04-1994	Philips Electronics		

Examiner Signature	/Tefaldet Bocure/	Date Considered	02/22/2014
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

**ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.B./**

Substitute for form 1449/PTO			<b>Complete if Known</b>		
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>			Application Number	14/033,245	
			Filing Date	September 20, 2013	
			First Named Inventor	James J. FALLON	
			Art Unit	2634	
			Examiner Name	BOCURE, Tesfaldet	
Sheet	2	of	29	Attorney Docket Number	2855.0050007

U.S. PATENT DOCUMENTS						
Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
	US21	4,729,020		03-01-1988	Schaphorst et al.	
	US22	4,730,348		03-08-1988	MacCrisken	
	US23	4,745,559		05-17-1988	Willis et al.	
	US24	4,748,638		05-31-1988	Freidman et al.	
	US25	4,750,135		06-07-1988	Boilen	
	US26	4,754,351		06-28-1988	Wright	
	US27	4,804,959		02-14-1989	Makansi et al.	
	US28	4,813,040		03-14-1989	Futato	
	US29	4,814,746		03-21-1989	Miller et al.	
	US30	4,862,167		08-29-1989	Copeland, III	
	US31	4,866,601		09-12-1989	DuLac et al.	
	US32	4,870,415		09-26-1989	Van Maren et al.	
	US33	4,872,009		10-03-1989	Tsukiyama et al.	
	US34	4,876,541		10-24-1989	Storer	
	US35	4,888,812		12-19-1989	Dinan et al.	
	US36	4,890,282		12-26-1989	Lambert et al.	
	US37	4,897,717		01-30-1990	Hamilton et al.	
	US38	4,906,991		03-06-1990	Fiala et al.	
	US39	4,906,995		03-06-1990	Swanson	
	US40	4,929,946		05-29-1990	O'Brien et al.	

FOREIGN PATENT DOCUMENTS							
Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP9	EP 0718751		06-26-1996	International Business Machines Corporation		
	FP10	EP 0 928 070 A2		07-07-1999	Unwired Planet, Inc.		
	FP11	GB 2162025		01-22-1986	King Reginald Alfred		
	FP12	JP 6051989		02-25-1994	NEC Corp		
	FP13	JP 9188009		07-22-1997	Canon Inc.		
	FP14	JP 11149376		06-02-1999	Toyo Commun Equip Co. Ltd.		
	FP15	WO 9414273		06-23-1994	Voxson International Pty Ltd.		
	FP16	WO 9429852		12-22-1994	Maxtor Corp		

Examiner Signature	/Tefaldet Bocure/	Date Considered	02/22/2014
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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			Examiner Name	BOCURE, Tesfaldet
			Attorney Docket Number	2855.0050007
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<b>U.S. PATENT DOCUMENTS</b>						
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		Number-Kind Code <sup>2</sup> (if known)				
	US41	4,953,324		09-04-1990	Hermann	
	US42	4,956,808		09-11-1990	Aakre et al.	
	US43	4,965,675		10-23-1990	Hori et al.	
	US44	4,988,998		01-29-1991	O'Brien	
	US45	5,003,307		03-26-1991	Whiting et al.	
	US46	5,016,009		05-14-1991	Whiting et al.	
	US47	5,027,376		06-25-1991	Freidman et al.	
	US48	5,028,922		07-02-1991	Huang	
	US49	5,045,848		09-03-1991	Fascenda	
	US50	5,045,852		09-03-1991	Mitchell et al.	
	US51	5,046,027		09-03-1991	Taaffe et al.	
	US52	5,049,881		09-17-1991	Gibson et al.	
	US53	5,091,782		02-25-1992	Krause et al.	
	US54	5,097,261		03-17-1992	Langdon, Jr. et al.	
	US55	5,109,226		04-28-1992	MacLean, Jr. et al.	
	US56	5,109,433		04-28-1992	Notenboom	
	US57	5,113,522		05-12-1992	Dinwiddie, Jr. et al.	
	US58	5,115,309		05-19-1992	Hang	
	US59	5,121,342		06-09-1992	Szymborski	
	US60	5,126,739		06-30-1992	Whiting et al.	

<b>FOREIGN PATENT DOCUMENTS</b>							
Examiner initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP17	WO	9502873	01-26-1995	Philips Electronics		
	FP18	WO	95/29437 A1	11-02-1995	Sony Corp		
	FP19	WO	9748212	12-18-1997	Nokia Telecommunications		
	FP20	WO	9839699 A2	09-11-1998	Intelligent Compression Technologies		
	FP21	WO	9908186	02-18-1999	Macronix International Co, Ltd		
	FP22	WO	0036754 A1	06-22-2000	Microsoft Corporation		
	FP23	WO	01/057642	08-09-2001	Realtime Data LLC		
	FP24	WO	01/057659	08-09-2001	Realtime Data LLC		

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Substitute for form 1449/PTO				<b>Complete if Known</b>	
				Application Number	14/033,245
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
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Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
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	US62	5,132,992		07-21-1992	Yurt et al.	
	US63	5,146,221		09-08-1992	Whiting et al.	
	US64	5,150,430		09-22-1992	Chu	
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	US77	5,231,492		07-27-1993	Dangi et al.	
	US78	5,237,460		08-17-1993	Miller et al.	
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	US80	5,243,341		09-07-1993	Seroussi et al.	

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	FP25	WO 01/63772		08-30-2001	Physical Optics Corporation		
	FP26	WO 02/39591		05-16-2002	Realtime Data LLC		
	FP27	JP 04-241681		08-28-1992	Fujitsu Limited		

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		Number-Kind Code <sup>2</sup> (if known)				
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		Number-Kind Code <sup>2</sup> (if known)				
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	US186	5,623,701		04-22-1997	Bakke et al.	
	US187	5,627,534		05-06-1997	Craft	
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				Application Number	14/033,245	
				Filing Date	September 20, 2013	
				First Named Inventor	James J. FALLON	
				Art Unit	2634	
				Examiner Name	BOCURE, Tesfaldet	
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		Number-Kind Code <sup>2</sup> (if known)				
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	US202	5,666,560		09-09-1997	Moertl et al.	
	US203	5,668,737		09-16-1997	Iler	
	US204	5,671,355		09-23-1997	Collins	
	US205	5,671,389		09-23-1997	Saliba	
	US206	5,671,413		09-23-1997	Shipman et al.	
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	US217	5,717,394		02-10-1998	Schwartz et al.	
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	US219	5,721,958		02-24-1998	Kikinis	
	US220	5,724,475		03-03-1998	Kirsten	

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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	US223	5,742,773		04-21-1998	Blomfield-Brown et al.	
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	US243	5,809,299		09-15-1998	Cloutier et al.	
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	US248	5,818,369		10-06-1998	Withers	
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				Filing Date	September 20, 2013	
				First Named Inventor	James J. FALLON	
				Art Unit	2634	
				Examiner Name	BOCURE, Tesfaldet	
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Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)				
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	US343	6,097,845		08-01-2000	Ng et al.	
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	US345	6,104,389		08-15-2000	Ando	
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	US351	6,145,020		11-07-2000	Barnett	
	US352	6,145,069		11-07-2000	Dye	
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	US357	6,172,936		01-09-2001	Kitazaki	
	US358	6,173,381		01-09-2001	Dye	
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Filing Date	September 20, 2013
				First Named Inventor	James J. FALLON
				Art Unit	2634
				Examiner Name	BOCURE, Tesfaldet
				Attorney Docket Number	2855.0050007
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Examiner initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					

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	NPL7	Asserted Claims Chart for U.S. Patent No. 6,624,761, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 4 pages.	
	NPL8	Asserted Claims Chart for U.S. Patent No. 7,161,506, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 5 pages	
	NPL9	Asserted Claims Chart for U.S. Patent No. 7,400,274, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 6 pages.	
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	NPL16	CORMACK, Gordon V., "Data Compression on a Database System", Communications of the ACM, Volume 28, Number 12, December, 1985, pages 1336-1342.	
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	NPL19	Defendants' Invalidity Contentions, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al., 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 19 pages.	
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	NPL28	Exhibit D, Invalidity Claim Charts D1-D7, D9-D45 for U.S. Patent 7,417,568, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 2458 pages.	
	NPL29	Exhibit E, Invalidity Claim Charts E1-E7, E9, E11, E13-E15, E17-E30, E32-E45 for U.S. Patent 7,714,747, Realtime Data, LLC D/B/A IXO v. CME Group Inc., et al. , 6:09-cv-327-LED-JDL, 6:10-cv-246-LED-JDL, United States District Court for the Eastern District of Texas Tyler Division, October 19, 2010, 3312 pages.	
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