

Presentation of Petitioners Riot Games, Inc. & Valve Corp.

Case Nos. IPR2018-00129, -130, -131, -132

US Patent Nos. 5,822,523 & 6,226,686

Roadmap

▶ Overview

- '523 and '686 Patents
- Combination of Aldred and RFC 1692

▶ Independent Claim Disputes

- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

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Overview of the '523 and '686 Patents

United States Patent [19]
Rothschild et al.

[11] **Patent Number:** **5,822,523**
 [45] **Date of Patent:** **Oct. 13, 1998**

[54] **SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS**

[75] Inventors: **Jeffrey J. Rothschild; Marc P. Kwiatkowski**, both of Los Gatos; **Daniel J. Samuel**, Sunnyvale, all of Calif.

[73] Assignee: **Mpath Interactive, Inc.**, Mountain View, Calif.

[21] Appl. No.: **595,323**

[22] Filed: **Feb. 1, 1996**

[51] Int. Cl.⁶ **H04H 1/02**

[52] U.S. Cl. **395/200.17; 395/200.1; 395/200.09**

[581] Field of Search **395/200.1 200.01**

Primary Examiner—William M. Treat
Assistant Examiner—Zarni Maung
Attorney, Agent, or Firm—H. C. Chan; Wison Sonsini Goodrich & Rosati

[57] **ABSTRACT**

A method for deploying interactive applications over a network containing host computers and group messaging servers is disclosed. The unicast network architecture links and unicast group messages containing destination addresses to the group messaging servers. For each message group, the group messaging servers maintain a list of all of the particular group. In its

Ex. 1001, Face

(12) **United States Patent**
Rothschild et al.

(10) **Patent No.:** **US 6,226,686 B1**
 (45) **Date of Patent:** **May 1, 2001**

(54) **SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS**

(75) Inventors: **Jeffrey Jaekiel Rothschild**, Los Gatos; **Daniel Joseph Samuel**, Sunnyvale; **Marc Peter Kwiatkowski**, Los Gatos, all of CA (US)

(73) Assignee: **HearMe**, Mountain View, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/407,371**

(22) Filed: **Sep. 28, 1999**

Related U.S. Application Data

(63) Continuation of application No. 08/896,797, filed on Jul. 18, 1997, now Pat. No. 6,018,766, which is a continuation of application No. 08/595,323, filed on Feb. 1, 1996, now Pat. No. 5,822,523.

OTHER PUBLICATIONS

Ahuja, S.R., et al., "The Rapport Multimedia Conferencing System," Conference on Office Information Systems 1988, pp. 1-7.

(List continued on next page.)

Primary Examiner—Zarni Maung
 (74) *Attorney, Agent, or Firm*—Sterne, Kessler, Goldstein, & Fox PLLC

(57) **ABSTRACT**

A method for deploying interactive applications over a network containing host computers and group messaging servers is disclosed. The method operates in a conventional unicast network architecture comprised of conventional network links and unicast gateways and routers. The hosts send messages containing destination group addresses by unicast to the group messaging servers. The group addresses select message groups maintained by the group messaging servers. For each message group, the group messaging servers also maintain a list of all of the hosts that are members of the

Ex. 1002, Face

Overview of the '523 and '686 Patents

Attorney Docket No. _____

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reexamination of) MAIL STOP REEXAMINATION
 U.S. Patent No. 6,226,686) Group Art Unit: 399
 Jeffrey J. Rothschild et al.) Examiner: Andrew H. ...
 Issued: May 1, 2001) Confirmation No.: 10
 Reexamination Control No.: 90/011,036)
 Filing Date: June 14, 2010)
 For: SERVER-GROUP MESSAGING)
 SYSTEM FOR INTERACTIVE)
 APPLICATIONS)

AMENDMENT

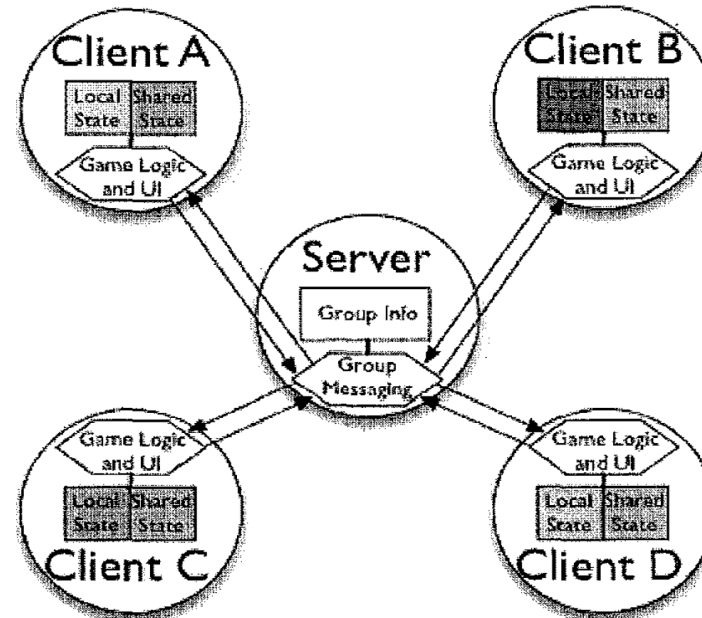
Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated February 10, 2011, please
 above-identified patent as follows:

Petitioner Riot Games, Inc.

Model Architecture for a Decentralized Shared Interactive Application With '686 Patent



Key Characteristics:

- Server provides group messaging capabilities
- Groups creation and joining at direction of clients
- Clients send/receive only to server
- Server aggregates message payloads for delivery

Ex. 1006, 223; -129 Pet. 8

Overview of the '523 and '686 Patents

United
Rothschil

[54] SERV
INTER

[75] Inven

[73] Assign

[21] Appl. 5

[22] Filed:

[51] Int. Cl.

[52] U.S. C

[58] Field

[56]

4,470,984
5,079,767
5,150,464
5,309,433
5,309,437
5,329,639
5,361,256
5,475,819
5,517,494

PC

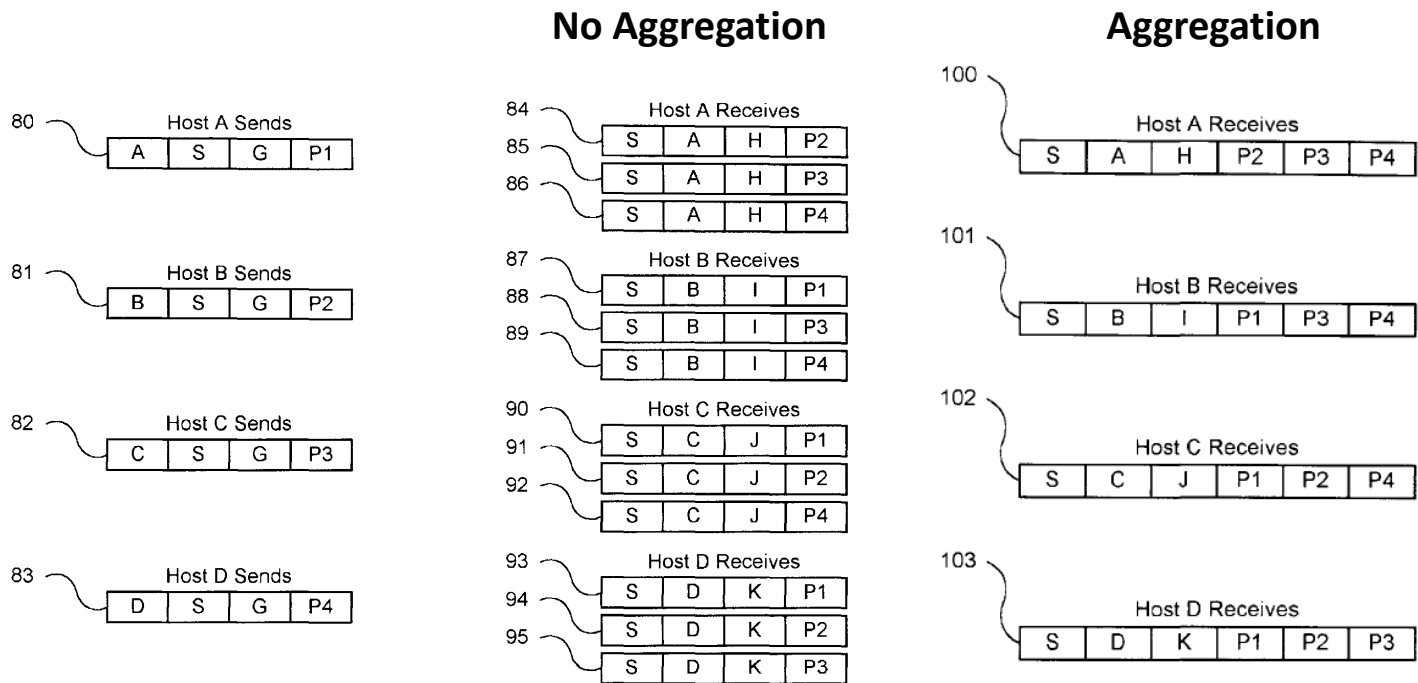
06/71/02

WO 95/10008

WO 95/10911



US005822523A



Petitioner Riot Games, Inc. - Ex. 1001, p. 1

Ex. 1001, Figs. 6-7; -129 Pet. 5; -129 Resp. 5-6

'523 and '686 Patents – Ind. Claim 1

1. A method for providing group messages to a plurality of host computers connected over a unicast wide area communication network, comprising the steps of:

providing a group messaging server coupled to said network, said server communicating with said plurality of host computers using said unicast network and maintaining a list of message groups, each message group containing at least one host computer;

sending, by a plurality of host computers belonging to a first message group, messages to said server via said unicast network, said messages containing a payload portion and a portion for identifying said first message group;

aggregating, by said server in a time interval determined in accordance with a predefined criterion, said payload portions of said messages to create an aggregated payload;

forming an aggregated message using said aggregated payload; and

transmitting, by said server via said unicast network, said aggregated message to a recipient host computer belonging to said first message group.

1. A method for facilitating communications among a plurality of host computers over a network to implement a shared, interactive application, comprising the steps of:

(1) receiving a create message from one of the plurality of host computers, wherein said create message specifies a message group to be created;

(2) receiving join messages from a first subset of the plurality of host computers, wherein each of said join messages specifies said message group;

(3) receiving host messages from a second subset of said first subset of the plurality of host computers belonging to said message group, wherein each of said messages contains a payload portion and a portion that is used to identify said message group;

(4) aggregating said payload portions of said host messages received from said second subset of the plurality of host computers to create an aggregated payload;

(5) forming an aggregated message using said aggregated payload; and

(6) transmitting said aggregated message to said first subset of the plurality of host computers belonging to said message group;

wherein said aggregated message keeps the shared, interactive application operating consistently on each of said first subset of the plurality of host computers.

Independent Claim Disputes

1. A method for providing group messages to a plurality of host computers connected over a unicast wide area communication network, comprising the steps of:

providing a group messaging server coupled to said network, said server communicating with said plurality of host computers using said unicast network and maintaining a list of message groups, each message group containing at least one host computer;

sending, by a plurality of host computers belonging to a first message group, messages to said server via said unicast network, said messages containing a payload portion and a portion for identifying said first message group;

aggregating, by said server in a time interval determined in accordance with a predefined criterion, said payload portions of said messages to create an aggregated payload;

forming an aggregated message using said aggregated payload; and

transmitting, by said server via said unicast network, said aggregated message to a recipient host computer belonging to said first message group.

1. A method for facilitating communications among a plurality of host computers over a network to implement a shared, interactive application, comprising the steps of:

(1) receiving a create message from one of the plurality of host computers, wherein said create message specifies a message group to be created;

(2) receiving join messages from a first subset of the plurality of host computers, wherein each of said join messages specifies said message group;

(3) receiving host messages from a second subset of said first subset of the plurality of host computers belonging to said message group, wherein each of said messages contains a payload portion and a portion that is used to identify said message group;

(4) aggregating said payload portions of said host messages received from said second subset of the plurality of host computers to create an aggregated payload;

(5) forming an aggregated message using said aggregated payload; and

(6) transmitting said aggregated message to said first subset of the plurality of host computers belonging to said message group;

wherein said aggregated message keeps the shared, interactive application operating consistently on each of said first subset of the plurality of host computers.

Roadmap

▶ Overview

- '523 and '686 Patents
- Combination of Aldred and RFC 1692

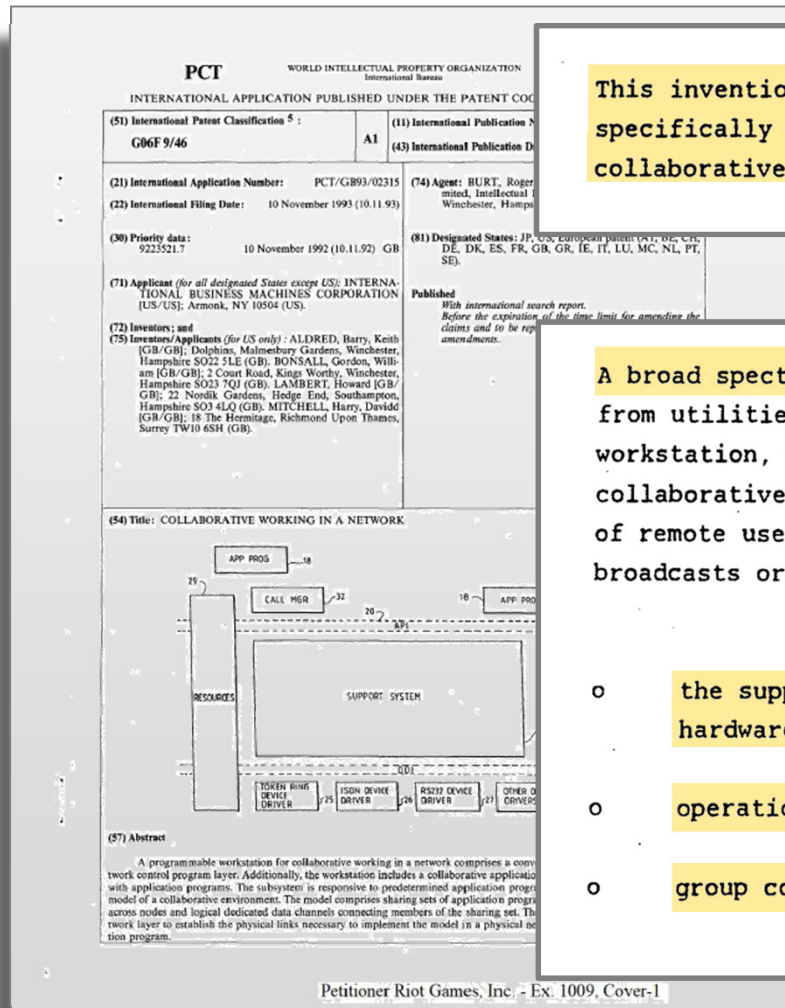
▶ Independent Claim Disputes

- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

Aldred's Collaborative Working Environment



This invention relates to collaborative working in a network and more specifically to a programmable workstation and a method for use in such a collaborative working environment.

Ex. 1009, 1; -129 Pet. 9

A broad spectrum of collaborative applications can be envisaged, ranging from utilities taking advantage of the data and applications on a workstation, e.g. sharing of screen windows and files, through to new collaborative applications designed to meet the needs of specific classes of remote user e.g. just-in-time education, remote presentations, executive broadcasts or help desk. The common requirements behind these examples are:

- o the support of a wide variety of personal computer platforms - both hardware and software.
- o operation over the existing communication networks.
- o group communications and multi-media data services.

Ex. 1009, 1; -129 Pet. 9

Aldred's Sharing Sets

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPL
(51) International Patent Classif
G06F 9/46

(21) International Application Num
(22) International Filing Date:

(30) Priority data:
9225521.7 10

(71) Applicant (for all designated
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am [GB/GB]; 2 Court Roa
Hampshire SO23 7QJ (G
GB); 22 Nordik, Garden
Hampshire SO3 4LQ (GB
[GB/GB]; 18 The Hermit
Surrey TW10 6SH (GB).

(54) Title: COLLABORATIVE

APP PRO

29

RESOURCES

(57) Abstract
A programmable worksta
network control program layer. Add
with application programs. The syste
model of a collaborative environment. The model comprises sharing sets of application programs, which share data and resources across nodes and logical dedicated data channels connecting members of the sharing set. The subsystem cooperates with the network layer to establish the physical links necessary to implement the model in a physical network, transparently to the application program.

Petitioner Riot Games, Inc. - Ex. 1009, Cover-1

FIG. 3

The diagram shows five nodes, labeled A through E, arranged in a grid. Each node contains a vertical stack of components: 'AWARE' (numbered 1-9), 'CALL MANAGER', and 'SUPPORT SYSTEM'. Node A (top-left) has 'AWARE 1', 'CALL MANAGER', and 'SUPPORT SYSTEM'. Node B (top-middle) has 'AWARE 2', 'CALL MANAGER', and 'SUPPORT SYSTEM'. Node C (top-right) has 'AWARE 3', 'AWARE 4', 'CALL MANAGER', and 'SUPPORT SYSTEM'. Node D (bottom-left) has 'AWARE 5', 'AWARE 6', 'AWARE 7', 'CALL MANAGER', and 'SUPPORT SYSTEM'. Node E (bottom-right) has 'AWARE 8', 'AWARE 9', 'CALL MANAGER', and 'SUPPORT SYSTEM'. A yellow line connects 'AWARE 1' to 'AWARE 2', then to 'AWARE 3', then to 'AWARE 4', and finally to 'AWARE 8'. Another yellow line connects 'AWARE 2' to 'AWARE 3'. A black line connects 'AWARE 7' to 'AWARE 8'. To the right of the nodes are two circular diagrams. The first circle (FIG. 4) is yellow and contains the labels '2B', '3C', '1A', '4C', and '8E'. The second circle is white and contains the labels '7D' and '9E'.

FIG. 4

Ex. 1009, Fig. 3; -129 Pet. 12

Aldred's Central Serialization Point

PCT
WORLD INTELLECTUAL PROPERTY ORGANIZATION
INTERNATIONAL APPLICATION PUBLISHED UNDER THE TREATY OF WIPO

(51) International Patent Classification: G06F 9/46 (11) A1 (43)

(21) International Application Number: PCT/GB93/02315

(22) International Filing Date: 10 November 1993 (10.11.93)

(30) Priority data: 9225521.7 10 November 1992 (10.11.92) GB

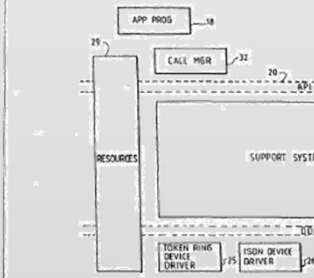
(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US-US]; Armonk, NY 10504 (US).

(72) Inventors; and (75) Inventors/Applicants (for US only): ALDRED, Barry, Keith [GB/GB]; Dolphins, Malmesbury Gardens, Winchester, Hampshire SO22 5LE (GB). BONSALL, Gordon, William [GB/GB]; 2 Court Road, Kings Worthy, Winchester, Hampshire SO23 7QJ (GB). LAMBERT, Howard [GB/GB]; 22 Nordik Gardens, Hedge End, Southampton, Hampshire SO3 4LQ (GB). MITCHELL, Harry, David [GB/GB]; 18 The Hermitage, Richmond Upon Thames, Surrey TW10 6SH (GB).

An example of data serialisation is illustrated by a shared drawing board application illustrated in Figure 6. Two identical applications, A and B (50 and 52), allow their users to draw on a single shared surface. In order that the users at A and B see identical results, all the drawing orders at A must be sent to B via ports 53 and 54, and vice versa via ports 55 and 56, in such a way that the sequence processed at A and B is identical. This is accomplished by each transmitting their own data both to each other and to themselves, over two channels 57 and 58 which are members of a common serialising channel set 59.

Ex. 1009, 7; -129 Pet. 19-20

(54) Title: COLLABORATIVE WORKING IN A NETWORK



(57) Abstract
A programmable workstation for collaborative working in a network control program layer. Additionally, the workstation includes application programs. The subsystem is responsive to a protocol of a collaborative environment. The model comprises sharing across nodes and logical dedicated data channels connecting network layer to establish the physical links necessary to implement a program.

Serialisation logically involves the collection of all events in a central point, followed by the broadcast of each event to all the destinations for that event. Diagrammatically, this is represented by Figure 9 for the case of two ports A and B on channels 80 and 81, serialising their output at 82 and 83 to port C (84) and another port (not shown) in serialising process 85. Serialisation can be implemented at a single central point with all data being sent there for serialisation and subsequent distribution; alternatively the serialisation process itself can be distributed.

Ex. 1009, 9; -129 Pet. 20

Aldred's Central Serialization Point

PCT WORLD INTE
INTERNATIONAL APPLICATION PUBL

(51) International Patent Classification 5 :
G06F 9/46

(21) International Application Number: PCT/G
(22) International Filing Date: 10 November 199

(30) Priority data:
9225521.7 10 November 1992 (10.

(71) Applicant (for all designated States except US): I
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am [GB/GB]; 2 Court Road, Kings Worthy,
Hampshire SO23 7QJ (GB). LAMBERT, Ho
GB); 22 Nordik Gardens, Hedge End, So
Hampshire SO3 4LQ (GB). MITCHELL, Ha
[GB/GB]; 18 The Hermitage, Richmond Up
Surrey TW10 6SH (GB).

(54) Title: COLLABORATIVE WORKING IN A

(57) Abstract
A programmable workstation for collaborative
work control program layer. Additionally, the works
with application programs. The subsystem is respon
model of a collaborative environment. The model con
across nodes and logical dedicated data channels ce
network layer to establish the physical links necessary
tion program.

Petitioner Riot Games, Inc. - Ex. 1009, Cover-1

FIG. 19

Ex. 1009, Fig. 19; -129 Pet. 14

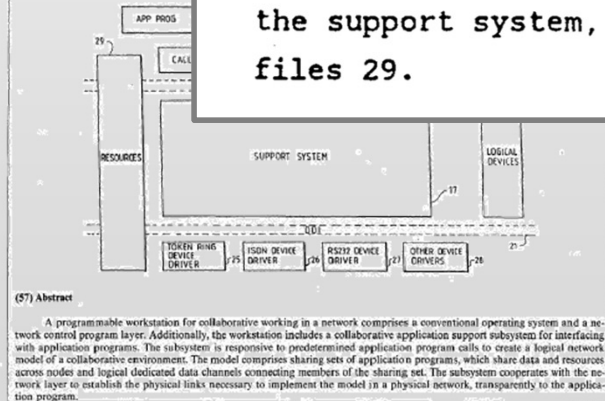
Aldred's TCP/IP Networking Module

An application programming interface 20 allows applications 18 to request support services. A device driver interface 21 allows the system to support an extensible range of software and hardware communications subsystems through device drivers such as token ring driver 25, ISDN driver 26, RS232 driver 27 and other device drivers 28. Link support modules 228, 229 interface with the device drivers. These are replaceable, (Figure 10 shows only a possible selection) depending on the hardware options available at the workstation, and serve to isolate the support system from needing to know precisely which hardware is present. Through an implicit resources interface, (not illustrated) details of the communications network, such as node addresses and directory data may be requested by both the support system, the applications and the device drivers from resource files 29.

Ex. 1009, 3; -129 Pet. 37

PCT
INTERNATIONAL APPLICATION
(51) International Patent Classification
G06F 9/46
(21) International Application Number:
(22) International Filing Date: 10 Nov 1992
(30) Priority data:
9225521.7 10 Nov 1992
(71) Applicant (for all designated States)
INTERNATIONAL BUSINESS MACHINES CORPORATION
[US-USA]; Armonk, NY 10504-1700
(72) Inventors; and
(75) Inventors/Applicants (for US only)
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[GB-GB]; 2 Court Road, Kingsley
Hampshire SO23 7QJ (GB), Liphook
[GB-GB]; 22 Nordik Gardens, Herford
Hampshire SO3 4LQ (GB), Mottisfont
[GB-GB]; 18 The Hermitage, Farnham
Surrey TW10 6SH (GB).

(54) Title: COLLABORATIVE WORKSTATION



(57) Abstract
A programmable workstation for collaborative working in a network comprises a conventional operating system and a network control program layer. Additionally, the workstation includes a collaborative application support subsystem for interfacing with application programs. The subsystem is responsive to predetermined application program calls to create a logical network model of a collaborative environment. The model comprises sharing sets of application programs, which share data and resources across nodes and logical dedicated data channels connecting members of the sharing set. The subsystem cooperates with the network layer to establish the physical links necessary to implement the model in a physical network, transparently to the application program.

Petitioner Riot Games, Inc. - Ex. 1009, Cover-1



Ex. 1009, Fig. 10; -129 Pet. 37

RFC 1692 – Transport Multiplexing Protocol

Network Working Group
Request for Comments: 1692
Category: Standards Track

Xylogics,
Silicon

TMux is designed to improve network utilization and reduce the interrupt load on hosts which conduct multiple sessions involving many short packets. It does this by multiplexing transport traffic onto a single IP datagram [2], thereby resulting in fewer, larger packets. TMux is highly constrained in its method of accomplishing this task, seeking simplicity rather than sophistication.

Transport Multiplexing Protocol (TMux)

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of "RFC 2026: Official Protocol Standards" (STD 1) for the status and status of this protocol. Distribution of this

Abstract

One of the problems with the use of terminal server numbers of small packets they can generate. Frequent packets are destined for only one or two hosts. TMux which allows multiple short transport segments, independent application type, to be combined between a server and

Acknowledgments

This specification is the result of the merger of the original TMux proposal which was the result of several and related initiatives through IETF working groups originally proposed by Danny Cohen and Jon Postel in

Applicability Statement

The TMux protocol is intended to optimize the transmission of small data packets that are generated in many interactive Telnet and Rlogin sessions, and other hosts on the network. In these situations, TMux can improve network and host performance. TMux is not intended for long streams composed of large blocks of data that are transmitted by such applications as FTP.

The TMux protocol may be applicable to other situations where many small packets are generated, but this was not considered

Cameron, Crocker, Cohen & Postel

[Page 1]

Ex. 1010, 2; -129 Pet. 36

Hence, a TMux message appears as:

| IP hdr | TM hdr | Tport segment | TM hdr | Tport segment| ...|

Where:

TM hdr is a TMux mini-header and specifies the following Tport segment.

Tport segment refers to the entire transport segment, including transport headers.

Ex. 1010, 3; -129 Pet. 36

TMux operates as an extension to the IP datagram protocol. Hence, it has no impact on most flow control mechanisms, since they operate at the transport layer -- above TMux.

Ex. 1010, 6; -129 Pet. 38

RFC 1692 – Message Construction

Network Working Group
Request for Comments: 1692
Category: Standards Track

Xylo

Transport Multiplexing Protocol

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the status of this protocol. Distribution of this memo is unlimited.

Abstract

One of the problems with the use of terminal emulation is the large number of small packets they can generate. For many applications, packets are destined for only one or two hosts, which allows multiple short transport segments to be combined into a single application type, to be combined between a set of hosts.

Acknowledgments

This specification is the result of the merge of the original TMux proposal which was the result of the work of and related initiatives through IETF working groups originally proposed by Danny Cohen and Jon Postel.

Applicability Statement

The TMux protocol is intended to optimize the numbers of small data packets that are generated by many interactive Telnet and Rlogin sessions at hosts on the network. In these situations, TMux improves network and host performance. TMux is not intended for long streams composed of large blocks of data transmitted by such applications as FTP.

The TMux protocol may be applicable to other applications where packets are generated, but this was not considered.

Cameron, Crocker, Cohen & Postel

When a transport provider (e.g., TCP or UDP) sends a segment, TMux first removes the IP header (if present) and adds a TMux mini-header and the segment to the Multiplexed Message under construction for the host specified by the destination address of the segment.

When the first message to be transmitted is placed into the Multiplexed Message under construction, a timer is started. When the timer expires, the Multiplexed Message under construction is transmitted. This ensures that all segments available for sending before the timer expires are sent in a single Multiplexed Message. If, during construction of the Multiplexed Message, the buffer holding the message fills, the Multiplexed Message is transmitted immediately.

The delay time should be user configurable; a reasonable time is 20 to 30 milliseconds. The time period should be large enough to give a reasonable probability of sending multiple segments but not so large that the echo response time becomes a problem. This suggests that the upper limit for the timer is probably 1/10th second. As the cost of using timeouts on many systems is quite large, it is recommended that a single timer be used and that all TMux messages under construction are sent when the timer expires.

Petitioner Riot Games, Inc. - Ex. 1010, p. 1

Ex. 1010, 6; -129 Pet. 40

Obvious to use RFC 1692 in Aldred

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIEBUNAL

RIOT GAMING, INC.
Petitioner

v.

PALTAALK HOLDINGS, INC.
Patent Owner

Case No. IPR2018-00129
U.S. Patent No. 7,811,111
Issued: October 1, 2013
Filed: February 1, 2018

Inventors: Jeffrey J. Rothschild, Marc A. ...

Title: SERVER-GROUP MESSAGING AND APPLICATIONS

PETITION FOR INTERFERENT

It would have been obvious to an Ordinary Artisan in 1995 to modify Aldred's CSP to communicate with other nodes via RFC 1692's TMux protocol so as to “*aggregat[e] ... said payload portions*” as claimed. Ex. 1007, ¶145. Aldred and RFC 1692 are readily combinable; Aldred explains that “[t]he nature of the transport networks involved are totally hidden below the API.” Ex. 1009, 28-29. “This means that an application is completely unaware of the network routing (eg direct or indirect), and the network types involved (eg single or multiple links, switched or fixed connections).” *Id.* Aldred also supports “TCP/IP,” *Id.*, Fig. 10 (“TCP/IP LSM 229”); *see id.*, 3, and its exemplary networking software, IBM NetBIOS, could support TCP/IP. *Id.*, 2-3; Ex. 1017.

-129 Pet. 36-37

Motivation to Combine Aldred with RFC 1692

UNITED STATES PATENT

BEFORE THE PATENT

RIOT C
Pa

PALTALK I
Pat

Case No.
U.S. Patent
Issued: C
Filed: Fe

Inventors: Jeffrey J. Rothschild, I

Title: SERVER-GROUP MESSA
APPL

PETITION FOR IN

RFC 1692 provides abundant motivation to incorporate TMux into Aldred.

“The TMux protocol is intended to optimize the transmission of large numbers of small data packets,” and “is designed to improve network utilization and reduce the interrupt load on hosts which conduct multiple sessions involving many short packets.” Ex. 1010, 2; Ex. 1007, ¶147. RFC 1692 explains that “network and host load could be greatly reduced if traffic from multiple users, destined for the same host, could be sent in the same packet.” Ex. 1010, 2 An Ordinary Artisan would have therefore been motivated to use TMux in Aldred’s scheme for these benefits. Ex. 1007, ¶147.

-129 Pet. 38

Roadmap

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- '523 and '686 Patents
- Combination of Aldred and RFC 1692

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- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

Patent Owner's "Order" Argument

IPR2018-00129
Patent 5,822,523

UNITED STATES PATENT AND TRADEMARK

BEFORE THE PATENT TRIAL AND APPEAL B

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case IPR2018-00129
Patent 5,822,523

PATENT OWNER'S RESPONSE TO PETITIO
INTER PARTES REVIEW OF U.S. PATENT NO.

i

A POSITA would thus recognize that while the TMux timer has not expired, any packets removed from the queue at the CSP that should not be TMuxed, such as large packets, would be transmitted immediately in a separate IP datagram before the TMuxed message under construction that includes the small packets is transmitted. *Id.*, ¶ 75. This would cause the large packets to be transmitted out of order with respect to the small packets, because the small packets would be held back from transmission by the delay timer while the small packets reside in the TMux message under construction. *Id.* This would thus disrupt the required packet transmission order of the CSP as described in Aldred. *Id.*

-129 Resp. 25-26

Multiplexing “Large” Segments, e.g., FTP

network and host performance. TMux is not intended for multiplexing long streams composed of large blocks of data that are typically transmitted by such applications as FTP.

Ex. 1010, 1; -129 Resp. 23

it is transmitted. It is also suggested that larger segments (e.g., those over 700 octets) should be sent as standard IP datagrams, and not multiplexed. This is to ensure that the delay caused by the TMux timer does not put a delay on those segments for which it is inadvisable. The size of the largest segments to be multiplexed should (if possible) be configurable.

Ex. 1010, 7; -129 Resp. 24

It is the responsibility of the sender to decide which segments should be TMux'd and which should not. For example, segments sent by FTP should not normally be multiplexed. In many situations, it may be sensible to restrict the sessions that can be multiplexed to just those involved in interactive traffic (Telnet and Rlogin) by examining the source and destination TCP port numbers. However, if a segment that would not normally be multiplexed is to be sent and a TMux message is already under construction, then the extra segment can be added to the TMux message under construction, and this complete message should be sent immediately, rather than waiting for the timer to expire.

Ex. 1010, 8-9; -129 Reply 3

Dr. White's Reply Deposition

Page 1

1
2 UNITED STATES PATENT AND TRADEMARK OFFICE
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 RIOT GAMES, INC., and : Case IPR2018-00129
5 VALVE CORP., : Case IPR2018-00130
6 : 5,822,523 & 5,822,523 C1
7 : Petitioners, :
8 : Case IPR2018-00131
9 vs. : 6,226,686 & 6,226,686 C1
10 :
11 PALTALK HOLDINGS, INC., : Case IPR2018-00132
12 Patent Owner. : 6,226,686 & 6,226,686 C1
13
14 ORAL DEPOSITION OF STEVE R. WHITE, PH.D.
15 New York, New York
16 December 19, 2018
17
18
19
20
21
22
23 Reported by:
24 Maureen Broderick, RPR
25 JOB NO. 153003

TSG Reporting - Worldwide - 877-702-9580
PATENT OWNER PALTALK HOLDINGS - EX. 2005, PAGE 1

Q The premise of my question was, if the packet received is equal to the largest message size --

A And they're already messages in the buffer.

Q -- then wouldn't the larger packet -- wouldn't the combined packet exceed the maximum transmittal unit?

MR. BORDER: Objection. Form.

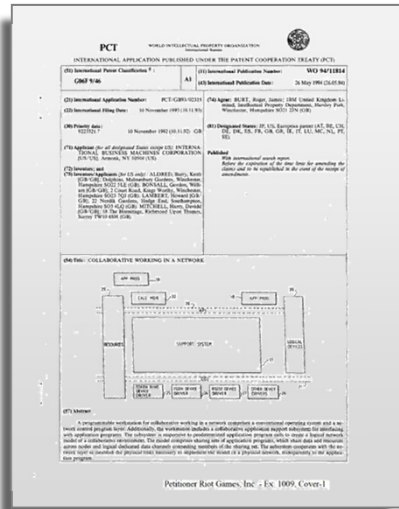
THE WITNESS: If the message -- this is down in the weeds of a hypothetical that I haven't analyzed the detail, so I want to be very careful. So let me understand your premises.

You have a message buffer -- a TMux message buffer. You have maximum transferable unit. The message buffer is less than or equal to, in size, the maximum transmissible unit. The buffer has messages in it. And the next message that you send is the size of the maximum transmissible unit.

In that case, you couldn't multiplex the last message with the preceding messages, because it would be too large. And the, the ordering suggested here is that you would multiplex the smaller messages together, send those out, and then send your last message, the large message out after that.

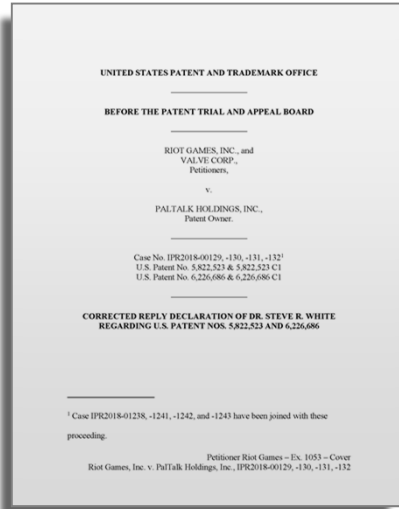
Ex. 2005, 52:10-53:13; see -129 Sur-Reply 4

Aldred's Channels Maintain Packet Order



As illustrated in the schematic example of Figure 5, applications in a sharing set such as 40, 41 and 42 can establish data communication links with each other known as channels. Channels such as 43 and 44 are logically dedicated and uni-directional pipes, with application specified transmission characteristics. A channel is always defined by the sending application and it goes from a sending application to a receiving application. The ends of channels are known as ports; thus all channels have one sending port and one receiving port. A sending port such as 45 sends data packets down the channel; a receiving port such as 46 receives data packets from the channel in the order in which they were sent. There may be no direct mapping between the logical channel structure seen by the aware applications and the physical communication network in existence between the nodes.

Ex. 1009, 6; -129 Reply 5



channels would still provide their updates in order and maintain serialization. A person of ordinary skill in the art would read Aldred's disclosure related to channels as maintaining the order of events at a logical level and regardless of the physical connection, which would resolve any out-of-order IP packet transmission.

Ex. 1053, ¶125; -129 Reply 5

RFC 793: TCP Reorders Out-of-Order Segments

RFC: 793

TRANSMISSION CONTROL PROTOCOL

DARPA INTERNET PROGRAM
PROTOCOL SPECIFICATION

September 1981

prepared for

Defense Advanced Research Projects Agency
Information Processing Techniques Office
1400 Wilson Boulevard
Arlington, Virginia 22209

by

Information Sciences Institute
University of Southern California
4676 Admiralty Way
Marina del Rey, California 90291

Reliability:

The TCP must recover from data that is damaged, lost, duplicated, or delivered out of order by the internet communication system. This is achieved by assigning a sequence number to each octet transmitted, and requiring a positive acknowledgment (ACK) from the receiving TCP. If the ACK is not received within a timeout interval, the data is retransmitted. At the receiver, the sequence numbers are used to correctly order segments that may be received out of order and to eliminate duplicates. Damage is handled by adding a checksum to each segment transmitted, checking it at the receiver, and discarding damaged segments.

As long as the TCPs continue to function properly and the internet system does not become completely partitioned, no transmission errors will affect the correct delivery of data. TCP recovers from internet communication system errors.

Ex. 1051, 4; -129 Reply 6

Petitioner Riot Games – Ex. 1051,
Riot Games, Inc. v. PalTalk Holdings, Inc., IPR2018-00129, -130, -131, -132, Cover

Petition's Combination Uses TCP/IP

Paper No. 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case No. IPR2018-00129
U.S. Patent No. 5,822,523
Issued: October 13, 1998
Filed: February 1, 1996

Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, Daniel J. Samuel

Title: SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS

PETITION FOR INTER PARTES REVIEW

It would have been obvious to an Ordinary Artisan in 1995 to modify Aldred's CSP to communicate with other nodes via RFC 1692's TMux protocol so as to “*aggregat[e] ... said payload portions*” as claimed. Ex. 1007, ¶145. Aldred and RFC 1692 are readily combinable; Aldred explains that “[t]he nature of the transport networks involved are totally hidden below the API.” Ex. 1009, 28-29. “This means that an application is completely unaware of the network routing (eg direct or indirect), and the network types involved (eg single or multiple links, switched or fixed connections).” *Id.* Aldred also supports “TCP/IP.” *Id.*, Fig. 10 (“TCP/IP LSM 229”); *see id.*, 3, and its exemplary networking software, IBM NetBIOS, could support TCP/IP. *Id.*, 2-3; Ex. 1017.

-129 Pet. 36-37

As combined with RFC 1692, Aldred's messages would be multiplexed via TMux (“*aggregate[ed]*”) into a single packet (“*aggregated payload*”) prior to transmission from the CSP to each member of the serialising channel set associated with the Sharing Set. Ex. 1007, ¶¶150-151. RFC 1692 collects two or more TCP segments together into a multiplexed message. Ex. 1010, 2-3, 6. Those two segments are identified in the multiplexed message with TMux mini-headers. *Id.*, 3. When the multiplexed message is received by the receiver, the original two TCP segments and their respective headers are reconstructed from the information in the multiplexed message. *Id.*, 3. This would also meet Patent Owner's

-129 Pet. 39

Aldred Encompasses Small Packet Systems

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Patent

INTERNATIONAL APPLICATION PUBLISHED UNDER

(51) International Patent Classification 5 : G06F 9/46 (11) Inte A1 (43) Inte

(21) International Application Number: PCT/GB93/02315 (74)

(22) International Filing Date: 10 November 1993 (10.11.93)

(30) Priority data: 9225521.7 10 November 1992 (10.11.92) GB (81)

(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US-US]; Armonk, NY 10504 (US).

(72) Inventors; and (75) Inventors/Applicants (for US only): ALDRED, Barry, Keith [GB/GB]; Dolphins, Malmesbury Gardens, Winchester, Hampshire SO22 5LE (GB); BONSALL, Gordon, William [GB/GB]; 2 Court Road, Kings Worthy, Winchester, Hampshire SO23 7QJ (GB); LAMBERT, Howard [GB/GB]; 22 Nordik Gardens, Hedge End, Southampton, Hampshire SO3 4LQ (GB); MITCHELL, Harry, David [GB/GB]; 18 The Hermitage, Richmond Upon Thames, Surrey TW10 6SH (GB).

(54) Title: COLLABORATIVE WORKING IN A NETWORK

(57) Abstract

A programmable workstation for collaborative working in a network control program layer. Additionally, the workstation includes a set of application programs. The subsystem is responsive to predetermined model of a collaborative environment. The model comprises sharing resources across nodes and logical dedicated data channels connecting member nodes to establish the physical links necessary to implement the network control program.

Petitioner Riot

A broad spectrum of collaborative applications can be envisaged, ranging from utilities taking advantage of the data and applications on a workstation, e.g. sharing of screen windows and files, through to new collaborative applications designed to meet the needs of specific classes of remote user e.g. just-in-time education, remote presentations, executive broadcasts or help desk. The common requirements behind these examples are:

Ex. 1009, 1; -129 Reply 7

i) Application Assistant

This utility implements the following functions for users in a call:

- o direct mirroring of an existing application window, either as a snapshot or continuously, and has the system pointing device enabled as a remote pointer.

iv) Message Line

Message line 105 provides immediate sharing of text data between users in a call. Multiple simultaneous users are permitted; each participant sees all the exchanged messages, and in the same sequence. The message utility also logs activity during the call;

Ex. 1009, 27-28; -129 Pet. 20; -129 Reply 7-8

Dr. White: RFC 1692 Reduces the Number of Packets

UNITED STATES PATENT AND TRADEMARK

BEFORE THE PATENT TRIAL AND APPEAL

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case Nos. IPR2018-00129, -00130
U.S. Patent No. 5,822,523

Case Nos. IPR2018-00131, -00132
U.S. Patent No. 6,226,686

DECLARATION OF DR. STEVE R. WHITE
REGARDING U.S. PATENT NOS. 5,822,523 AND

Petitioner Riot Games, Inc.

such as a “mouse click”). One of ordinary skill in the art would have understood that drawing orders and other events used to keep data consistent between applications, such as user input, would result in messages significantly smaller than the IP protocol supports, such that RFC 1692’s methodology would improve Aldred’s performance by reducing the number of packets. For example, a single character press in the conventional ASCII format of the time could be encoded in 8 bits (*i.e.*, one octet), meaning that a single aggregated message could contain numerous key presses or series of key presses from Aldred’s nodes. As another example, a drawing order could be encoded in a pair of X and Y coordinates and some additional control information such as left-click or right-click, which one of ordinary skill would expect could be encoded in several octets.

Ex. 1007, ¶146; -129 Pet. 37-38

Combination = Known Elements + Known Functions

UNITED STATES PATENT AND TRADEMARK

BEFORE THE PATENT TRIAL AND APPEAL

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case Nos. IPR2018-00129, -00130
U.S. Patent No. 5,822,523

Case Nos. IPR2018-00131, -00132
U.S. Patent No. 6,226,686

DECLARATION OF DR. STEVE R. WHIT
REGARDING U.S. PATENT NOS. 5,822,523 AND

Petitioner Riot Games, Inc.

30. Incorporating the TMux protocol into Aldred would simply involve using the TMux-enhanced IP protocol for Aldred's transport mechanism, and would have been well-within the abilities of an ordinary artisan. This arranges known elements, each performing the same function it had been known to perform (Aldred's logical communication scheme using RFC 1692's multiplexing IP protocol for underlying transport), to yield no more than one would expect from such an arrangement (RFC 1692's functionality multiplexing outgoing messages from Aldred's central serialisation point). Such a modification would also have been the product of ordinary skill and common sense, and would have been obvious to try because, as explained above, one of ordinary skill would have had good reason to pursue the known options within his or her technical grasp.

Ex. 1007, ¶149; -129 Pet. 38-39

Patent Owner's Non-Obviousness Arguments

IPR2018-00129
Patent 5,822,523

UNITED STATES PATENT AND TRADEMARK
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case IPR2018-00129
Patent 5,822,523

PATENT OWNER'S RESPONSE TO PETITIONER'S
INTER PARTES REVIEW OF U.S. PATENT NO. 5,822,523

i

Petitioner has also failed to consider why a POSITA would turn to RFC 1692 when Aldred already discusses alternative bandwidth saving solutions.

-129 Resp. 29

Latency would also be introduced into the system of Aldred if combined with RFC 1692. Ex. 2002, ¶ 84. As described in RFC 1692, during construction of a TMux message, a delay timer holds packets back from transmission and they are added to the TMux message during a timer period. Ex. 1010, 6-7; Ex. 2002, ¶

-129 Resp. 30

Aldred's "Bandwidth Saving Techniques"

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY

(51) International Patent Classification: G06F 9/46 A1
(11) International Publication Number: (43) International Publication Date:

(21) International Application Number: PCT/GB93/02315
(22) International Filing Date: 10 November 1993 (10.11.93)
(30) Priority data: 922521.7 10 November 1992 (10.11.92) GB
(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US-US]; Armonk, NY 10504 (US).
(72) Inventors; and (75) Inventors/Applicants (for US only): ALDRED, Barry, Keith [GB/GB]; Dolphins, Malmesbury Gardens, Winchester, Hampshire SO22 5LE (GB). BONSALL, Gordon, William [GB/GB]; 2 Court Road, Kings Worthy, Winchester, Hampshire SO23 7QJ (GB). LAMBERT, Howard [GB/GB]; 22 Nordik Gardens, Hedge End, Southampton, Hampshire SO3 4LQ (GB). MITCHELL, Harry, David [GB/GB]; 18 The Hermitage, Richmond Upon Thames, Surrey TW10 6SH (GB).
(74) Agent: BURT, Roger, James; Intellectual Property, Winchester, Hampshire SO21
(81) Designated States: JP, US, Euro DE, DK, ES, FR, GB, GR, SE.
Published
With international search report
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: COLLABORATIVE WORKING IN A NETWORK

(57) Abstract
A programmable workstation for collaborative working in a network comprises a conventional network control program layer. Additionally, the workstation includes a collaborative application support with application programs. The subsystem is responsive to predetermined application program calls to model a collaborative environment. The model comprises sharing sets of application programs, which across nodes and logical dedicated data channels connecting members of the sharing set. The subsystem network layer to establish the physical links necessary to implement the model in a physical network, transmission program.

Petitioner Riot Games, Inc. - Ex. 1009

Channels have a number of quality of service characteristics, initially negotiated with the support system 17 during the creation process, which allow data transmission characteristics to be tailored to the requirements of the expected traffic. These characteristics include encryption, compression hints. Encryption allows the data to be encrypted during transmission along the channel; compression hints allow the system the option of compressing the data over narrow bandwidth links.

Ex. 1009, 6; -129 Resp. 29

Certain characteristics of ports and channels can be changed after they have been initially established; for example, quality of service, data class and compression hints. This provides the flexibility for an application to modify its communications usage during execution; an example being the temporary degradation of video quality to improve file exchange performance.

Ex. 1009, 10; -129 Resp. 29

Certain applications need to dynamically change their channel characteristics during execution; for example, available bandwidth must be re-allocated across channels. This can be done through a "change_channel"

Ex. 1009, 17-18; -129 Resp. 29

Dr. White: Aldred's Quality of Service (QoS) Are Flexible

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC., and
VALVE CORP.,
Petitioners,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case No. IPR2018-00129, -130, -131, -132¹
U.S. Patent No. 5,822,523 & 5,822,523 C1
U.S. Patent No. 6,226,686 & 6,226,686 C1

**CORRECTED REPLY DECLARATION OF DR. STEVE R. WHITE
REGARDING U.S. PATENT NOS. 5,822,523 AND 6,226,686**

¹ Case IPR2018-01238, -1241, -1242, and -1243 have been joined with these proceeding.

Petitioner Riot Games – Ex. 1053 – Cover
Riot Games, Inc. v. PalTalk Holdings, Inc., IPR2018-00129, -130, -131, -132

35. Dr. Almeroth suggests that “introducing the TMux protocol in the system of Aldred could cause quality of service characteristics for the logical channels to not be met.” Ex.2002, ¶84. Initially, I note Aldred's quality of service characteristics are not fixed and can be “tailored” to each application’s needs. *See* Ex.1009, 6 (quality of service characteristics “negotiated” “which allow data transmission characteristics to be tailored to the requirements of the expected traffic”); *id.*, 10 (“Connection is permitted between channels in different channel sets ... having different quality of service characteristics.”); *id.*, 16-18 (describing “flexible,” “fixed,” and “dynamic” quality of service needs). In fact, Aldred states that “an implicitly created channel will attempt to have characteristics such that it can transport satisfactorily any data packets expected to be sent down any one of the pre-existing channels from that port.”⁹ *Id.*, 19. Further, Aldred does not require specifying any particular QoS parameter. *See, e.g., id.*, 18 (“An application *can* specify quality of service characteristics when creating a channel ... ” (emphasis added)).

Ex. 1053, ¶135; -129 Reply 10

Dr. White: TMux Complements Other Technologies

Page 1

1 S. WHITE
2 UNITED STATES PATENT AND TRADEMARK OFFICE
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4
5 _____
6 RIOT GAMES, INC.
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9 PALTALK HOLDINGS, INC.
10 Patent Owner
11 _____
12 Case IPR2018-00129
13 Patent 5,822,523
14 Case IPR2018-00130
15 Patent 5,822,523
16 Case IPR2018-00131
17 Patent 6,226,686
18 Case IPR2018-00132
19 Patent 6,226,686
20 _____
21 DEPOSITION OF DR. STEVE WHITE
22 Washington, D.C.
23 July 24, 2018
24 Reported by: Mary Ann Payonk; Job No. 144847
25 Job No. 144847

TSG Reporting - Worldwide 877-702-9580
PATENT OWNER EXHIBIT 2004 - PAGE 1

Q. So would compression provide the same results as the TMux protocol?

A. No.

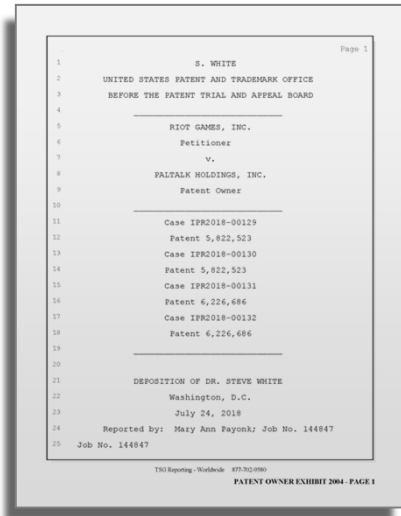
Q. Why would one skilled in the art choose RFC 1692 over Denzer?

MR. DILLON: Objection to form.

A. It -- I don't think I would hold that one would choose one over the other. They're complementary technologies. If you have lots and lots of little packets that will all fit within a single IP packet, then multiplexing is an obvious thing to do. If you had a lot of redundancy in your data, then compression is an obvious thing to do. If you have both, then they're both obvious things to do.

Ex. 2004, 54:21-55:20; -129 Reply 9

TMux: an Engineering Tradeoff & Configurable



If you have a lot of -- if you have a whole lot of packets going on the network bandwidth, that can also adversely affect latency. So there's an engineering tradeoff between holding them back and sending them in larger packets, and sending them as soon as you possibly can.

Ex. 2004, 50:23-51:10; -129 Reply 10



The delay time should be user configurable; a reasonable time is 20 to 30 milliseconds. The time period should be large enough to give a reasonable probability of sending multiple segments but not so large that the echo response time becomes a problem. This suggests that the upper limit for the timer is probably 1/10th second. As the cost of using timeouts on many systems is quite large, it is recommended that a single timer be used and that all TMux messages under construction are sent when the timer expires.

Ex. 1010, 6; -129 Reply 9-10

Roadmap

▶ Overview

- '523 and '686 Patents
- Combination of Aldred and RFC 1692

▶ Independent Claim Disputes

- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

“Aggregated Message” and “Aggregated Payload”

Term	Patent Owner’s Construction	Petitioners’ Construction
“aggregated message”	One or more messages containing a single transport layer message header , destination data, and data items from an aggregated payload	No “transport layer” header requirement, so no construction necessary.
“aggregated payload”	A collection of two or more data items that does not include transport layer headers	No “transport layer” header requirement, so no construction necessary.

-129 Resp. 4, 13; -129 Reply 11-12

RFC 1692 illustrates the general structure of a TMux message as shown in the below figure from RFC 1692 annotated by Patent Owner:

```
| IP hdr | TM hdr | Tport segment | TM hdr | Tport segment| ...|
```

















Where:

TM hdr is a TMux mini-header and specifies the following Tport segment.

Tport segment refers to the entire transport segment, **including transport headers**.

Ex. 1010, 3; -129 Resp. 34

New “Transport Layer” Header Requirement

Term & Case	Microsoft Case (2007)	Sony Case & EPX (2010-11)	Riot D. Ct. Term Exch. (Jan. 2018)	Riot IPR Response (Feb. 2018)
“aggregated message”	 No	 No	 No	 Yes
“payload”	 No	 No	 No	 No
“aggregating”	 No	 No	 No	 No
“message”	 No	 No	 No	 No

-129 Reply 16

Context of '523 Patent, Claim 1

1. A method for providing group messages to a plurality of host computers connected over a unicast wide area communication network, comprising the steps of:

providing a group messaging server coupled to said network, said server communicating with said plurality of host computers using said unicast network and maintaining a list of message groups, each message group containing at least one host computer;

sending, by a plurality of host computers belonging to a first message group, messages to said server via said unicast network, said messages containing a payload portion and a portion for identifying said first message group;

aggregating, by said server in a time interval determined in accordance with a predefined criterion, said payload portions of said messages to create an aggregated payload;

forming an aggregated message using said aggregated payload; and

transmitting, by said server via said unicast network, said aggregated message to a recipient host computer belonging to said first message group.

'523 Patent – No “Layer” Requirement for Aggregating

1. A method for providing group messages to a plurality of host computers connected over a unicast wide area communication network, comprising the steps of:

...

aggregating, by said server in a time interval determined in accordance with a predefined criterion, said payload portions of said messages to create an aggregated payload;

forming an aggregated message using said aggregated payload; and

...

6. The method of claim 1 wherein said network is Internet and said server communicates with said plurality of host computers using a session layer protocol.

32. *The method of claim 1, wherein said sending and said transmitting are performed by an upper-level protocol implemented above a transport layer protocol of said unicast network, wherein said transport layer protocol is TCP/IP.*

-129 Reply 15-16

“Payloads” Can Include Transport Headers



the packet should be forwarded. On top of IP are the layer 4 transport protocols TCP and UDP. UDP provides datagram delivery services to applications that does not guarantee reliable or in-order delivery of the datagrams. TCP is a connection oriented service to applications that does provide reliable delivery of a data stream. It handles division of the stream into packets and ensures reliable, in-order delivery. See the Internet Society RFCs: RFC-791 “Internet Protocol”, RFC-793 “Transmission Control Protocol” and RFC-1180 “A TCP/IP Tutorial”. IP, TCP and UDP are unicast protocols: packets, streams or datagrams are transmitted from a source to a single destination.

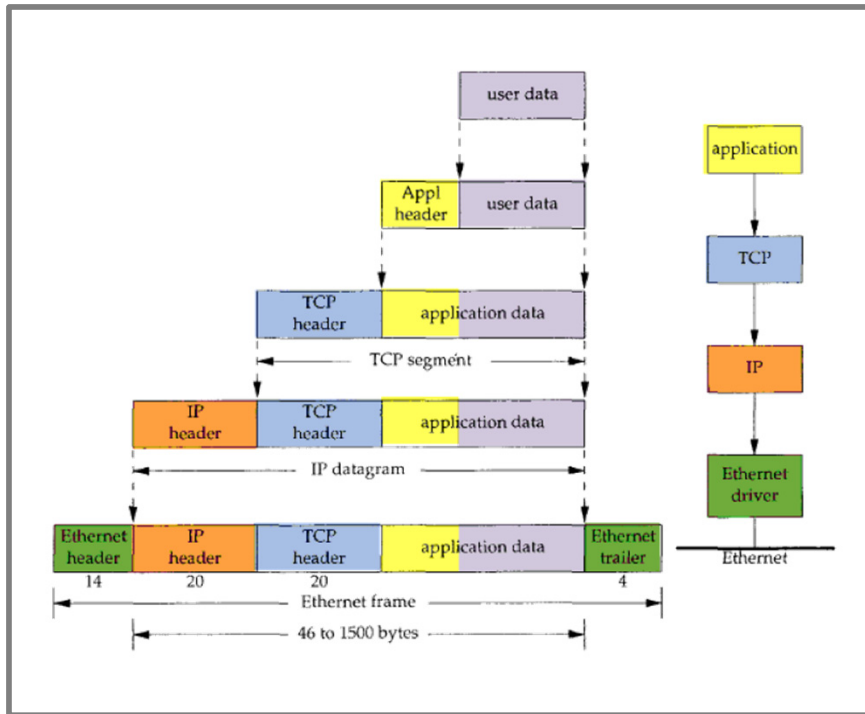
Ex. 1001, 3:24-50; -129 Reply 13



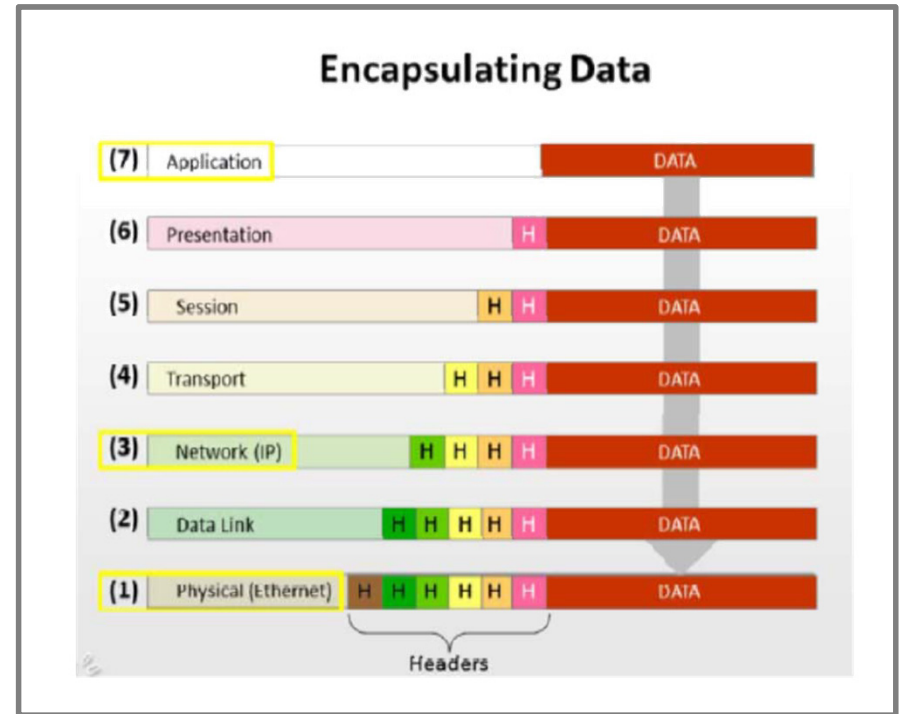
For example, a TCP module would call on the internet module to take a TCP segment (including the TCP header and user data) as the data portion of an internet datagram. The TCP module would provide the addresses and other parameters in the internet header to the internet module as arguments of the call. The internet module would then create an internet datagram and call on the local network interface to transmit the internet datagram.

Ex. 1011, 1; -129 Reply 13-14

Dr. Almeroth: "Payloads" Can Include Transport Headers



Ex. 1056, ¶68; -129 Reply 14



Ex. 1058, 3; -129 Reply 14-15

Dr. Almeroth: “Payloads” Can Include Transport Header

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORP. and
CAVIUM, INC.,

Petitioners,

v.

ALACRITECH INC.,

Patent Owner.

Case IPR2017-01391¹
U.S. Patent 7,237,036

CORRECTED PATENT OWNER'S EXHIBIT 2026
DECLARATION OF KEVIN ALMEROOTH, PH.D.

¹ Cavium, who filed a Petition in Case IPR2017-01718, has been joined as a petitioner in this proceeding.

Alacritech Exhibit 2

Petitioner Riot Games – Ex. 1056,
Riot Games, Inc. v. PalTalk Holdings, Inc., IPR2018-00129, -130, -131, -132, Cover

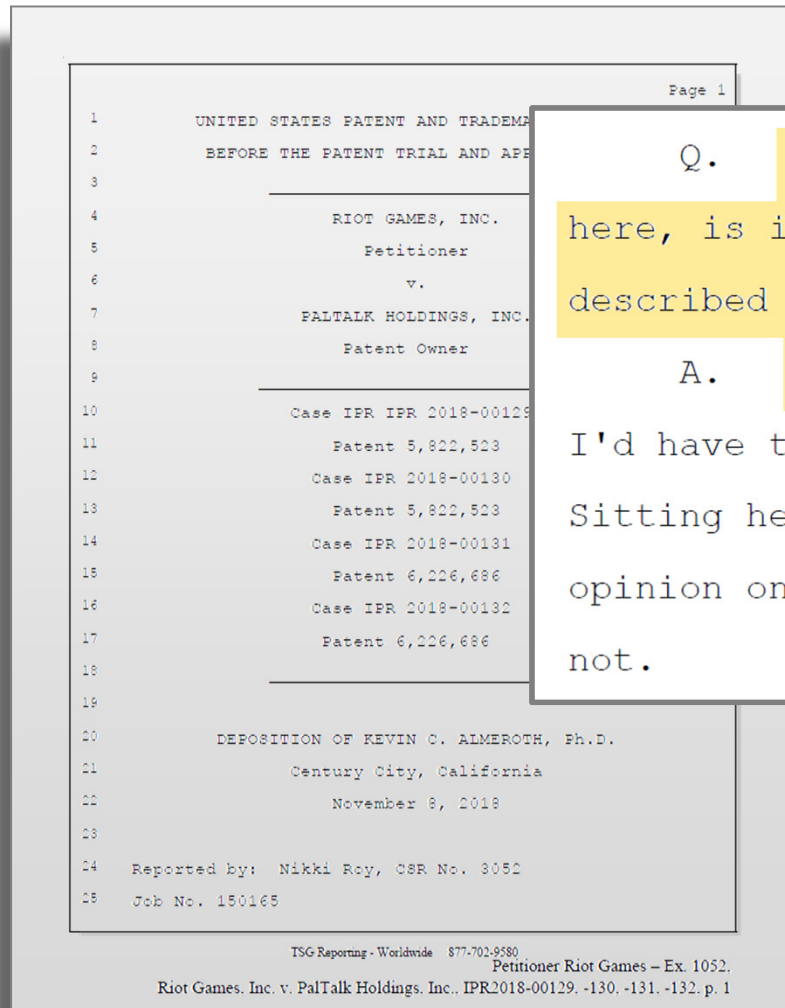
68. This process of adding a layer header to the data from the preceding layer is sometimes referred to as “encapsulation” because the data and layer header is treated as the data for the immediately following layer, which, in turn, adds its own layer header to the data from the preceding layer. Each layer is generally not aware of which portion of the data from the preceding layer constitutes the layer header or the user data; as such, each layer treats the data it receives from the preceding layer as some generic payload.

Ex. 1056, ¶168; Ex. 1053, ¶18; -129 Reply 15

receiving host). (Ex. 1001 at 4:34-39.) Each layer of the receiving host recognizes and manipulates only the headers associated with that layer, since to that layer the higher layer header data is included with and indistinguishable from the payload data. “Multiple interrupts, valuable central processing unit (CPU) processing time

Ex. 1056, ¶169; Ex. 1053, ¶18; -129 Reply 15

“Transport Level Protocol”: Dr. Almeroth Does Not Equate to Transport Layer Protocol



Q. Is the transport layer protocol described here, is it the same as the transport level protocol described in this patent?

A. I haven't tried to answer that question. I'd have to look through the specification and see. Sitting here right now, I don't recall having an opinion one way or the other whether it's the same or not.

Ex. 1052, 13:12-19; -129 Reply 19

“Transport Level Protocol”: Dr. Almeroth Does Not Equate to Transport Layer Protocol

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10 Case IPR IPR 2018-00129
11 Patent 5,822,523
12 Case IPR 2018-00130
13 Patent 5,822,523
14 Case IPR 2018-00131
15 Patent 6,226,686
16 Case IPR 2018-00132
17 Patent 6,226,686
18
19
20 DEPOSITION OF KEVIN C. ALMEROOTH, Ph.D.
21 Century City, California
22 November 8, 2018
23
24 Reported by: Nikki Roy, CSR No. 3052
25 Job No. 150165

TSG Reporting - Worldwide 877-702-9580
Petitioner Riot Games - Ex. 1052.
Riot Games, Inc. v. PalTalk Holdings, Inc., IPR2018-00129, -130, -131, -132, p. 1

Q. All right. Well, go to column 9, line 5.
It says (reading):

"As before, a transport layer protocol, such as IP, where the message header contains the source and destination TLP addresses is assumed to be used here."

So the patent certainly refers to IP as a transport layer protocol, correct?

A. It refers to it as a TLP and uses it as an example.

Q. Okay. So you don't think the patent is incorrect here?

A. I mean, the patent can characterize a TLP in any way it wants. IP is generally considered part of layer 3 in the network layer, and so is in the transport layer in the OSI stack. But you can define a transport layer as distinctive over an upper layer protocol, and you can do it the way that it's described here.

Ex. 1052, 79:21-80:15; -129 Reply 17-18

Patent Owner's "Disclaimer" Argument

IPR2018-00129
Patent 5,822,523

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case IPR2018-00129
Patent 5,822,523

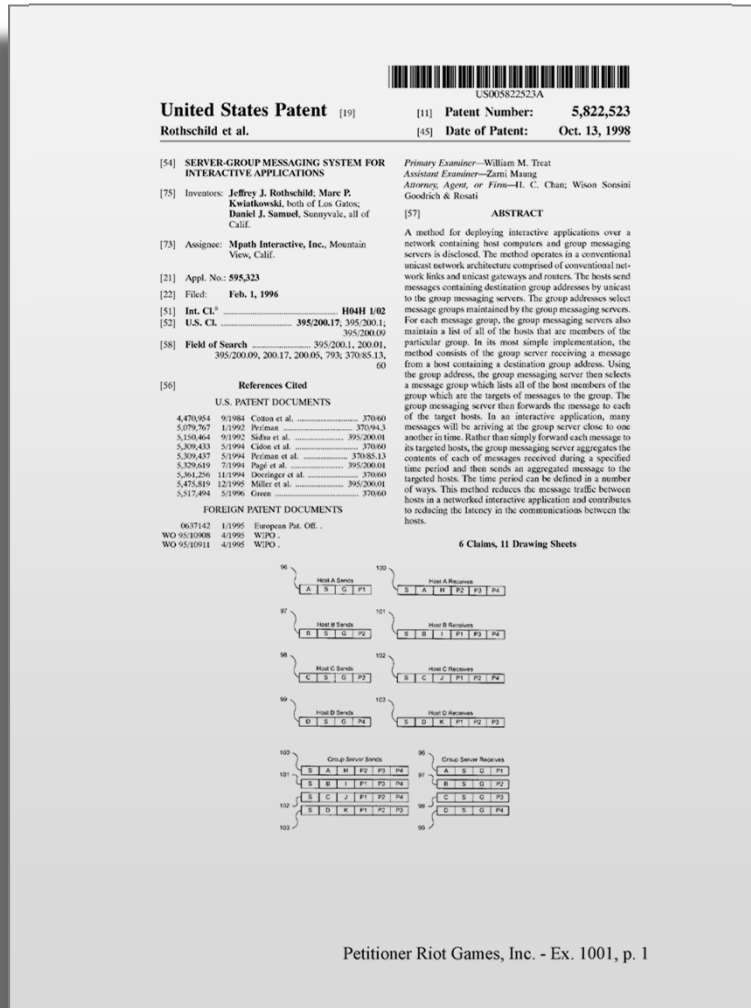
**PATENT OWNER'S RESPONSE TO PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 5,822,523**

i

The specification makes it clear that there is only one transport message header (including fields 123, 124, and 125) in an aggregated message, and clearly explains that data reduction is significant because there is only one transport message header. Ex. 2002, ¶¶ 53-54. “Where the general summary or description of the invention describes a feature of the invention . . . and criticizes other products . . . that lack that same feature, this operates as a clear disavowal . . .” *Astrazeneca AB, Aktiebolaget Hassle, KBI-E, Inc. v. Mut. Pharm. Co.*, 384 F.3d 1333, 1340 (Fed. Cir. 2004). The ‘523 Patent both describes the advantages of transmitting a single transport layer message header, and criticizes other embodiments. Ex. 1001, 24:23-28, 10:40-44. To state that the specification does not limit aggregated payloads from including transport layer headers completely ignores the specific disclosure of the ‘523 Patent. Therefore, Patent Owner proposes adoption of this claim construction for “aggregated message.”

-129 Resp. 12-13

No “Disclaimer” – Three Possible Benefits of “Aggregation”



Petitioner Riot Games, Inc. - Ex. 1001, p. 1

The effect of aggregation will be to greatly reduce the total message rate received by the hosts. A single message to a host will be able to carry multiple payload items received from the other hosts during the aggregation period. This fits very well the interactive applications of this invention where groups of hosts will be sending messages to all the other hosts in the group at a periodic rate. Aggregation will be very effective in collecting together all of the messages from all of the other hosts into a single message for each member of the group. The reduces processing at each receiving host since a single message will be received rather than many separate messages. Aggregation will also reduce the total data rate to the hosts since aggregation eliminates the need for separate message headers for each payload item. The savings will be significant for small payload items since there will be only one message header comprising fields 123, 124 and 125 for multiple payload items. In cases where a group of hosts are sending messages to the group at a periodic rate, it is often the case in many interactive applications that the data being sent by each host to the group is very similar to the messages sent by the other hosts. This affords the opportunity within an aggregated payload of multiple payload items to apply a data compression method across the multiple data elements of the payload elements. A

Ex. 1001, 24:12-35; -129 Reply 21

Any “Disclaimer” Not Specific to “Transport Layer”

US0082523A

United States Patent [19] [11] Patent Number: **5,822,523**
Rothschild et al. [45] Date of Patent: **Oct. 13, 1998**

[54] **SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS**
 [75] Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, both of Los Gatos; Daniel J. Samsel, Sunnyvale, all of Calif.
 [73] Assignee: Mpath Interactive, Inc., Mountain View, Calif.
 [21] Appl. No.: 595,323
 [22] Filed: Feb. 1, 1996
 [51] Int. Cl.⁶ H04H 1/02
 [52] U.S. Cl. 395/200.17; 395/200.1; 395/200.09
 [58] Field of Search 395/200.1, 200.01, 395/200.09, 200.17, 200.05, 793, 370/85, 13, 00

[56] **References Cited**
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 5,150,464 9/1992 Sifiso et al. 395/200.01
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 5,517,484 5/1996 Green 370/60
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 06/7142 1/1995 European Pat. Off.
 WO 95/10308 4/1995 W/PO
 WO 95/10911 4/1995 W/PO

6 Claims, 11 Drawing Sheets

Petitioner Riot Games, Inc. - Ex. 1001, p. 1

1333, 1340 (Fed. Cir. 2004). The ‘523 Patent both describes the advantages of transmitting a single transport layer message header, and criticizes other embodiments. Ex. 1001, 24:23-28, 10:40-44. To state that the specification does

-129 Resp. 13

separate messages. Aggregation will also reduce the total data rate to the hosts since aggregation eliminates the need for separate message headers for each payload item. The savings will be significant for small payload items since there will be only one message header comprising fields 123, 124 and 125 for multiple payload items. In cases where a

Ex. 1001, 24:23-28; -129 Resp. 12; -129 Reply 22

sage. The received message is longer and contains multiple payloads, but this is a significant improvement over receiving multiple messages with the wasted overhead of multiple message headers and message processing time. Overall the invention has dramatically reduced the amount of data that must be sent and received by each host. Since the bit rate

Ex. 1001, 10:40-44; -129 Resp. 12; -129 Reply 22

Board Identified Headers in “Payload”

Trials@uspto.gov
Tel: 571-272-7822

Paper 11
Entered: May 15, 2018

UNITED STATES PATENT AND TRADEM
BEFORE THE PATENT TRIAL AND APP

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.
Patent Owner.

Case IPR2018-00129
Patent 5,822,523 & 5,822,523 C

Before THU A. DANG and KARL D. EASTHOM,
Administrative Patent Judges.

EASTHOM, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
35 U.S.C. 314(a)

¹ The Petition challenges original claims and claims issued pursuant to an *ex parte* reexamination certificate. See Ex. 1001.

As Patent Owner argues, Figure 9 of the specification does not include a TLP header in each payload packet of the aggregated payload. See Prelim. Resp. 7–8. Nonetheless, as noted above, headers, such as headers 117 and 118, or 120 and 122, appear in each payload. See Ex. 1001, 23:11–12 (“Each payload item in a message queue will contain a ULP source address, a data length and the data to be sent.”). Even though an embodiment strips out a TLP header from a “message,” it also looks up a TLP header of the

-129 Inst. Dec. 12

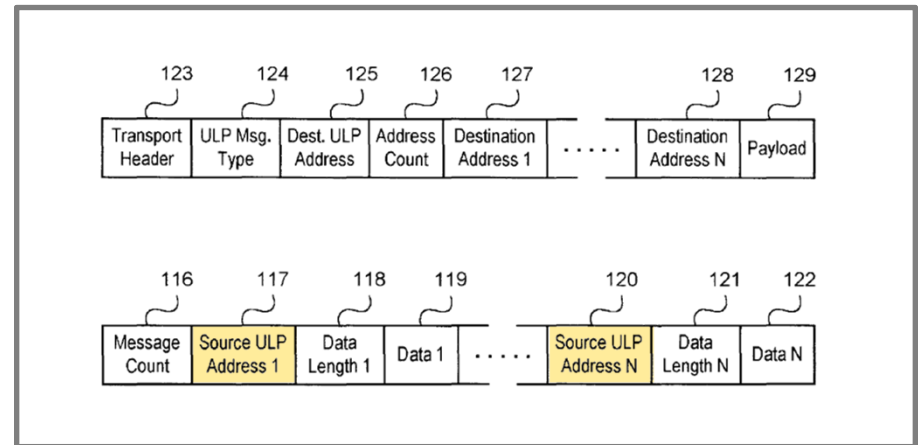
'523 Patent's Preferred Embodiment Includes Multiple "Transport Layer" Headers



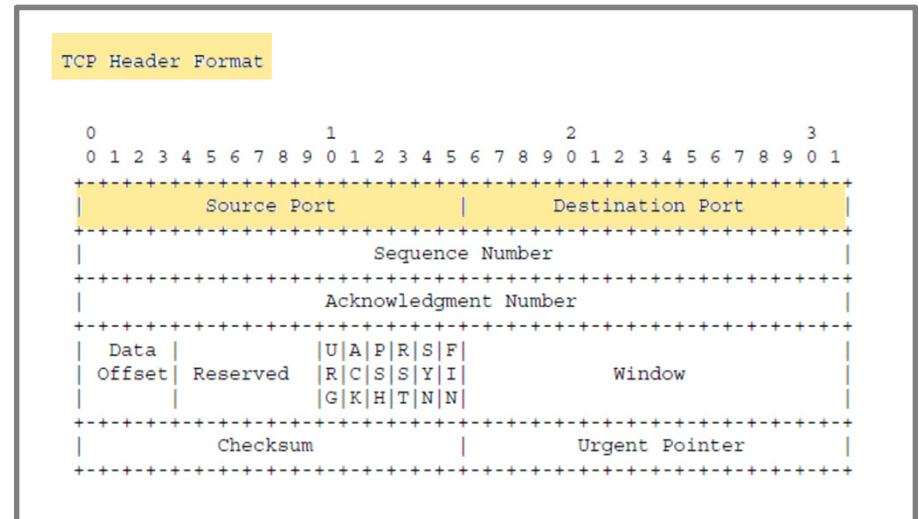
In the preferred embodiment, the wide area network is the Internet and the TLP protocol is TCP/IP. The GMS is a general purpose computer system connected to the Internet and the hosts are personal computers connected to the Internet.

TCP/IP provides an number of advantages that provide for a more efficient applications interface on the hosts 151. TCP/IP supports the concept of source and destination port numbers in its header. The ULP can make use of the port numbers to identify source and destination ULP connections. Most ULP send messages will be from hosts to a implicit ULP group addresses and most ULP receive messages will be from the implicit ULP addresses to the ULP host addresses. All of these and the ULP message type field can be represented by source and destination port addresses within the TCP/IP header. This means that for most ULP messages, the ULP message encapsulated within the TCP/IP message need only contain the payload. There is the slight complication of the aggregated ULP receive messages sent from a ULP server process to a hosts. Here the destination port will be the host the source port will be for the implicit LJP group address and the payload will still contain the source host ULP addresses in each the payload items.

Ex. 1001, 26:28-50; -129 Reply 19-20



Ex. 1001, Fig. 9; -129 Reply 19-20



Ex. 1051, 15; Ex. 1052, 43:7-44:13; -129 Reply 6, 19-20

Roadmap

▶ Overview

- '523 and '686 Patents
- Combination of Aldred and RFC 1692

▶ Independent Claim Disputes

- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

'523 Patent Claims 4-5

United States Patent [19] [11] Patent Number: 5,822,523
 Rothschild et al. [45] Date of Patent: Oct. 13, 1998

[54] SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS

[75] Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, both of Los Gatos; Daniel J. Samuel, Sunnyvale, all of Calif.

[73] Assignee: Mpath Interactive, Inc., Mountain View, Calif.

[21] Appl. No.: 595,323

[22] Filed: Feb. 1, 1996

[51] Int. Cl.⁷ H04H 1/02

[52] U.S. Cl. 385/200.17; 395/200.1; 395/200.09

[58] Field of Search 395/200.1, 200.01, 395/200.09, 200.17, 200.05, 793, 370/85.13, 60

[56] References Cited

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5,309,433	5/1994	Cable et al.	370/60
5,309,437	5/1994	Prizman et al.	370/85.13
5,329,619	7/1994	Pagi et al.	395/200/01
5,361,256	11/1994	Doeringer et al.	370/60
5,475,819	12/1995	Miller et al.	392/200/01
5,517,494	5/1996	Green	370/60

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WO 95/10911	4/1995	WIPO

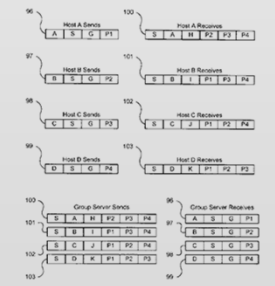


Primary Examiner—William M. Treat
 Assistant Examiner—Zamir Maung
 Attorney, Agent, or Firm—H. C. Chang, Wilson Sonsini Goodrich & Rosati

ABSTRACT

A method for deploying interactive application network containing host computers and group servers is disclosed. The method operates in a unicast network architecture comprised of unicast network links and unicast gateways and routers. Messages containing destination group address to the group messaging servers. The group address message groups maintained by the group server. For each message group, the group messaging server maintains a list of all of the hosts that are in that particular group. In its most simple implementation, the method consists of the group server receiving from a host containing a destination group address the group address, the group messaging server maintains a message group which lists all of the host in that group which are the targets of messages to that group messaging server then forwards the message to the target hosts. In an interactive application environment, messages will be arriving at the group server at another time. Rather than simply forwarding to its targeted hosts, the group messaging server concatenates of each of messages received during a time period and then sends an aggregated message to targeted hosts. The time period can be defined in ways. This method reduces the message latency in a networked interactive application and reducing the latency in the communication hosts.

6 Claims, 11 Drawing Sheets



Petitioner Riot Games, Inc. - Ex. 1001, p. 1

4. The method of claim 1 further comprising the step of creating, by one of said plurality of host computers, said first message group by sending a first control message to said server via said unicast network.

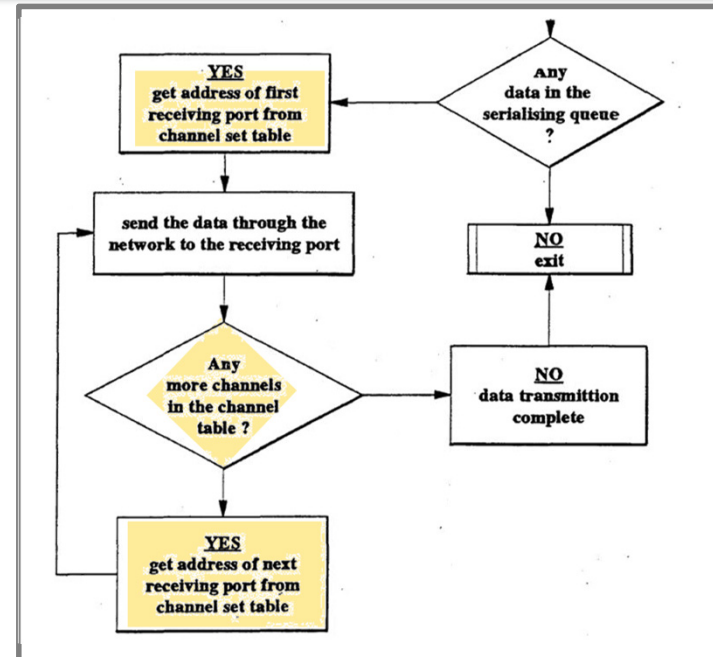
5. The method of claim 4 further comprising the step of joining, by some of said plurality of host computers, said first message group by sending control messages via said unicast network to said server specifying said first message group.

Aldred's CSP Maintains the Channel Set Table

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : G06F 9/46	A1	(11) International Publication Number: WO 94/11814	(43) International Publication Date: 26 May 1994 (26.05.94)
(21) International Application Number: PCT/GB93/02315	(74) Agent: BURT, Roger, James; IBM United Kingdom Limited, Intellectual Property Department, Hursley Park, Winchester, Hampshire SO21 2JN (GB).		
(22) International Filing Date: 10 November 1993 (10.11.93)	(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).		
(30) Priority data: 922521.7 10 November 1992 (10.11.92) GB	(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US-US]; Armonk, NY 10504 (US).		
(72) Inventors; and (75) Inventors/Applicants (for US only): ALDRED, Barry, Keith [GB/GB]; Dolphins, Malmsbury Gardens, Winchester, Hampshire SO22 5LE (GB). BONSALL, Gordon, William [GB/GB]; 2 Court Road, Kings Worthy, Winchester, Hampshire SO23 7QJ (GB). LAMBERT, Howard [GB/GB]; 22 Nordik Gardens, Hedge End, Southampton, Hampshire SO3 4LQ (GB). MITCHELL, Harry, David [GB/GB]; 18 The Hermitage, Richmond Upon Thames, Surrey TW10 6SH (GB).	Published With international search report. Before the expiration of the time limits for amending the claims and to be republished in the event of the receipt of amendments.		
(54) Title: COLLABORATIVE WORKING IN A NETWORK			



Ex. 1009, Fig. 22; -129 Pet. 27-29

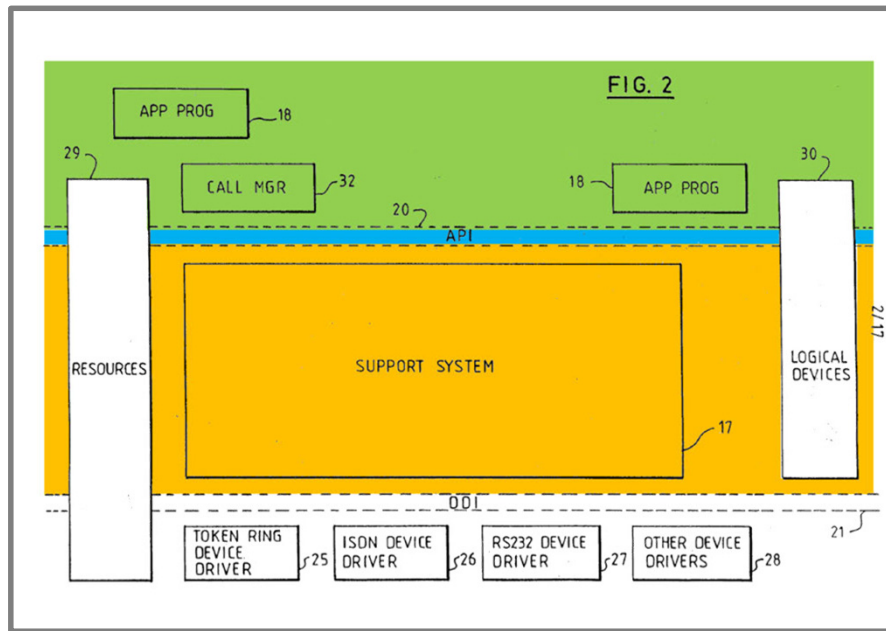
In order to implement a serialised channel, as illustrated in the flow diagrams of Fig. 22, the subsystem uses a similar technique of establishing a channel set table with the addresses of all receiving ports. However, it also needs to maintain a serialising queue for the channel in which the data items to be serialised are loaded from the sending ports and held in the order in which it is desired to transmit them to all receiving ports.

Ex. 1009, 51; -129 Pet. 27-29

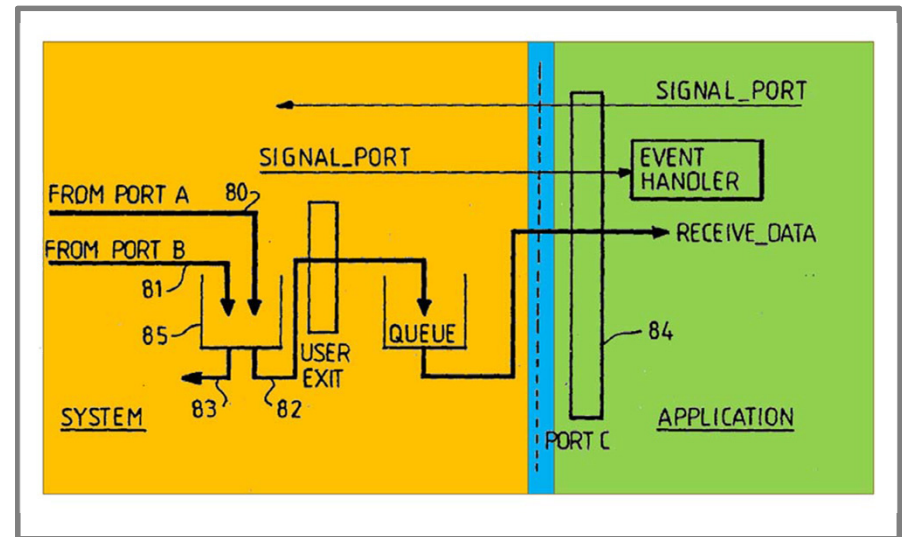
Dr. White: Aldred's CSP is on a Sharing Set Node

“receive_data.” One of ordinary skill in the art would understand this disclosure, in light of Aldred's disclosure as a whole, as illustrating a node in Aldred's scheme, with the serialising process 85 being located in the support “system” (orange) which interfaces with the local applications (green) on the node by way of an API (blue):

Ex. 1007, ¶95; -129 Pet. 21-22



Ex. 1009, Fig. 2; -129 Pet. 21-22



Ex. 1009, Fig. 9; -129 Pet. 21-22

Petition: Aldred's CSP Manages Group Membership

Paper No. 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case No. IPR2018-00129
U.S. Patent No. 5,822,523
Issued: October 13, 1998
Filed: February 1, 1996

Inventors: Jeffrey J. Rothschild, Mare P. Kwiatkowski, Daniel J. Samuel

Title: SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS

PETITION FOR INTER PARTES REVIEW

“Serialisation can be implemented at a **single central point** with all data being sent there for serialisation and subsequent distribution ...” Ex. 1009, 9 (emphasis added). In the context of Aldred (*see id.*, 2-6, Figs. 1, 3), this Central Serialisation Point (“CSP”) is part of the support system of one of the participating nodes. *Id.*, Figs. 2, 9; Ex. 1007, ¶¶65-66. The CSP would “maintain a serialising queue for the channel in which the data items to be serialised are loaded from the sending ports and held in the order in which it is desired to transmit them to all receiving ports.” Ex. 1009, 51. It is maintained and updated automatically: “New members may easily be added to the group with the necessary data channels being established and serialised automatically by the underlying system.” *Id.*, 50, Fig. 22. Join requests and leave requests would modify this channel set in the same way as any other node in Aldred's scheme. *Id.*, 5, 31-39; Ex. 1007, ¶67.

-129 Pet. 14-15

Patent Owner's Argument – “a CSP Is Not Involved”

IPR2018-00129
Patent 5,822,523

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case IPR2018-00129
Patent 5,822,523

**PATENT OWNER'S RESPONSE TO PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 5,822,523**

i

Petitioner equates the CSP of Aldred with the group messaging server of the '523 Patent. Pet. at 25. However, Aldred does not disclose that “share_app” or “unshare_app” requests are sent to a CSP in order for a node/application to create, join, or leave a sharing set. Aldred also does not disclose that in response to a received “share_app” request, the CSP adds nodes to the sharing set, removes nodes from the sharing set, or stores or removes information regarding the nodes. While a CSP can operate on a node, “share_app” and “unshare_app” requests are not sent to the CSP to carry out any of the recited functions in the claims. Essentially, to create, join, leave, or remove a sharing set in Aldred, a host simply sends a request to one or more other hosts; a CSP is not involved in these processes of Aldred cited by Petitioner. Ex. 1009, 15; Ex. 2002, ¶ 137. Aldred further explains that, to add new members to a sharing set, the underlying system of the new node automatically establishes the channels to be used for the sharing set. Ex. 1009, 49. Aldred does not disclose that a server or CSP establishes the channels, or that the CSP adds or removes nodes in the sharing set, removes sharing sets, or stores or removes information regarding the nodes to create or edit a sharing set. Ex. 2002, ¶ 137.

-129 Resp. 53-54

Dr. Almeroth: Channel Set Table

Page 1

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3
4 RIOT GAMES, INC.
5 Petitioner
6 v.
7 PALTALK HOLDINGS, INC.
8 Patent Owner
9
10 Case IPR IPR 2018-00129
11 Patent 5,822,523
12 Case IPR 2018-00130
13 Patent 5,822,523
14 Case IPR 2018-00131
15 Patent 6,226,686
16 Case IPR 2018-00132
17 Patent 6,226,686
18
19
20 DEPOSITION OF KEVIN C. ALMEROOTH, Ph.D.
21 Century City, California
22 November 8, 2018
23
24 Reported by: Nikki Roy, CSR No. 3052
25 Job No. 150165

TSG Reporting - Worldwide 877-702-9580
Petitioner Riot Games - Ex. 1052.
Riot Games, Inc. v. PalTalk Holdings, Inc., IPR2018-00129, -130, -131, -132, p. 1

Q. What is the channel set table that you describe in paragraph 166?

A. So turn to page 51. It's talking about the serialized channel. It says (reading):

"As illustrated in the flow diagram of Figure 22, the subsystem uses a similar technique of establishing channel set table with the addresses of all the receiving ports."

So it appears to have all the addresses of the receiving ports I suspect it's described earlier as well.

Ex. 1052, 101:10-22; -129 Reply 24

Q. In the serialization process it sends to all members of that channel set?

A. That's what it describes. You send data in turn to each receiving port in the channel.

Q. And in order to send data to every member of the channel set table, you'd agree that the channel set table must exist, right?

A. If you're using the channel set table to identify the addresses of the receiving ports as it's described here, then you would need a channel set table.

Ex. 1052, 103:15-25; -129 Reply 24-25

Roadmap

▶ Overview

- '523 and '686 Patents
- Combination of Aldred and RFC 1692

▶ Independent Claim Disputes

- Patent Owner's Motivation to Combine Arguments
- Claim Construction of "Aggregated Payload" and "Aggregated Message"

▶ Dependent Claim Disputes

- Group Messaging Claims
- Ulrich Combination – Message Groups and Echo Suppression

'523 Patent Claim 12

US00582523A

United States Patent [19] [11] Patent Number: **5,822,523**
Rothschild et al. [45] Date of Patent: **Oct. 13, 1998**

[54] **SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS**
 [75] Inventors: **Jeffrey J. Rothschild, Marc P. Kwiatkowski**, both of Los Gatos; **Daniel J. Samuel, Sanyavak**, all of Calif.
 [73] Assignee: **Mpath Interactive, Inc.**, Mountain View, Calif.
 [21] Appl. No.: **595,323**
 [22] Filed: **Feb. 1, 1996**
 [51] Int. Cl.⁷ **H04H 1/02**
 [52] U.S. Cl. **385/200.17; 395/200.1; 395/200.09**
 [58] Field of Search **395/200.1, 200.01, 395/200.09, 200.17, 200.05, 793, 370/85, 13, 60**

Primary Examiner—William M. Treat
Assistant Examiner—Zamir Maung
Attorney, Agent, or Firm—H. C. Chan, Wilson Soosai Goodrich & Rosati

ABSTRACT
 A method for deploying interactive applications over a network containing host computers and group messaging servers is disclosed. The method operates in a conventional unicast network architecture comprised of conventional network links and unicast gateways and routers. The hosts send messages containing destination group addresses by unicast to the group messaging servers. The group addresses select message groups maintained by the group messaging servers. For each message group, the group messaging servers also maintain a list of all of the hosts that are members of the particular group. In its most simple implementation, the method consists of the group server receiving a message from a host containing a destination group address. Using

[56] **References Cited**
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 5,150,864 9/1992 Sidau et al. 392/200/01
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 5,309,437 5/1994 Perzhan et al. 370/85.13
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 5,361,256 11/1994 Doeringer et al. 370/60
 5,475,819 12/1995 Miller et al. 392/200/01
 5,517,494 5/1996 Green 370/60
FOREIGN PATENT DOCUMENTS
 0637142 1/1995 European Pat. Off.
 WO 95/10908 4/1995 WIPO
 WO 95/10911 4/1995 WIPO

Petitioner Riot Games, Inc. - Ex. 1001, p. 1

12. The method of claim 1, wherein said plurality of host computers belonging to said first message group correspond to players that are in close proximity to one another within a three-dimensional space of a computer game.

Overview of Ulrich

US005466200A

United States Patent [19] Patent Number: **5,466,200**
Ulrich et al. [45] Date of Patent: **Nov. 14, 1995**

[54] **INTERACTIVE EXERCISE APPARATUS**
[75] Inventors: **W. Thatcher Ulrich, Boston; Harvey A. Kosecka; Aaron F. Bobick, both of Newton; Michael H. Benjamin, Quincy, all of Mass.**
[73] Assignee: **CyberGear, Inc., Cambridge, Mass.**
[21] Appl. No.: **189,896**
[22] Filed: **Feb. 1, 1994**

Related U.S. Application Data
[63] Continuation-in-part of Ser. No. 12,305, Feb. 2, 1993, abandoned.
[51] Int. Cl.⁶ **A63B 21/00**
[52] U.S. Cl. **482/4; 482/1; 482/3; 482/6; 482/7; 482/9/01**
[58] Field of Search **482/1-8; 52; 53; 482/57; 72; 900-902; 434/157; 247**

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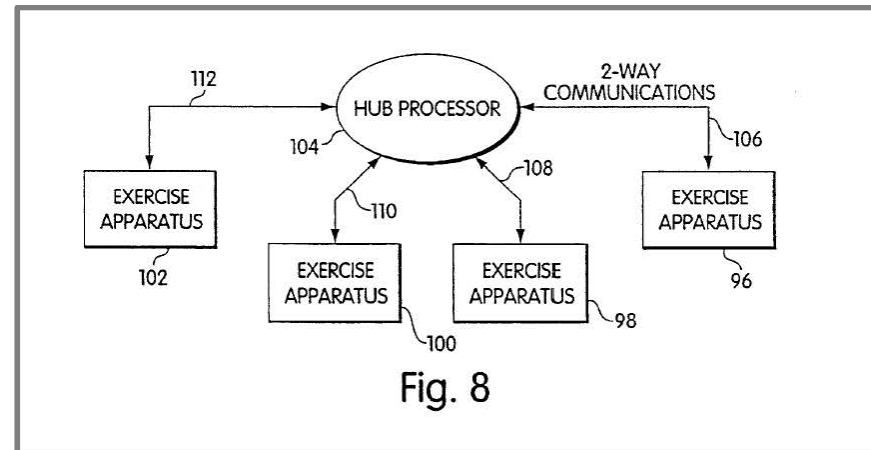
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Citation: Virtual Reality Gallery at SIGGRAPH'1991 1 page.
"DIS and Virtual Reality Networking with VR-Link", Virtual Reality World, Mar/Apr. 1994, page 8.
Primary Examiner—Richard J. Apley
Assistant Examiner—Glenn E. Richman
Attorney, Agent, or Firm—Testa, Hurwitz & Thibault

ABSTRACT
[57] An interactive exercise apparatus engages a user's mind and body. The apparatus comprises an exercise mechanism and a steering mechanism for manipulation by the user to achieve exercise and to indicate a direction of motion. A simulated environment is generated by a computer and displayed on a display system for the user. The user manipulates the exercise mechanism and the steering mechanism to freely navigate a computer model of a mechanism in a simulated environment. The computer model is positioned as the user's position in the simulated environment. A plural networked to simulated environment.

Petitioner Riot Games, Inc. - Ex. 1012, p. 1



Ex. 1012, Fig. 8; -130 Pet. 53

with reference to FIG. 7. The hub 104 is responsible for limiting the information directed to each apparatus in the large-scale direct network of FIG. 8. The hub 104 can ensure, for example, that each apparatus only gets (parameter) updates about other users in the same general area of the simulated environment.

Ex. 1012, 8:64-9:10; -130 Pet. 53

Aldred and RFC 1692 in further view of Ulrich

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case No. IPR2018-00130
U.S. Patent No. 5,822,523
Issued: October 13, 1998
Filed: February 1, 1996

Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, Daniel J. Samuel

Title: SERVER-GROUP MESSAGING SYSTEM FOR INTERNET
APPLICATIONS

PETITION FOR INTER PARTES REVIEW

Ulrich renders this claim element obvious for two reasons. Ex. 1007, ¶246.

First, it would have been obvious to an Ordinary Artisan to modify Aldred (as combined above) to execute Ulrich's game simulation system as a shared application on Aldred's system (i.e., “wherein said plurality of host computers belonging to said first message group correspond to players ... within a three-[dimensional] space of a computer game”). Ex. 1007, ¶247. Computer games

-130 Pet. 56

Second, it would also have been obvious to an Ordinary Artisan to modify

Aldred (as combined) so that the CSP maintains a database of locations and selectively transmits game updates to “users in the same general area of the simulated environment” (“close proximity to one another”), per the teachings of Ulrich. Ex. 1012, 8:64-9:10; Ex. 1007, ¶252. Ulrich discloses a specific

-130 Pet. 58

Petition: Claim 12 Would Have Been Obvious

Paper No. 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEALS BOARD

RIOT GAMES, INC.
Petitioner,

v.

PALTALK HOLDINGS,
Patent Owner.

Case No. IPR2018-00129
U.S. Patent No. 5,822,112
Issued: October 13, 1998
Filed: February 1, 1999

Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski

Title: SERVER-GROUP MESSAGING SYSTEMS AND
APPLICATIONS

PETITION FOR INTER PART

Id., 8:64-9:10. Instead of sending every location update to every host (as is done in Aldred and certain Ulrich embodiments), Ulrich's hub compares that host's location within the simulated environment to the pending updates and "limit[s] the information directed to each apparatus ... [such] that each apparatus only gets (parameter) updates about other users in the same general area of the simulated environment." *Id.*, 8:64-9:10. Ulrich's updates thus implicitly direct the large-scale direct hub to re-transmit them to other machines in the same game whose players are "in the same general area of the simulated environment." *Id.*, 9:5-9, 11:54-60; Ex. 1007, ¶252.

-130 Pet. 59

Patent Owner's Argument

IPR2018-00130
Patent 5,822,523

UNITED STATES PATENT AND TRADEM

BEFORE THE PATENT TRIAL AND APP

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.
Patent Owner.

Case IPR2018-00130
Patent 5,822,523

PATENT OWNER'S RESPONSE TO PE
INTER PARTES REVIEW OF U.S. PATEN

Petitioner's combination of Aldred in view of RFC 1692 and Ulrich therefore does not meet the claim language of Claim 12, which requires that host computers belonging to said first message group correspond to players that are in close proximity to one another within a three-[dimensional] space of a computer game. Thus, the transmissions according to Claim 12 are made to all members of the first message group, not to just a selected portion of members of the first message group, as would occur in the Petitioner's proposed combination. Ex.

-130 Resp. 58

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'523 Patent's "Message Group"

US00582252A

United States Patent [19] [11] Patent Number: **5,822,523**
Rothschild et al. [45] Date of Patent: **Oct. 13, 1998**

[54] SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS
 [75] Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, both of Los Gatos; Daniel J. Samuel, Sunnyvale, all of Calif.
 [73] Assignee: Mpath Interactive, Inc., Mountain View, Calif.
 [21] Appl. No.: 585,323
 [51] Int. Cl.⁷ H04H 1/02
 [52] U.S. Cl. 385/200.17; 395/200.1; 395/200.09
 [58] Field of Search 395/200.1, 200.01, 395/200.09, 200.17, 200.05, 793, 370/85, 13, 60

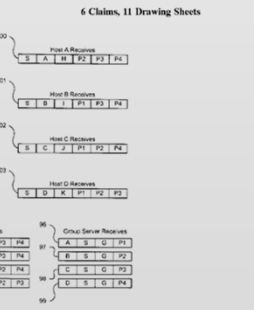
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5,309,437	5/1994	Perznan et al.	370,883.13
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5,361,256	11/1994	Doeringer et al.	370,600
5,475,819	12/1995	Miller et al.	392/200,01
5,517,494	5/1996	Green	370,600

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WO 95/10908	4/1995	WIPO	
WO 95/10911	4/1995	WIPO	



Petitioner Riot Games, Inc. - Ex. 1001, p. 1

implementation of networked interactive applications. Consider a computer game for multiple players that supports hundreds of players that are spread throughout a three dimensional space created by the game. At any time only a few players will be able to see and effect one another in the game since other players will be in other areas that are out of sight. Using conventional phone lines to carry the data from each players computer to the network, it will not be possible to send all actions of each player to all of the other players, but because only a few players will be in close proximity at any one time, it will not be necessary to do so. It is only necessary to send data between the players that are in close proximity to one another. These "groups" of players naturally map onto the message groups of the invention. As

Ex. 1001, 10:1-14; -130 Reply 25-26

could be created for each team within the game. To send a message to all the players within the area that were on one team, a ULP message would be sent to the ULP implicit message group for all the players in the area with an auxiliary address of the logical message group for all the players on the selected team. The GMS would perform the proper set intersection prior to sending the resulting messages to the targeted hosts. The result of this will be that the

Ex. 1001, 11:17-25; -130 Reply 25-26

Patent Owner's Construction of "Message Group"

Case 1:16-cv-01240-SLR Document 1 Filed 12/16/16 Page 1 of 10 PageID #: 1

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

PALTALK HOLDINGS, INC.,)
)
Plaintiff,)
)
v.) C.A. No. _____
)
RIOT GAMES, INC.,)
) **JURY TRIAL DEMANDED**
Defendant.)

PLAINTIFF'S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff PalTalk Holdings, Inc. ("PalTalk") brings this action against Riot Games, Inc. ("Riot Games"), and for its causes of action alleges as follows:

THE PARTIES

1. PalTalk is a Delaware corporation with its principal place of business at 500 North Broadway, Suite 259 Jericho, NY 11753. PalTalk was incorporated in 2001 and is the owner of various patents relating to methods and systems for communicating over networks.

2. Upon information and belief, Riot Games, Inc. is a Delaware corporation having its principal place of business in Los Angeles, California and offering its products and services, including those accused herein of infringement, to customers and or potential customers located in the State of Delaware. Riot Games may be served with process through its registered agent: The Corporation Trust Company (registered agent) Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801.

Petitioner Riot Games, Inc. - Ex. 1016, p. 1

A previously agreed construction for "message group" is:

A collection of one or more host computers that (1) have joined a particular group and (2) receive group messages addressed to that particular group.

Ex. 1016, 90; -130 Reply 25-26

environment." *Id.*, 8:64-9:10. Ulrich's updates thus implicitly direct the large-scale direct hub to re-transmit them to other machines in the same game whose players are "in the same general area of the simulated environment." *Id.*, 9:5-9,

-130 Pet. 59

'523 Patent Claim 11

United States Patent [19] [11] Patent Number: 5,822,523
 Rothschild et al. [45] Date of Patent: Oct. 13, 1998

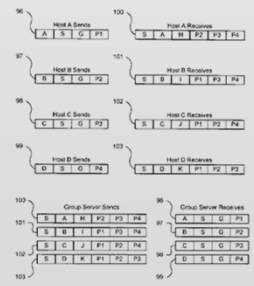
[54] SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS
 [75] Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, both of Los Gatos; Daniel J. Samuel, Sunnyvale, all of Calif.
 [73] Assignee: Mpath Interactive, Inc., Mountain View, Calif.
 [21] Appl. No.: 595,323
 [22] Filed: Feb. 1, 1996
 [51] Int. Cl.⁷ H04H 1/02
 [52] U.S. Cl. 385/200.17; 395/200.1; 395/200.09
 [58] Field of Search 395/200.1, 200.01, 395/200.09, 200.17, 200.05, 793, 370/85.13, 60
 [56] References Cited
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 5,150,864 9/1992 Sidau et al. 392/200.01
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 5,309,437 5/1994 Perzhan et al. 370/85.13
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 5,361,256 11/1994 Doeringer et al. 370/60
 5,475,819 12/1995 Miller et al. 392/200.01
 5,517,494 5/1996 Green 370/60
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 WO 95/10511 4/1995 WIPO



Primary Examiner—William M. Treat
 Assistant Examiner—Zamir Maung
 Attorney, Agent, or Firm—H. C. Chang, Wilson Sonsini Goodrich & Rosati
 [57] ABSTRACT

A method for network content servers is disclosed which maintains a list of network work links and messages content to the group in message group. For each message received from a host of the group, the method consists of a message group which a group message of the target messages will be arriving at the group server close to one another in time. Rather than simply forward each message to its targeted hosts, the group messaging server aggregates the contents of each of messages received during a specified time period and then sends an aggregated message to the targeted hosts. The time period can be defined in a number of ways. This method reduces the message traffic between hosts in a networked interactive application and contributes to reducing the latency in the communications between the hosts.

6 Claims, 11 Drawing Sheets



Petitioner Riot Games, Inc. - Ex. 1001, p. 1

11. The method of claim 1, further comprising the step of performing, by said server, echo suppression.

tation of a networked interactive application. Also assumed in the following description is that the GMS performs echo suppression when a host sends a message to a group that it belongs to. This means that the host will not receive a copy of its own message to the group either as a single un-aggregated message or as a payload item in an aggregated message. This is controlled by a ULP server process

Ex. 1001, 22:66-23:7; -130 Pet. 61-62

Ulrich's "Echo Suppression"

US005466200A

United States Patent (19) [11] Patent Number: **5,466,200**
 Ulrich et al. [45] Date of Patent: **Nov. 14, 1995**

[54] **INTERACTIVE EXERCISE APPARATUS**
 [75] Inventors: **W. Thatcher Ulrich**, Boston; **Harvey A. Koseika**; **Aaron F. Bobick**, both of Newton; **Michael H. Benjamin**, Quincy, all of Mass.
 [73] Assignee: **CyberGear, Inc.**, Cambridge, Mass.

[21] Appl. No.: **189,896**
 [22] Filed: **Feb. 1, 1994**

Related U.S. Application Data
 [63] Continuation-in-part of Ser. No. 12,305, Feb. 2, 1993, abandoned.
 [51] Int. Cl.⁶ **A63B 21/00**
 [52] U.S. Cl. **482/4**; 482/1; 482/3; 482/6; 482/57; 482/901

[58] **Field of Search** 482/1-8, 52, 53, 482/57, 72, 900-902; 434/157, 247

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 Citation: Virtual Reality Gallery at SIGGRAPH'1991 1 page.
 "DIS and Virtual Reality Networking with VR-Link", Virtual Reality World, Mar/Apr. 1994, page 8.
 Primary Examiner—Richard J. Apley
 Assistant Examiner—Glenn E. Richman
 Attorney, Agent, or Firm—Testa, Hurwitz & Thibault

[57] **ABSTRACT**
 An interactive exercise apparatus engages a user's mind and body. The apparatus comprises an exercise mechanism and a steering mechanism for manipulation by the user to achieve exercise and to indicate a direction of motion. A simulated environment is generated by a computer and displayed on a display system for the user. The user manipulates the exercise mechanism and the steering mechanism to freely navigate a computer and mechanism in a simulated environment. A plural computer to position as the ment. A plural networked to simulated env

FIG. 8 (partial diagram showing HUB PROCESSOR 104, EXERCISE APPARATUS 102, 100, 98, 96, and 2-WAY COMMUNICATIONS)

FIG. 7 (partial diagram showing USER WEIGHT, PEDAL SPEED, STEREO/TILT, SIMULATED 3-D ENVIRONMENT, COMPUTE UPDATE POSITION & STATE OF USER, UPDATE PEDAL RESISTANCE & FORCEFEED, NETWORK, RECEIVE INPUTS, GRIP FORCE, FLOW)

Petitioner Riot Games, Inc. - Ex. 1012, p. 1

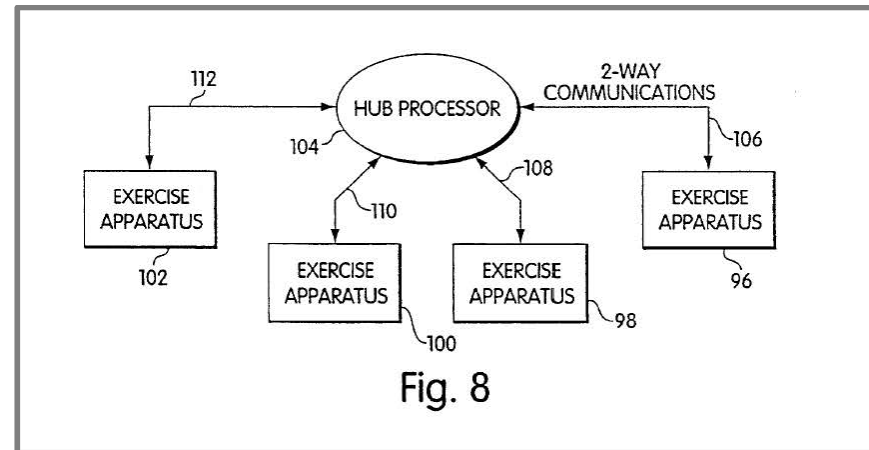


Fig. 8

Ex. 1012, Fig. 8; -130 Pet. 53

with reference to FIG. 7. The hub 104 is responsible for limiting the information directed to each apparatus in the large-scale direct network of FIG. 8. The hub 104 can ensure, for example, that each apparatus only gets (parameter) updates about other users in the same general area of the simulated environment.

Ex. 1012, 9:5-10; -130 Pet. 62

Petition: Claim 12 Combination

Paper No.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIOT GAMES, INC.,
Petitioner,

v.

PALTALK HOLDINGS, INC.,
Patent Owner.

Case No. IPR2018-00130
U.S. Patent No. 5,822,523
Issued: October 13, 1998
Filed: February 1, 1996

Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, Daniel J. Samuel

Title: SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS

PETITION FOR INTER PARTES REVIEW

Aldred discloses serialised channels having a CSP (“*said server*”) that preserves the order of transmitted messages by collecting them centrally and transmitting the same stream of messages to each member. *See, e.g.*, Ex. 1009, 9, 51, Fig. 22; Ex. 1007, ¶278. Aldred however, does not explicitly disclose that data is transmitted to a CSP but then “*echo suppress[ed]*.” Aldred does disclose other channel arrangements where the transmitter does not automatically receive a copy of an update that it sends to a Sharing Set. *See, e.g.*, Ex. 1009, Figs. 15, 16, 18.

Ulrich also suggests performing “*echo suppression*” because it discloses directing “updates about *other* users” to each apparatus. Ex. 1012, 9:5-10 (emphasis added).

-130 Pet. 62

It would have been additionally obvious to an Ordinary Artisan to modify Aldred’s CSP (as combined above) to perform “*echo suppression*.” Ex. 1007, ¶280. For example, Ulrich suggests performing “*echo suppression*” because it discloses the direct hub directing “updates about *other* users” to each apparatus. Ex. 1012, 9:5-10 (emphasis added). This would also reduce the amount of

-130 Pet. 62

Appendix

'686 Patent Claim 3

3. A method for facilitating communications among a plurality of host computers over a network to implement a shared, interactive application, comprising the steps of:

- (1) receiving a create message from one of the plurality of host computers, wherein said create message specifies a message group to be created;
- (2) receiving join messages from a first subset of the plurality of host computers, wherein each of said join messages specifies said message group;
- (3) receiving host messages from a second subset of said first subset of the plurality of host computers belonging to said message group, wherein each of said messages contains a payload portion and a portion that is used to identify said message group;
- (4) aggregating said payload portions of said host messages received from said second subset of the plurality of host computers to create an aggregated message;
- (5) transmitting said aggregated message to said first subset of the plurality of host computers belonging to said message group;

wherein said aggregated message keeps the shared, interactive application operating consistently on each of said first subset of the plurality of host computers.

Ex. 1002, 28:11-34

'686 Patent Claim 7

7. A method for facilitating communications among a plurality of host computers over a network to implement a shared, interactive application, comprising the steps of:

- (1) receiving messages from a subset of the plurality of host computers belonging to a message group, wherein each of said messages contains a payload portion and a portion that is used to identify said message group;
- (2) aggregating said payload portions of said messages to create an aggregated payload; and
- (3) transmitting said aggregated message to each of the plurality of host computers belonging to said message group;

wherein said aggregated message keeps the shared, interactive application operating consistently on each of the plurality of host computers belonging to said message group.

Ex. 1002, 28:58-29:7

'686 Patent Claim 18

18. A method for facilitating communications among a plurality of host computers over a network to implement a shared, interactive application, comprising the steps of:

- (1) receiving a host message from one of the plurality of host computers belonging to a message group, wherein said host message contains a payload portion and a portion that is used to identify said message group;
- (2) forming a server message by using said payload portion of said host message; and aggregating said payload portion with the payload portion of a second host message received from another of the plurality of host computers belonging to said message group
- (3) transmitting said server message to each of the plurality of host computers belonging to said message group;

whereby said server message keeps the shared, interactive application operating consistently on each of the plurality of host computers belonging to said message group.

Ex. 1002, 30:18-39

Aldred's Figure 22

PCT
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

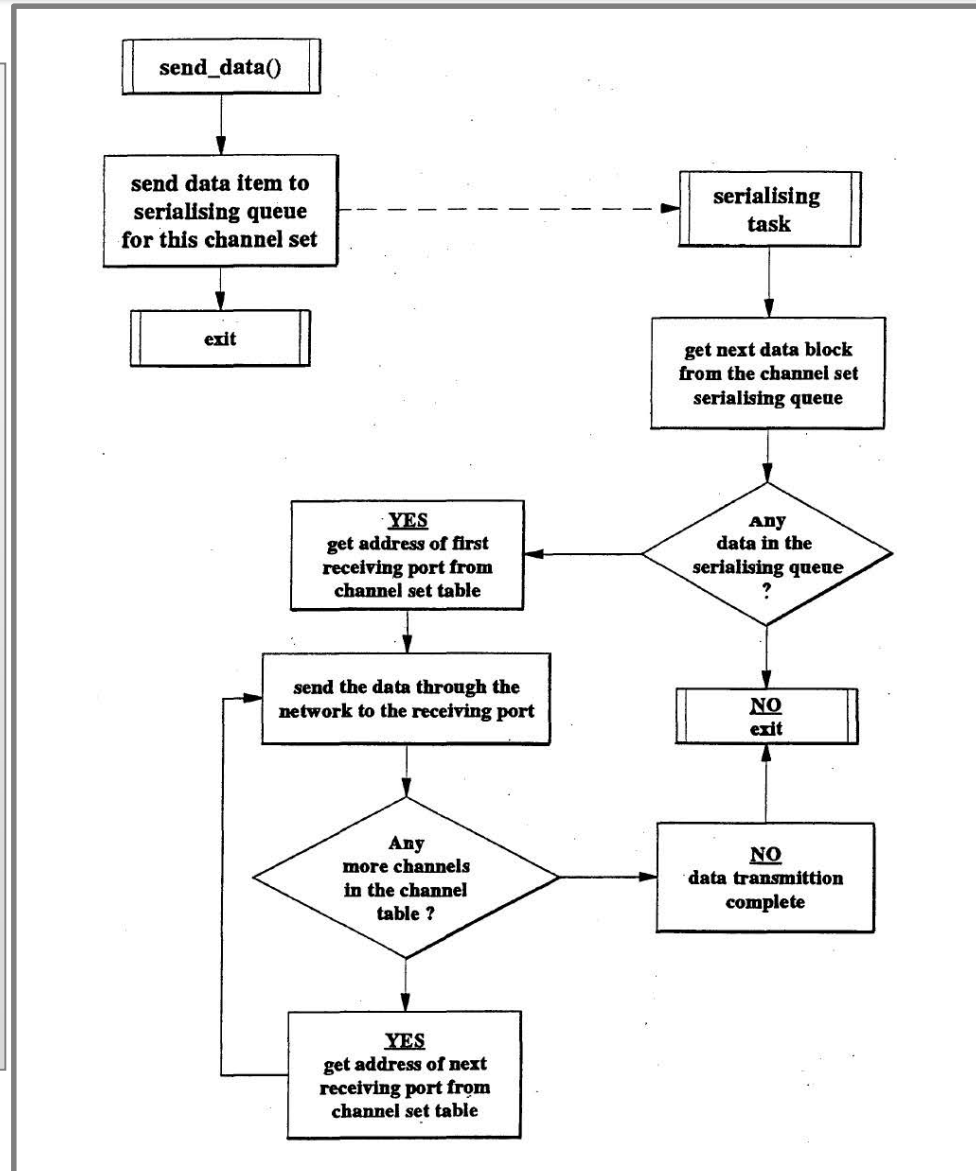
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 5 : G06F 9/46</p> <p>(21) International Application Number: PCT/GB93/02315 (22) International Filing Date: 10 November 1993 (10.11.93)</p> <p>(30) Priority data: 9225521.7 10 November 1992 (10.11.92) GB</p> <p>(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US-US]; Armonk, NY 10504 (US).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): ALDRED, Barry, Keith [GB/GB]; Dolphins, Malmsbury Gardens, Winchester, Hampshire SO22 5LE (GB). BONSALL, Gordon, William [GB/GB]; 2 Court Road, Kings Worthy, Winchester, Hampshire SO23 7QJ (GB). LAMBERT, Howard [GB/GB]; 22 Nordik Gardens, Hedge End, Southampton, Hampshire SO3 4LQ (GB). MITCHELL, Harry, David [GB/GB]; 18 The Hermitage, Richmond Upon Thames, Surrey TW10 6SH (GB).</p>	<p>(11) International Publication Number: WO 94/11814</p> <p>(43) International Publication Date: 26 May 1994 (26.05.94)</p> <p>(74) Agent: BURT, Roger, James; IBM United Kingdom Limited, Intellectual Property Department, Hursley Park, Winchester, Hampshire SO21 2JN (GB).</p> <p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published With international search report. Before the expiration of the time limits for amending the claims and to be republished in the event of the receipt of amendments.</p>
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(54) Title: COLLABORATIVE WORKING IN A NETWORK

(57) Abstract
A programmable workstation for collaborative working in a network comprises a conventional operating system and a network control program layer. Additionally, the workstation includes a collaborative application support subsystem for interfacing with application programs. The subsystem is responsive to predetermined application program calls to create a logical network model of a collaborative environment. The model comprises sharing sets of application programs, which share data and resources across nodes and logical dedicated data channels connecting members of the sharing set. The subsystem cooperates with the network layer to establish the physical links necessary to implement the model in a physical network, transparently to the application program.

Petitioner Riot Games, Inc. - Ex. 1009, Cover-1



Ex. 1009, Fig. 22; -129 Pet.

Claim 32 – “said transport layer protocol is TCP/IP”

Paper No. 1

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Petitioner,

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Issued: October 13, 1998
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Inventors: Jeffrey J. Rothschild, Marc P. Kwiatkowski, Daniel J. Samuel
Title: SERVER-GROUP MESSAGING SYSTEM FOR INTERACTIVE APPLICATIONS

PETITION FOR INTER PARTES REVIEW

xii. Claim 32

Claim 32 recites “[t]he method of claim 1, wherein said sending and said transmitting are performed by an upper-level protocol implemented above a transport layer protocol of said unicast network, wherein said transport layer protocol is TCP/IP.”

As explained above for claim 6 (§VI.A.vi), an Ordinary Artisan would understand Aldred’s scheme is implemented on top of the underlying transport layer (“*upper-level protocol implemented above a transport layer protocol*”). Ex. 1017, 1338; Ex. 1007, ¶¶172-174. It would have been obvious to combine Aldred and RFC 1692 as expressed above. See §VI.A.i.e. The transport protocol used by the nodes in Aldred would therefore be RFC 1692’s TMux-enhanced IP protocol, which uses TCP/IP (“*wherein said transport layer protocol is TCP/IP*”). See Ex. 1010, 6-7; Ex. 1007, ¶180.

Aldred as combined therefore renders this claim obvious.

-129 Pet. 52-53