IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent of SARDERA	§	
	§	
U.S. Patent No. 8,107,786	§	Petition for *Inter Partes* Review
	§	
Issued: Jan. 31, 2012	§	Attorney Docket No.: 50796.1
	§	Customer No.: 27683
Title: SYSTEMS AND	§	Real Party in Interest: Netflix, Inc.
METHODS TO MODIFY	§	
PLAYOUT OR PLAYBACK	§	

Declaration of Richard Kramer
Under 37 C.F.R. § 1.68

I, Richard Kramer, declare:

1. I am making this declaration at the request of Netflix, Inc. in the matter of the Inter Partes Review of U.S. Patent No. 8,107,786 ("the '786 Patent") to Sardera.

2. I am being compensated for my work in this matter. My compensation in no way depends upon the outcome of this proceeding.

3. In the preparation of this declaration, I have studied:

    a. The '786 Patent, NTFX-1001;

    b. The prosecution history of the '786 Patent, NTFX-1002;

c.   U.S. Patent Publication No. 2005/0097599

("Plotnick"), NTFX-1003;

d.   U.S. Patent No. 6,820,277 ("Eldering"), NTFX-1004;

4.   In forming the opinions expressed below, I have considered:

a.   The documents listed above,

b.   The relevant legal standards, including the standard for

obviousness provided in *KSR International Co. v. Teleflex, Inc.*, 550 U.S.

398 (2007), and

c.   My knowledge and experience based upon my work in this

area, as described below.

Qualifications and Professional Experience

5.   My qualifications are set forth in my curriculum vitae, a copy of

which is attached as an exhibit to this declaration. As set forth in my curriculum

vitae:

6.   I received a Bachelor's of Science degree in Electrical Engineering

from the University of Toledo in 1984. I have over 29 years of experience

successfully developing and launching commercially-implemented software and

hardware products and systems, including 18 years in the video industry

developing commercially successful products related to subscriber television

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systems, IP networking, cable and satellite TV systems and equipment, cable TV set-top boxes, remote controls, video networking, software, and other technologies relevant to the subject matter of the '786 Patent. The cable TV video, video surveillance and IP network video products and systems that I have developed have been successfully launched under respected brands such as General Electric and Scientific-Atlanta (now Cisco). My experience also included the development of new technologies within pioneering high-tech start-up companies like Ivex Corporation (acquired in 2001 by Axcess, Inc.), where we developed one of the first IP network Video Streaming Appliances (called the "VSA") for the video surveillance industry. I hold two patents.

7.   In the 1990s, I was the engineering/technology leader for cable TV set-top boxes in North America for Scientific-Atlanta, Inc. (prior to being acquired by Cisco Systems, Inc.). I was responsible for all set-top devices for the Advance Video Systems group. My group and the people that reported to me developed and successfully launched Scientific-Atlanta's first internally designed set-top (also called HCTs which means Home Communication Terminals). The sales volumes of the products we developed exceeded 1 million units per year. The position required me to be astute to each facet of the cable system technology and the overall system. I was later promoted and served as the top technology leader on the Strategic Planning Team for the "Advanced Video Systems" Division. There I

worked on the next generation advanced video products. In this role, each of the functional technology areas including firmware, hardware, system software and headend equipment reported to me in a dotted line matrix/cross-functional organizational structure for the development of our next generation of products.

8.   In 2001, I joined and served as Vice President of Product Development at Miraxis Corporation (a division of EMS Technologies, Inc., now Honeywell, Inc.) developing IP network and digital video solutions in the satellite industry. At Miraxis, we were focused on the design of an entirely new DBS/DTH (Direct Broadcast Satellite/Direct to Home) television and multimedia solution. Overall, Miraxis was responsible for the design of the satellite payload, the associated ground based systems, and the CPE (Customer Premise Equipment). As the Vice President of Product Development, I was responsible for all aspects of the system solution; I was immersed in the leading-edge state of the industry. In fact, we were one of only a handful of companies that received a newly allowed Ka-Band satellite license. The new Ka-Band frequency spectrum opened significant new opportunities for providing entertainment content to homes across America.

9.   From 2003 to 2007, I served as the Vice President-Engineering and General Manager-Technology over the Video Systems Group ("VSG") at General Electric ("GE"). This role included the direct leadership of the development of DVRs (Digital Video Recorders), advanced video systems, intelligent video

software, cameras, and client-server based video management systems.

10.   In summary, I have a deep familiarity with subscriber television systems and related technologies, including first-hand experience at the relevant time of the '786 Patent invention and before.

11.   I am familiar with the knowledge and capabilities of one of ordinary skill in the software/hardware engineering and, specifically, the interactive television field in the 2000s. Specifically, my extensive experience (1) in the industry and (2) with engineers practicing in the industry allowed me to become personally familiar with the level of skill of individuals and the general state of the art. Unless otherwise stated, my testimony below refers to the knowledge of one of ordinary skill in the interactive television field in the year 2006, the year in which the '786 Patent was filed.

12.   In my opinion, the level of ordinary skill in the art needed to have the capability of understanding the scientific and engineering principles applicable to the '786 Patent is (i) a B.S. degree in Electrical Engineering or equivalent training, and (ii) approximately three years of direct experience in developing subscriber television solutions and technologies. Relevant industry experience would include experience with interactive television system development and deployment, including development of head-end, transport, and customer premise equipment in order to appreciate what was obvious and/or anticipated in the industry and what a

person having ordinary skill in the art would have thought at the time.

Relevant Legal Standards

13.   I have been asked to provide my opinions regarding whether the claims 1-7 of the '786 Patent are anticipated or would have been obvious to a person having ordinary skill in the art at the time of the alleged invention, in light of the prior art. It is my understanding that, to anticipate a claim under 35 U.S.C. § 102, a reference must teach every element of the claim. Further, it is my understanding that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. I also understand that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

14.   It is my understanding that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the following: combining prior art elements according to known methods to yield predictable results; simple substitution of one known element for another to obtain predictable results; use of a known technique to improve a similar device (method, or product)

in the same way; applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

15.   It is my understanding that some claims can be interpreted as "means plus function" claims under 35 U.S.C. § 112, paragraph 6. I understand that determining the broadest reasonable interpretation of "means plus function" claims requires first, defining the particular function of the limitation and second, identifying the corresponding structure for that function in the specification. I also understand that structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.

Background Of '786 Patent

16.   The '786 Patent describes systems and methods for modifying playout or playback of primary content in response to a trick mode request (e.g., fast forward or rewind), by playing secondary content. (NTFX-1001, Abstract.) In one example, a user viewing a movie (e.g., primary content) may attempt to skip an advertisement in the movie by selecting a fast forward button as a trick mode

request that causes fast forwarding of the movie. However, instead of viewing the advertisement in the movie at an accelerated speed, the system displays the secondary advertisement (e.g., secondary content) to the user. (See NTFX-1001, 2:51-61; 14:26-15:11.)

17.   Claim 1 provides a basic overview of the teachings of the '786 Patent:

> 1. A system including:
>
> a request module to receive a request for primary content; and
>
> a communication module to communicate primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content, associate the primary content to secondary information, communicate the secondary information to the receiving device, the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content,
>
> the secondary non-derivative content not being derived from the primary content,
>
> the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content.

18.   The '786 patent discloses a video on demand ("VoD") system that includes a streaming server 28 having a request module 36 and a communication module 38. (NTFX-1001, 6:42-43; Fig. 1.)
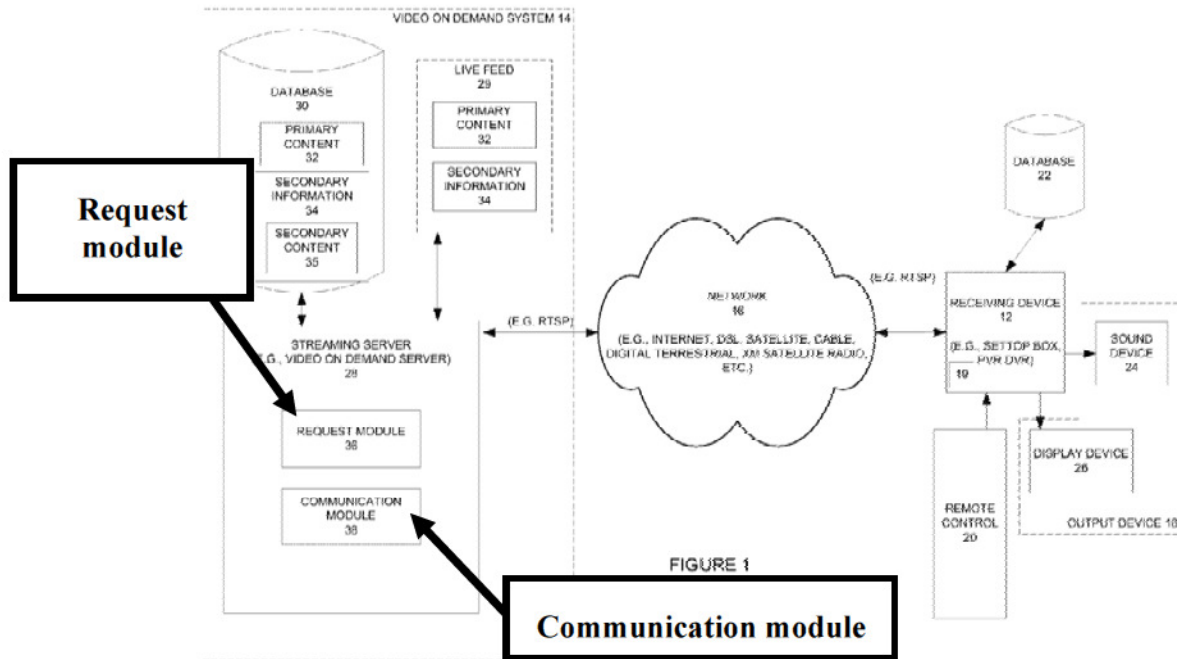
The '786 Patent, Fig. 1 (annotated)

19.   The request module receives a request for delivery of primary content from a receiving device 12 that may be a set top box or DVR. (The '786 Patent, 6:43-48; 10:14-25.) The communication module 38 then communicates the primary content to the receiving device (NTFX-1001, 6:54-60; 10:27-30) so that the receiving device renders the primary content to an output device at a normal speed (NTFX-1001, 10:31-34; Fig. 6.)

20.   The communication module also associates the primary content to secondary information and communicates the secondary information to the receiving device. (NTFX-1001, 10:54-67.) The receiving device utilizes the secondary information to render secondary non-derivative content to the output

device 18 instead of the primary content. (NTFX-1001, 13:49-52; 15:6-11.)

21.   The receiving device renders the secondary non-derivative content to the output device 18 mentioned above in response to a receipt of a request to render the primary content at the receiving device at an accelerated speed. (NTFX-1001, 14:55-15:11.) The request may be a fast forward request or a rewind request. (NTFX-1001, 14:44-51.)

22.   The '786 Patent issued on January 31, 2012, from U.S. Patent Application No. 11/469,195 ("the '195 application") filed on August 31, 2006, by Esteban Sardera.

Claim Construction

23.   It is my understanding that in order to properly evaluate the '786 Patent, the terms of the claims must first be interpreted. It is my understanding that the claims are to be given their broadest reasonable interpretation in light of the specification. It is my further understanding that claim terms are given their ordinary and accustomed meaning as would be understood by one of ordinary skill in the art, unless the inventor has set forth a special meaning for a term.

24.   In order to construe the following claim terms, I have reviewed the entirety of the '786 Patent, as well as its prosecution history. The '786 Patent includes a "DEFINITIONS" section explicitly defining a number of claim terms.

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Except as provided below, the definitions set forth in the '786 Patent at 3:24-4:5 should control the defined claim terms. Any claim term not construed in the patent or discussed below should be given its ordinary and customary meaning.

"secondary non-derivative content"

25.   The claim term "secondary non-derivative content" is found in claims 1, 4, and 7 of the '786 Patent.

26.   The specification explicitly defines the term "non-derivative secondary content" in the DEFINITIONS section. The claimed term "secondary non-derivative content" should be properly construed to have the same meaning as the defined term "non-derivative secondary content." For example, the claimed term and the defined term appear to have been used interchangeably in the specification and appear to have the same meaning. For example, the "secondary non-derivative content" appears separately received and then rendered to the output device instead of primary content. (See e.g., NTFX-1001, 4:23-26.) This is consistent with the defined term "non-derivative secondary content," which is defined as "secondary content that is not generated from the associated primary content. For example, derivative secondary content does not include samples (e.g., audio and/or visual) from the associated primary content." (NTFX-1001, 3:47-51.)

27.   I note that the definition of "non-derivative secondary content"

appears to include a typographical error that substituted "derivative content" for "non-derivative content." Particularly, the definition states that the "derivative secondary content does not include samples (e.g., audio and/or visual) from the associated primary content." (NTFX-1001, 3:49-51.) This statement directly contradicts the definition of "derivative content." (*See* NTFX-1001, 3:44-46.) Since the conflicting definitions both refer to derivative content, it appears the definition of non-derivative content should have referred to "non-derivative content" instead of "derivative content." The remainder of the specification also supports this conclusion. (*See e.g.*, NTFX-1001, 8:41-43, 9:27-29.)

28.   It is therefore my opinion that a person of ordinary skill in the art would understand the broadest reasonable interpretation of "secondary non-derivative content" in view of the specification and file history to be the same as the corrected definition in the specification of "non-derivative secondary content." Accordingly, the definition of "secondary non-derivative content" is "*secondary content that is not generated from the associated primary content. For example, non-derivative secondary content does not include samples (e.g., audio and/or visual) from the associated primary content.*"

Challenge #1: Claims 1-6 are anticipated by Plotnick

29.   It is my opinion that Plotnick teaches each and every element of at least claims 1-6 of the '786 Patent.

30.   Plotnick teaches systems and methods for presenting viewers with a brief, secondary advertisement when they choose to fast-forward through or skip the original advertisement. NTFX-1003, Abstract. The secondary advertisement may be targeted to a specific group and may be entirely unrelated to the original advertisement. NTFX-1003, Abstract.

31.   In greater detail, Plotnick discloses programming, such as video on demand ("VoD") transmitted to a subscriber via a programming delivery network. NTFX-1003, para. [0091]. The programming stream includes advertisements of any lengths, such as 30-second advertisements. NTFX-1003, para. [0090]. To address the problem of viewers using a personal video recorder ("PVR") to fast forward the advertisements, the program stream in the Plotnick system includes both advertisements and alternative advertisements. NTFX-1003, para. [0167]. The Plotnick system "replaces or supplements the fast forwarding advertisements with alternative advertisements designed to get the advertisers message across in the same amount of time it takes the subscriber to fast forward through the recorded advertisement. NTFX-1003, para. [0093]. The alternative

advertisements may have some content connection to the original recorded

advertisement or may "have no connections to the ad… (i.e., Coke displaying an

alternative ad during a fast forwarding Pepsi advertisement)." NTFX-1003, para.

[0093].

32.   The following claim chart describes how Plotnick teaches each and

every element of at least claims 1-6.

Claim 1	
[1.0] A system including:	[1.0] **"A system"** **First**, Plotnick teaches a system: "FIG. 4 illustrates an exemplary VoD system that includes remote video servers 400 that store video; an archive 402 that stores items such as infrequently viewed movies; a backbone network 410 that is used for the distribution of digital video from the remote video servers 400 to a switching office 420; a subscriber network 430 which connects the switching office 420 (more precisely head-end 428 within the switching office 420) to set-tops 440." NTFX-1003, paragraph [0111]. NTFX-1003, Fig. 4. **Thus**, the system taught by Plotnick, discloses "a system" as recited in the claim.
[1.1] a request module to receive a request for primary	[1.1] **"a request module to receive a request for primary content"** Plotnick discloses "a request module to receive a request for primary content" because it teaches a video dial tone gateway

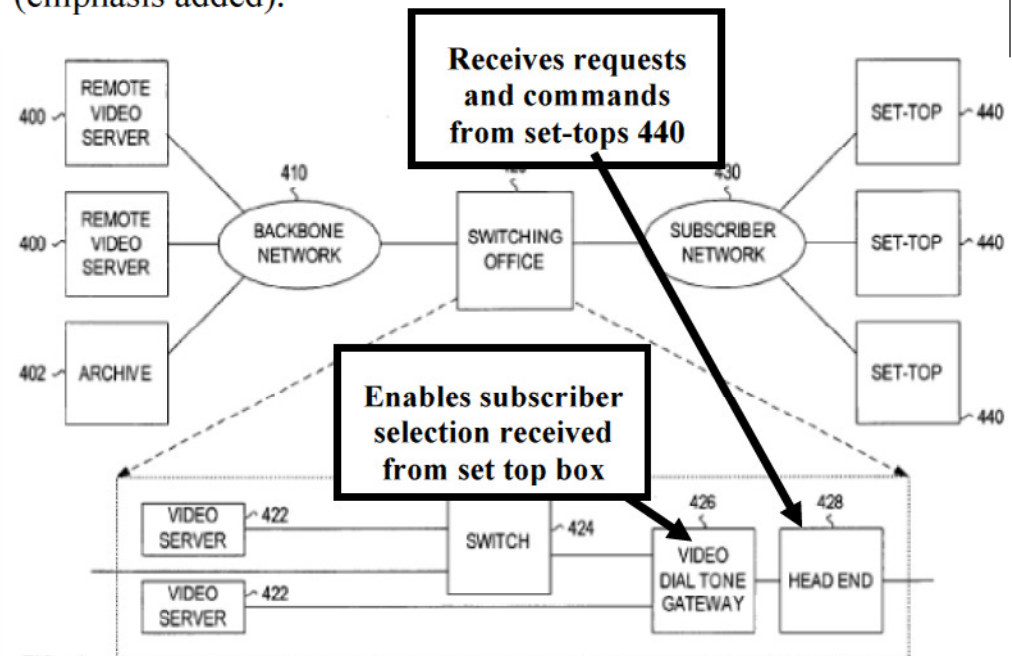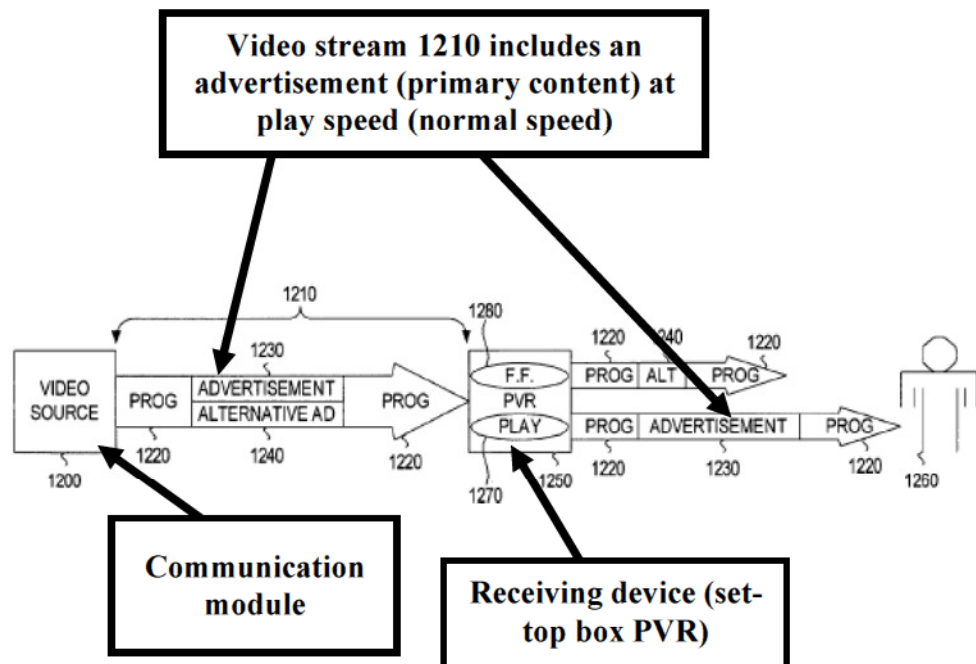| content; and	426 and a return channel transport that receive requests for video content.
	Referring to Fig. 4 - "The switch 424 is used to direct traffic to the video dial tone gateway 426 that provides a subscriber interface…. In operation, <u>the video dial tone gateway 426 can present the subscriber with a menu for services</u> which can guide the subscriber through the sources for video…. <u>The video dial tone gateway 426 thus insures that the subscriber can select the appropriate video content</u>…." NTFX-1003, paragraph [0112] (emphasis added).

NTFX-1003, Fig. 4 (annotated).

The head end 428 is between the video dial tone gateway 426 and the set-top boxes 440.

"The head-end system 428 represents the set of equipment that is needed to deliver the advertisement over the specific delivery platform in the subscriber network 430. The subscriber network 430 may be a cable system based on Hybrid Fiber Coaxial (HFC) technology….For a HFC network, there will typically also be a return channel that may consist of a DOCSIS based modem in the set-top and corresponding Cable Modem Termination System (CMTS) in the head-end 428. <u>The return channel transports</u>

	requests and commands from the set-tops 440 to the head-end system 428. Alternative downstream modulation formats and return paths can be utilized." NTFX-1003, paragraph [0113] (emphasis added). **Thus**, the video dial tone gateway 426 allowing the subscriber to select the appropriate video content, and the return channel transporting requests from the set-tops to the head-end system, as taught by Plotnick, discloses "a request module to receive a request for primary content" as recited in the claim.
[1.2(a)] a communication module to	[1.2(a)] *"a communication module to"* Plotnick discloses "a communication module" because it teaches a "server" or a head end such as "a program source (video source) 1200" that transmits a program stream or video stream 1210 to a personal video recorder ("PVR"). "FIG. 12A illustrates an embodiment where <u>a program source (video source) 1200 transmits a program stream</u> (video stream) 1210 including programming 1220 and <u>both an advertisement</u> 1230 and <u>an alternative advertisement</u> 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250. The video source 1200 may be a satellite, a head-end, <u>a networked video server</u>, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art." NTFX-1003, paragraph [0167] (emphasis added). **Thus**, the video source 1200 transmitting programming, an advertisement, and an alternative advertisement, as taught by Plotnick, discloses "a communication module" as recited in the claim.
[1.2(b)] communicate primary content to a receiving device, the receiving	[1.2(b)] *"communicate primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content"* **First**, Plotnick teaches the communication module "communicat[ing] primary content to a receiving device" because it discloses that the program or video source transmits

device to render the primary content to an output device at a normal speed of the primary content,	the program or video, along with advertisements, to the PVR. "**Primary Content**" is defined by the '786 Patent to mean "content that may be played on a receiving device or interacted with on a receiving device. Primary content may include but is not limited to entertainment content and advertisement content. Further, primary content may include video content 30 and/or audio content and/or associated metadata." The '786 Patent at 3:26-31. "FIG. 12A illustrates an embodiment where <u>a program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both <u>an advertisement</u> 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added). "The video source 1200 may be a satellite, a head-end, a networked video server, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art. The PVR 1250 may be a HE PVR, a STB PVR, some combination of a HE/STB PVR, or some type of video source server (i.e., DVD). The video stream 1210 may be transmitted from the video source 1200 to the PVR 1250 using a video delivery system, such as those previously discussed." NTFX-1003, paragraph [0167].

NTFX-1003, Fig. 12A (annotated).

Accordingly, the system of Plotnick communicates primary content, an advertisement, to a receiving device.

Second, Plotnick teaches "the receiving device rendering the primary content to an output device at a normal speed of the primary content" because it teaches sending the signals to inputs on a television for watching at normal speed.

"The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).
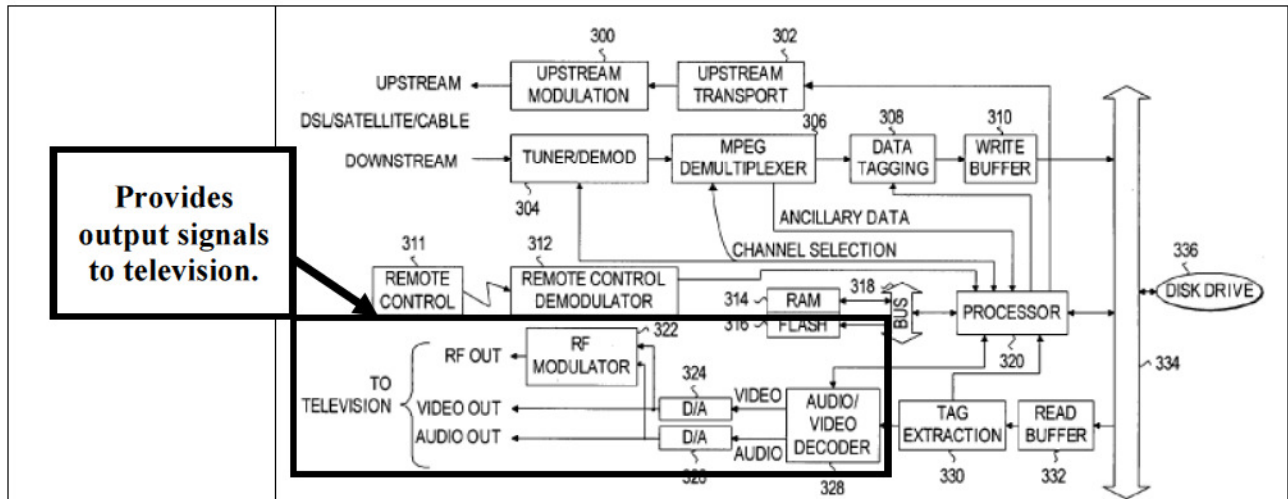
FIG. 3

NTFX-1003, Fig. 3 (annotated to show output to television).

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260 if the video stream 1210 was either not recorded or if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270." NTFX-1003, paragraph [0169] (emphasis added).

Thus, the video source delivering the advertisement in the video stream to the PVR and the PVR displaying the programming and advertisement back at normal speed on a television, as taught by Plotnick, discloses a communication module to "communicate primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content" as recited in the claim.

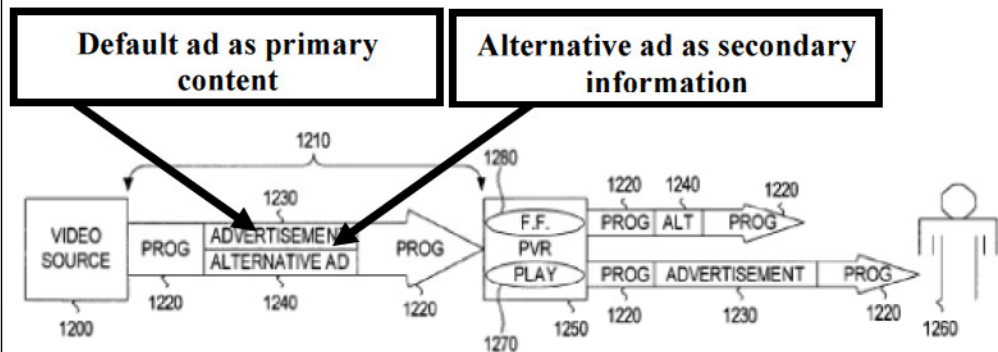| [1.2(c)] associate the primary content to secondary information,	[1.2(c)] *"associate the primary content to secondary information"* **"Secondary Information"** is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41. Plotnick discloses a communication module to "associate the primary content to secondary information" because it teaches associating multiple types of information to the primary

advertising content. For example, Plotnick discloses associating each of the following to the primary content: an alternative advertisement, metadata used to access secondary content, and information signals communicated to the PVR used to generate secondary content. Each of these meet the definition of for "secondary information" defined to "include secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41.

With respect to an alternative advertisement, Plotnick teaches "associat[ing] the primary content to secondary information" when it teaches associating the alternative advertisement with the default advertisement in a common video stream.

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits <u>a program stream (video stream) 1210 including programming 1220 and both an advertisement 1230 and an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).

NTFX-1003, Fig. 12A (annotated).

Thus, Plotnick's disclosure of combining the advertisement 1230 and an alternative advertisement 1240 into a common video stream is a teaching of "associate[ing] the primary content to secondary information."

With respect to metadata, Plotnick teaches "associat[ing] the primary content to secondary information" when it teaches associating the default advertisement with ad metadata used to

access the alternative advertisement.

"FIG. 11 illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box. This system includes different head-end <u>servers that are used to</u> segment the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"An IPG Server 1114 delivers interactive program guide information in the form of program metadata 1116. A broadcast conduit 1118 receives program metadata from broadcasters and content providers and deliver the program metadata 1120. The program metadata (from both sources) 1116, 1120 is collected and processed 1122. The processing 1122 includes combining the program metadata from the different sources 1116, 1120 and formatting it for delivery to the set-top boxes. The program metadata 1116, 1120 includes program content, language information, ratings, encoding attributes, networks and air times, delivery requirements, and pricing. The formatted <u>program metadata 1124 is sent to the STB data server 1112, which transmits it to the appropriate set-top boxes</u>." NTFX-1003, paragraph [0160] (emphasis added).

The ad metadata includes times for displaying the advertisements and therefore includes information about when to generate the alternative advertisement. The metadata is sent in the video stream and therefore transmitted or associated with the default advertisement:

"The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and **times for**

displaying the advertisement (ad campaign data 1152).
Based on the defined ad campaign data 1152 and the market
segment data 1143 from the market segment database 1136
an ad queue and schedule is created 1154. Based on the ad
schedule 1154, ad download instructions 1156 are
transmitted to the ad server 716. The ad server 716
determines the availability of the ads (ad availability
information 1158) identified in the download instructions
1156. The ad server 716 transmits **available ads and ad
metadata** to set-top boxes based on the ad schedule 1154."
NTFX-1003, paragraph [0164] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source
(video source) 1200 transmits a program stream (video
stream) 1210 including programming 1220 and both an
advertisement 1230 and an alternative advertisement 1240 (in
a preferred embodiment a related alternative ad) to a PVR
1250." NTFX-1003, paragraph [0167] (emphasis added).

Thus, Plotnick's disclosure of joining ad metadata for secondary
content with default advertisements is a teaching of
"associate[ing] the primary content to secondary information."

With respect to information signals, Plotnick teaches
"associat[ing] the primary content to secondary information"
when it teaches sending information signals used to generate
secondary content with a default advertisement.

"In the case of a telephone type network based on DSL
technology, the head-end system 428…receives video signals
and prepares them for transmission to field located
distribution equipment in the subscriber network 430. The
transmission is typically via a fiber optic connection and is
done in stages in which the fiber carries a signal from the
switching office 420 to a terminal located in the field such as
a Universal Access Multiplexer (USAM) or Digital
Subscriber Line Access Multiplexer (DSLAM). From this
point in the network the signals can be transported to the set-
top 440 over twisted wire pairs using one of the DSL

transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and <u>both an advertisement 1230 and an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).
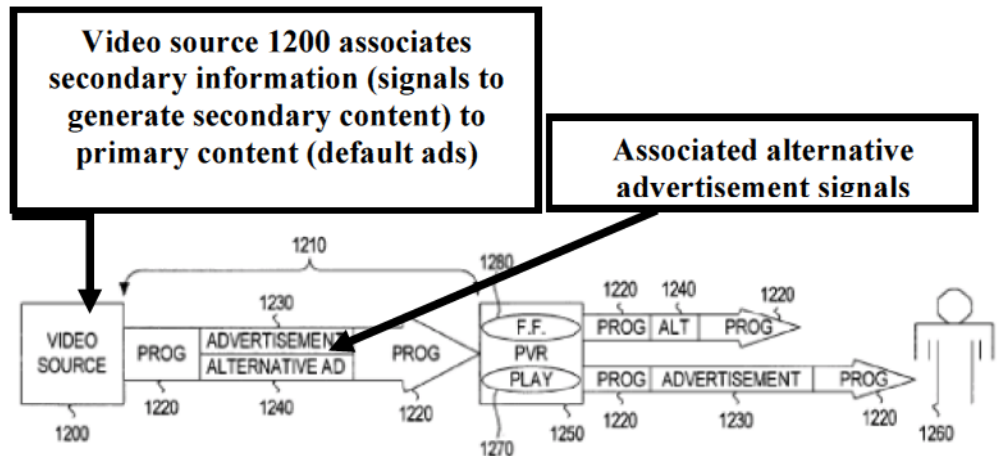

NTFX-1003, Fig. 12A (annotated).

In addition, Plotnick teaches "associat[ing] the primary content to secondary information" because it teaches streaming of signals representing the default advertisement and the metadata for the alternative advertisement to the same target audience.

Specifically, Plotnick teaches the communication module (for example, which includes advertisement servers) that target advertisements to subscribers, and associate targeted advertisements (primary content) with targeted alternative advertisements:

"<u>It should be noted that the advertisement 1230 and the alternative advertisement 1240 may be default advertisements (everybody connected to that video delivery system receives the same advertisement)</u> **or they may be targeted advertisements**. <u>The advertisements may be targeted based on geodemographics</u>

(i.e., node or cluster of nodes), household (i.e., STB PVR), or individual (session based). … **Depending on the criteria used** to target the advertisements 1230 and alternative advertisements 1240**, it is possible for different nodes, households or subscribers 1260 to receive the same targeted advertisement 1230 but different targeted alternative (sic.) advertisements 1240**." NTFX-1003, paragraph [0171] (emphasis added).

"FIG. 11 illustrates an exemplary data flow in an <u>ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box</u>. This system includes different head-end servers that are used to segment the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"The targeted advertising features of the <u>server side AMS 700</u> support and manage all of the head-end/CO activities required to <u>facilitate the targeting of television adverting on PVR-enabled set-top boxes (STB PVRs)</u>. The functionality of the server side AMS 700 includes market segmentation, geodemographic database management, viewing statistics collection, profile aggregation, ad server content and distribution management, content metadata management, STB software management, interface to traffic and billing systems, and support of the ad sales process." NTFX-1003, paragraph [0143] (emphasis added).

"An ad server 716 stores and distributes all of the advertisements for a particular set of subscribers." NTFX-1003, paragraph [0144].

"Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and</u>

	ad metadata to set-top boxes based on the ad schedule 1154." NTFX-1003, paragraph [0164] (emphasis added). **Thus**, transmitting information that is, used to generate, or used to access the alternative advertisement 1240, as taught by Plotnick, are teachings of "associat[ing] the primary content to secondary information," as recited in the claim.
[1.2(d)] communicate the secondary information to the receiving device,	[1.2(d)] *"communicate the secondary information to the receiving device"* Plotnick teaches "communicat[ing] the secondary information to the receiving device." As explained above, it teaches communicating many different types of secondary information to the PVR. For example, it teaches communicating the alternative advertisement, the metadata, and information signals representing alternative advertisement to the PVR. "FIG. 12A illustrates an embodiment where a <u>program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both an advertisement 1230 and <u>an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) <u>to a PVR 1250</u>." NTFX-1003, paragraph [0167] (emphasis added). "Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added). "In the case of a telephone type network based on DSL technology, the head-end system 428…<u>receives video signals and prepares them for transmission to field located distribution equipment</u> in the subscriber network 430. The transmission is

	typically via a fiber optic connection and is done in stages in which the <u>fiber carries a signal</u> from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network <u>the signals can be transported</u> to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added). **Thus**, communicating information that: is the alternative advertisement, is information signals used to generate the alternative advertisement, or is metadata to generate or access the alternative advertisement, as taught by Plotnick, is a teaching of "communicat[ing] the secondary information to the receiving device," as recited in the claim.
[1.3] the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content,	[1.3] *"the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content"* As stated above, "**secondary information**" is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41. "**Non-Derivative Secondary Content**" is defined by the '786 Patent to mean "secondary content that is not generated from the associated primary content. For example, non-derivative secondary content does not include samples (*e.g.*, audio and/or visual) from the associated primary content." The '786 Patent at 3:47-51; *supra* ¶28. **First**, Plotnick teaches that its PVR utilizes secondary information, such as the alternative advertisement, the ad metadata, and the information signals to render the alternative advertisement to a television instead of the default advertisement. The alternative advertisement is rendered instead of the default advertisement when the subscriber fast forwards the default

advertisement. (NTFX-1003, Abstract, paragraph [0107].)

With respect to the alternative advertisement as the secondary information, Plotnick teaches that its PVR utilizes the alternative advertisement when it renders the alternative advertisement:

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260…if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270. If the video stream was recorded and the subscriber 1260 fast forwards 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003, Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement…" NTFX-1003, Abstract.

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

With respect to the metadata as the secondary information, Plotnick teaches that its PVR utilizes the metadata when it renders the alternative advertisement:

"The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast

systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and times for displaying the advertisement (ad campaign data 1152). Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>. **If the ads are displayed to the subscriber**, the STB data server 1112 generates an ad play report 1160." NTFX-1003, paragraph [0164] (emphasis added).

The metadata is used to identify program information that includes advertisements:

"FIG. 3 illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to support upstream and downstream data transmission, digital television reception and presentation, and storage of digital video programming. The system contains a tuner/demod 304 that provides for the reception of programming and data. In some systems (such as cable systems) multiple demodulators may be used to provide simultaneous delivery of digital video/audio (MPEG) and Internet Protocol (IP) data. An MPEG demultiplexer 306 selects (filters) a single program from a multiple program stream. The MPEG demultiplexer 306 may contain a transport stream demultiplexer, Program Identifier (PID) filters, and a conditional access system. A data tagging unit 308 adds metadata descriptors to video to be recorded. **The metadata is used by the PVR to identify and characterize programs**. A write buffer 310 buffers video to accommodate disk access." NTFX-1003, paragraph [0105] (emphasis added).

The metadata can include descriptors identifying the secondary content:

"Random Access Memory (RAM) 314 and flash memory 316 are connected to processor 320 via a processor bus 318. Storage of programming is provided using a disk drive 336 although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems. The disk drive 336 is connected to the write buffer 310, processor 320, and a read buffer 332 through a system bus 334. The read buffer 332 buffers video to accommodate disk access. **A tag extraction system 330 extracts metadata descriptors from recorded video**. An audio/video decoder 328 decodes digital video and audio, examples of which are MPEG video and MPEG/AC-3 audio. The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260…if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270. If the video stream was recorded and the subscriber 1260 fast forwards 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

The metadata can include information identifying the viewer which is then used to select one of multiple alternative advertisements:

> "The STB Data Server 1112 generates viewer profiles 1146 based on historical data of television viewing habits (**collected metadata**)." NTFX-1003, paragraph [0163] (emphasis added).

> "According to one embodiment, the video stream 1210 may include multiple alternative advertisements 1240, and the PVR 1250 determines which alternative advertisement 1240 to display to the subscriber 1260 based on which subscriber 1260 (individual subscriber or group of subscribers) the PVR 1250 determines is interacting with (i.e., viewing) the video stream 1210. That is, the alternative advertisement 1240 is targeted to the subscriber 1260 (regardless of whether the advertisement 1230 was a default ad or was targeted)." NTFX-1003, paragraph [0172] (emphasis added).

With respect to information signals representing the alternative advertisement as secondary information, Plotnick teaches that its PVR utilizes the **information signals** when it renders the alternative advertisement to the set top box, and then ultimately to a television:

"In the case of a telephone type network based on DSL technology, the head-end system 428…receives video signals and prepares them for transmission to field located distribution equipment in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries a signal from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network the signals can be transported to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly <u>to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel</u>." NTFX-1003, paragraph [0107] (emphasis added).

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260…if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270. If the video stream was recorded and the subscriber 1260 fast forwards 1280 (or any other trick-play event) the advertisement 1230, <u>the alternative advertisement 1240 will be displayed</u> to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003, Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. <u>The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement</u>…" NTFX-1003, Abstract.

Accordingly, Plotnick teaches that information about the alternative advertisement (such as the alternative advertisement, metadata, and information signals such as video and audio signals that represent the alternative advertisement) are used to render the alternative advertisement onto the TV connected to the PVR instead of the default advertisement.

Second, Plotnick teaches the "secondary non-derivative content not being derived from the primary content." Specifically, Plotnick teaches that the alternative advertisement can be "unrelated" to the default advertisement.

	"FIGS. 12A-B illustrate several exemplary embodiments associated with the alternative advertisement being a <u>separate video</u> (and thus potentially <u>an alternative advertisement unrelated to the advertisement</u>)." NTFX-1003, paragraph [0167] (emphasis added). "However, it is also possible that the alternative advertisements 230, 240 are not related to the recorded advertisements 110, 120, and may actually be an advertisement for a different product or service. The <u>alternative advertisements 230, 240 may be a separate video (preferred for non-related advertisements)</u> or may be derived from the video for the recorded advertisements 110, 120." NTFX-1003, paragraph [0166] (emphasis added). **Accordingly**, the alternative advertisement unrelated to the advertisement, as taught by Plotnick, discloses the secondary non-derivative content not being derived from the primary content by teaching the alternative advertisement being unrelated to the advertisement. **Thus**, Plotnick's disclosure of utilizing an alternative advertisement, metadata, and information signals to render an unrelated alternative advertisement to the television instead of the default advertisement teaches "the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content," as claimed.
[1.4] the receiving device to render the secondary non-derivative content responsive to receipt of a request to	[1.4] *"the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content"* Plotnick teaches the "receiving device [rendering] the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content" because it discloses that when a subscriber fast forwards the advertisement, the

render the primary content at the receiving device at an accelerated speed of the primary content.	alternative advertisements is displayed. "If the video stream was recorded and <u>the subscriber 1260 fast forwards</u> 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260. <u>Displaying the alternative advertisement 1240 may be in place of or in conjunction with the fast forwarding advertisement 1230.</u> In effect, the PVR 1250 is switching between the two different video advertisements (advertisement 1230 and alternative advertisement 1240) that were received within the video stream." NTFX-1003, paragraph [0169] (emphasis added). **Thus**, displaying the alternative advertisement (the secondary non-derivative content) to the subscriber if the subscriber fast forwards the advertisement (primary content), as taught by Plotnick, discloses "the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content," as recited in the claim.
Claim 2	
[2.1] The system of claim 1, wherein the communication module communicates the primary content to the receiving device to store the primary content to a local storage device,	[2.1] *"wherein the communication module communicates the primary content to the receiving device to store the primary content to a local storage device"* Regarding the use of the local storage device, the '786 Patent states: "The local storage device 309 may include a circular buffer that includes both the memory 226 and the database 22. The circular buffer may be utilized by the receiving device 12 to store the primary content 32 and/or simulated primary content 238. For example, a user may be watching a movie and select a pause button on the remote control 20 to answer a telephone call. Responsive to selection of the pause button, the movie may be stored in the circular buffer. Subsequent to 60 completing the telephone call the user may select the play button on the remote control 20 to prompt the receiving device 12 to resume rendering of the move to the output device 18 by retrieving the movie from the circular buffer." The '786 Patent at 17:53-64.

First, Plotnick teaches that the receiving device has "a local storage device" because it teaches that the PVR-enabled set top box can store digital video programming and includes RAM, flash memory, and storage on a disk drive.

"FIG. 3 illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to <u>support upstream and downstream data transmission</u>, <u>digital television reception and presentation</u>, and <u>storage of digital video programming</u>." NTFX-1003, paragraph [0105] (emphasis added).

Further referring to FIG. 3: "<u>Random Access Memory (RAM) 314 and flash memory 316</u> are connected to processor 320 via a processor bus 318. Storage of programming is provided using a <u>disk drive 336</u> although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems." NTFX-1003, paragraph [0107] (emphasis added).
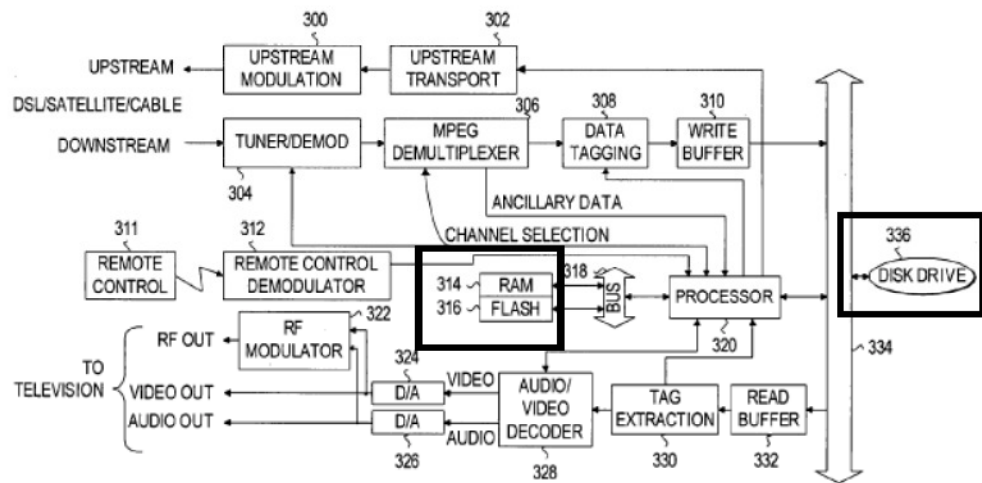

FIG. 3

NTFX-1003, Fig. 3 (annotated to show local storage devices).

Second, Plotnick teaches "the communication module communicates the primary content to store the primary content to as local storage device" because it teaches storing the recorded

	advertisement received from the server on the set-top PVR.

"The server side AMS 700 matches the ads to the advertising opportunities that occur in the package of programming either delivered to subscribers in real time **or stored on the subscriber's PVR hard disk drive**." NTFX-1003, paragraph [0142] (emphasis added).

Third, Plotnick teaches storing the primary content to the local storage device because it teaches storing or recording the advertisement on the PVR.

"Presenting viewers with an alternative brief version of a **recorded** advertisement when they choose to fast-forward through or skip (or any other trick play event) the **recorded** advertisement." NTFX-1003, Abstract (emphasis added).

"The PVR also includes functions that give a viewer the ability to manipulate live television programs by recording them simultaneously as they are being watched. This allows the viewer the ability to "pause" and have the program be recorded automatically (without hitting a Record button) and then resume watching the program by hitting Play. PVRs used to watch live programming allow the viewer to fast forward up to the current time, such that if pause was hit the viewer can return to the programming and advance through what was stored during the pause." NTFX-1003, paragraph [0099] (emphasis added).

Accordingly, the PVR system of Plotnick records primary content in either RAM, flash memory, or on a hard disk drive.

Thus, the PVR recording a paused program having original advertisements and the memory present on the set-top PVR as taught by Plotnick, is a teaching of "the communication module communicates the primary content to the receiving device to store the primary content to a local storage device," as recited in the claim. |
| [2.2] the | **[2.2]** *"the receiving device to retrieve the primary content from* |

receiving device to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content.	*the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content*"

Plotnick discloses "the receiving device to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content" because it teaches that the PVR retrieves the recorded advertisement and then rendering the advertisement to a television for playback at normal speed.

"With the advent of the personal video recorder (PVR) in any of its various forms that will be discussed in detail below, it is possible for the subscriber to record the programming and play it back in the future (potentially just a few minutes later) and fast forward through, or skip the advertisements." NTFX-1003, [0092] (emphasis added).

"Storage of programming is provided using a disk drive 336 although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems." NTFX-1003, paragraph [0107] (emphasis added).

"FIG. 1 is an exemplary illustration of programming 100 having advertisements 110, 120 inserted in advertisement opportunities (avails) within the programming 100." NTFX-1003, paragraph [0089] (emphasis added).

"The disk drive 336 is connected to the write buffer 310, processor 320, and a read buffer 332 through a system bus 334. The read buffer 332 buffers video to accommodate disk access." NTFX-1003, paragraph [0107].

"This allows the viewer the ability to "pause" and have the program be recorded automatically (without hitting a Record button) and then resume watching the program by hitting Play." NTFX-1003, paragraph [0099] (emphasis added). |

	Thus, recording programming, storing the programming on a disk drive, and then resuming the programming after recording it by reading the disk using the read buffer, as taught by Plotnick, discloses "the receiving device to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content" as recited in claim 2.
Claim 3	
[3.1] The system of claim 1, wherein the communication module is to associate the primary content to a secondary application that is utilized by the communication module to generate the secondary content.	[3.1] *"wherein the communication module is to associate the primary content to a secondary application that is utilized by the communication module to generate the secondary content."* The "**secondary application**" is defined by the '786 Patent, which states that it "may be an application that may be executed by the communication module 38 or the receiving device 12 to generate secondary content 56. For example, the secondary application may include an entertainment application 68 that may be executed by communication module 38 or the receiving device 12 to generate an entertainment recording 52 or an entertainment slide show 62." The '786 Patent at 8:58-65. **First,** Plotnick discloses "the communication module is to associate the primary content to a secondary application" because it teaches that servers such as head-end servers handle the delivery of targeted advertisements. In particular, the ad sales application is associated with the primary content to generate secondary non-derivative advertisements. "FIG. 11 illustrates an exemplary data flow in an <u>ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box</u>. This system includes different <u>head-end servers</u> that are used to segment the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"The alternative advertisement 1240 may be delivered to the PVR 1250 in order to be received at the same time (or close proximity) to the advertisement 1230 or may be delivered at completely separate times, such as during off hours." NTFX-1003, paragraph [0174].

Second, Plotnick discloses "a secondary application that is utilized by the communication module to generate the secondary content" because it teaches an "ad sales application" that generates alternative advertisements based on a specific customer's advertisement targeting criteria. The ad sales application is part of the Ad Management System (AMS) server and generates the alternative advertisements (secondary content).

With regard to the communication module's "ad server", Plotnick teaches:

> "An ad server 716 stores and distributes all of the advertisements for a particular set of subscribers." NTFX-1003, paragraph [0144].

> "The targeted advertising features of the server side AMS 700 support and manage all of the head-end/CO activities required to facilitate the targeting of television advertising (sic.) on PVR-enabled set-top boxes (STB PVRs)." NTFX-1003, paragraph [0143].

> "The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154". NTFX-1003, paragraph [0164] (emphasis added).

And Plotnick teaches an "ad sales application" that runs on the "ad server":

> "The ad sales application 720 assists the sales force in selling targeted spots to advertisers." NTFX-1003, paragraph [0162] (emphasis added).

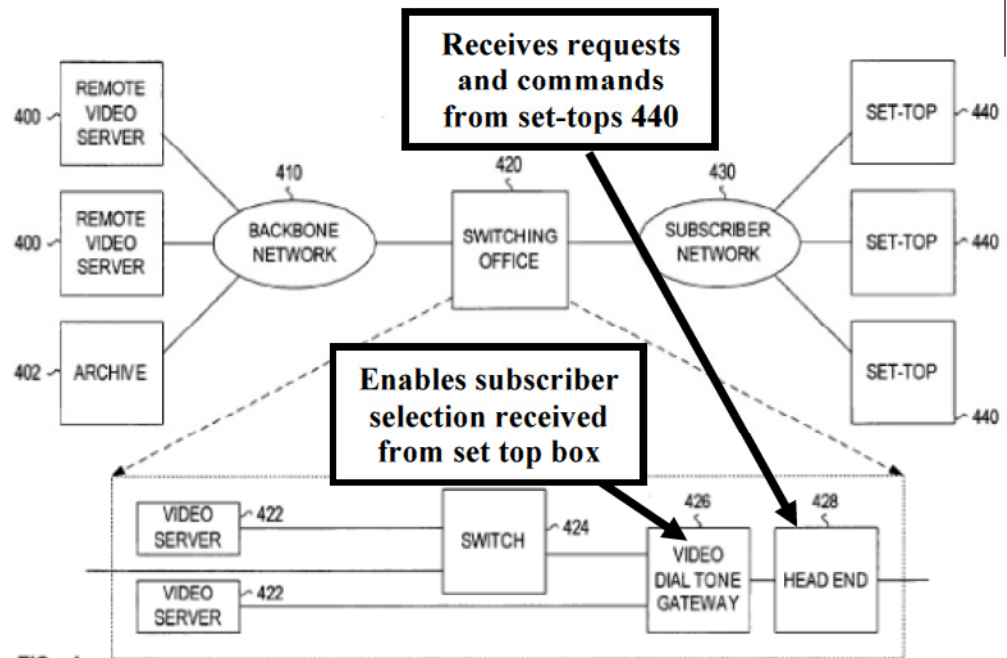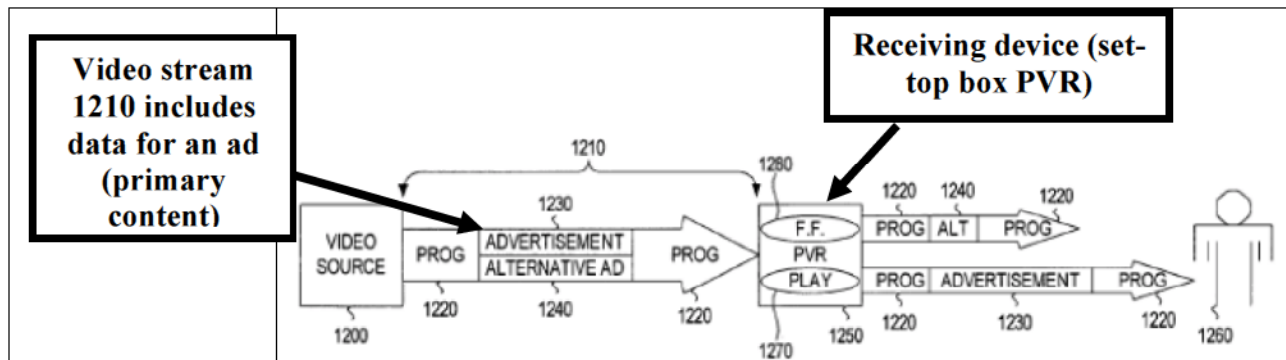|	
	"The process aggregates similar profiles to create a privacy-protected view of the households by region 1150. <u>The ad sales application</u> 720 uses this data 1150 to help determine the target audience of advertisements." NTFX-1003, paragraph [0163] (emphasis added).
	"Depending on the criteria used to target the advertisements 1230 and alternative advertisements 1240, it is possible for different nodes, households or subscribers 1260 to receive <u>the same targeted advertisement 1230</u> but different targeted alterative advertisements 1240." NTFX-1003, paragraph [0171].
	Thus, the targeting of advertisements by the ad sales application of the ad server, and the generating of targeted alternative advertisements, as taught by Plotnick, are a teaching of "wherein the communication module is to associate the primary content to a secondary application that is utilized by the communication module to generate the secondary content," as recited in claim 3.
Claim 4	
[4.0] A method including: receiving a request for primary content;	[4.0] *"receiving a request for primary content"*
	Plotnick discloses "receiving a request for primary content" because it teaches that the head-end system server and video dial tone gateway, together forming a part of the switching office, receive requests for video content.
	Referring to Fig. 4 - "The switch 424 is used to direct traffic to the video dial tone gateway 426 that provides a subscriber interface…. In operation, the video dial tone gateway 426 can present the subscriber with <u>a menu for services which can guide the subscriber through the sources for video</u>…. <u>The video dial tone gateway 426 thus insures that the subscriber can select the appropriate video content</u>…." NTFX-1003, paragraph [0112] (emphasis added).

FIG. 4

NTFX-1003, Fig. 4 (annotated).

The head end 428 is between the video dial tone gateway 426 and the set-top boxes 440.

"The head-end system 428 represents the set of equipment that is needed to deliver the advertisement over the specific delivery platform in the subscriber network 430. The subscriber network 430 may be a cable system based on Hybrid Fiber Coaxial (HFC) technology....For a HFC network, there will typically also be a return channel that may consist of a DOCSIS based modem in the set-top and corresponding Cable Modem Termination System (CMTS) in the head-end 428. The return channel transports requests and commands from the set-tops 440 to the head-end system 428. Alternative downstream modulation formats and return paths can be utilized." NTFX-1003, paragraph [0113] (emphasis added).

Thus, providing a subscriber interface to present the subscriber with a menu to insure that the subscriber can select the appropriate video content, as taught by Plotnick, and/or the transport of requests and commands from the set-top boxes, as

	taught by Plotnick, discloses "receiving a request for primary content" as recited in the claim.
[4.1] communicating primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content;	**[4.1]** *"communicating primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content"* **First**, Plotnick discloses "communicating primary content to a receiving device" because it discloses a program source that transmits a program stream with an advertisement to a PVR. "**Primary Content**" is defined by the '786 Patent to mean "content that may be played on a receiving device or interacted with on a receiving device. Primary content may include but is not limited to entertainment content and advertisement content. Further, primary content may include video content 30 and/or audio content and/or associated metadata." The '786 Patent at 3:26-31. "FIG. 12A illustrates an embodiment where <u>a program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both <u>an advertisement</u> 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250. The video source 1200 may be a satellite, a head-end, a networked video server, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art. The PVR 1250 may be a HE PVR, a STB PVR, some combination of a HE/STB PVR, or some type of video source server (i.e., DVD). The video stream 1210 may be transmitted from the video source 1200 to the PVR 1250 using a video delivery system, such as those previously discussed." NTFX-1003, paragraph [0167] (emphasis added).

NTFX-1003, Fig. 12A (annotated).

Accordingly, the system of Plotnick communicates primary content, as an advertisement, to a receiving device.

Second, Plotnick discloses "the receiving device to render the primary content to an output device at a normal speed of the primary content" because it teaches that the PVR plays the advertisement at a normal speed.

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260 if the video stream 1210 was either not recorded or if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270." NTFX-1003, paragraph [0169] (emphasis added).

"The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107].
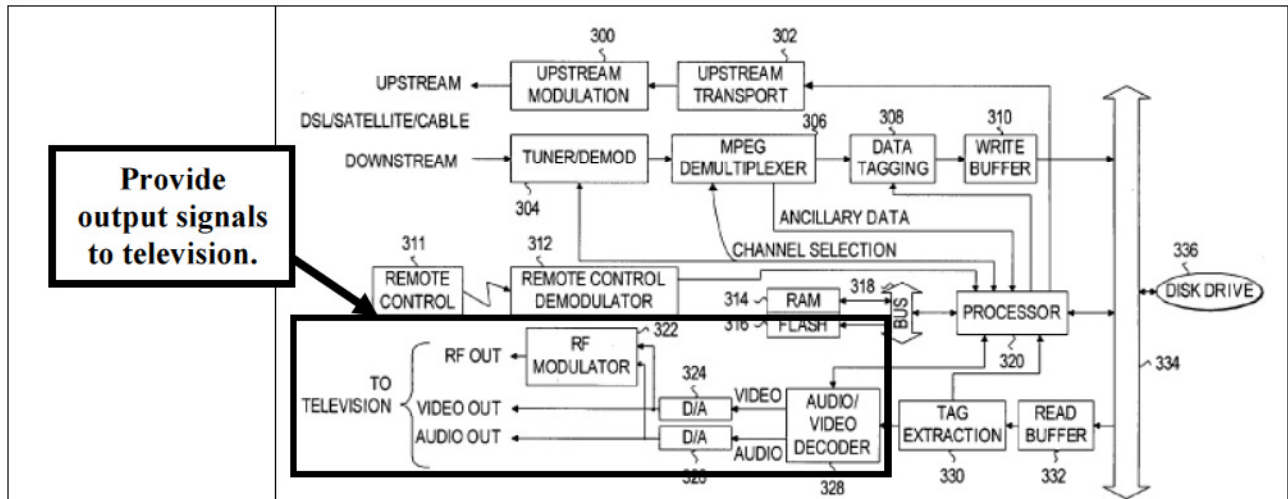
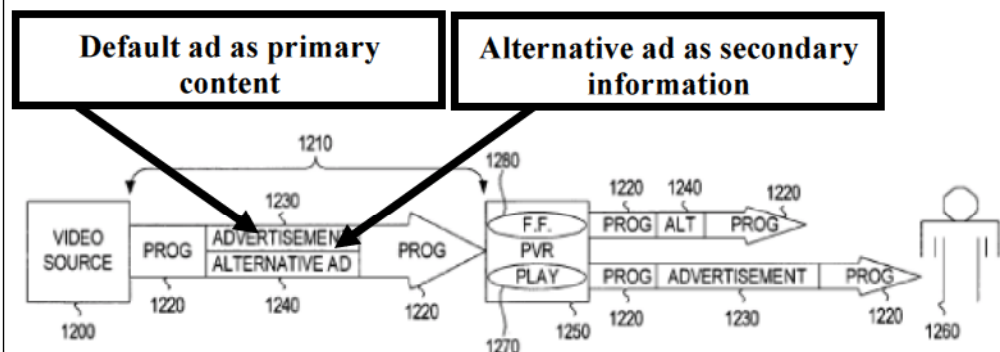|	
	  Provide output signals to television. **FIG. 3** NTFX-1003, Fig. 3 (annotated to show output to television). **Thus**, delivering the programming and advertisement in the video stream to the PVR and displaying the programming and advertisement back at normal speed on a television, as taught by Plotnick, discloses "communicating primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content" as recited in claim element 4.1.
[4.2] associating the primary content to secondary information,	[4.2] *"associate the primary content to secondary information"* **"Secondary Information"** is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41. Plotnick discloses a communication module to "associate the primary content to secondary information" because it teaches associating multiple types of information to the primary advertising content. For example, Plotnick discloses associating each of the following to the primary content: an alternative advertisement, metadata used to access secondary content, and information signals communicated to the PVR used to generate secondary content. Each of these meet the definition of for "secondary information" defined to "include secondary content, information to generate secondary content or information to

access secondary content."

With respect to an alternative advertisement, Plotnick teaches "associating the primary content to secondary information" when it teaches associating the alternative advertisement with the default advertisement in a common data stream.

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and both an advertisement 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).

NTFX-1003, Fig. 12A (annotated).

Thus, Plotnick's disclosure of combining the advertisement 1230 and an alternative advertisement 1240 into a common video stream is a teaching of "associating the primary content to secondary information."

With respect to metadata, Plotnick teaches "associating the primary content to secondary information" when it teaches associating the default advertisement with ad metadata used to access the alternative advertisement.

"FIG. 11 illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box. This system includes different head-end servers that are used to segment

the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"An IPG Server 1114 delivers interactive program guide information in the form of program metadata 1116. A broadcast conduit 1118 receives program metadata from broadcasters and content providers and deliver the program metadata 1120. The program metadata (from both sources) 1116, 1120 is collected and processed 1122. The processing 1122 includes combining the program metadata from the different sources 1116, 1120 and formatting it for delivery to the set-top boxes. The program metadata 1116, 1120 includes program content, language information, ratings, encoding attributes, networks and air times, delivery requirements, and pricing. The formatted <u>program metadata 1124 is sent to the STB data server 1112, which transmits it to the appropriate set-top boxes</u>." NTFX-1003, paragraph [0160] (emphasis added).

The ad metadata includes times for displaying the advertisements and therefore includes information about when to generate secondary data. The metadata is sent in the video stream and therefore is transmitted or associated with the primary advertisement:

"The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and **times for displaying the advertisement (ad campaign data 1152).** Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716

determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. <u>The ad server 716 transmits **available ads and ad metadata** to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and <u>both an advertisement 1230 and an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).

Thus, Plotnick's disclosure of joining ad metadata for secondary content with default advertisements is a teaching of "associate[ing] the primary content to secondary information."

With respect to information signals, Plotnick teaches "associating the primary content to secondary information" when it teaches sending, with the default advertisement, information signals used to generate the alternative advertisement.

"In the case of a telephone type network based on DSL technology, the <u>head-end system 428…receives video signals and prepares them for transmission to field located distribution equipment</u> in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries <u>a signal from the switching office 420 to a terminal</u> located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network <u>the signals can be transported to the set-top 440</u> over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and <u>both an advertisement 1230 and an alternative advertisement 1240</u> (in a preferred

embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).
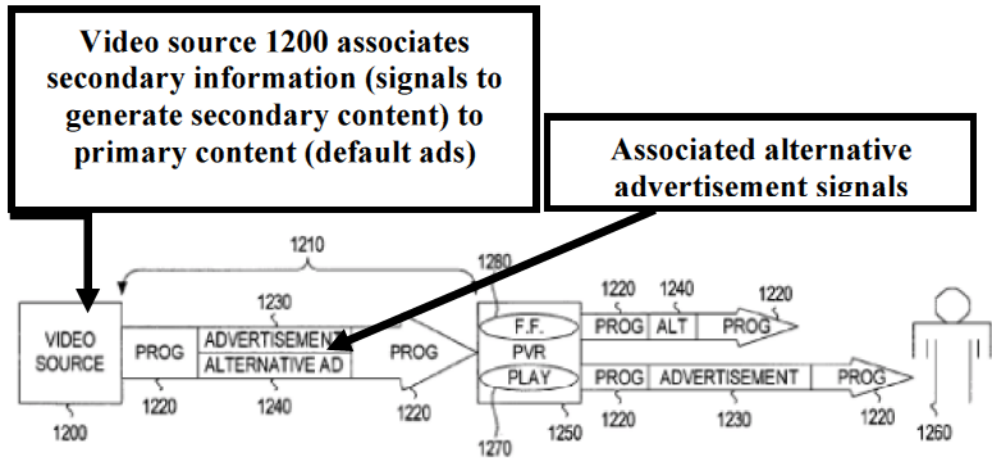

NTFX-1003, Fig. 12A (annotated).

In addition, Plotnick teaches "associating the primary content to secondary information" because it teaches streaming of signals representing the default advertisement and the alternative advertisement to the same target audience.

Specifically, Plotnick teaches the communication module (for example, which includes advertisement servers) sends signals that target advertisements to subscribers, and associate targeted advertisements (primary content) with targeted alternative advertisements (secondary content):

"It should be noted that the advertisement 1230 and the alternative advertisement 1240 may be default advertisements (everybody connected to that video delivery system receives the same advertisement) **or they may be targeted advertisements.** The advertisements may be targeted based on geodemographics (i.e., node or cluster of nodes), household (i.e., STB PVR), or individual (session based). … **Depending on the criteria used** to target the advertisements 1230 and alternative advertisements 1240**, it is possible for different nodes, households or subscribers 1260 to receive the same targeted advertisement 1230 but different targeted alternative (sic.) advertisements 1240**." NTFX-1003, paragraph [0171] (emphasis added).

"FIG. 11 illustrates an exemplary data flow in an <u>ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box</u>. This system includes different head-end servers that are used to segment the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"The targeted advertising features of the <u>server side AMS 700</u> support and manage all of the head-end/CO activities required to <u>facilitate the targeting of television adverting on PVR-enabled set-top boxes (STB PVRs)</u>. The functionality of the server side AMS 700 includes market segmentation, geodemographic database management, viewing statistics collection, profile aggregation, ad server content and distribution management, content metadata management, STB software management, interface to traffic and billing systems, and support of the ad sales process." NTFX-1003, paragraph [0143] (emphasis added).

"An ad server 716 stores and distributes all of the advertisements for a particular set of subscribers." NTFX-1003, paragraph [0144].

"Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added).

Thus, transmitting information that is, used to generate, or used to access the alternative advertisement 1240, as taught by Plotnick, are teachings of "associating the primary content to secondary information," as recited in the claim.

[4.3(a)] communicating the secondary information to the receiving device,	[4.3(a)] *"communicating the secondary information to the receiving device"* Plotnick teaches "communicat[ing] the secondary information to the receiving device." As explained above, Plotnick teaches communicating many different types of secondary information to the PVR. For example, it teaches communicating the alternative advertisement, the metadata, and information signals representing alternative advertisement to the PVR. "FIG. 12A illustrates an embodiment where a <u>program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both an advertisement 1230 and <u>an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) <u>to a PVR 1250</u>." NTFX-1003, paragraph [0167] (emphasis added). "In the case of a telephone type network based on DSL technology, the head-end system 428…<u>receives video signals and prepares them for transmission to field located distribution equipment</u> in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the <u>fiber carries a signal</u> from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network <u>the signals can be transported</u> to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added). "Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added).

	Thus, communicating information that: is the alternative advertisement, is used to generate the alternative advertisement, or is used to access the alternative advertisement, as taught by Plotnick, is a teaching of "communicat[ing] the secondary information to the receiving device," as recited in the claim.
[4.3(b)] the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content,	[4.3(b)] *"the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content"* As stated above, "**secondary information**" is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41. "**Non-Derivative Secondary Content**" is defined by the '786 Patent to mean "secondary content that is not generated from the associated primary content. For example, non-derivative secondary content does not include samples (*e.g.*, audio and/or visual) from the associated primary content." The '786 Patent at 3:47-51; *supra* ¶28. **First**, Plotnick teaches that its PVR utilizes secondary information, such as the alternative advertisement, the ad metadata, and the information signals to render the alternative advertisement to a television instead of the default advertisement. **With respect to the alternative advertisement as the secondary information**, Plotnick teaches that its PVR utilizes the alternative advertisement when it renders the alternative advertisement: "The PVR 1250 will display the advertisement 1230 to a subscriber 1260…if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270. If the video stream was recorded and the subscriber 1260 fast forwards 1280

(or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003, Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement…" NTFX-1003, Abstract.

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

With respect to the metadata as the secondary information, Plotnick teaches that its PVR utilizes the metadata when it renders the alternative advertisement:

"The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and times for displaying the advertisement (ad campaign data 1152). Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156.

The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>. **If the ads are displayed to the subscriber**, the STB data server 1112 generates an ad play report 1160." NTFX-1003, paragraph [0164] (emphasis added).

The metadata is used to identify program information that includes advertisements:

> "FIG. 3 illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to support upstream and downstream data transmission, digital television reception and presentation, and storage of digital video programming. The system contains a tuner/demod 304 that provides for the reception of programming and data. In some systems (such as cable systems) multiple demodulators may be used to provide simultaneous delivery of digital video/audio (MPEG) and Internet Protocol (IP) data. An MPEG demultiplexer 306 selects (filters) a single program from a multiple program stream. The MPEG demultiplexer 306 may contain a transport stream demultiplexer, Program Identifier (PID) filters, and a conditional access system. A data tagging unit 308 adds metadata descriptors to video to be recorded. **The metadata is used by the PVR to identify and characterize programs**. A write buffer 310 buffers video to accommodate disk access." NTFX-1003, paragraph [0105] (emphasis added).

The metadata can include descriptors identifying the secondary content:

> "Random Access Memory (RAM) 314 and flash memory 316 are connected to processor 320 via a processor bus 318. Storage of programming is provided using a disk drive 336 although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems.

The disk drive 336 is connected to the write buffer 310, processor 320, and a read buffer 332 through a system bus 334. The read buffer 332 buffers video to accommodate disk access. **A tag extraction system 330 extracts metadata descriptors from recorded video**. An audio/video decoder 328 decodes digital video and audio, examples of which are MPEG video and MPEG/AC-3 audio. The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

The metadata can include information identifying the viewer which is then used to select one of multiple alternative advertisements:

"The STB Data Server 1112 generates viewer profiles 1146 based on historical data of television viewing habits (**collected metadata**)." NTFX-1003, paragraph [0163] (emphasis added).

"According to one embodiment, the video stream 1210 may include multiple alternative advertisements 1240, and the PVR 1250 determines which alternative advertisement 1240 to display to the subscriber 1260 based on which subscriber 1260 (individual subscriber or group of subscribers) the PVR 1250 determines is interacting with (i.e., viewing) the video stream 1210. That is, the alternative advertisement 1240 is targeted to the subscriber 1260 (regardless of whether the advertisement 1230 was a default ad or was targeted)." NTFX-1003, paragraph [0172] (emphasis added).

With respect to information signals representing the alternative advertisement as secondary information, Plotnick teaches that its PVR utilizes the **information signals** when it renders the alternative advertisement to the set top box, and then ultimately to a television:

"In the case of a telephone type network based on DSL technology, the head-end system 428…receives video signals and prepares them for transmission to field located distribution equipment in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries a signal from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network the signals can be transported to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003, Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement…" NTFX-1003, Abstract.

Accordingly, Plotnick teaches that information about the alternative advertisement (such as the alternative advertisement,

metadata, and information signals such as video and audio signals that represent the alternative advertisement) are used to modulate the advertisement onto the TV connected to the PVR instead of the default advertisement.

Second, Plotnick teaches the "secondary non-derivative content not being derived from the primary content." Specifically, Plotnick teaches that the alternative advertisement can be "unrelated" to the default advertisement.

"FIGS. 12A-B illustrate several exemplary embodiments associated with the alternative advertisement being a <u>separate video</u> (and thus potentially <u>an alternative advertisement unrelated to the advertisement</u>)." NTFX-1003, paragraph [0167] (emphasis added).

"However, it is also possible that the alternative advertisements 230, 240 are not related to the recorded advertisements 110, 120, and may actually be an advertisement for a different product or service. The <u>alternative advertisements 230, 240 may be a separate video (preferred for non-related advertisements)</u> or may be derived from the video for the recorded advertisements 110, 120." NTFX-1003, paragraph [0166] (emphasis added).

Accordingly, the alternative advertisement unrelated to the advertisement, as taught by Plotnick, discloses the secondary non-derivative content not being derived from the primary content by teaching the alternative advertisement being unrelated to the advertisement.

Thus, Plotnick's disclosure of utilizing an alternative advertisement, metadata, information signals, and ad targeting information to render an unrelated alternative advertisement to the television instead of the default advertisement teaches "the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content," as claimed.

[4.3(c)] the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content.	[4.3(c)] " *the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content"* Plotnick teaches "the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content" because it teaches a PVR that renders a substitute advertisement, that is unrelated to a default advertisement, instead of the default advertisement in response to a fast-forward request. "If the video stream was recorded and <u>the subscriber 1260 fast forwards</u> 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260. <u>Displaying the alternative advertisement 1240 may be in place of or in conjunction with the fast forwarding advertisement 1230.</u> In effect, the PVR 1250 is switching between the two different video advertisements (advertisement 1230 and alternative advertisement 1240) that were received within the video stream." NTFX-1003, paragraph [0169] (emphasis added). **Accordingly**, the system of Plotnick renders the secondary non-derivative content responsive to a receipt of a user/subscriber's request to render the primary content at an accelerated speed by displaying the alternative advertisement in place of the fast forwarded advertisement. **Thus**, displaying the alternative advertisement (the secondary non-derivative content) to the subscriber if the subscriber "fast forwards" the advertisement (primary content), as taught by Plotnick, discloses "the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content," as recited in the claim.
Claim 5	

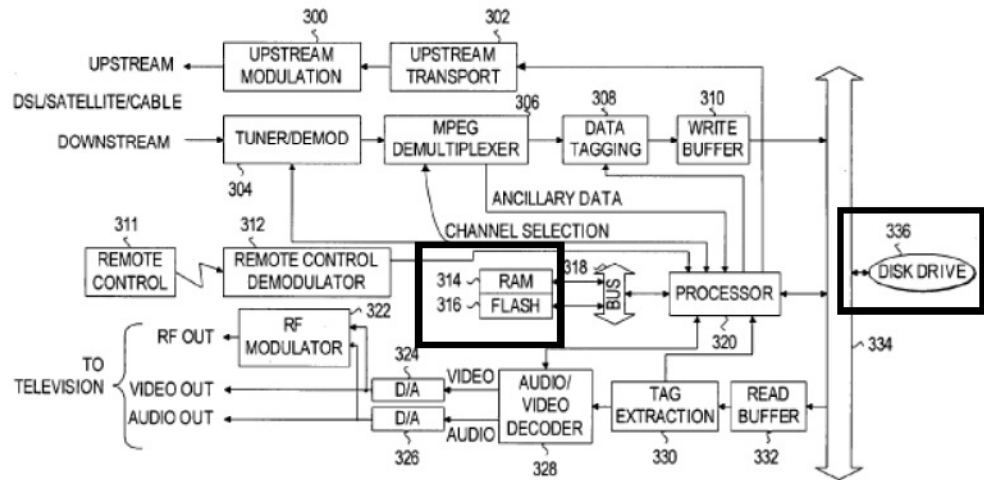|	
[5.1] The method of claim 4, wherein the communicating the primary content to the receiving device includes the receiving device to store the primary content to a local storage device,	[5.1] *"wherein the communicating the primary content to the receiving device includes the receiving device to store the primary content to a local storage device"* Regarding the use of the local storage device, the '786 Patent states: "The local storage device 309 may include a circular buffer that includes both the memory 226 and the database 22. The circular buffer may be utilized by the receiving device 12 to store the primary content 32 and/or simulated primary content 238. For example, a user may be watching a movie and select a pause button on the remote control 20 to answer a telephone call. Responsive to selection of the pause button, the movie may be stored in the circular buffer. Subsequent to 60 completing the telephone call the user may select the play button on the remote control 20 to prompt the receiving device 12 to resume rendering of the move to the output device 18 by retrieving the movie from the circular buffer." The '786 Patent at 17:53-64. **First,** Plotnick discloses "the receiving device to store the primary content to a local storage device" because it teaches that the PVR-enabled set top box stores digital video programming and includes RAM, flash memory, and storage on a disk drive. "FIG. 3 illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to <u>support upstream and downstream data transmission</u>, <u>digital television reception and presentation</u>, and <u>storage of digital video programming</u>." NTFX-1003, paragraph [0105] (emphasis added). Further referring to FIG. 3: "<u>Random Access Memory (RAM) 314 and flash memory 316</u> are connected to processor 320 via a processor bus 318. Storage of programming is provided using a <u>disk drive 336</u> although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems." NTFX-1003, paragraph [0107] (emphasis added).

FIG. 3

NTFX-1003, Fig. 3 (annotated to show local storage devices).

Second, Plotnick discloses "communicating the primary content to the receiving device includes the receiving device to store the primary content to a local storage device" because it teaches transmission of the default advertisement and storing the recorded advertisement on the set-top PVR.

"The server side AMS 700 matches the ads to the advertising opportunities that occur in the package of programming either delivered to subscribers in real time **or stored on the subscriber's PVR hard disk drive**." NTFX-1003, paragraph [0142] (emphasis added).

Third, Plotnick discloses storing the primary content because it teaches storing the default advertisement.

"Presenting viewers with an alternative brief version of a **recorded** advertisement when they choose to fast-forward through or skip (or any other trick play event) the **recorded** advertisement." NTFX-1003, Abstract (emphasis added).

"The PVR also includes functions that give a viewer the ability to manipulate live television programs by recording them simultaneously as they are being watched. This allows the viewer the ability to "pause" and have the program be recorded

	automatically (without hitting a Record button) and then resume watching the program by hitting Play. PVRs used to watch live programming allow the viewer to fast forward up to the current time, such that if pause was hit the viewer can return to the programming and advance through what was <u>stored during the pause</u>." NTFX-1003, paragraph [0099] (emphasis added). **Accordingly**, the PVR system of Plotnick records primary content in either RAM, flash memory, or on a hard disk drive. **Thus**, the PVR recording a program as taught by Plotnick, discloses "the communicating primary content to the receiving device includes the receiving device to store the primary content to a local storage device," as recited in the claim.
[5.2] and to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content.	**[5.2] *"and to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content"*** Plotnick teaches the receiving device to "retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content" because it teaches a PVR that retrieves and plays a recorded advertisement at a normal speed. Particularly, Plotnick teaches a PVR that records programming on a disk drive and plays back programming from the disk drive in a manner allowing a viewer to skip advertisements. "With the advent of the personal video recorder (PVR) in any of its various forms that will be discussed in detail below<u>, it is possible for the subscriber to record the programming and play it back</u> in the future (potentially just a few minutes later) and fast forward through, or skip the advertisements." NTFX-1003, [0092] (emphasis added). "Storage of programming is provided using a <u>disk drive 336</u> although other types of high-capacity non-volatile memories may

be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems." NTFX-1003, paragraph [0107] (emphasis added).

"FIG. 1 is an exemplary illustration of programming 100 <u>having advertisements 110, 120 inserted in advertisement opportunities (avails) within the programming 100</u>." NTFX-1003, paragraph [0089] (emphasis added).

"The disk drive 336 is connected to the write buffer 310, processor 320, and a read buffer 332 through a system bus 334. The read buffer 332 buffers video to accommodate disk access. NTFX-1003, paragraph [0107].

"This allows the viewer the ability to "pause" and have the program be recorded automatically (without hitting a Record button) and <u>then resume watching the program by hitting Play</u>." NTFX-1003, paragraph [0099] (emphasis added).

Thus, recording programming, storing the programming on a disk drive, and then resuming the program after recording it by reading the disk using the read buffer, as taught by Plotnick, discloses "the receiving device to retrieve the primary content from the local storage device before the receiving device is to render the primary content to the output device at the normal speed of the primary content" as recited in claim 5.

Claim 6	
[6.1] The method of claim 4, wherein the request includes a trick mode request	[6.1] *"the request includes a trick mode request"* Plotnick discloses a request including a trick mode request when it teaches that a subscriber can "fast forward" or perform "any other trick-play event" to initiate showing of the alternative advertisement. "If the video stream was recorded and <u>the subscriber 1260 fast forwards</u> 1280 <u>(or any other trick-play event)</u> the advertisement

1230, the alternative advertisement 1240 will be displayed to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).
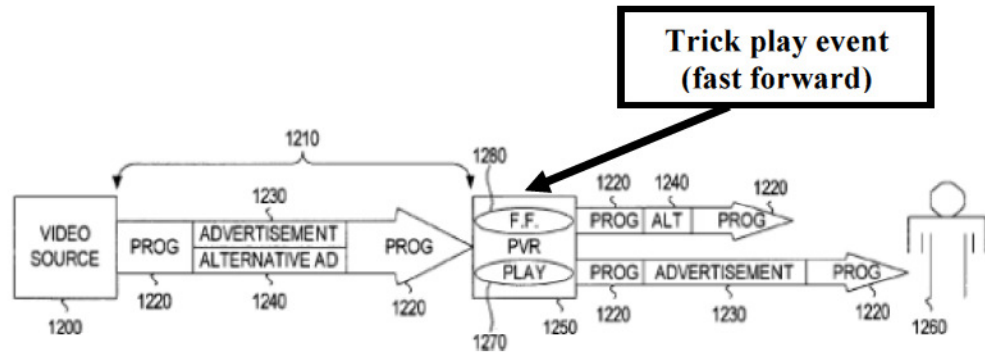
NTFX-1003, Fig. 12A annotated

Accordingly, the methods of Plotnick include requests that are requests or commands for trick-play events.

Thus, trick-play event as taught by Plotnick discloses "wherein the request includes a trick mode request" as recited in claim 6.

| [6.2] and wherein the trick mode request includes any one from a group of trick mode requests including a fast forward request and a rewind request. | **[6.2]** **_"the trick mode request includes any one from a group of trick mode requests including a fast forward request and a rewind request"_**

Plotnick discloses "the trick mode request includes any one from a group of trick mode requests including a fast forward request and a rewind request" because it teaches that "trick play events" that initiate a showing of an alternative advertisement may be a fast forward request or may be rewind request.

"Referring back to FIG. 2, the alternative advertisements 230, 240 are displayed in place of or in conjunction with the fast forwarding, rewinding, skip or pausing advertisements 210, 220, when the subscriber fast forwards, rewinds, skips or pauses (trick play events) through the recorded advertisements 110, 120." NTFX-1003, paragraph [0166] (emphasis added).

Thus, the fast forward and rewind trick play events, as taught by |

	Plotnick, discloses "wherein the trick mode request includes any one from a group of trick mode requests including a fast forward request and a rewind request" as recited in claim 6.

Challenge #2: Claim 7 is obvious in view of Plotnick and Eldering

33.   It is my understanding that there are many legal bases under which two prior art references could be combined. It is my opinion that a person of ordinary skill in the art would have found it obvious to combine the system and method of Plotnick with elements of Eldering because the combination amounts to combining prior art elements according to known methods to yield predictable results.

34.   The teachings of Plotnick are described above. Eldering supplements the teachings of Plotnick by explicitly teaching "software" on a server as a tangible machine readable medium storing a set of instructions, as recited in the preamble of claim 7 of the '786 Patent. To the extent that Plotnick does not explicitly state that it includes software on its system, Eldering teaches an ad management system that includes software on its server. Therefore, to the extent that Plotnick's "streaming server" does not explicitly include software, Eldering makes clear that servers can include software.

35.   Eldering discloses a server with software that manages insertion of

targeted advertisements into avails within a program based on specific ad and target parameters. NTFX-1004, Abstract. Eldering discloses that its ad management system, like the Plotnick system, operates on server-based technology and explicitly states that its ad management system is realized in a machine readable medium as software. NTFX-1004, 9:66-10:9.

36. One of ordinary skill in the art would have found it obvious to combine Plotnick and Eldering. Both Plotnick and Eldering discuss systems that manage and insert advertisements into programs. Eldering, however, supplements the teachings of Plotnick to explicitly indicate that its system runs on a machine readable medium as server-based software. Furthermore, Eldering is incorporated by reference into Plotnick (see NTFX-1003, para. [0015].) In fact, per para. [0015] of NTFX-1003, Eldering further describes the AMS ("Ad Management System") server previously discussed above. Combining the two references would have been no more than the combination of prior art elements according to known methods to yield predictable results, and would have been obvious. Further, one of ordinary skill in the art would have been motivated to make the combination, as the two references are related. Plotnick incorporates Eldering by reference in paragraph [0015].

37. At the time of the invention of the '786 Patent, it was known that running the software on the server can be more secure than a system having the

software elsewhere in the system. For example, the server-side software may be more resistant to customer tampering than software on the client side. This security results in a more stable and therefore more reliable system. Furthermore, from my experience, it was critical to minimize cost of the customer premise equipment (i.e., set-top boxes) so as a result we put such software and processing power within servers rather than building such complexity and subsequent added cost into each and every set-top box. In addition, server-side software is easier to maintain, upgrade, and troubleshoot than client-side software.

38. Accordingly, it is my opinion that one of ordinary skill in the art would have been motivated to combine the explicitly disclosed machine readable medium that stores software executable by a machine on a server, as explicitly taught by Eldering, with Plotnick's ad management system. The combination of Plotnick's system with Eldering's disclosure of software for its system would yield the predictable and desirable result of increasing security, reliability, lower cost, and maintainability because the Plotnick AMS would be more completely under the control of the administrator. Further, using software for Plotnick's system would be simple since Plotnick already has a server based system, but does not explicitly teach "software."

39. It is therefore my opinion that a person of ordinary skill in the art would find that Plotnick in view of Eldering renders obvious each and every

element of at least claim 7.

40. The following claim chart describes how Plotnick in view of Eldering renders obvious each and every element of at least claim 7.

Claim 7	
[7.0] A tangible machine readable medium storing a set of instructions that, when executed by a machine, cause the machine to:	[7.0] *"A tangible machine readable medium storing a set of instructions that, when executed by a machine, cause the machine to:"* Regarding the term "machine-readable medium" the '786 Patent states that the term "shall accordingly be taken to include, but not be limited to, <u>solid-state memories, optical and magnetic media,</u> and carrier wave signal." And also that "the term 'machine-readable medium' should be taken to include a single medium or multiple media (e.g., a centralized or distributed database, and/or associated caches and <u>servers</u>) that store the one or more sets of instructions." The '786 Patent at 32:51-64 (emphasis added). Plotnick in combination with Eldering teaches "A tangible machine readable medium storing a set of instructions that, when executed by a machine." **First**, Plotnick teaches a server-type system including a video source 1200 that transmits advertisements and alternative advertisements. "FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and both an advertisement 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250. The video source 1200 may be a satellite, a head-end, a networked video server, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art." NTFX-1003, paragraph [0167].

Second, Plotnick teaches that the video source 1200 includes, for example, the server side ad management system (AMS) 700, which includes ad server 716, VOD server 1172, and other components, as shown in FIG. 11 and FIG. 7. Ad management system server 700 provides advertisements and alternative advertisements.

"The targeted advertising features of **the server side AMS 700 support and manage all of the head-end/CO activities required to facilitate the targeting of television adverting on PVR-enabled set-top boxes** (STB PVRs)." NTFX-1003, paragraph [0143] (emphasis added).

"FIG. 11 illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box;" NTFX-1003, paragraph [0080].

Third, Plotnick and Eldering (which Plotnick incorporates by reference), discloses "A tangible machine readable medium storing a set of instructions that, when executed by a machine" because Eldering teaches an ad management server that executes software, which is a set of instructions that cause a machine to perform certain steps when executed.

Regarding the term "instructions," the '786 Patent states that "disk drive unit 616 includes a machine-readable medium 622 on which is stored one or more sets of instructions (e.g., software 624) embodying any one or more of the methodologies or functions described herein. The '786 Patent at 32:40-43 (emphasis added).

Eldering is U.S. Patent No. 6,820,277, issued November 16, 2004 from U.S. Patent Application No. 09/553,637, which is prior art under 35 U.S.C. § 102(b).

"In a preferred embodiment, the AMS 100 is implemented on server based technology. As an example, processors provided by Intel under the trademark PENTIUM can be used in a single

	processor or multiple processor configuration. The operating system offered by Microsoft Corporation under the trademark WINDOWS NT SERVER can be used as the basis for the platform. The **AMS 100 can be realized in a software means** in a number of programming languages including but not limited to Java, C, and C++. In one embodiment the portions of the system which interface to the Internet are based on Java and Java scripts." NTFX-1004, 9:66-10:9 (emphasis added).
	One of ordinary skill in the art would recognize that an ad management server executing software instructions by one or more processors, as taught by Eldering, would read those instructions from a tangible machine readable medium.
	One of ordinary skill in the art would have found it obvious to combine Plotnick and Eldering. Both Plotnick and Eldering discuss ad management servers, with Eldering specifically discussing that the ad management server may be software-based. Combining the two references would have been no more than the combination of prior art elements according to known methods to yield predictable results, and would have been obvious. Further, one of ordinary skill in the art would have been motivated to make the combination, as the two references are related. Plotnick incorporates Eldering by reference in paragraph [0015].
	Thus, Plotnick in view of Eldering, disclose a tangible machine readable medium storing a set of instructions that, when executed by a machine, cause the machine to perform certain steps as recited in claim 7.
[7.1] receive a request for primary content;	[7.1] *"receive a request for primary content"* Plotnick teaches "receiv[ing] a request for primary content" because it teaches that its system allows a subscriber to select the appropriate video content and that the return channel transports requests from the set top box to the system. Referring to Fig. 4 - "The switch 424 is used to direct traffic to

the video dial tone gateway 426 that provides a subscriber interface…. In operation, the video dial tone gateway 426 can present the subscriber with a menu for services which can guide the subscriber through the sources for video…. <u>The video dial tone gateway 426 thus insures that the subscriber can select the appropriate video content</u>….” NTFX-1003, paragraph [0112] (emphasis added).
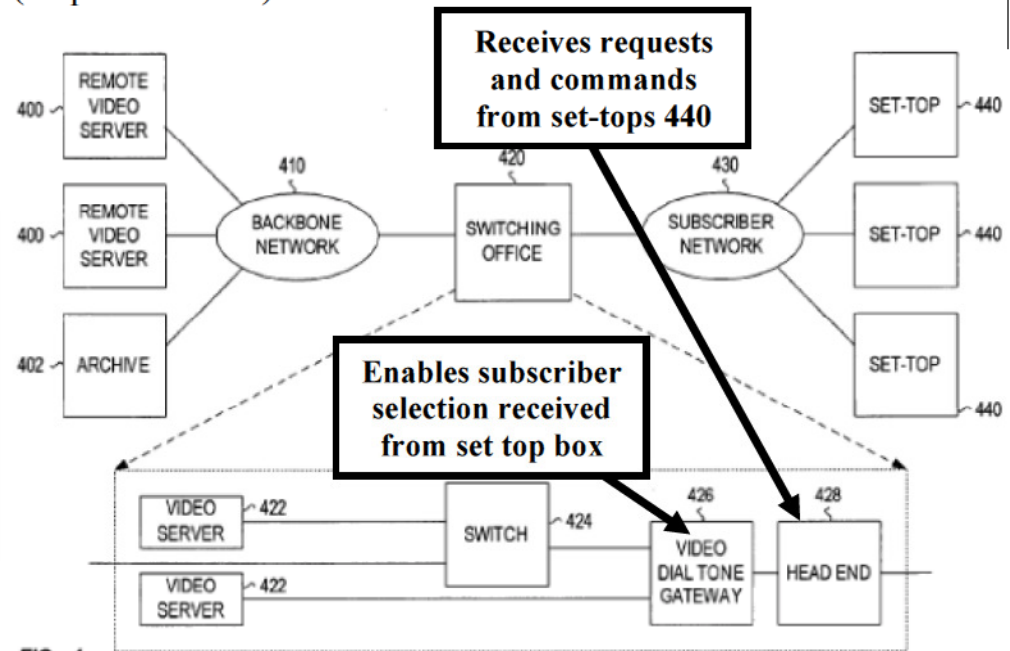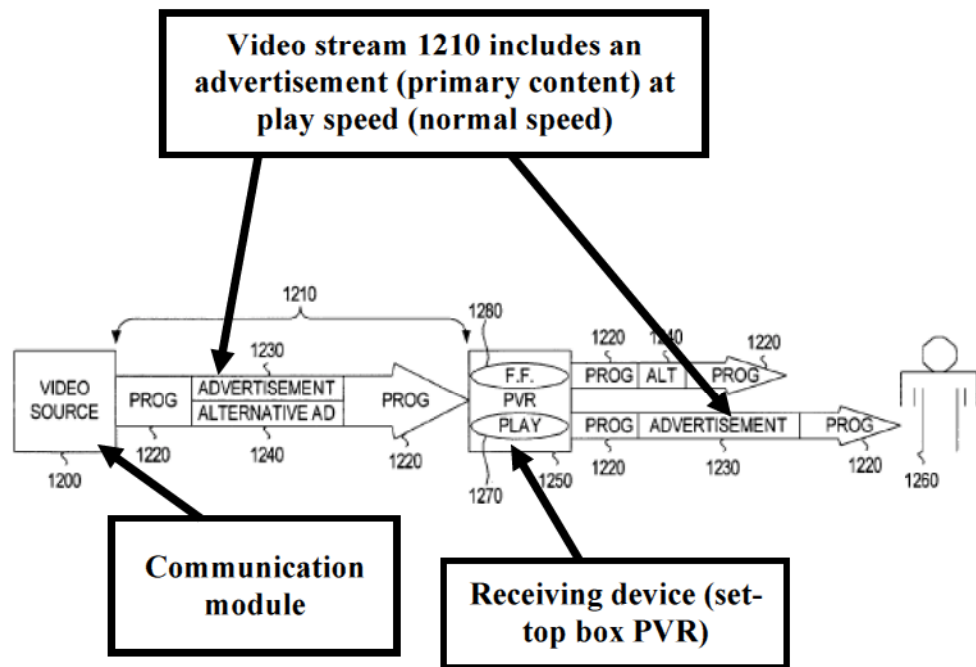

NTFX-1003, Fig. 4 (annotated).

The head end 428 is between the video dial tone gateway 426 and the set-top boxes 440. “The head-end system 428 represents the set of equipment that is needed to deliver the advertisement over the specific delivery platform in the subscriber network 430. The subscriber network 430 may be a cable system based on Hybrid Fiber Coaxial (HFC) technology….For a HFC network, there will typically also be a return channel that may consist of a DOCSIS based modem in the set-top and corresponding Cable Modem Termination System (CMTS) in the head-end 428. <u>The return channel transports requests and commands from the set-tops 440 to the head-end system 428</u>. Alternative downstream modulation formats and return paths can be utilized.” NTFX-1003, paragraph [0113] (emphasis added).

Thus, the providing a subscriber interface to present the

	subscriber with a menu to insure that the subscriber can select the appropriate video content, as taught by Plotnick, and the transport of requests and commands from the set-top boxes, as taught by Plotnick, discloses "receive a request for primary content" as recited in the claim.
[7.2] communicate primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content;	[7.2] *"communicate primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content"* **First**, Plotnick discloses "communicat[ing] primary content to a receiving device" because it teaches transmitting a program as a video stream including an advertisement to a PVR. "**Primary Content**" is defined by the '786 Patent to "mean content that may be played on a receiving device or interacted with on a receiving device. Primary content may include but is not limited to entertainment content and advertisement content. Further, primary content may include video content 30 and/or audio content and/or associated metadata." The '786 Patent, col. 3, lines 26-31. "FIG. 12A illustrates an embodiment where <u>a program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both <u>an advertisement</u> 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added). "The video source 1200 may be a satellite, a head-end, a networked video server, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art. The PVR 1250 may be a HE PVR, a STB PVR, some combination of a HE/STB PVR, or some type of video source server (i.e., DVD). The video stream 1210 may be transmitted from the video source 1200 to the PVR 1250 using a video delivery system, such as those previously discussed." NTFX-1003, paragraph [0167].

NTFX-1003, Fig. 12A (annotated).

Accordingly, the system of Plotnick communicates primary content, an advertisement, to a receiving device.

Second, Plotnick discloses "the receiving device to render the primary content to an output device at a normal speed of the primary content" because it teaches that the PVR renders the advertisement to a television at a normal speed.

"The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107]
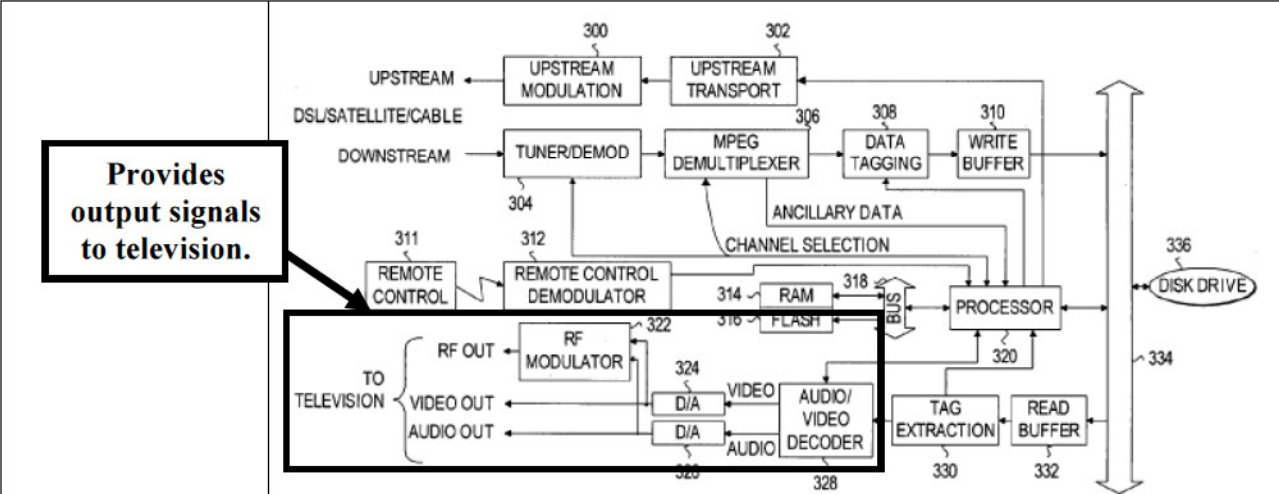
Provides output signals to television.

FIG. 3

NTFX-1003, Fig. 3 (annotated to show output to television).

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260 if the video stream 1210 was either not recorded or if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270." NTFX-1003, paragraph [0169] (emphasis added).

Thus, delivering the programming and advertisement in the video stream to the PVR and displaying the programming and advertisement back at normal speed on a television, as taught by Plotnick, discloses "communicating primary content to a receiving device, the receiving device to render the primary content to an output device at a normal speed of the primary content" as recited in claim 7.

| [7.3] associate the primary content to secondary information, | [7.3] *"associate the primary content to secondary information"*

"**Secondary Information**" is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41.

Plotnick discloses a communication module to "associate the primary content to secondary information" because it teaches associating multiple types of information to the primary advertising content. For example, Plotnick discloses associating |

each of the following to the primary content: an alternative advertisement, metadata used to access secondary content, and information signals communicated to th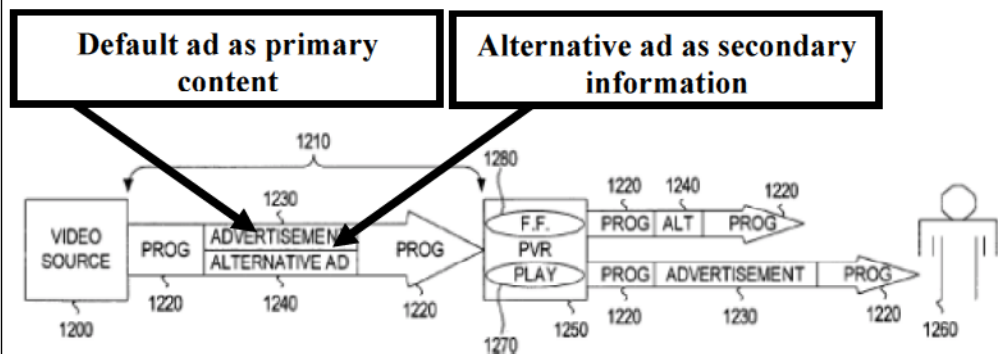e PVR used to generate secondary content. Each of these meet the definition of "secondary information" defined to "include secondary content, information to generate secondary content or information to access secondary content."

With respect to an alternative advertisement, Plotnick teaches "associate[ing] the primary content to secondary information" when it teaches associating the alternative advertisement with the default advertisement in a common data stream.

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and both an advertisement 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).

NTFX-1003, Fig. 12A (annotated).

Thus, Plotnick's disclosure of combining the advertisement 1230 and an alternative advertisement 1240 into a common video stream is a teaching of "associate[ing] the primary content to secondary information."

With respect to metadata, Plotnick teaches "associate[ing] the primary content to secondary information" when it teaches

associating the default advertisement with ad metadata used to access the alternative advertisement.

> "FIG. 11 illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box. This system includes different <u>head-end servers that are used to</u> segment the subscribers, <u>deliver content and metadata to the set-top boxes</u>, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

> "An IPG Server 1114 delivers interactive program guide information in the form of program metadata 1116. A broadcast conduit 1118 receives program metadata from broadcasters and content providers and deliver the program metadata 1120. The program metadata (from both sources) 1116, 1120 is collected and processed 1122. The processing 1122 includes combining the program metadata from the different sources 1116, 1120 and formatting it for delivery to the set-top boxes. The program metadata 1116, 1120 includes program content, language information, ratings, encoding attributes, networks and air times, delivery requirements, and pricing. The formatted <u>program metadata 1124 is sent to the STB data server 1112, which transmits it to the appropriate set-top boxes</u>." NTFX-1003, paragraph [0160] (emphasis added).

The ad metadata includes times for displaying the advertisements and therefore includes information about when to generate the alternative advertisement. The ad metadata is transmitted in the video stream with and therefore is transmitted with the primary advertisement to the set-top boxes:

> "The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight

information, which indicates the networks and **times for displaying the advertisement (ad campaign data 1152).** Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The ad server 716 transmits **available ads and ad metadata** to set-top boxes based on the ad schedule 1154." NTFX-1003, paragraph [0164] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and both an advertisement 1230 and an alternative advertisement 1240 (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).
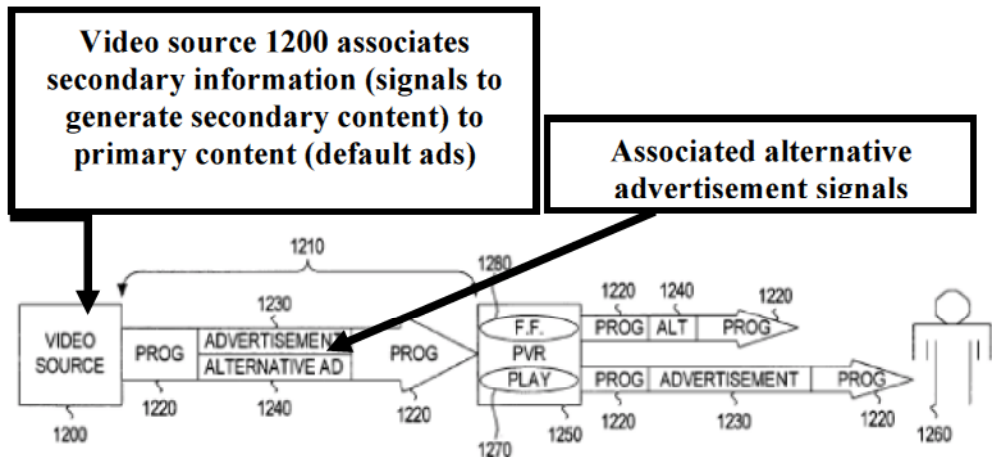
Thus, Plotnick's disclosure of joining ad metadata for secondary content with default advertisements is a teaching of "associate[ing] the primary content to secondary information."

With respect to information signals, Plotnick teaches "associat[ing] the primary content to secondary information" when it teaches sending, with the default advertisement, information signals used to generate the alternative advertisement.

"In the case of a telephone type network based on DSL technology, the head-end system 428…receives video signals and prepares them for transmission to field located distribution equipment in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries a signal from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access

Multiplexer (DSLAM). From this point in the network <u>the signals can be transported to the set-top 440</u> over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"FIG. 12A illustrates an embodiment where a program source (video source) 1200 transmits a program stream (video stream) 1210 including programming 1220 and <u>both an advertisement 1230 and an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) to a PVR 1250." NTFX-1003, paragraph [0167] (emphasis added).

NTFX-1003, Fig. 12A (annotated).

In addition, Plotnick teaches "associat[ing] the primary content to secondary information" because it teaches streaming of signals representing the default advertisement and the alternative advertisement to the same target audience.

Specifically, Plotnick teaches the communication module (for example, which includes advertisement servers) that target advertisements to subscribers, and associate targeted advertisements (primary content) with targeted alternative advertisements (secondary content):

"<u>It should be noted that the advertisement 1230 and the alternative advertisement 1240 may be default advertisements (everybody connected to that video delivery system receives the</u>

same advertisement) **or they may be targeted advertisements**. The advertisements may be targeted based on geodemographics (i.e., node or cluster of nodes), household (i.e., STB PVR), or individual (session based). [ ] **Depending on the criteria used** to target the advertisements 1230 and alternative advertisements 1240**, it is possible for different nodes, households or subscribers 1260 to receive the same targeted advertisement 1230 but different targeted alternative (sic.) advertisements 1240**." NTFX-1003, paragraph [0171] (emphasis added).

"FIG. 11 illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box. This system includes different head-end servers that are used to segment the subscribers, deliver content and metadata to the set-top boxes, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits." NTFX-1003, paragraph [0159] (emphasis added).

"The targeted advertising features of the server side AMS 700 support and manage all of the head-end/CO activities required to facilitate the targeting of television adverting on PVR-enabled set-top boxes (STB PVRs). The functionality of the server side AMS 700 includes market segmentation, geodemographic database management, viewing statistics collection, profile aggregation, ad server content and distribution management, content metadata management, STB software management, interface to traffic and billing systems, and support of the ad sales process." NTFX-1003, paragraph [0143] (emphasis added).

"An ad server 716 stores and distributes all of the advertisements for a particular set of subscribers." NTFX-1003, paragraph [0144].

"Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the

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	ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added). **Thus**, transmitting information that is, used to generate, or used to access the alternative advertisement 1240, as taught by Plotnick, are teachings of "associat[ing] the primary content to secondary information," as recited in the claim.
[7.4(a)] communicate the secondary information to the receiving device,	[7.4(a)] *"communicate the secondary information to the receiving device"* Plotnick teaches "communicat[ing] the secondary information to the receiving device." As explained above, it teaches communicating many different types of secondary information to the PVR. For example, it teaches communicating the alternative advertisement, the metadata, and information signals representing alternative advertisement to the PVR. "FIG. 12A illustrates an embodiment where a <u>program source (video source) 1200 transmits a program stream (video stream) 1210 including</u> programming 1220 and both an advertisement 1230 and <u>an alternative advertisement 1240</u> (in a preferred embodiment a related alternative ad) <u>to a PVR 1250</u>." NTFX-1003, paragraph [0167] (emphasis added). "In the case of a telephone type network based on DSL technology, the head-end system 428…<u>receives video signals and prepares them for transmission to field located distribution equipment</u> in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the <u>fiber carries a signal</u> from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network <u>the signals can be transported</u> to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

	"Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>." NTFX-1003, paragraph [0164] (emphasis added). **Thus**, communicating information that: is the alternative advertisement, is used to generate the alternative advertisement, or is used to access the alternative advertisement, as taught by Plotnick, is a teaching of "communicat[ing] the secondary information to the receiving device," as recited in the claim.
[7.4(b)] the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content,	[7.4(b)] *"the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content"* As stated above, "**secondary information**" is defined by the '786 Patent to mean "secondary content, information to generate secondary content or information to access secondary content." The '786 Patent at 3:39-41. "**Non-Derivative Secondary Content**" is defined by the '786 Patent to mean "secondary content that is not generated from the associated primary content. For example, non-derivative secondary content does not include samples (*e.g.*, audio and/or visual) from the associated primary content." The '786 Patent at 3:47-51, *supra* ¶28. **First**, Plotnick teaches that its PVR utilizes secondary information, such as the alternative advertisement, the ad metadata, and the information signals to render the alternative advertisement to a television instead of the default advertisement.

With respect to the alternative advertisement as the secondary information, Plotnick teaches that its PVR utilizes the alternative advertisement when it renders the alternative advertisement:

"The PVR 1250 will display the advertisement 1230 to a subscriber 1260…if the advertisement 1230 within the video stream 1210 is played back at normal speed 1270. If the video stream was recorded and the subscriber 1260 fast forwards 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260." NTFX-1003, paragraph [0169] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003, Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement…" NTFX-1003, Abstract.

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

With respect to the metadata as the secondary information, Plotnick teaches that its PVR utilizes the metadata when it renders the alternative advertisement:

"The traffic and billing system 712 manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The

sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and times for displaying the advertisement (ad campaign data 1152). Based on the defined ad campaign data 1152 and the market segment data 1143 from the market segment database 1136 an ad queue and schedule is created 1154. Based on the ad schedule 1154, ad download instructions 1156 are transmitted to the ad server 716. The ad server 716 determines the availability of the ads (ad availability information 1158) identified in the download instructions 1156. The <u>ad server 716 transmits available ads and ad metadata to set-top boxes based on the ad schedule 1154</u>. **If the ads are displayed to the subscriber**, the STB data server 1112 generates an ad play report 1160." NTFX-1003, paragraph [0164] (emphasis added).

The metadata is used to identify program information that includes advertisements:

"FIG. 3 illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to support upstream and downstream data transmission, digital television reception and presentation, and storage of digital video programming. The system contains a tuner/demod 304 that provides for the reception of programming and data. In some systems (such as cable systems) multiple demodulators may be used to provide simultaneous delivery of digital video/audio (MPEG) and Internet Protocol (IP) data. An MPEG demultiplexer 306 selects (filters) a single program from a multiple program stream. The MPEG demultiplexer 306 may contain a transport stream demultiplexer, Program Identifier (PID) filters, and a conditional access system. A data tagging unit 308 adds metadata descriptors to video to be recorded. **The metadata is used by the PVR to identify and characterize programs**. A write buffer 310 buffers video to accommodate disk access." NTFX-1003, paragraph [0105] (emphasis added).

The metadata can include descriptors identifying the secondary content:

> "Random Access Memory (RAM) 314 and flash memory 316 are connected to processor 320 via a processor bus 318. Storage of programming is provided using a disk drive 336 although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems. The disk drive 336 is connected to the write buffer 310, processor 320, and a read buffer 332 through a system bus 334. The read buffer 332 buffers video to accommodate disk access. **A tag extraction system 330 extracts metadata descriptors from recorded video**. An audio/video decoder 328 decodes digital video and audio, examples of which are MPEG video and MPEG/AC-3 audio. The video D/A 324 and audio D/A 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

> "The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly <u>to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel</u>." NTFX-1003, paragraph [0107] (emphasis added).

The metadata can include information identifying the viewer which is then used to select one of multiple alternative advertisements:

> "<u>The STB Data Server 1112 generates viewer profiles 1146 based on historical data of television viewing habits</u> (**collected metadata**)." NTFX-1003, paragraph [0163] (emphasis added).

"According to one embodiment, the video stream 1210 may include multiple alternative advertisements 1240, and the PVR 1250 determines which alternative advertisement 1240 to display to the subscriber 1260 based on which subscriber 1260 (individual subscriber or group of subscribers) the PVR 1250 determines is interacting with (i.e., viewing) the video stream 1210. That is, the alternative advertisement 1240 is targeted to the subscriber 1260 (regardless of whether the advertisement 1230 was a default ad or was targeted)." NTFX-1003, paragraph [0172] (emphasis added).

With respect to information signals representing the alternative advertisement as secondary information, Plotnick teaches that its PVR utilizes the **information signals** when it renders the alternative advertisement to the set top box, and then ultimately to a television:

"In the case of a telephone type network based on DSL technology, the head-end system 428…receives video signals and prepares them for transmission to field located distribution equipment in the subscriber network 430. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries a signal from the switching office 420 to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network the signals can be transported to the set-top 440 over twisted wire pairs using one of the DSL transmission technologies." NTFX-1003, paragraph [0114] (emphasis added).

"The video DIA 324 and audio DIA 326 convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator 322 which can modulate the signals onto an appropriate TV channel." NTFX-1003, paragraph [0107] (emphasis added).

"An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement." NTFX-1003,

Abstract.

"Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. <u>The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement</u>…" NTFX-1003, Abstract.

Accordingly, Plotnick teaches that information about the alternative advertisement (such as the alternative advertisement, metadata, and information signals such as video and audio signals that represent the alternative advertisement) are used to render the alternative advertisement onto the TV connected to the PVR instead of the default advertisement.

Second, Plotnick teaches the "secondary non-derivative content not being derived from the primary content." Specifically, Plotnick teaches that the alternative advertisement can be "unrelated" to the default advertisement.

"FIGS. 12A-B illustrate several exemplary embodiments associated with the alternative advertisement being a <u>separate video</u> (and thus potentially <u>an alternative advertisement unrelated to the advertisement</u>)." NTFX-1003, paragraph [0167] (emphasis added).

"However, it is also possible that the alternative advertisements 230, 240 are not related to the recorded advertisements 110, 120, and may actually be an advertisement for a different product or service. The <u>alternative advertisements 230, 240 may be a separate video (preferred for non-related advertisements)</u> or may be derived from the video for the recorded advertisements 110, 120." NTFX-1003, paragraph [0166] (emphasis added).

Accordingly, the alternative advertisement unrelated to the advertisement, as taught by Plotnick, discloses the secondary non-derivative content not being derived from the primary content by teaching the alternative advertisement being unrelated

	to the advertisement. **Thus**, Plotnick's teaching of utilizing information about an unrelated advertisement to render that unrelated alternative advertisement to the television instead of the default advertisement discloses "the receiving device to utilize the secondary information to render secondary non-derivative content to the output device instead of the primary content, the secondary non-derivative content not being derived from the primary content," as claimed.
[7.4(c)] the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content.	[7.4(c)] *"the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content"* Plotnick discloses "the receiving device [] render[ing] the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content" because it teaches that the PVR plays the alternative advertisement (secondary content) in response to a request to fast forward the default advertisement (primary content). "If the video stream was recorded and <u>the subscriber 1260 fast forwards</u> 1280 (or any other trick-play event) the advertisement 1230, the alternative advertisement 1240 will be displayed to the subscriber 1260. <u>Displaying the alternative advertisement 1240 may be in place of or in conjunction with the fast forwarding advertisement 1230.</u> In effect, the PVR 1250 is switching between the two different video advertisements (advertisement 1230 and alternative advertisement 1240) that were received within the video stream." NTFX-1003, paragraph [0169] (emphasis added). **Accordingly**, the system of Plotnick renders the secondary non-derivative content responsive to a receipt of a user/subscriber's request to render the primary content at an accelerated speed when it displays the alternative advertisement in place of the fast

| | forwarded advertisement. |
| | **Thus**, displaying the alternative advertisement (the secondary non-derivative content) to the subscriber if the subscriber fast forwards the advertisement (the primary content), as taught by Plotnick, discloses "the receiving device to render the secondary non-derivative content responsive to receipt of a request to render the primary content at the receiving device at an accelerated speed of the primary content," as recited in the claim. |

Declaration

41.　I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed:

By:　　　　　Richard A. Kramer

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EXECUTIVE SUMMARY

Results oriented technologist and engineering leader with 20+ years of demonstrated achievements.

PROFESSIONAL EXPERIENCE

SIS DEVELOPMENT INC.   **2006-PRESENT**

President

SIS Development, Inc. ("SIS") is a full-service technical organization focused on enabling OEMs and Technology Companies to win in a tough competitive environment. We specialize in product development, intellectual property matters, and R&D (research and development).

Intellectual property expertise and patent litigation experience includes (* denotes client):
- E-Watch Inc. v. * Lorex Technology, Inc. / FLIR Systems Inc. – IPR Declaration
- E-Watch Inc. v. * Avigilon, Inc. – Consultant on Invalidity and Claim Construction
- * Cisco Systems, Inc. vs. OpenTV – Expert Witness/Consultant
- OpenTV vs. * NDS (a division of Cisco Systems, Inc.) – Expert Witness/Consultant
- * J2 Global Communications v. Ring Central - Expert for Patent Reexamination
- * Rovi Corporation et. al. v. Hulu LLC - Expert Witness
- * Rovi Corporation et. al. v. Amazon.Com Inc. et. al. - Expert Witness
- Object Video Inc. v. *Sony Corporation – Consultant on Prior-Art
- Object Video Inc. v. * Bosch GMBH – Consultant on Prior-Art
- * Honeywell International Inc., v. 2GIG Technologies – Expert Witness
- * Elbex Video, Ltd. v. Axis Communications, Inc. – Expert Witness
- Gemstar TV Guide v. * Scientific-Atlanta, Inc. (now Cisco) – Advisor
- ABB Automation Incorporated v. * Schlumberger, Inc. – Advisor and Deposed

- IP matters relating to advanced technologies including: video, IP networking, security, protocols, wireless, and software including source code.

GENERAL ELECTRIC, GE-SECURITY   **2003 - 2006**

General Manager – Technology / Vice President, Engineering

Leader of progressive 300+ person technology and engineering organization: 16 orgs in 11 geographically dispersed locations. Responsible for technology development for $500M+/year in products worldwide for General Electric's Video Systems Group (VSG) and other advanced Enterprise/Commercial/Residential solutions: video surveillance (IP network video products and software, DVRs, cameras), burglar alarm systems (ITI, Caddx and other lines), burglar alarm monitoring software (MAS), and life-safety markets (access control systems, real-estate mobile keys, smoke detectors, etc.).

- Execution & Innovation - Developed leading-edge new customer solutions, successfully launching 20+ major new products/platforms per year, resulting in double-digit organic market growth
- Held leading industry market share (90 %+) position in key vertical and unique markets with technically innovative products and software in a wide variety of security applications.
- Strategy Leader of GE FY2005 "Session 2" strategy creation and multiple technical M&A due-diligence teams for numerous acquisition targets. Leader of negotiations: closed numerous key strategic partnerships/agreements. 2005 OM +50% above plan
- High-Performance - Advanced with increasing levels of responsibilities from $120M to $500M+ in revenue/year accountability; rated as "Top-20%" talent and nominate/attended executive leadership training at GE's legendary Jack Welch Executive Training Center

GM/VP/C-LEVEL ROLES, NEW VENTURES AND DIVESTITURES   **1998-2003**
Norcross, GA

VP Engineering /GM/Officer for start-ups and corporate sponsored diversification ventures

- Ivex Corporation – Launched/Pioneered first IP network video surveillance solution for the security industry (partnered with Loronix, now Verint): Developed an online video monitoring software service and the revolutionary IP network video appliance. Successfully acquired by a public entity. Stock went from $3.60 to $8.60 within 30 days

- Home Wireless Networks - Built team/leader of R&D for world's first combined voice plus data wireless home gateway. Products "Bell" approved. Launched under BellSouth and MCI brands. Launched first low-cost 802.11 access point by Telnor in Europe. Acquired

- Miraxis; parent EMS TECHNOLOGIES, $309M, NASDAQ: ELMG; corporate technology diversification new business based on new network and wireless Ka-band combined 2-way wireless WAN/Internet/video connectivity and DTH/DBS video distribution satellite technology

SCIENTIFIC-ATLANTA, BROADBAND COMM. DIV. ($2.5B, NYSE: SFA)   **1995 – 1998**
Acquired by CISCO SYSTEMS
Norcross, GA

Project Director, Advanced Video Systems (AVS)   **1997-1998**
Engineering Manager, Home Communications Terminals   **1996-1997**
Engineering Manager, 8600x   **1995-1996**

Led director-level cross-functional team developing next generation interactive TV (iTV) 2-way video cable set-top boxes to replace $400M/year Advanced Video Systems (AVS) broadband products. Built engineering department and provided daily direction to multi-disciplined engineering department responsible for S-A's highest revenue earning product, the 8600x cable set-top. Direct engineering management responsibility for AVS high-volume domestic set-tops, remote controls and third-party partnerships.

- Reversed 10-year legacy of re-branding Panasonic set-tops by successfully building new engineering organization and launching the company's first successful internally designed high-volume, low-cost product. Volumes reached 80K/month. Reduced COGS by 40%, from $154 to $78

- Engineering manager for consumer iTV video products – the company's highest revenue-earning product lines ($200M/year) with volumes over 1M+/year (8600x, 8600, etc.)

- Spearheaded launch of company's first high-volume product into a brand new S-A international plant located in Mexico. Proactively developed processes and infrastructure

- Led introduction of new development process and successfully completed business plan, product definitions, ROI analysis, forecasts, and resource plans for next-generation set-top products to replace existing $400M/year broadband AVS products

- Managed daily design engineering activities and contract manufacturing support with international third-party partners: Panasonic, WKK and others

SCHLUMBERGER INDUSTRIES, EMNA ($14B, NYSE: SLB)   **1987 – 1995**
   Norcross, GA

Engineering Manager, Residential and Commercial Metering   **1994-1995**
Hardware Manager, Recorders and Translation Systems   **1990-1994**
Senior Electronic Design Engineer   **1989-1990**
Electronic Design Engineer   **1987-1989**

Engineering manager for Schlumberger's Electricity Management, North America (EMNA) division. Managed supervisors, multi-disciplined developers and QA/SQA personnel developing high-volume electronic communication products, meter reading, modems and power monitoring equipment used by the electric utility industry to monitor and control power on the power grid.

- Managed R&D organization for residential and commercial product lines, obtaining over $60M/year in revenue with product line volumes ranging from 10Ks/year to 100Ks/year

- Promoted, dynamically improved and launched division's highest revenue product (the "Vectron") after a two-year delay within another R&D organization

- As hardware manager, launched new product lines that spawned new services business

- Annually selected to participate in the "Best Program" for high potential managers

- As a hands-on developer, primary designer for division's top two highest ASP products (GM 55%, ASP $2,000). Designed working ASIC on first pass. Granted two patents

BABCOCK & WILCOX, NUCLEAR POWER DIVISION   **1984 - 1987**
   ELECTRONIC DESIGN ENGINEER / SR. ELECTRONICS DESIGN ENGINEER

As part of the "Special Products and Integrated Field Services" team, I was a designer and developer of electronic inspection systems and robotic repair systems for nuclear power plant components inside the nuclear containment building.

- Provided system, circuit and software design for advanced video/CCTV, ultrasound, and other imaging solutions to inspect internal radioactive components inside the nuclear containment building.

- Board level designer of electronic hardware using a multitude of CPU/MPUs, high-speed communication interfaces, control circuits, and complex test/measurement ADC circuits.

- Software programmer using high-level software programming languages and assembly code firmware for robotic/automation repair and inspection equipment

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EDUCATION & AFFILIATIONS

BSEE, Magna cum laude   **1984**
The University of Toledo   Toledo, Ohio

Executive MBA, 16 Credit Hours   **Attended 2003**
Emory University, Goizueta Business School   Atlanta, Georgia

Executive business program ranked in the top 10 globally by Business Week and The Financial Times.

GE Six Sigma, Black Belt Training Certified

Additional post-graduate studies and certificates: finance, project management, leadership, Java 2, DSP, computer architecture and PACE product development process.

Java 2, Sun Certified Programmer.

Member, IEEE.

PATENTS

U.S. Patent No. 5,701,253 - Isolated Current Shunt Transducer; December 23, 1997

U.S. Patent No. 5,422,939 - Parallel Off-Hook Detection for Both Line Available and Phone Pick-up Detection, June 6, 1995

U.S. Patent 7,956,735 (78% ownership stake – rights sold) – Automated remotely-verified alarm system with intrusion and video surveillance and digital video recording, June 7, 2011