

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STINGRAY GROUP INC. and STINGRAY MUSIC USA, INC.
Petitioners,

v.

EDWIN A. HERNANDEZ-MONDRAGON,
Patent Owner.

Case No. IPR2025-00349
U.S. Patent No. 10,123,074

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,123,074**

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PETITIONERS' EXHIBIT LIST

EX. NO.	DESCRIPTION
Ex-1001	U.S. Patent No. 10,123,074
Ex-1002	Declaration of Mr. Stuart Lipoff
Ex-1003	U.S. Patent No. 8,954,600 to Avellan, et al. ("Avellan")
Ex-1004	U.S. Patent No. 8,819,043 to Durante, et al. ("Durante")
Ex-1005	U.S. Patent No. 9,635,075 to Ma, et al. ("Ma")
Ex-1006	U.S. Patent No. 6,463,445 to Suzuki, et al. ("Suzuki")
Ex-1007	U.S. Patent Application Publication No. 2004/0031052 to Wannamaker, et al. ("Wannamaker")
Ex-1008	U.S. Patent No. 7,778,279 to Heikens, et al. ("Heikens")
Ex-1009	U.S. Patent No. 9,264,750 to Matthews, et al. ("Matthews")
Ex-1010	U.S. Patent No. 9,240,966 to Wilsher, et al. ("Wilsher")
Ex-1011	File History of the '074 Patent

Listing of Challenged Claims

Element	Claim Language
Claim 1	
Preamble 1	A computer-implemented method comprising:
Element 1a	receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of different types;
Element 1b	obtaining content corresponding to the plurality of multimedia items from at least one source offering the content in at least one first format;
Element 1c	rendering a web page by a browser using the content;
Element 1d	generating a temporal sequence of screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
Element 1e	assembling the at least one media stream using the temporal sequence of screen captures; and
Element 1f	providing the at least one media stream to the content provider for broadcast on the broadcast media channel.
Claim 2	
Element 2a	The method of claim 1, wherein the obtaining comprises: retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item.
Claim 3	
Element 3a	The method of claim 2, wherein the generating comprises: combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items.
Claim 4	
Element 4a	The method of claim 2, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one webpage.
Claim 5	
Element 5a	The method of claim 4, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of

Element	Claim Language
	a song title, an artist, and a music genre.
Claim 6	
Element 6a	The method of claim 1, further comprising: identifying the at least one webpage based on a channel identifier associated with the broadcast media channel.
Claim 7	
Element 7a	The method of claim 1, further comprising: querying the content provider to determine the second format, wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format.
Claim 8	
Element 8a	The method of claim 3, further comprising: detecting a change at the at least one webpage corresponding to at least one of the plurality of multimedia items;
Element 8b	in response to detecting the change, retrieving a new plurality of screen captures from the at least one webpage for the at least one of the plurality of multimedia items; and
Element 8c	reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item.
Claim 9	
Element 9a	The method of claim 1, wherein the content provider is a cable television operator or a satellite television operator.
Claim 10	
Element 10a	The method of claim 1, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider.
Claim 11	
Element 11a	The method of claim 1, further comprising: provisioning, on at least one server, at least one virtual machine for performing the receiving, obtaining, generating, assembling, and providing.
Claim 12	
Preamble 12	A system comprising:
Element 12a	at least one processor;
Element 12b	a computer-readable storage medium having stored therein instructions which, when executed by the processor, cause the at least one processor to perform operations comprising:

Element	Claim Language
Element 12c	receive, from a content provider, a request for at least one media stream for playback on a broadcast media channel, the at least one media stream including a plurality of multimedia items of different types
Element 12d	retrieve, from a cloud based service, multimedia content corresponding to the plurality of multimedia items, the multimedia content in a first format;
Element 12e	render a web page by a browser using the multimedia content;
Element 12f	generate a temporal sequence of screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
Element 12g	merge the temporal sequence screen captures with the at least one audio file to create the media stream; and
Element 12h	send the media stream to the content provider.
Claim 13	
Element 13a	The system of claim 12, further comprising: retrieve a video from the cloud based service, wherein the screen captures correspond to a plurality of static images obtained from the video.
Claim 14	
Element 14a	The system of claim 12, further comprising: select the multimedia content from the cloud based service based on a music genre associated with the broadcast media channel.
Claim 15	
Element 15a	The system of claim 12, wherein the request comprises a request for a plurality of multimedia streams for playback on a plurality of broadcast media channels.
Claim 16	
Element 16a	The system of claim 12, wherein the media stream is sent to a broadcast internet protocol (IP) address associated with the content provider.
Claim 17	
Preamble 17	A non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising:
Element 17a	receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at

Element	Claim Language
	least one media stream includes a plurality of multimedia items of different types;
Element 17b	obtaining content corresponding to the plurality of multimedia items from at least one source offering the content in at least one first format;
Element 17c	rendering a web page by a browser using the content;
Element 17d	generating a sequence of screen captures of the rendered web page, where each screen capture defines all of the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
Element 17e	assembling the at least one media stream using the sequence of screen captures; and
Element 17f	providing the at least one media stream to the content provider for broadcast on the broadcast media channel.
Claim 18	
Element 18a	The non-transitory computer-readable storage medium of claim 17, wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item; and
Element 18b	wherein the assembling comprises combining the plurality of screen captures and the at least one audio file.
Claim 19	
Element 19a	The non-transitory computer-readable storage medium of claim 17, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream.
Claim 20	
Element 20a	The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and
Element 20b	in response, provide a previously recorded media stream to the content provider
Claim 21	
Element 21a	The non-transitory computer-readable storage medium of claim 17, wherein assembling the at least one media stream comprises

Element	Claim Language
	inserting at least one MPEG packet including metadata corresponding to the multimedia item.

I. INTRODUCTION

Under 35 U.S.C. § 311, Petitioners Stingray Group Inc. and Stingray Music USA, Inc. request *inter partes* review (“IPR”) of claims 1-21 (“Challenged Claims”) of U.S. Patent No. 10,123,074 (“the ’074 Patent,” Ex-1001).

The Challenged Claims are directed to obtaining media content from a website and assembling the content into a media stream for delivery to a content provider. As described in the ’074 Patent, the disclosed system can be used for delivering live multimedia streaming, broadcast music channels and/or movies. Ex-1001 at 1:19-36 and 6:55-60. During prosecution, the Applicant overcame the Examiner’s rejection by amending the claims to require:

(1) “render[ing] a web page by a browser using the content,”

and

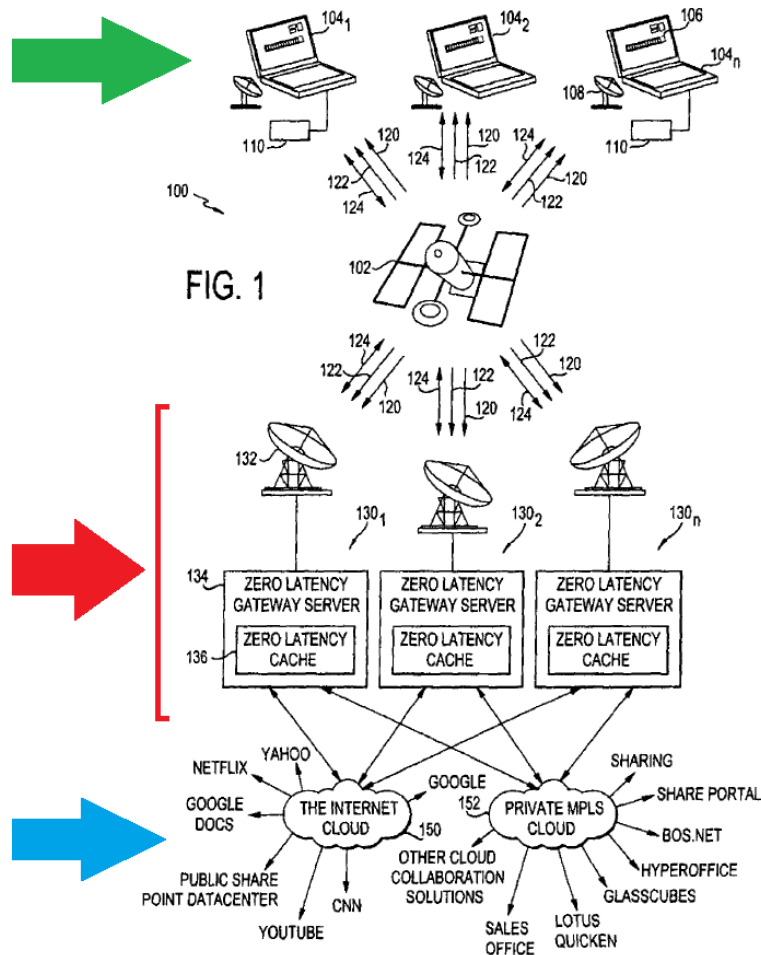
(2) “generat[ing] a temporal sequence of screen captures of the rendered webpage, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time.”

Ex-1011 at 62 and Ex-1001 at Claims 1, 12 and 17). The Applicant characterized these added elements as “an important distinction between the claimed solution and the cited references.” Ex-1011 at 69.

Although the Examiner allowed the claims based on this amendment, the process of rendering web pages, generating screen captures illustrating dynamic

content, and assembling those screen captures into a media stream was commonly known in the art before the priority date of the '074 Patent.

For example, Independent Claims 1, 12 and 17 (and many dependent claims) are each anticipated under 35 U.S.C. § 102 by Avellan, which discloses a communication system that can “broadcast information from a web server over a broadcast device to a multitude of user computers.” Ex-1003 at 2:9-10.



Ex-1003 at Fig. 1. Referring to Figure 1 of Avellan above, “system 100 provides for the user computers 104₁-104_n [green arrow] to access the Internet 150 and/or

private network cloud 152 [blue arrow] through a virtual browser 106 of the gateway 130 [red arrow].” Ex-1003 at 4:18-21. Avellan states that “the browser software 106 resides at the gateway 134” and “may rely upon the computing power and very high-speed connection of the gateway server 134 to resolve and render pages, images, and documents from the networks 150, 152.” Ex-1003 at 4:56-65.

Avellan further discloses that “web pages often have information which is rendered over a period of time, *such as a video*, streaming information, or an animated display. Accordingly, the gateway server 134 *continuously captures images of the web page* until it detects a repeating pattern of the information in the web page.” Ex-1003 at 5:5-5:10.¹ “Thus, gateway server 134 will be certain to capture all the information on the web page even if that information continues over a period of time.” Ex-1003 at 5:10-5:12. Like the ’074 Patent, Avellan explicitly states that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, *live streaming television feeds, movies*, music downloads, or ESPN.” Ex-1003 at 8:18-21.

Accordingly, as detailed in this Petition below, Avellan fully discloses the Independent Claims of the ’074 Patent, including the “important distinction” that formed the basis for the patent’s allowance.

¹ Unless otherwise stated, all emphases are added.

Additionally, as further discussed in this Petition, each of the dependent claims of the '074 Patent recites commonly-known elements—like the inclusion of “metadata corresponding to at least one of a song title, an artist, and a music genre,” the use of a “channel identifier,” and encoding with the “Motion Picture Experts Group (MPEG) format,” to name a few examples. To the extent not explicitly disclosed in Avellan, such features are explicitly found in the secondary prior art references cited in this Petition and would have been obvious to a person of ordinary skill in the art. Accordingly, Petitioners respectfully request institution of this Petition and a finding that the Challenged Claims are unpatentable under (post-AIA) 35 U.S.C. §§ 102 and/or 103.

II. MANDATORY NOTICES

Pursuant to 37 C.F.R. §42.8(a)(1), Petitioners provide the following mandatory disclosures.

A. Real Parties-in-Interest (37 C.F.R. §42.8(b)(1))

Stingray Group Inc. and its subsidiary Stingray Music USA, Inc. (collectively “Stingray” or “Petitioners”) are the real parties-in-interest. No other party has directed, funded, or controlled filing of this Petition, and this Petition was not filed at the behest of any other party.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

Edwin A. Hernandez-Mondragon is the current assignee of record for the '074 Patent. In a related litigation, Edwin A. Hernandez-Mondragon has represented that he “is the owner of all rights, title and interests to the '074 Patent.” In the same litigation, he also represents that his company, EGLA Corp., has an exclusive license to the technologies owned by Dr. Hernandez. As of the filing date of this Petition, Petitioners are aware that Patent Owner is presently asserting the '074 Patent in the following litigation:

- *Hernandez, et al. v. Stingray Group Inc., et al.*,

Case No. 1:24-cv-21226 (S.D. Fla. Apr. 2, 2024).

Petitioners are not aware of any other litigation or any other board proceedings involving the '074 Patent. The '074 Patent is the parent to both U.S. Patent No. 10,524,002 and U.S. Patent No. 11,140,441. Petitioners are currently challenging all claims of U.S. Patent No. 10,524,002 in IPR2025-00350 and all claims of U.S. Patent No. 11,140,441 in IPR2025-00351.

C. Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3))

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D. Service Information (37 C.F.R. § 42.8(b)(4))

Petitioners may be served paper copies as specified above. Petitioners consent to electronic service at the following email addresses: manjom@aatriallaw.com, jwyde@aatriallaw.com, and IPR2025-00349@aatriallaw.com.

III. CERTIFICATION OF GROUNDS FOR STANDING

Petitioners certify pursuant to 37 C.F.R. §42.104(a) and §41.101 that the '074 Patent is eligible for *inter partes* review and Petitioners are not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

IV. STATEMENT OF PRECISE RELIEF REQUESTED

A. Claims for Which Review Is Requested (37 C.F.R. § 42.104(b)(1))

Petitioners request *inter partes* review and cancellation of Challenged Claims 1–21 of the '074 Patent under 35 U.S.C. § 311 based on the following prior art references and grounds.

B. Statutory Grounds of Challenge (37 C.F.R. § 42.104 (b)(2))

This Petition relies on the following prior art references:

Exhibit	Cited Prior Art Reference
Ex-1003	U.S. Patent No. 8,954,600 to Avellan, et al. ("Avellan"), which was filed on March 2, 2012, making it prior art under at least 35 U.S.C.

Exhibit	Cited Prior Art Reference
	§102(a)(2).
Ex-1004	U.S. Patent No. 8,819,043 to Durante, et al. (“Durante”), which was filed on November 9, 2010, making it prior art under at least 35 U.S.C. §102(a)(2).
Ex-1005	U.S. Patent No. 9,635,075 to Ma, et al. (“Ma”), which was filed on March 8, 2010, making it prior art under at least 35 U.S.C. §102(a)(2).
Ex-1006	U.S. Patent No. 6,463,445 to Suzuki, et al. (“Suzuki”), which was filed on September 30, 1999, making it prior art under at least 35 U.S.C. §102(a)(2).
Ex-1007	U.S. Patent Application Publication No. 2004/0031052 to Wannamaker, et al. (“Wannamaker”), which was published on February 12, 2004, making it prior art under at least 35 U.S.C. §102(a)(1).
Ex-1008	U.S. Patent No. 7,778,279 to Heikens, et al. (“Heikens”), which was filed on June 5, 2007, making it prior art under at least 35 U.S.C. §102(a)(2).
Ex-1009	U.S. Patent No. 9,264,750 to Matthews, et al. (“Matthews”), which was filed on December 23, 2010, making it prior art under at least 35 U.S.C. §102(a)(2).
Ex-1010	U.S. Patent No. 9,240,966 to Wilsher, et al. (“Wilsher”), which was filed on May 8, 2014, making it prior art under at least 35 U.S.C. §102(a)(2).

The specific statutory grounds for challenge are:

Ground	Cited Prior Art References	Basis	Claim(s) Challenged
1	Avellan	§102	1-6, 8, 9, 12-15, 17, 18, 20
2	Avellan in view of Durante	§103	5
3	Avellan in view of Ma	§103	6
4	Avellan in view of Suzuki	§103	7
5	Avellan in view of Wannamaker	§103	10, 11, 21
6	Avellan in view of Heikens	§103	16
7	Avellan in view of Matthews	§103	19
8	Avellan in view of Wilsher	§103	20
9	Avellan in view of the General Knowledge of a POSITA	§103	20

C. Discretionary Denial is Not Warranted

Petitioners respectfully submit that the Board should not exercise its discretion under 35 U.S.C. §§ 314(a) or 325(d) to deny this Petition. All grounds are based on prior art references that were never considered during prosecution and that explicitly disclose elements that the Patent Owner contended during prosecution were “an important distinction” over the prior art. Additionally, the related district court case is still at an early stage, and Petitioners intend to move for a stay of that litigation pending this Petition. Petitioners note that the district court presiding over the related litigation has granted such motions to stay in the past under similar facts. Moreover, Petitioners are challenging *all claims* of the ’074 Patent, including at least one claim that Patent Owner is not asserting in the related litigation. Therefore, Petitioners respectfully submit that discretionary denial is not warranted.

V. SUMMARY OF THE '074 PATENT

The '074 Patent is directed to obtaining content from a webpage and assembling the content into a media stream for delivery to a content provider. As a general matter, the '074 Patent states that “[c]ontent corresponding to the plurality of multimedia items can be obtained from at least one website or cloud service that offers the content in at least one first format” and “the multimedia files can be generated in a second format that is compatible with the content provider.” Ex-1001 at 2:55-64. As described in the '074 Patent, its disclosed system can be used for delivering live multimedia streaming, broadcast music channels and/or movies. Ex-1001 at 1:19-36 and 6:55-60.

Although the Patent Owner’s original set of claims sought to cover the general idea of converting multimedia from a first format to a second format, as highlighted above, these claims were rejected during prosecution. To overcome the Examiner’s rejection, the Patent Owner instead amended the claims to require: (1) “render[ing] a web page by a browser using the content,” and (2) “generat[ing] a temporal sequence of screen captures of the rendered webpage, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time.” Ex-1011 at 62. The Patent Owner called these additions “an important distinction” over the prior art. Ex-1011 at 69.

With respect to the added “rendering” language, the ’074 Patent explains that a web service “can include JavaScript, CSS, and HTML content files that can be rendered using a browser using WebKit (e.g. PhantomJS or Safari) or any other browser-rendering engine compatible with HTML4/5 or any future HTML version.” Ex-1001 at 6:67-7:4.

With respect to the added “screen capture” language, the ’074 Patent states that “rendered images from a web service can be used to create overlapping video or replace any video in the video feed file.” Ex-1001 at 7:5-7. Specifically, “one or more screens will be retrieved from the rendering engine” and captured “using a tool similar to PhantomJS (Webkit-based headless engine for rendering images) or QtCapture, or simply capturing screen frame buffers from a machine running any software tool.” Ex-1001 at 7:14-21. “Once all screens and video are captured, the resulting output created can be a video file that then is either replaced or merged (multiplexed) with the original file.” Ex-1001 at 7:24-27. “The multiplexing can be done using tools such as FFMPEG or VLC or any proprietary tool that can multiplex audio and video files into a resulting MPEG Transport Stream (or MPEG-4 output, or any similar output).” Ex-1001 at 7:39-43 and 7:32-34 (stating that the output format “can be an MPEG Transport Stream file that can be retrievable or streamed to the multicasting embodiment”).

As a result, the '074 Patent recognizes that both the “rendering” and “screen capture” limitations added during prosecution can be performed using commonly-known third-party software tools, such as PhantomJS, Safari and/or QtCapture. Ex-1002, ¶¶77-83. Similarly, the screen captures generated through this process can be multiplexed using commonly-known third-party tools like FFMPEG or VLC. Ex-1002, ¶¶77-83. Indeed, even the resulting MPEG Transport Stream output format was in common use prior to the filing date of the '074 Patent. Ex-1002, ¶¶77-83. As a result, the Challenged Claims are all directed to the combined use of commonly-known processes, software tools and transport formats that pre-existed the '074 Patent's priority date.

The Patent-at-Issue was filed on December 22, 2015 (PCT filing date), claiming priority to a provisional application filed December 22, 2014. Ex-1001, (60). Petitioners assume a priority date of December 22, 2014, without conceding that any of the Challenged Claims are actually entitled to that priority.

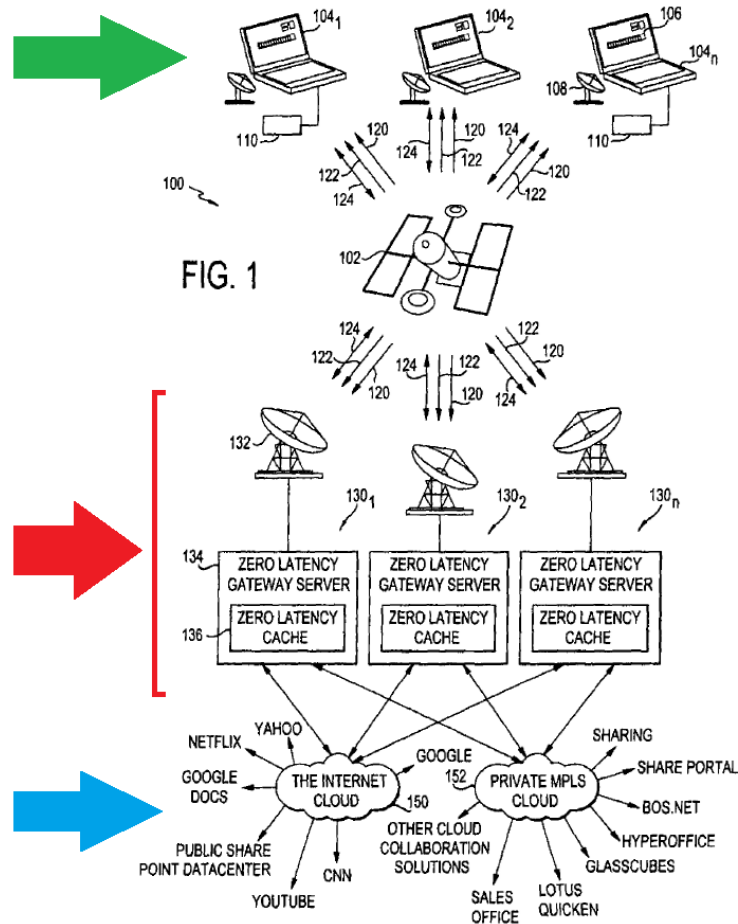
VI. SUMMARY OF THE PRIMARY PRIOR ART REFERENCE

Avellan is directed to a communication system that can “broadcast information from a web server over a broadcast device to a multitude of user computers.” Ex-1003 at 2:9-10. As with the '074 Patent, Avellan explicitly states that “suitable sites for the broadcast mode are news sites like CNN, BBC,

newspaper, *live streaming television feeds, movies*, music downloads, or ESPN.”

Ex-1003 at 8:18-21.

Specifically, in Avellan, “system 100 provides for the user computers 104₁-104_n to access the Internet 150 and/or private network cloud 152 through a virtual browser 106 of the gateway 130.” Ex-1003 at 4:18-21. As disclosed by Avellan, “the browser software 106 resides at the gateway 134, and is configured to run as a virtual browser as a remote client of the gateway server 134.” Ex-1003 at 4:56-58. Because the browser software resides at the gateway, “the remote browser 106 may rely upon the computing power and very high-speed connection of the gateway server 134 to resolve and render pages, images, and documents from the networks 150, 152.” Ex-1003 at 4:62-65.



Ex-1003 at Fig. 1. In other words, referring to Figure 1 above, a user at computer 104 (green arrow) can request media streams from either the Internet or a private network cloud (collectively, blue arrow) for playback. That request is received by gateway platform 130 (red arrow), which obtains the content from the networks and renders it using the disclosed browser software.

Avellan also discloses generating a temporal sequence of screen captures of the rendered web page. Avellan states that “web pages often have information which is rendered over a period of time, such as a video, streaming information, or an animated display.” Ex-1003 at 5:5-5:7. “Accordingly, the gateway server 134

continuously captures images of the web page until it detects a repeating pattern of the information in the web page.” Ex-1003 at 5:7-5:10.

In other words, for content that includes playback of video, streaming information or animations, Avellan generates a temporal sequence of screen captures during the entirety of that playback until the video, streaming information, or animation has, for example, stopped or restarted—*i.e.*, until the gateway detects that there is a “repeating pattern.” By taking a sequence of screen captures, “gateway server 134 will be certain to capture all the information on the web page even if that information continues over a period of time.” Ex-1003 at 5:10-5:12.

“Once the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15.

VII. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Here, a Person of Ordinary Skill in the Art (“POSITA”) at the time of the claimed invention would have a bachelor’s or equivalent degree in computer science or a related field and at least 2 years of experience in multimedia processing or delivery using internet protocols. Furthermore, a person with less formal education but

more experience, or more formal education but less experience, could have also met the relevant standard for a POSITA. Ex-1002, ¶68.

VIII. CLAIM CONSTRUCTION (37 C.F.R. § 42.104(b)(3))

For IPR proceedings, the Board applies the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). Under *Phillips*, terms are typically given their ordinary and customary meanings, as understood by a POSITA at the time of invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313. The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper 11 at 16 (PTAB Aug. 14, 2015). Petitioners submit that the Board need not expressly construe any terms because the prior art invalidates the Challenged Claims under any plausible construction.

IX. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: Claims 1-6, 8, 9, 12-15, 17, 18 and 20 are anticipated by Avellan.

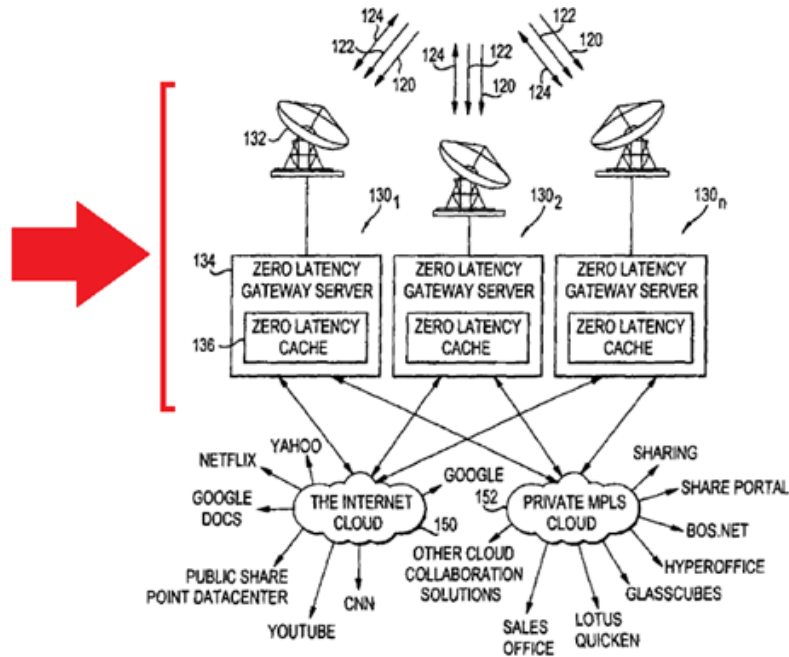
a. Claim 1

Preamble 1

Preamble 1	A computer-implemented method comprising:
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Avellan teaches Preamble 1.

Specifically, the claimed method is performed by Avellan's gateway platforms 130 (red arrow), each of which “includes a respective satellite antenna 132 or a broadcast transmitter/receiver, and a gateway server 134 [and] a cache 136.” Ex-1003 at 3:64-66.



Ex-1003 at Fig. 1. “The gateway server 134 can be a server farm that is adapted to act as a secure and fast gateway to the Internet 150, 152 and may be a network of servers, mainframe computer(s) or other high speed and high capacity processing devices.” Ex-1003 at 4:26-29. Thus, Avellan discloses a “computer implemented” method as described below.

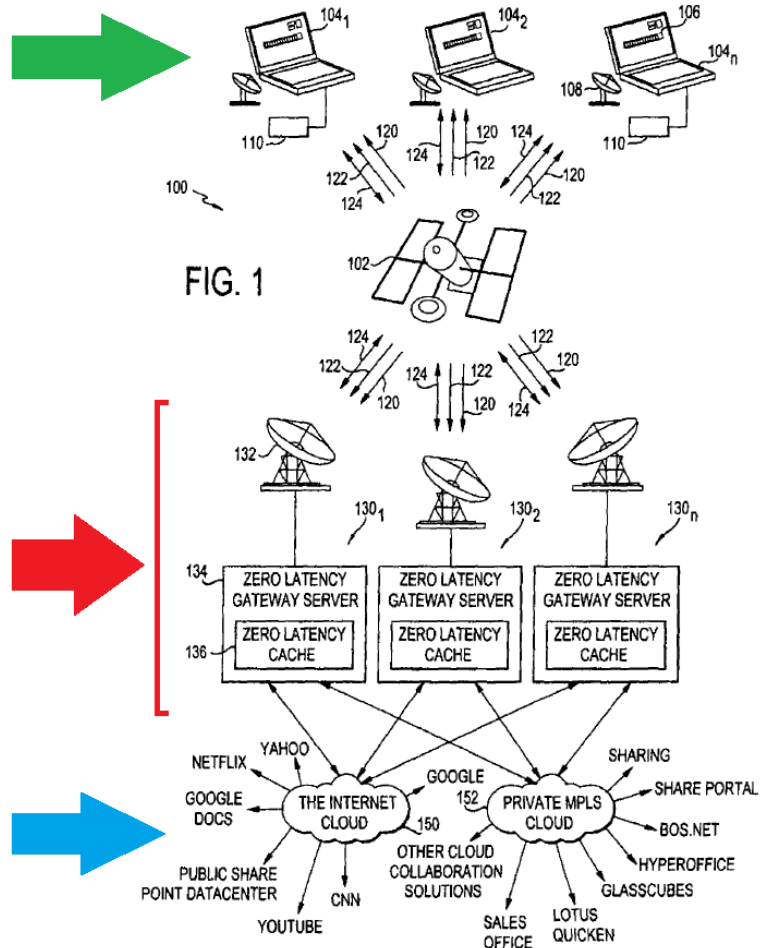
Element 1a

Element 1a	receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of
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different types;

Avellan teaches Element 1a.

First, Avellan discloses receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel. Referring to Figure 1 below, Avellan teaches that “the system 100 provides for the user computers 104₁-104_n [green arrow] to access the Internet 150 and/or private network cloud 152 [blue arrow] through a virtual browser 106 of the gateway 130 [red arrow].” Ex-1003 at 4:18-21.



Ex-1003 at Fig. 1. “The user operates the browser 106 which sends a signal over the satellite 102 to the gateway 130,” which in turn “accesses the networks 150, 152 and returns the results to the virtual browser 106 via the satellite 102.” Ex-1003 at 4:21-25 and 6:22-25 (stating that the browser 106 “sends commands and a tag file to the gateway server 134 so that the *gateway server 134 retrieves the information desired by the user*”).

As disclosed by Avellan, “the browser software 106 resides at the gateway 134, and is configured to run as a virtual browser as a remote client of the gateway server 134.” Ex-1003 at 4:56-58. The browser “resolve[s] and render[s] pages, images, and documents from the networks 150, 152” and “[t]he gateway server 134 then images those web pages (which are typically in an HTTP format) to a video or image frame format.” Ex-1003 at 4:62-67 and 5:20-22 (stating that the gateway can “compress the data into a compressed digital video format that can be sent to the user computer 104 for display in the browser 106”). Avellan further teaches that “the gateway platform 130 can broadcast information over the antennas 132 and the broadcast device 102 to a large number of user computers 104 via the wired or wireless connection 108.” Ex-1003 at 4:36-49. Accordingly, gateway platform 130 receives requests from broadcast device 102 for playback of at least one media stream on a broadcast channel.

Second, Avellan discloses that the requested media stream includes a plurality of multimedia items of different types. With respect to this element, the '074 Patent states “[t]he media stream can include any number of multimedia items such as audio/video multimedia items” and that “the request can include a channel identifier that is associated with a particular category of multimedia items, such as a music genre corresponding to rock, classical, jazz, etc.” Ex-1001 at 7:49-54.

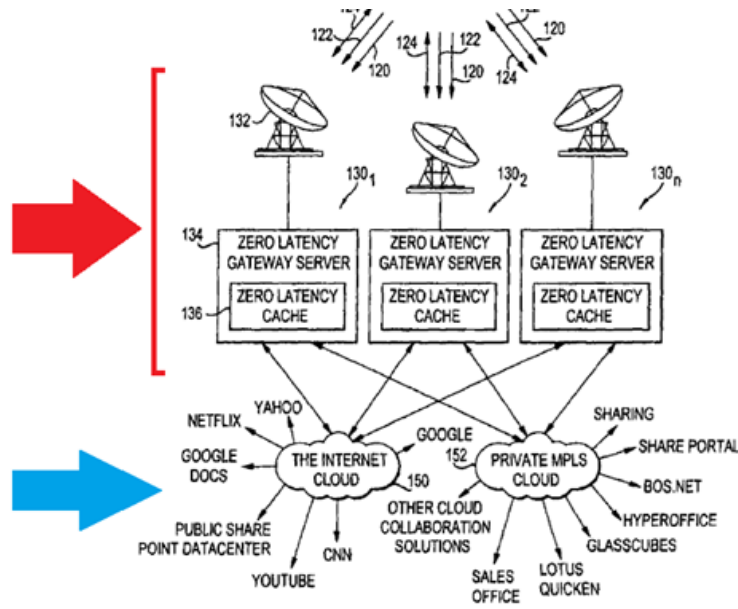
In the same way, Avellan teaches that “there can be a number of broadcast channels and each channel can have a specific theme, such as country music, military television, etc.” Ex-1003 at 8:25-27. “The user can then tune the browser 106 to one of the broadcast channels to receive that content. Thus, the broadcast channel can be configured here to receive live content, or to update the storage device 110 of the user computer 104.” Ex-1003 at 8:27-31. As an example, “[i]f a large number of viewers choose to select a certain hockey game, that page of the website can also be sent in the broadcast mode.” Ex-1003 at 8:34-36. Avellan states that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, live streaming television feeds, movies, music downloads, or ESPN.” Ex-1003 at 8:18-21.

Element 1b

Element 1b	obtaining content corresponding to the plurality of multimedia items from at least one source offering the content in at least one first format;
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Avellan teaches Element 1b.

Avellan states “the gateway server 134 may be configured to communicate with the public computers, servers, networks or clouds such as the Internet cloud 150, and/or one or more private computers, servers, networks or clouds 152 such as a private MPLS (MultiProtocol Label Switching) cloud.” Ex-1003 at 4:14-18. “In the broadcast mode, the gateway server 134 retrieves the desired data from the networks 150, 152, captures that data (including audio) to a video (or image) frame format, compresses that video data and stores the compressed video data to the gateway 130 at the cache 136.” Ex-1003 at 8:42-46. As an example, Avellan states that “[t]he gateway server 134 can track the CNN site on the Internet cloud 150 and store the site to the gateway cache 136 whenever the site is modified and/or at predetermined periodic intervals.” Ex-1003 at 10:46-49. As shown in Figure 1, the networks 150 and 152 provide a range of content from multimedia websites like CNN, Netflix and YouTube (see blue arrow).



Ex-1003 at Fig. 1. Thus, Avellan teaches that content corresponding to the plurality of multimedia items is obtained from at least one source, including networks 150 and 152 and/or cache 136, and that content will be in a first format.

Element 1c

Element 1c	rendering a web page by a browser using the content;
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Avellan teaches Element 1c.

Avellan states “the browser software 106 resides at the gateway 134, and is configured to run as a virtual browser as a remote client of the gateway server 134.” Ex-1003 at 4:56-58. Because the browser software resides at the gateway, “the remote browser 106 may rely upon the computing power and very high-speed connection of the gateway server 134 to resolve and render pages, images, and documents from the networks 150, 152.” Ex-1003 at 4:62-65.

Element 1d

Element 1d	generating a temporal sequence of screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
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Avellan teaches Element 1d.

First, Avellan teaches generating screen captures of the rendered web page, where each screen capture defines all the content of the web page at a given time. As discussed above, gateway 134 includes browser software 106 that renders web pages using the content obtained from networks 150 and 152. “The gateway server 134 then *images those web pages* (which are typically in an HTTP format) to a video or image frame format.” Ex-1003 at 4:65-67. Avellan further teaches that this screen capture process “is preferably done by taking an image of the entire web page from top to bottom, including any portion that would normally be accessed by scrolling up/down or left/right but not immediately displayed on the screen because it is too long for a single screen.” Ex-1003 at 4:67-5:4.

Second, Avellan also teaches generating a temporal sequence of such screen captures, wherein at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time. Avellan teaches that “web pages often have information which is rendered over a period of time, such as a video, streaming information, or an animated display. Accordingly, the gateway server

134 *continuously captures images of the web page* until it detects a repeating pattern of the information in the web page.” Ex-1003 at 5:5-5:10. “Thus, gateway server 134 will be certain to capture all the information on the web page *even if that information continues over a period of time.*” Ex-1003 at 5:10-5:12.

In other words, for content that includes playback of video, streaming information or animations, Avellan generates a temporal sequence of screen captures during the entirety of that playback until the video, streaming information, or animation has, for example, stopped or restarted—*i.e.*, until the gateway detects that there is a “repeating pattern.” By taking a sequence of screen captures, “gateway server 134 will be certain to capture all the information on the web page even if that information continues over a period of time.” Ex-1003 at 5:10-5:12

By continuously capturing screen images of information that is rendered over time—such as “video, streaming information, or an animated display”—two adjacent screen captures will illustrate a dynamic change of at least a portion of that content over time. Ex-1002, ¶111. For example, if a streaming hockey game is being rendered, a screen capture at Time 1 followed by a screen capture at Time 2 will illustrate a dynamic change in that game, such as the movement of players on the ice between Time 1 and Time 2—*i.e.*, a dynamic change of at least a portion of the content over time. Ex-1002, ¶111.

Element 1e

Element 1e	assembling the at least one media stream using the temporal sequence of screen captures; and
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Avellan teaches Element 1e.

Following the screen capture process described above, Avellan teaches that it can then “compress the data into a compressed digital video format that can be sent to the user computer 104 for display in the browser 106.” Ex-1003 at 5:20-5:22. As stated in Avellan, “[o]nce the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15.

Element 1f

Element 1f	providing the at least one media stream to the content provider for broadcast on the broadcast media channel.
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Avellan teaches Element 1f.

Avellan states “[o]nce the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15. Avellan specifically notes that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, live streaming television feeds, movies, music downloads, or ESPN.” Ex-1003 at 8:18-21.

b. Claim 2

Element 2a

Element 2a	The method of claim 1, wherein the obtaining comprises: retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item.
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Avellan teaches Element 2a.

Avellan states “gateway server 134 retrieves the desired data from the networks 150, 152, captures that data (*including audio*) to a video (or image) frame format, compresses that video data and stores the compressed video data in the gateway 130 at the cache 136.” Ex-1003 at 8:42-46. Avellan further notes that “a web-to-HD video protocol may be used to capture and transmit *images/audio of a web page, including a full multimedia web page*, regardless of its size or original format (e.g., HTTP).” Ex-1003 at 5:16-5:19. “The gateway cache 136 preferably stores the web pages in the compressed video format, but can store the data in any suitable format(s) including the HTTP format.” Ex-1003 at 8:50-53. “Once the broadcast data is stored in the gateway cache 136, the gateway server 134 then transmits that data to the multiple user computers 104.” Ex-1003 at 8:54-56 and 8:18-21 (explaining that system 100 can be used to broadcast “live streaming television feeds” and “movies”).

c. Claim 3

Element 3a

Element 3a	The method of claim 2, wherein the generating comprises: combining the plurality of screen captures and the at least one audio file to create each of the plurality of multimedia items.
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Avellan teaches Element 3a.

Avellan states “gateway server 134 retrieves the desired data from the networks 150, 152, captures that data (including audio) to a video (or image) frame format.” Ex-1003 at 8:42-46. Avellan further states “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, *live streaming television feeds, movies*, music downloads, or ESPN,” which a POSITA recognizes would include the combination of audio and visual data. Ex-1003 at 8:18-21 and Ex-1002, ¶112.

d. Claim 4

Element 4a

Element 4a	The method of claim 2, wherein the retrieving of the plurality of screen captures comprises obtaining the plurality of screen captures from a playback of a video on the at least one webpage.
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Avellan teaches Element 4a.

Avellan teaches that “web pages often have information which is rendered over a period of time, *such as a video*, streaming information, or an animated display. Accordingly, the gateway server 134 *continuously captures images of*

the web page until it detects a repeating pattern of the information in the web page.” Ex-1003 at 5:5-5:10. “Thus, gateway server 134 will be certain to capture all the information on the web page even if that information continues over a period of time.” Ex-1003 at 5:10-5:12 and 8:18-21 (stating that suitable content includes “live streaming television feeds [and] movies”).

e. Claim 5

Element 5a

Element 5a	The method of claim 4, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre.
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Avellan teaches Element 5a.

Avellan states that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, live streaming television feeds, movies, *music downloads*, or ESPN.” Ex-1003 at 8:18-21. Specifically, Avellan teaches that “there can be a number of broadcast channels and each channel *can have a specific theme, such as country music*, military television, etc.” Ex-1003 at 8:25-27. A POSITA would understand that a music channel “such as country music” would include metadata corresponding at least to either the song title, the country music artist, or the music genre. Ex-1002, ¶113.

To the extent Element 5a is not explicitly disclosed by Avellan, it would have been obvious to combine Avellan with Durante as discussed in Ground 2.

f. Claim 6

Element 6a

Element 6a	The method of claim 1, further comprising: identifying the at least one webpage based on a channel identifier associated with the broadcast media channel.
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Avellan teaches Element 6a.

Avellan teaches that “there can be a number of broadcast channels” and that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, live streaming television feeds, movies, music downloads, or ESPN.” Ex-1003 at 8:25-27 and 8:18-21. “The user can then tune the browser 106 to one of the broadcast channels to receive that content.” Ex-1003 at 8:27-29. A POSITA would understand that each broadcast media channel has an associated channel identifier that allows the user to tune to the desired channel, such as CNN or ESPN. Ex-1002, ¶114.

To the extent Element 6a is not explicitly disclosed by Avellan, it would have been obvious to combine Avellan with Ma as discussed in Ground 3.

g. Claim 8

Element 8a

Element 8a	The method of claim 3, further comprising: detecting a change at the at least one webpage corresponding to at least one of the plurality of multimedia items;
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Avellan teaches Element 8a.

Avellan discloses that “[a]s the broadcast sites are updated, the updated sites are cached 136 and sent to the user computers 104.” Ex-1003 at 8:63-64. “For instance, the gateway server 134 can *continuously or periodically compare* the broadcast data stored in the cache 136 with the broadcast data at the networks 150, 152 and re-capture any broadcast data which is updated.” Ex-1003 at 8:65-9:3.

Element 8b

Element 8b	in response to detecting the change, retrieving a new plurality of screen captures from the at least one webpage for the at least one of the plurality of multimedia items; and
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Avellan teaches Element 8b.

As discussed above, Avellan teaches that “the gateway server 134 can continuously or periodically compare the broadcast data stored in the cache 136 with the broadcast data at the networks 150, 152 and *re-capture any broadcast data which is updated.*” Ex-1003 at 8:65-9:3. Additionally, as discussed for Element 1d, Avellan continuously screen captures web pages that have “video, streaming information, or an animated display.” Ex-1003 at 5:5-5:10.

Element 8c

Element 8c	reassembling the at least one of the plurality of multimedia items using the new plurality of screen captures to yield an updated multimedia item.
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Avellan teaches Element 8c.

Avellan further teaches that “[a]s the information is updated, the updated broadcast data is compressed, saved to cache 136, broadcast to the user computers 104, and stored in the storage device 110.” Ex-1003 at 9:3-6. For example, following the capture process, Avellan teaches that it can then “compress the data into a compressed digital video format that can be sent to the user computer 104 for display in the browser 106.” Ex-1003 at 5:20-5:22. “Once the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15.

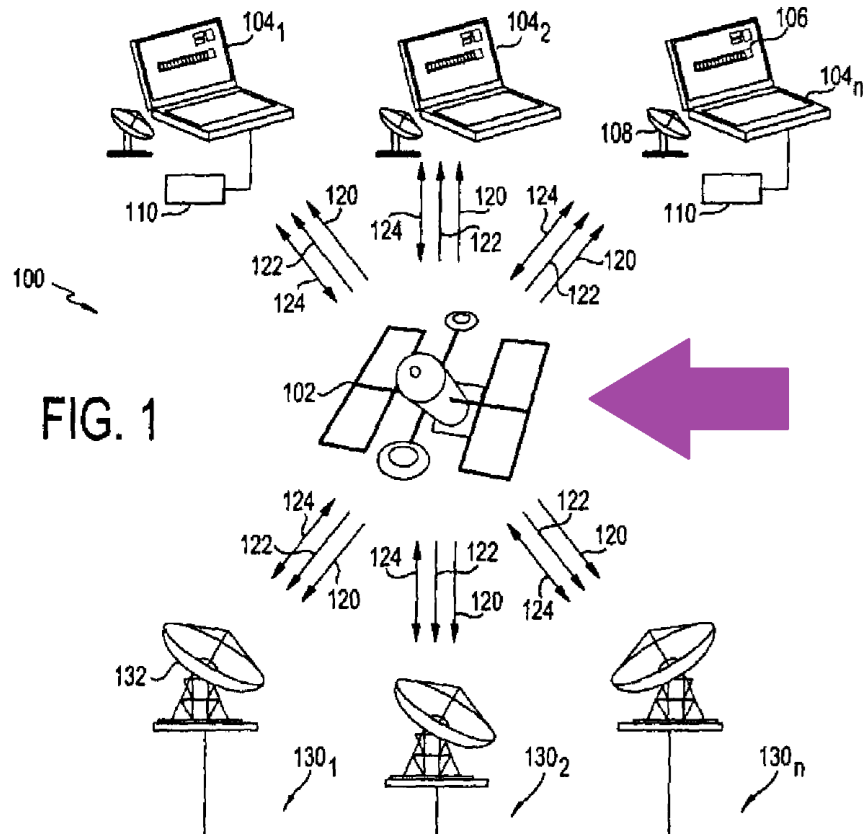
h. Claim 9

Element 9a

Element 9a	The method of claim 1, wherein the content provider is a cable television operator or a satellite television operator.
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Avellan teaches Element 9a.

Avellan teaches that “the broadcast device 102 *can be a satellite 102* which communicates with a satellite antenna 132 at the gateway end, and also communicates with a repeater or the like (not shown) at the user end.” Ex-1003 at 4:36-39 and Fig. 1 (purple arrow).



Additionally, Avellan explicitly states that “suitable sites for the broadcast mode” include “live streaming television feeds.” Ex-1003 at 8:18-21.

i. Claim 12

Preamble 12 and Elements 12a and 12b

Preamble 12	A system comprising:
Element 12a	at least one processor;
Element 12b	a computer-readable storage medium having stored therein instructions which, when executed by the processor, cause the at least one processor to perform operations comprising:

Avellan teaches Preamble 12 and Elements 12a and 12b.

Avellan’s gateway server 134 “may be a network of servers, mainframe computer(s) or other high speed and high capacity processing devices.” Ex-1003

at 4:26-29. Additionally, “[t]he system and processes implemented at the gateway platform 130, the broadcast device 102, and/or the user computer 104, can be stored on or read from computer-readable media which stores machine executable instructions for performing the processes described.” Ex-1003 at 14:29-35. A POSITA would understand that Avellan discloses “at least one processor” and the recited “computer-readable storage medium” and executable instructions. Ex-1002, ¶115.

Element 12c

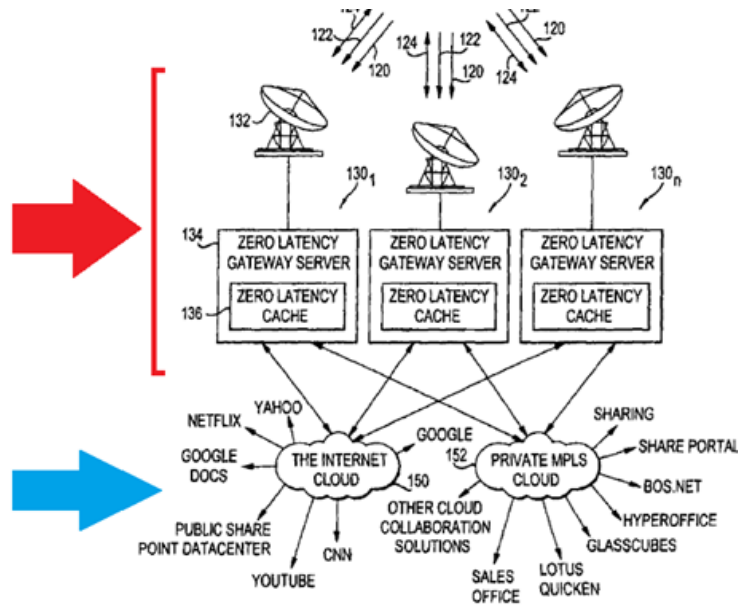
Element 12c	receive, from a content provider, a request for at least one media stream for playback on a broadcast media channel, the at least one media stream including a plurality of multimedia items of different types
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For the same reasons as in Element 1a, Avellan discloses Element 12c.

Element 12d

Element 12d	retrieve, from a cloud based service, multimedia content corresponding to the plurality of multimedia items, the multimedia content in a first format;
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For the same reasons as in Element 1b, Avellan discloses Element 12d. Avellan further teaches that the multimedia content is retrieved from a “cloud” based service (see blue arrow), as recited in Element 12d.



Ex-1003 at Fig. 1. As taught by Avellan, the gateway server 134 communicates with “networks or clouds such as the Internet cloud 150, and/or one or more private computers, servers, networks or clouds 152 such as a private MPLS (MultiProtocol Label Switching) cloud.” Ex-1003 at 4:14-18.

Element 12e

Element 12e	render a web page by a browser using the multimedia content;
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For the same reasons as in Element 1c, Avellan discloses Element 12e. Avellan further teaches that rendering uses the multimedia content, as recited by Element 12e. Avellan teaches that “web pages often have information which is rendered over a period of time, such as a video, streaming information, or an animated display” Ex-1003 at 5:5-5:10 and 8:18-21.

Element 12f

Element 12f	generate a temporal sequence of screen captures of the rendered
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	web page, where each screen capture defines all the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
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For the same reasons as in Element 1d, Avellan discloses Element 12f.

Element 12g

Element 12g	merge the temporal sequence screen captures with the at least one audio file to create the media stream; and
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For the same reasons as in Element 1e, Avellan discloses Element 12g. Avellan further teaches that the sequence of screen captures are merged with the at least one audio file to create the media stream, as recited by Element 12g. As stated in Avellan, “[o]nce the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15.

Element 12h

Element 12h	send the media stream to the content provider.
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For the same reasons as in Element 1f, Avellan discloses Element 12h.

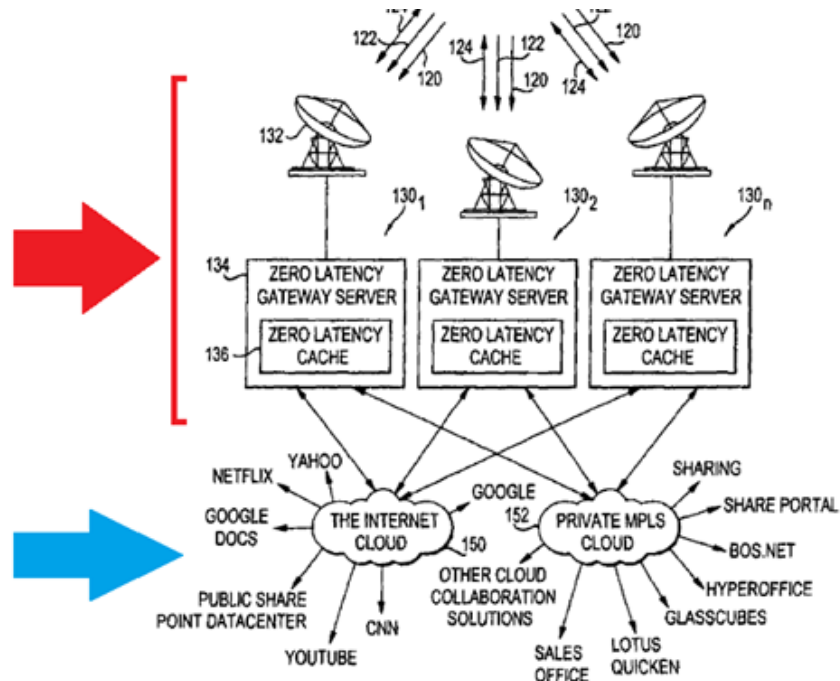
j. Claim 13

Element 13a

Element 13a	The system of claim 12, further comprising: retrieve a video from the cloud based service, wherein the screen captures correspond to a plurality of static images obtained from the video.
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Avellan teaches Element 13a.

Avellan states “gateway server 134 retrieves the desired data from the networks 150, 152” and that “suitable sites for the broadcast mode are news sites like CNN, BBC, newspaper, live streaming television feeds, movies, music downloads, or ESPN.” Ex-1003 at 8:42-46; 8:18-21; and Fig. 1 (showing, for example, “YouTube” and “Netflix” as cloud-based sources of video data).



Ex-1003 at Fig. 1.

Additionally, Avellan discloses that the screen captures are static images obtained from the video. Avellan teaches that “web pages often have information which is rendered over a period of time, such as a video, streaming information, or an animated display. Accordingly, the gateway server 134 *continuously captures images of the web page* until it detects a repeating pattern of the information in the web page.” Ex-1003 at 5:5-5:10.

k. Claim 14

Element 14a

Element 14a	The system of claim 12, further comprising: select the multimedia content from the cloud based service based on a music genre associated with the broadcast media channel.
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Avellan teaches Element 14a.

Avellan states “there can be a number of broadcast channels and each channel can have a specific theme, *such as country music*, military television, etc. The user can then tune the browser 106 to one of the broadcast channels to receive that content.” Ex-1003 at 8:25-29.

l. Claim 15

Element 15a

Element 15a	The system of claim 12, wherein the request comprises a request for a plurality of multimedia streams for playback on a plurality of broadcast media channels.
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Avellan teaches Element 15a.

Avellan states “there can be a number of broadcast channels” and “it is advantageous to broadcast as many sites as possible in the broadcast mode to as many user computers as possible.” Ex-1003 at 8:25-29 and 10:18-20. “Periodically or as desired, based on user profiles, the gateway 134 may push the cache 136 to the multiple users. The gateway server 134 preferably broadcasts all

of the broadcast data stored in the cache 136 to all of the user computers 104, which includes all updated sites.” Ex-1003 at 10:26-30.

m. Claim 17

Preamble 17

Preamble 17	A non-transitory computer-readable storage medium having stored therein instructions which, when executed by a processor, cause the processor to perform operations comprising:
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For the same reasons as in Preamble 12, Element 12a and Element 12b, Avellan discloses Preamble 17.

Elements 17a through 17f

Element 17a	receiving, from a content provider, a request for at least one media stream for playback on a broadcast media channel, wherein the at least one media stream includes a plurality of multimedia items of different types;
Element 17b	obtaining content corresponding to the plurality of multimedia items from at least one source offering the content in at least one first format;
Element 17c	rendering a web page by a browser using the content;
Element 17d	generating a sequence of screen captures of the rendered web page, where each screen capture defines all of the content of the web page at a given time, and at least two adjacent screen captures illustrate a dynamic change of at least a portion of the content over time;
Element 17e	assembling the at least one media stream using the sequence of screen captures; and
Element 17f	providing the at least one media stream to the content provider for broadcast on the broadcast media channel.

For the same reasons as in Elements 1a through 1f, Avellan discloses Elements 17a through 17f, respectively.

n. Claim 18

Element 18a

Element 18a	The non-transitory computer-readable storage medium of claim 17, wherein the obtaining comprises retrieving, for each of the plurality of multimedia items, at least one audio file corresponding to an audio component of the multimedia item and a plurality of screen captures corresponding to a video component of the multimedia item; and
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For the same reasons as in Element 2a, Avellan discloses Element 18a.

Element 18b

Element 18b	wherein the assembling comprises combining the plurality of screen captures and the at least one audio file.
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Avellan teaches Element 18b.

Avellan states “[o]nce the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or video frame format and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15. Avellan further notes that “a web-to-HD video protocol may be used to capture and transmit images/audio of a web page, including a full multimedia web page, regardless of its size or original format (e.g., HTTP).” Ex-1003 at 5:16-5:19.

o. Claim 20

Elements 20a and 20b

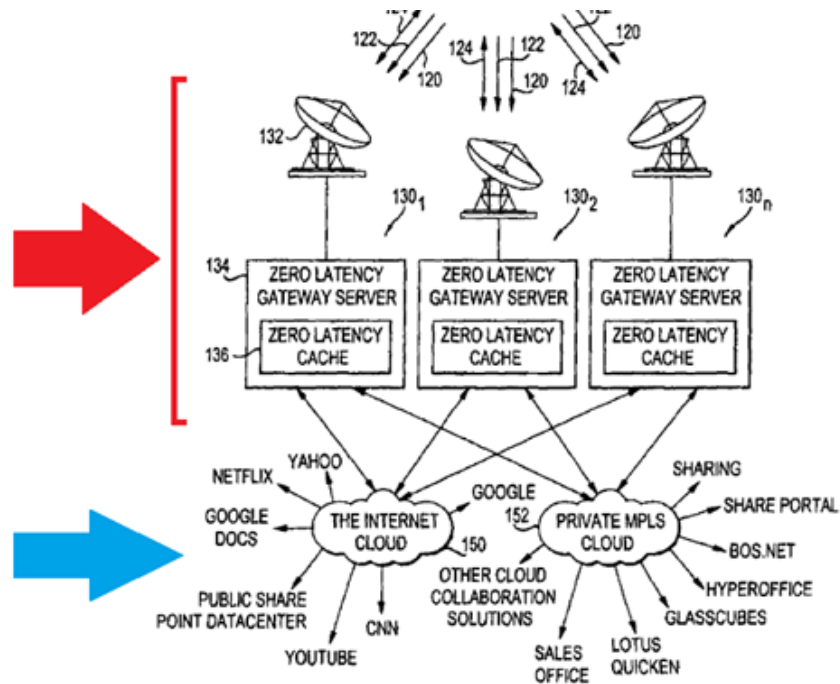
Element 20a	The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and
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Element 20b

in response, provide a previously recorded media stream to the content provider.

Avellan teaches Elements 20a and 20b.

Avellan discloses a plurality of gateway servers (red arrow) in communication with networks 150 and 152 and states that “preferably more than one server 134 stores Internet data in a cache 136 *for redundancy* and to better distribute communication channels for that server 134.” Ex-1003 at 9:55-57.



Ex-1003 at Fig. 1. A POSITA would understand the reference to “redundancy” to mean, for example, gateway platform 130₂ can substitute for gateway platform 130₁ when system 100 detects a failure at gateway platform 130₁ that impacts communication between the user and the content networks—*i.e.*, affects connectivity with a website. Ex-1002, ¶116.

Avellan further teaches “gateway server 134 can track the CNN site on the Internet cloud 150 and store the site to the gateway cache 136 whenever the site is modified and/or at predetermined intervals.” Ex-1003 at 10:46-49. “The user computers 104₁-104_n are then able to display the CNN site whenever it is called up by the browser 106 at the user computer 104₁-104_n.” Ex-1003 at 10:54-56. Avellan further states that “the information is immediately available for display in the browser 106 when the user subsequently desires to access it.” Ex-1003 at 9:7-10 and 8:42-46 (stating that the gateway “captures that data (including audio) to a video (or image) frame format, compresses that video data and stores the compressed video data in the gateway 130 at the cache 136”). Accordingly, Avellan discloses that cache 136 can store previously recorded media streams for immediate access by the user, such as in response to a detected network failure.

To the extent not explicitly disclosed by Avellan, it would have been obvious to combine Avellan with Wilsher as discussed in Ground 8 below.

B. Ground 2: Claim 5 is obvious in view of Avellan and Durante.

a. Claim 5

Element 5a

Element 5a	The method of claim 4, wherein the combining of the plurality of screen captures comprises metadata corresponding to at least one of a song title, an artist, and a music genre.
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To the extent Avellan does not disclose Element 5a, this limitation is obvious in further view of Durante.

Durante discloses that “music videos are maintained in video library 114, and can be stored in a variety of different formats, such as MP4 (MPEG-4) files.” Ex-1004 at 4:19-21. Durante states that “metadata associated with a music video can include a title of the song in the music video [and] the name of an artist that recorded the song in the music video.” Ex-1004 at 4:46-48.

It would have been obvious for a POSITA to combine Durante’s song title and artist metadata with Avellan’s music genre broadcast channels, see Ex-1003 at 8:25-27 (describing broadcast channels having a specific theme, such as “country music”) because a POSITA would have been motivated to add Durante’s descriptive information so that viewers could identify the specific song and name of the artist. Ex-1002, ¶118. And POSITAs would have had a reasonable expectation of success in such a combination because Avellan’s system delivers its channels in a “video frame format”—such as the commonly used MPEG format—and the MPEG standard includes provisions for the inclusion of metadata, such as the song and artist information disclosed in Durante. Ex-1002, ¶118. Indeed, the ’074 Patent does not purport to have invented a novel encoding technique that permitted the inclusion of such information, and instead discloses that such data can be “packaged in an MPEG Packet that is part of the MPEG Transport Stream.”

Ex-1001 at 4:41-44.

As a result, Avellan in view of Durante renders Claim 5 obvious.

C. Ground 3: Claim 6 is obvious in view of Avellan and Ma.

a. Claim 6

Element 6a

Element 6a	The method of claim 1, further comprising: identifying the at least one webpage based on a channel identifier associated with the broadcast media channel.
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To the extent Avellan does not render Element 6a anticipated, this limitation is obvious in further view of Ma.

Ma teaches that “a user can assign different channel identifiers to various web sites, for example, a first web site (such as “THOMSON.NET”) can be assigned channel identifier 101, a second web site (such as “YAHOO.COM”) can be assigned to channel identifier 102, and a third web site (such as “GAMEFAQS.COM”) can be assigned to a third channel identifier 103.” Ex-1005 at 5:5-11. As a result, “channels 1-100 would provide media services associated with broadcasted television channels, while channel 102 brings up a representation of the content on the homepage YAHOO.COM.” Ex-1005 at 5:13-16.

It would have been obvious for a POSITA to combine the channel identifier of Ma with Avellan’s system, which discloses that “[t]he user can then tune the browser 106 to one of the broadcast channels to receive that content.” Ex-1003 at

8:27-29; Ex-1002, ¶121. A POSITA would have been motivated to combine Avellan’s disclosure of tuning to broadcast channel with Ma’s teachings of channel identifiers so that a user could select between channels based upon identifiers. Ex-1002, ¶121.

A POSITA would have had a reasonable expectation of success in combining Avellan with Ma because Avellan’s system describes being able to obtain content from websites, such as CNN, ESPN, YouTube or from web services like Netflix. Ex-1003 at Fig. 1. Similarly, Ma teaches assigning “different channel identifiers to various web sites,” such as Yahoo.com. Ex-1005 at 5:5-11; Ex-1002, ¶122. A POSITA would have recognized that assigning Ma’s alphanumeric channel identifier to Avellan’s channels—for example, a request for the “ESPN” channel would be implemented in the same manner as a request for channel “008”, where “008” is assigned to ESPN—was a trivial task and would not have required alteration of the system in Avellan. Ex-1002, ¶122. Indeed, the ’074 Patent does not purport to have invented a novel identification technique, and instead discloses that such identifiers can simply be “an integer value from 1 to the maximum number of channels.” Ex-1001 at 6:47-49.

As a result, Avellan in view of Ma renders Claim 6 obvious.

D. Ground 4: Claim 7 is obvious in view of Avellan and Suzuki.

a. Claim 7

Element 7a

Element 7a	The method of claim 1, further comprising: querying the content provider to determine the second format, wherein the second format corresponds to a Moving Picture Experts Group (MPEG) format.
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Avellan in view of Suzuki renders Claim 7 obvious. Avellan teaches “[o]nce the page is imaged (including any audio on the web page), the gateway server 134 compresses the image or *video frame format* and sends it to the browser 106 via the satellite 102.” Ex-1003 at 5:12-5:15. Avellan does not specifically disclose that the “video frame format” can be MPEG. However, Suzuki discloses “an automatic format conversion process [that] *queries information from the client system* (requester) and also receives the data structure identifying the encoding format. The *client information identifies the decoding format* compatible with the client.” Ex.-1006 at 3:44-49. Suzuki further discloses that the data “can be formatted under any number of the well known formatting standards *such as, for example, MPEG*, JPEG, H.263, H.261, Motion JPEG, Video CD, DVD, DV (Digital Video), Digital Still Camera, etc.” Ex.-1006 at 6:37-40.

A POSITA would have been motivated to combine Avellan with Suzuki because it is advantageous to query the downstream content provider to determine what output “video frame format” was able to be decompressed and displayed at the user devices—*i.e.*, to determine what format was “suitable” for a given device.

Ex-1002, ¶125. And a POSITA would have had a reasonable expectation of success, given that, as discussed above, Avellan converts web content into a compressed “video frame format” that is “suitable for broadcasting to a large number of user computers” and “any suitable format(s)” can be used. Ex-1003 at 5:12-32, 8:52-53. In the same manner, the ’074 Patent describes “a second format” as “a format that is suitable for the cable operator.” Ex-1001 at 8:3-8. Avellan also states that the user computers 104 “can be any suitable device . . . such as a laptop computer, desktop computer, smartphone, tablet PC, laptop, and Internet equipped television.” Ex-1003 at 3:53-56. As a result, it would have been obvious to include Suzuki’s query-answer exchange to determine decoding capabilities prior to generating the video frames for delivery, and such use would not have required any alteration of the system of Avellan. Ex-1002, ¶125.

Moreover, POSITAs would have understood that Avellan’s process of generating a sequence of screen captures for compression into a “video frame format” is compatible with the MPEG format, which compresses video data into a sequence of video frames for decoding. Ex-1002, ¶126. As a result, use of MPEG as the “second format” would have been obvious and not required any alteration of the system of Avellan. Ex-1002, ¶126. Similarly, prior to the ’074 Patent, the MPEG format was commonly used to encode video, and the MPEG codec was commonly found in a range of user devices, including laptops, desktops,

smartphones, tablets, and Internet-equipped televisions. Ex-1002, ¶126.

Indeed, the '074 Patent does not provide any disclosure in its specification of how this “querying” process is performed or otherwise purport to have invented a novel way of querying the content provider to determine the second format for encoding the media stream. Ex-1001; Ex-1002, ¶127. As a result, Applicant recognized that such a process was already commonly-known in the art and could be readily-implemented by a POSITA. Ex-1002, ¶127.

As a result, Avellan in view of Suzuki renders Claim 7 obvious.

E. Ground 5: Claims 10, 11, and 21 are obvious in view of Avellan and Wannamaker.

a. Claim 10

Element 10a

Element 10a	The method of claim 1, wherein providing the at least one media stream to the content provider comprises streaming the at least one media stream to an MPEG multiplexer associated with the content provider.
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Avellan in view of Wannamaker renders Claim 10 obvious. Wannamaker states that “[a] multimedia streamer (MMS) consists of the audio/video/terminal server (AVTS) that delivers the units of audiovisual information sent by the system to the user’s set-top box.” Ex-1007 at [0193]. “The AVTS is responsible for delivering MPEG video and Dolby AC-3 audio streams to the set-top box. A

special MPEG multiplexer (MUX) card, controlled by the AVTS, streams data onto the cable network.” Ex-1007 at [0195].

Similarly, Avellan teaches providing a media stream to a content provider, and POSITAs would have understood that an MPEG transport stream is readily capable of transporting both MPEG video data and encoded audio data, such as AC-3 audio data. Ex-1002, ¶130. POSITAs also would have understood that an MPEG multiplexer is an obvious way of combining MPEG video data and encoded audio data for delivery. Ex-1002, ¶130.

Thus, it would have been obvious to combine Wannamaker’s disclosure of an MPEG multiplexor card with Avellan’s system for caching and delivering music channels, live streaming television, and movies—all of which include audio and video data—because MPEG multiplexing was a commonly-known and available way to combine and delivery such content. Ex-1002, ¶131. A POSITA would have further been motivated to use such a MPEG multiplexor card because it is an easy and reliable way of sending a transport stream combining related audio and video data—which would need to be received at relatively the same time in order to be played back in sync—as compared to sending such streams separately downstream. Ex-1002, ¶131.

Moreover, POSITAs would have had a reasonable expectation of success in combining Avellan’s broadcast system with Wannamaker’s MPEG multiplexor

associated with the content provider, because such a combination would not have required any alteration to the system of Avellan, which as discussed above, already discloses the use of a video frame format, like MPEG, that includes encoded audio. Ex-1002, ¶132. Indeed, the '074 Patent does not purport to have invented the MPEG multiplexor and specifically notes that such multiplexors—like the “Arris TMX-2010”—were readily and publicly-available prior to the '074 Patent.

As a result, Avellan in view of Wannamaker renders Claim 10 obvious.

b. Claim 11

Element 11a

Element 11a	The method of claim 1, further comprising: provisioning, on at least one server, at least one virtual machine for performing the receiving, obtaining, generating, assembling, and providing.
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Avellan in view of Wannamaker renders Claim 11 obvious.

Wannamaker discloses that its system is implemented as a “virtual machine (VM)” that is “compatible with the JVM defined in the Java Virtual Machine Specification.” Ex-1007 at [0354]. For example, Wannamaker states that “[t]he microbrowser 194 (Fig. 9) is an LMAE application,” and that “[t]he microVM application environment (LMAE) 50, [] is a Java compatible virtual machine.” Ex-1007 at [0489] and [0108]. Under Wannamaker’s “microbrowser rendering” process, a server “continuously transmits the Web data to the client in an MPEG video stream” and “puts images of the rendered Web page in MPEG I-frames and

MPEG P-frames.” Ex-1007 at [0271] and [0098] (stating that “content is fetched from Web sites, converted or rendered by the system, and then cached on application server”).

It would have been obvious for a POSITA to combine Avellan’s “network of servers, mainframe computer(s) or other high speed and high capacity processing devices,” Ex-1003 at 4:26-29, that “may be positioned at a strategic Internet Exchange Point (IXP),” Ex-1003 at 4:29-31, to use Wannamaker’s virtual machines. Ex-1002, ¶135. POSITAs would have recognized that Avellan’s server farm or a server located at an IXP would not require alteration to run on Wannamaker’s virtual machines. Ex-1002, ¶135.

A POSITA would have been motivated to use such a virtual machine because it was understood that virtual machines were an efficient and effective way to implement a system like Avellan. Ex-1002, ¶136. Virtual Machines were known to be a flexible and scalable solution for content delivery and could reduce hardware costs. Ex-1002, ¶136. Similarly, a POSITA would have been motivated to combine Avellan with the teachings of Wannamaker because of the overlap in both systems. Ex-1002, ¶136. Both Avellan and Wannamaker are directed to server-side software that obtains web-based content, renders it using a browser, and then packages it for delivery in a video frame format. Ex-1002, ¶136. And because of this similarity, POSITAs would have had a reasonable expectation of

success in combining Avellan’s system with Wannamaker’s disclosure of virtual machines. Ex-1002, ¶136. Indeed, the ’074 Patent does not purport to have invented a novel way of implementing a virtual machine or purport to have invented a new virtualization environment, and instead simply discloses that a virtual machine can be implemented through known products, like “VMWare or Xen.” Ex-1001 at 12:8-12.

As a result, Avellan in view of Wannamaker renders Claim 11 obvious.

c. Claim 21

Element 21a

Element 21a	The non-transitory computer-readable storage medium of claim 17, wherein assembling the at least one media stream comprises inserting at least one MPEG packet including metadata corresponding to the multimedia item.
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Avellan in view of Wannamaker renders Claim 21 obvious.

Wannamaker discloses “an information platform [that] converts Internet content and protocols into forms suitable for TV viewing. The content is fetched from Web sites, converted or rendered by the system, and then cached on application server” for delivery to a client in an MPEG transport stream. Ex-1007 at [0098]. Wannamaker discloses that this MPEG stream “contain[s] MPEG video, MPEG audio, and data via a specialized hardware multiplexer card.” Ex-1007 at [0117]. Specifically, with respect to the “data” component, Wannamaker teaches that “the server transmits some *additional information about the Web page’s*

characteristics in an MPEG data stream.” Ex-1007 at [0271] (stating that the information is “contained in an MML tile”). A POSITA would understand that an “MML” tile is an MPEG packet containing MPEG markup language that corresponds to the multimedia item. Ex-1002, ¶138. For example, the data may include “foreground text” or “hyperlink URLs.” Ex-1007 at [0271] and [273] (stating that the “MML lets the user navigate hypertext links”).

Similarly, Avellan discloses a “tag file [] which maps the various locations of the action points on the web page,” Ex-1003 at 5:42-43 and 2:62 (stating that “action points” include “selectable links, text boxes, etc.”). This allows the user to “retain[] all the functionality of the website.” Ex-1003 at 5:47-52.

Thus, a POSITA would have been motivated to use Wannamaker’s MPEG data packet to transmit Avellan’s tag file as part of the output “video frame format.” The MPEG standard is not only a “video frame format” but it includes provisions for delivery of data frames that include metadata. Ex-1002, ¶140. Combining Avellan’s system and tag files with Wannamaker’s MPEG data packet would simplify the delivery of metadata mapping action points like hypertext links and/or metadata for text boxes and foreground text.

It would have been obvious for a POSITA to combine Wannamaker’s disclosure of MPEG metadata above with the system of Avellan. Ex-1002, ¶141. A POSITA would have had a reasonable expectation of success combining

Wannamaker’s disclosure of MPEG metadata packets above with the system of Avellan because Wannamaker uses the MPEG packets to transmit similar metadata—*i.e.*, foreground text and hypertext links—as the tag files disclosed in Avellan. Ex-1002, ¶141. Similarly, Avellan states that “[t]he tag file is preferably transmitted to the user computer 104 *with the compressed video data.*” Ex-1003 at 13:55-57. As a result, POSITAs would have understood that this information could be included in an MPEG metadata packet that is transmitted with the MPEG video data, as disclosed in Wannamaker, without requiring altering the operation of Avellan. Ex-1002, ¶141.

Indeed, the ’074 Patent does not purport to have invented a novel encoding technique that permitted the inclusion of such information, and instead simply discloses that such metadata can be “packaged in an MPEG Packet that is part of the MPEG Transport Stream.” Ex-1001 at 4:41-44.

As a result, Avellan in view of Wannamaker renders Claim 21 obvious.

F. Ground 6: Claim 16 is obvious in view of Avellan and Heikens.

a. Claim 16

Element 16a

Element 16a	The system of claim 12, wherein the media stream is sent to a broadcast internet protocol (IP) address associated with the content provider.
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Avellan in view of Heikens renders Claim 16 obvious.

Heikens discloses “a video server for supplying video channels to subscribers” and states that “an example of a common multimedia stream is a broadcast stream bound to a broadcast address, being a network broadcast address such as the broadcast IP address 255.255.255.255, or a broadcast hardware address such as the broadcast MAC address FF:FF:FF:FF:FF:FF:FF:FF.” Ex-1008 at 1:15-16 and 1:25-29.

It would have been obvious for a POSITA to combine Heiken’s disclosure of a broadcast IP address with the system of Avellan. Ex-1002, ¶145. Avellan discloses that its system can be used with “any wired or wireless medium which facilitates broadcasting” information and specifically mentions that connections can include WiFi and Wi-Max, which are commonly recognized as wireless network protocols that use Internet Protocols to communicate. Ex-1003 at 4:39-41 and 3:48-52; Ex-1002, ¶145.

Similarly, Avellan states that the user computers 104 “can be any suitable device . . . such as a laptop computer, desktop computer, smartphone, tablet PC, laptop, and Internet equipped television,” which a POSITA would recognize would all be capable of communicating using Internet Protocols. Ex-1003 at 3:53-56 and Ex-1002, ¶146. POSITAs would have been motivated to combine the broadcast system of Avellan with Heikens’ disclosure of using a broadcast IP address because use of broadcast IP addresses was “common” and was an easily-

implemented solution for broadcasting content over a network to downstream user devices that are already capable of communicating using Internet Protocols, such as computers, laptops, and Internet-equipped televisions. Ex-1002, ¶146.

A POSITA also would have had a reasonable expectation of success because use of a broadcast internet protocol (IP) address associated with the content provider to broadcast channels to IP-equipped devices, such as computers and “Internet equipped televisions” was commonly-known and commonly-used prior to the ’074 Patent, is compatible with the system of Avellan, and would not require altering that system, which Avellan states can be used with “any wired or wireless medium which facilitates broadcasting” information. Ex-1003 at 4:39-41 and 3:48-52. Ex-1002, ¶147. Indeed, the ’074 Patent does not purport to have invented the use of broadcast IP addresses. Ex-1002, ¶147.

As a result, Avellan in view of Heikens renders Claim 16 obvious.

G. Ground 7: Claim 19 is obvious in view of Avellan and Matthews.

a. Claim 19

Element 19a

Element 19a	The non-transitory computer-readable storage medium of claim 17, wherein the at least one media stream corresponds to at least one of an HTTP live stream (HLS), an HTTP playlist, and a Real-time Streaming Transport (RTSP) stream.
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Avellan in view of Matthews renders Claim 16 obvious.

Matthews teaches that “video content may be delivered over content delivery network 110 using a packet streaming protocol, *such as the known HTTP Live streaming protocol.*” Ex-1009 at 5:29-32.

It would have been obvious for a POSITA to combine Matthews’ disclosure of the HTTP live streaming protocol (HLS) with the system of Avellan, including for example its “live streaming television feeds” and “live broadcasting.” Ex-1003 at 8:18-21 and 12:37; Ex-1002, ¶150. A POSITA would have been motivated to do so because the HLS protocol is a well-known protocol that provides advantages for streaming live content, including supporting adaptive bit rate streaming which can adjust the video quality based on bandwidth and device capabilities without interrupting the stream. Ex-1002, ¶150. Similarly, another advantage is that HLS is supported by nearly all Internet-equipped devices that use HTTP, which makes it simple to implement. Ex-1002, ¶150.

A POSITA would have had a reasonable expectation of success to combine the system of Avellan with Matthew’s use of the HLS protocol because HLS can be implemented on a server that uses HTTP. Ex-1002, ¶151. In that regard, Avellan states that “HTTP is used to serve images, sound, and other content, in addition to HTML” and states that the system “can store the data in any suitable format(s) including HTTP format.” Ex-1003 at 1:25-26 and 8:52-53. Additionally, HLS uses H.264 or MPEG-4 Part 10 to encode video data, and H.264

is a video frame format that is compatible with Avellan’s disclosure that its system outputs a “video frame format.” Ex-1002, ¶151. Thus, a POSITA would recognize that use of HTTP Live Streaming would not require altering the system of Avellan. Ex-1002, ¶151. Instead, a POSITA would need only have applied a commonly-known and commonly-used transmission protocol that was tailored for the delivery of live content in order to deliver Avellan’s live streaming television broadcasts to users. Ex-1002, ¶150.

Indeed, the ’074 Patent does not purport to have invented the HTTP Live Streaming protocol and simply states that “a HTTP Live Streaming (HLS) generation program will produce the files and segment them as needed by the encoder and can then be serviced by the HTTP server.” Ex-1001 at 8:52-55.

As a result, Avellan in view of Matthews renders Claim 19 obvious.

H. Ground 8: Claim 20 is obvious in view of Avellan and Wilsher.

a. Claim 20

Elements 20a and 20b

Element 20a	The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and
Element 20b	in response, provide a previously recorded media stream to the content provider.

Avellan in view of Wilsher renders Claim 20 obvious.

Wilsher teaches delivering web content, including “videos” and “audio files,” obtained through a content URI, which—like in the system of Avellan—is rendered “in a manner substantially similar to the browser rendering of a webpage.” Ex-1010 at 12:6-10 and 12:25-34. Wilsher discloses the use of a “secondary URI” in the event of a network failure: a “*secondary URI may be a fallback URI if accessing of the URI fails* or otherwise encounters an error,” and Wilsher states that “[t]he secondary URI is preferably for an alternative media resource.” Ex-1010 at 19:48-51. “[I]f retrieving the media resource fails, *the system can attempt a second time from a different URI*” or “may access the error handling communication application logic, which can handle the error in any suitable manner.” Ex-1010 at 19:51-55.

Wilsher also teaches “*caching* transformed media resources of content URIs” and that “[a] cached media resource may be reused for a content URI.” Ex-1010 at 18:60-66. Therefore, Wilsher’s cached secondary resource is a “previously recorded media stream.” Accordingly, Wilsher’s communication platform provides previously recorded media streams in the event that a network failure is detected that affects connectivity with at least one website.

It would have been obvious for a POSITA to combine Wilsher’s disclosure above with the system of Avellan because Avellan already teaches the use of multiple gateway servers/caches for “redundancy” and that a recorded media

stream corresponding to a website (such as CNN) can be stored in each server's cache and can be immediately provided to a content provider requesting content from that website. Ex-1003 at 9:7-10, 9:55-57 and 10:46-56; Ex-1002, ¶155. A POSITA would have been motivated to use Wilsher's monitoring system to take advantage of Avellan's disclosure of storing media streams on a series of redundant servers—i.e., its use of a “fallback URI”—because this would minimize user disruption in the case of a network error or other error that impacts connectivity with a first server. Ex-1002, ¶155.

A POSITA would also have had a reasonable expectation of success in doing so because of the similarities in Wilsher and Avellan. Ex-1002, ¶156. Like Wilsher, Avellan already teaches the use of multiple servers for redundancy and teaches storing generated streams in cache. A POSITA would have recognized that the system of Avellan, with the described redundancy, is capable of playing back previously-cached content in the event of a server or network failure, and implementing network failure detecting logic that provides a previously-cached video stream to the user when triggered could be done without altering the system of Avellan. Ex-1002, ¶156.

As a result, Avellan in view of Wilsher renders Claim 20 obvious.

I. Ground 9: Claim 20 is obvious in view of Avellan and the General Knowledge of a POSITA.

a. Claim 20

Elements 20a and 20b

Element 20a	The non-transitory computer-readable storage medium of claim 17, storing additional instructions which, when executed by the processor, result in operations comprising: detect a network failure affecting connectivity with the at least one website; and
Element 20b	in response, provide a previously recorded media stream to the content provider.

Avellan in view of the general knowledge of a POSITA renders Claim 20 obvious.

It would have been obvious for a POSITA to provide for playback of a previously recorded media stream in the event of a detected network failure affecting connectivity with a source website because Avellan already teaches the use of multiple gateway servers/caches for “redundancy” and that a recorded media stream corresponding to a website (such as CNN) can be stored in each server’s cache and can be immediately provided to a content provider requesting content from that website. Ex-1003 at 9:7-10, 9:55-57 and 10:46-56; Ex-1002, ¶158. In the event of detecting a connectivity problem with a source, it would have been a simple matter for a POSITA to use Avellan’s system to playback a previously recorded media stream. A POSITA would have been motivated to do so because

this would minimize user disruption in the case of a network error or other error that impacts connectivity with a first server. Ex-1002, ¶158.

A POSITA would also have had a reasonable expectation of success in doing so because Avellan already teaches the use of multiple servers for redundancy and teaches storing generated streams in cache, and a POSITA would readily understand how to detect a connectivity error and play back a cached stream in such an event. Ex-1002, ¶159. A POSITA would have recognized that the system of Avellan, with the described redundancy, is capable of playing back previously-cached content in the event of a server or network failure, and implementing network failure detecting logic that provides a previously-cached video stream to the user when triggered could be done without altering the system of Avellan. Ex-1002, ¶159.

As a result, Avellan in view of the general knowledge of a POSITA renders Claim 20 obvious

X. CONCLUSION

For the reasons set forth above, Petitioners have established a reasonable likelihood that all Challenged Claims are unpatentable. Accordingly, Petitioners respectfully request institution of *inter partes* review and cancelation of the Challenged Claims.

Respectfully submitted,

Dated: December 20, 2024

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XI. CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Petitioners hereby certify, in accordance with and reliance on the word count provided by the word-processing system used to prepare this petition, that the number of words in this paper is 11,631. Pursuant to 37 C.F.R. §42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under §42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: December 20, 2024 /Masood Anjom/
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Counsel for Petitioners,
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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a) that on December 20, 2024, a true and correct copy of the foregoing “PETITION FOR INTER PARTES REVIEW” was served via Priority Mail Express on the Patent Owner at the following correspondence address of record as listed in the USPTO electronic filing system:

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and was served via electronic mail upon counsel of record for the Patent Owner in the litigation in the U.S. District Court for the Southern District of Florida:

Edwin A. Hernandez v. Stingray Digital Group, et al
Case No. 1:24-cv-21226-RAR

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