IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

UNILOC 2017 LLC Plaintiff, v. VERIZON COMMUNICATIONS INC., CELLCO PARTNERSHIP INC. D/B/A VERIZON WIRELESS, VERIZON BUSINESS NETWORK SERVICES, INC., and VERIZON DIGITAL MEDIA SERVICES, INC., Defendants.	§	Case No. 2:18-cv-00536 Jury Trial Demanded

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Uniloc 2017 LLC ("Uniloc"), by and through the undersigned counsel, hereby files this Complaint and makes the following allegations of patent infringement relating to U.S. Patent Nos. 6,895,118 and 6,628,712 against Defendants Verizon Communications, Inc., Cellco Partnership Inc. d/b/a Verizon Wireless, Verizon Business Network Services, Inc., and Verizon Digital Media Services, Inc. (collectively "Verizon") and alleges as follows upon actual knowledge with respect to itself and its own acts and upon information and belief as to all other matters:

NATURE OF THE ACTION

1. This is an action for patent infringement. Uniloc alleges that Verizon infringes U.S. Patent Nos. 6,895,118 (the "'118 patent") and 6,628,712 (the "'712 patent"), copies of which are attached hereto as Exhibits A-B (collectively, "the Asserted Patents").

2. Uniloc alleges that Verizon directly and indirectly infringes the Asserted Patents by making, using, offering for sale, selling and importing products and services that: (1) perform a method of coding a digital image comprising macroblocks in a binary data stream including the Verizon Uplynk Video Streaming service and (2) practices a method of switching from a first compressed data input stream to a second compressed data input stream, resulting in a compressed data output stream, including its Digital Media Services (DMS), including its Uplynk Video Streaming Services (UVS). Uniloc further alleges that Verizon induces and contributes to the infringement of others. Uniloc seeks damages and other relief for Verizon's infringement of the Asserted Patents.

THE PARTIES

3. Uniloc 2017 LLC is a Delaware corporation having places of business at 1209 Orange Street, Wilmington, Delaware 19801, 620 Newport Center Drive, Newport Beach, California 92660 and 102 N. College Avenue, Suite 303, Tyler, TX 75702.

4. Uniloc holds all substantial rights, title and interest in and to the Asserted Patents.

5. Upon information and belief, Defendant Verizon Communications Inc. is a Delaware corporation with a place of business in New York, New York. Verizon Communications Inc. can be

served with process by serving its registered agent for service of process in Texas at CT Corporation System, 1999 Bryan St., Suite 900, Dallas, Texas 75201.

6. Upon information and belief, Defendant Cellco Partnership Inc. d/b/a/ Verizon Wireless is a Delaware general partnership with a place of business in Basking Ridge, New Jersey. Cellco Partnership Inc. d/b/a Verizon Wireless can be served with process by serving its registered agent for service of process in Texas at CT Corporation System, 1999 Bryan St., Suite 900, Dallas, Texas 75201.

7. Upon information and belief, Defendant Verizon Business Network Services, Inc. is a Delaware corporation with a place of business in Richardson, Texas. Verizon Business Network Services, Inc. can be served with process by serving its registered agent for service of process in Texas at CT Corporation System, 1999 Bryan St., Suite 900, Dallas, Texas 75201.

8. Upon information and belief, Defendant Verizon Digital Media Services, Inc. is a California corporation with a place of business in Los Angeles, California. Verizon Digital Media Services, Inc. can be served with process by serving its registered agent for service of process in Texas at CT Corporation System, 1999 Bryan St., Suite 900, Dallas, Texas 75201.

9. Verizon's website identifies at least the following locations for Verizon retail stores in this District: 2035 North Central Expressway, Suite 620, McKinney, Texas; 8988 South Broadway Avenue, Suite 110, Tyler, Texas and 2330 Preston Road, Suite 500, Frisco, Texas.

10. Upon information and belief, Verizon has invested more than $1 billion in plant and equipment and owns or manages hundreds of buildings and locations in Texas.

11. Upon information and belief, Verizon has more than 10,000 employees in Texas.

JURISDICTION AND VENUE

12. This action for patent infringement arises under the Patent Laws of the United States, 35 U.S.C. § 1 et. seq. This Court has original jurisdiction under 28 U.S.C. §§ 1331 and 1338.

13. This Court has both general and specific jurisdiction over Verizon because Verizon has committed acts within the Eastern District of Texas giving rise to this action and has established

minimum contacts with this forum such that the exercise of jurisdiction over Verizon would not offend traditional notions of fair play and substantial justice. Defendant Verizon, directly and through subsidiaries, intermediaries (including distributors, retailers, franchisees and others), has committed and continues to commit acts of patent infringement in this District, by, among other things, making, using, testing, selling, licensing, importing and/or offering for sale/license products and services that infringe the Asserted Patents.

14. Venue is proper in this district and division under 28 U.S.C. §§ 1391(b)-(d) and 1400(b) because Verizon has committed acts of infringement in the Eastern District of Texas and has multiple regular and established places of business in the Eastern District of Texas.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 6,895,118

15. The allegations of paragraphs 1-14 of this Complaint are incorporated by reference as though fully set forth herein.

16. The ’118 patent, titled “Method Of Coding Digital Image Based on Error Concealment,” issued on May 17, 2005. A copy of the ’118 patent is attached as Exhibit A.

17. Pursuant to 35 U.S.C. § 282, the ’118 patent is presumed valid.

18. Invented by Koninklijke Philips Electronics N.V., the inventions of the ’118 patent were not well-understood, routine or conventional at the time of the invention. The specification discloses previous work done to reduce the amount of data required to send a video stream by intentionally dropping certain image blocks, and then concealing the lost blocks through the use of spatial interpolation. ’118 patent at 1:14-32. The publication referenced in the specification describes how a JPEG coder can be modified to intentionally drop image blocks that can be reasonably reconstructed from neighboring transmitted blocks. The schemes described therein achieved data reduction by replacing dropped blocks with constant value blocks, or by modifying block addressing information to communicate the addresses of the dropped blocks. *Id.* at 1:21-32.

19. The inventors observed that block information could be dropped altogether, simulating

lost data in the video stream, but for the synchronization issues such data dropping can cause at the decoder. MPEG-4, a more modern coding standard than JPEG or MPEG-1, contained a new mechanism to recover from lost data through periodically inserted resynchronization markers. *Id.*at 1:35-42. One aspect of the invention was to selectively combine block dropping with resynchronization markers to enable more efficient compression. The inventors include a step in their invention to evaluate the potential data savings of dropping a block or blocks relative to the overhead of the resynchronization markers. *Id.* At 2:11-27. In addition to spatial reconstruction of dropped blocks, the inventors furthermore incorporated the additional mechanism of temporal interpolation to support reconstruction of dropped blocks, using motion vector information from neighboring blocks. *Id.* at 3:19-28.

20. A person of ordinary skill in the art reading the ’118 patent and its claims would understand that the patent’s disclosure and claims are drawn to solving a specific, technical problem arising in achieving more efficient video compression. Moreover, a person of ordinary skill in the art would understand that the claimed subject matter of the ’118 patent presents advancements in the field of digital image coding. And, as detailed by the specification, the prior tools for reducing compressed video data rates was such that a new and novel approach was required.

21. In light of the foregoing, a person of ordinary skill in the art would understand that claim 1 of the ’118 patent is directed to a method of coding a digital image comprising macroblocks in a binary data stream. *Id.* at 8:2-3. Moreover, a person of ordinary skill in the art would understand that claim 1 of the ’118 patent contains the inventive concept of (1) an estimation step, for macroblocks, of a capacity to be reconstructed via an error concealment method, (2) a decision step for macroblocks to be excluded from the coding, a decision to exclude a macroblock from coding being made on the basis of the capacity of such macroblock to be reconstructed, and (3) a step of inserting a resynchronization marker into the binary data stream after the exclusion of one or more macroblocks. *Id.* at 8:4-12.

22. Upon information and belief, Verizon makes, uses, offers for sale, and/or sells in the

United States and/or imports into the United States products and services that practice a method for coding a digital image comprising macroblocks in a binary data stream, including the Verizon Uplynk Video Streaming service and Verizon FiOS TV (collectively the "Accused Infringing Devices").

23. Upon information and belief, the Accused Infringing Devices infringe at least claim 1 in the exemplary manner described below.

24. The Accused Infringing Devices use H.264 (AVC) streams for coding video data (digital images) including macroblocks embedded in a binary stream.

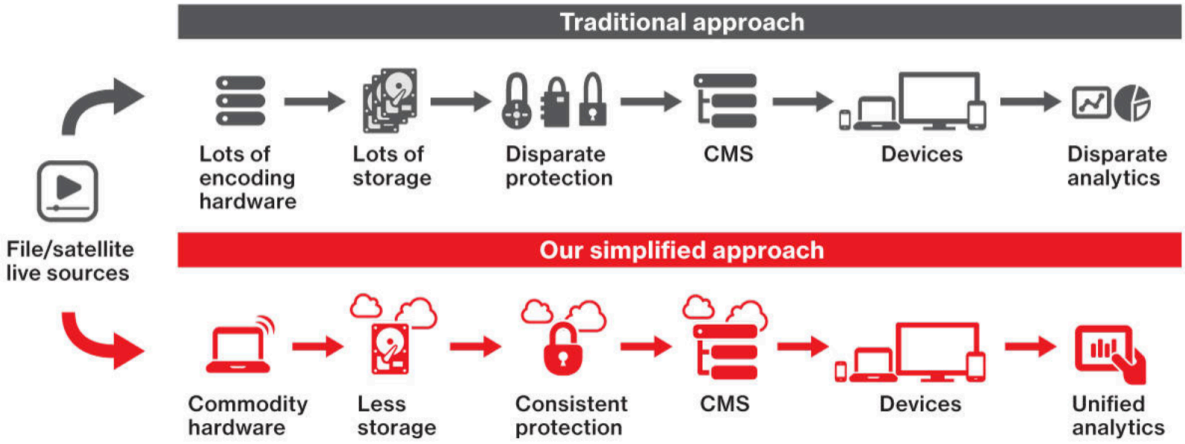
25. H.264 is a widely used video compression format with decoder support on web browsers, TVs and other consumer devices. Moreover, H.264 codes digital images comprising macroblocks streams.

26. The Accused Infringing Devices receive input video streams which are then encoded and/or transcoded using at least the H.264 standard. This is a widely used video compression format with decoder support on web browsers, televisions and other consumer devices. H.264 uses motion compressor and estimator for motion coding video streams.

Encode & playback

Encode once. Play everywhere.

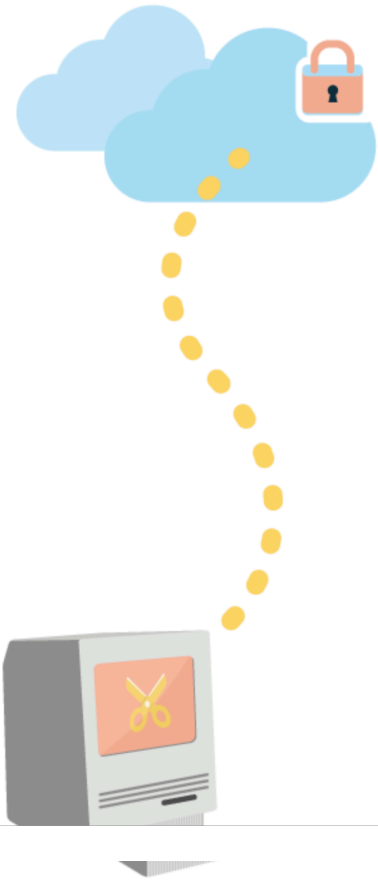
Streaming is broken. Our Uplynk Video Streaming service provides simplified online video encoding that allows you to reach multiple platforms with **just a single workflow**.



Simplifying the entire process

Don't pay more for encoding, storage, encryption and distribution and expensive, proprietary encoding appliances. By using a single workflow across all platforms, we'll help you collapse your workflow into one for high-quality consistent viewer experiences that scale to every device, easily and cost effectively.

Upload & encode



How does it work?
A small app, called the Slicer runs on basic hardware in your facility (a laptop will do). The Slicer's patent-pending process chops your video into smaller pieces of work, encrypts them, and then pushes them into the cloud for encoding. You get the security benefits of having your own hardware, but with the cost and scalability benefits of the cloud.

No capex, less opex
Hardware encoders aren't the only cost savings. You also won't need third-party upload tools, and the egress bandwidth requirements are less than traditional methods.

Simpler
The Slicer takes care of all the heavy lifting. It creates a single workflow that will work across all platforms, and ensures important data like closed captioning is preserved.

Faster
Because upload and encode happen in parallel, encode finishes seconds after upload. Files are validated upfront, so you'll never upload a 30GB video only to discover it's invalid.

Adaptive HD, always
High definition, adaptive streaming is included in our service for free. The Slicer automatically calculates ideal encoding settings to ensure your content looks great on all devices.

Cinematic sound
Dolby Audio support means your audience can enjoy vibrant, high-quality sound with enhanced stereo, and up to 7.1 multichannel audio, delivered to all leading streaming platforms.

Live and on demand
The Slicer process works the same for both live and on-demand content, providing unprecedented flexibility down the road.

Non-proprietary
Content is encoded to standard H.264 for video and AAC for audio. Don't worry, you're not getting locked into something proprietary.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/

27. The Accused Infringing Devices also receive input video streams which are then encoded and/or transcoded using at least the H.264 standard and delivered to endpoints, such as a set-top box (STB), website or mobile application.

Installation Guide

Cisco CHS 335HDC High-Definition Set-Top with Multi-Stream CableCARD (M-Card) Interface

AVC VIDEO LICENSE

With respect to each AVC/H.264 product, we are obligated to provide the following notice:

THIS PRODUCT IS LICENSED UNDER THE AVC PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER TO (i) ENCODE VIDEO IN COMPLIANCE WITH THE AVC STANDARD ("AVC VIDEO") AND/OR (ii) DECODE AVC VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE AVC VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION MAY BE OBTAINED FROM MPEG LA, L.L.C. SEE HTTP://WWW.MPEGLA.COM.

Accordingly, please be advised that service providers, content providers, and broadcasters are required to obtain a separate use license from MPEG LA prior to any use of AVC/H.264 encoders and/or decoders.

Source:
https://www.verizon.com/cs/groups/public/documents/adacct/user_guide_chs_335hdc.pdf

> This Recommendation | International Standard was developed in response to the growing need for higher compression of moving pictures for various applications such as videoconferencing, digital storage media, television broadcasting, internet streaming, and communication. It is also designed to enable the use of the coded video representation in a flexible manner for a wide variety of network environments. The use of this Recommendation | International Standard allows motion video to be manipulated as a form of computer data and to be stored on various storage media, transmitted and received over existing and future networks and distributed on existing and future broadcasting channels.

Source: https://www.itu.int/rec/T-REC-H.264-201704-I/en , p. i

> As in previous video coding Recommendations and International Standards, a macroblock, consisting of a 16x16 block of luma samples and two corresponding blocks of chroma samples, is used as the basic processing unit of the video decoding process.
>
> A macroblock can be further partitioned for inter prediction. The selection of the size of inter prediction partitions is a result of a trade-off between the coding gain provided by using motion compensation with smaller blocks and the quantity

Source: https://www.itu.int/rec/T-REC-H.264-201704-I/en, section 0.6.3

28. The Accused Infringing Devices' H.264 coding supports skipped macroblocks. Before a macroblock is coded, an estimation is made of whether that macroblock can be reconstructed with an error concealment method by examining its motion characteristics, and checking to see that the resulting prediction contains no non-zero (i.e. all zero) quantized transform coefficients. This estimation provides an indication of the capacity for the macroblock to be reconstructed from properties of neighboring macroblocks, allowing the missing block to be concealed by inferring its properties.

> **Annex B**
>
> **Byte stream format**
>
> (This annex forms an integral part of this Recommendation | International Standard.)
>
> This annex specifies syntax and semantics of a byte stream format specified for use by applications that deliver some or all of the NAL unit stream as an ordered stream of bytes or bits within which the locations of NAL unit boundaries need to be identifiable from patterns in the data, such as Rec. ITU-T H.222.0 | ISO/IEC 13818-1 systems or Rec. ITU-T H.320 systems. For bit-oriented delivery, the bit order for the byte stream format is specified to start with the MSB of the first byte, proceed to the LSB of the first byte, followed by the MSB of the second byte, etc.

Source: https://www.itu.int/rec/T-REC-H.264-201704-I/en, Annex B

29. The Accused Infringing Devices' H.264 encoders perform a decision step to determine if a macroblock should be excluded from coding (skipped), with the decision to exclude made on the basis of its capacity to be reconstructing by inferring its motion properties from neighboring macroblocks, and

based on all zero quantized transform coefficients.

> Skipped Mode:
> In addition to the macroblock modes described above, a P-slice macroblock can also be coded in the so-called skip mode. If a macroblock has motion characteristics that allow its motion to be effectively predicted from the motion of neighboring macroblocks, and it contains no non-zero quantized transform coefficients, then it is flagged as skipped. For this mode, neither a quantized prediction error signal nor a motion vector or reference index parameter are transmitted. The reconstructed signal is computed in a manner similar to the prediction of a macroblock with partition size 16 × 16 and fixed reference picture index equal to 0. In contrast to previous video coding standards, the motion vector used for reconstructing a skipped macroblock is inferred from motion properties of neighboring macroblocks rather than being inferred as zero (i.e., no motion).

Source: http://mrutyunjayahiremath.blogspot.com/2010/09/h264-inter-predn.html

30. Skipped macroblocks are communicated with a mb_skip_flag = 1 (resynchronization marker at the point where the macroblocks are not coded (skipped)) in the binary data stream.

> Skipped Mode:
> In addition to the macroblock modes described above, a P-slice macroblock can also be coded in the so-called skip mode. If a macroblock has motion characteristics that allow its motion to be effectively predicted from the motion of neighboring macroblocks, and it contains no non-zero quantized transform coefficients, then it is flagged as skipped. For this mode, neither a quantized prediction error signal nor a motion vector or reference index parameter are transmitted. The reconstructed signal is computed in a manner similar to the prediction of a macroblock with partition size 16 × 16 and fixed reference picture index equal to 0. In contrast to previous video coding standards, the motion vector used for reconstructing a skipped macroblock is inferred from motion properties of neighboring macroblocks rather than being inferred as zero (i.e., no motion).

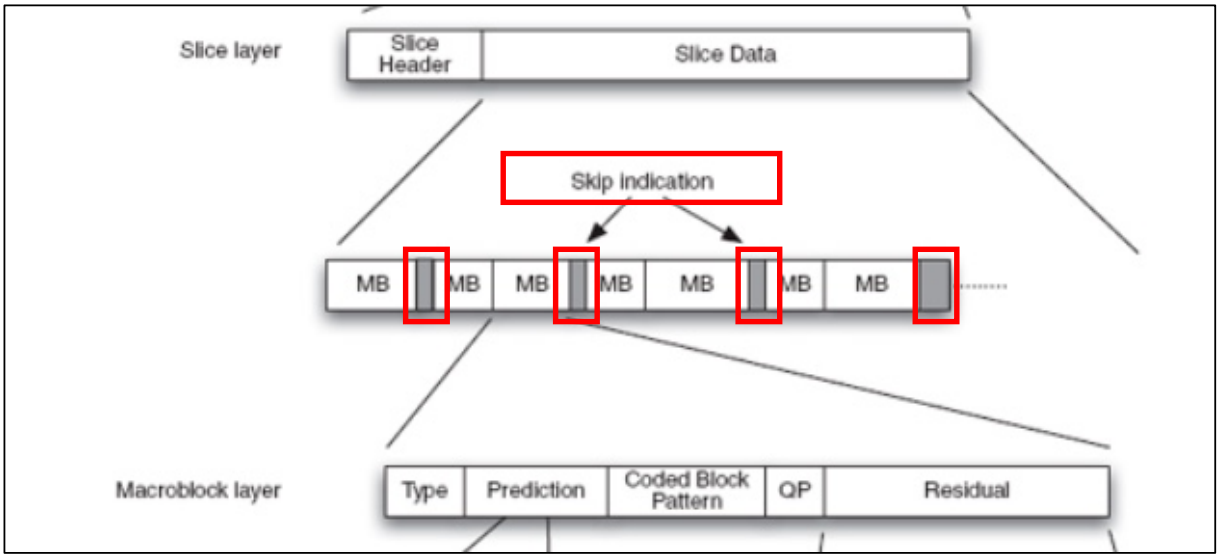
Source: http://mrutyunjayahiremath.blogspot.com/2010/09/h264-inter-predn.html

> **3.139** **skipped macroblock**: A *macroblock* for which no data is coded other than an indication that the *macroblock* is to be decoded as "skipped". This indication may be common to several *macroblocks*.

Source: https://www.itu.int/rec/T-REC-H.264-201704-I/en, p13

> **3.139** **skipped macroblock**: A *macroblock* for which no data is coded other than an indication that the *macroblock* is to be decoded as "skipped". This indication may be common to several *macroblocks*.

Source: https://www.itu.int/rec/T-REC-H.264-201704-I/en, p13



Source: https://www.safaribooksonline.com/library/view/the-h264 advanced/9780470516928/ch05.html#macroblock_layer

31. Verizon has infringed, and continues to infringe, at least claim 1 of the '118 patent in the United States, by making, using, offering for sale, selling and/or importing the Accused Infringing Devices in violation of 35 U.S.C. § 271(a).

32. Verizon also has infringed, and continues to infringe, at least claim 1 of the '118 patent by actively inducing others to use the Accused Infringing Devices. Verizon's users, customers, agents or other third parties who use the Accused Infringing Devices in accordance with Verizon's instructions infringe claim 1 of the '118 patent, in violation of 35 U.S.C. § 271(a). Verizon intentionally instructs its customers to infringe through support information, demonstrations, brochures and user guides, such as those located at: www.verizonwireless.com/support/; https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/; https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/; https://docs.vdms.com/video/; https://docs.vdms.com/video/#Tutorials/Tutorials.htm. Verizon is thereby liable for infringement of the '118 patent under 35 U.S.C. § 271(b).

33. Verizon also has infringed, and continues to infringe, at least claim 1 of the '118 patent by offering to commercially distribute, commercially distributing, or operating the Accused Infringing Devices which are used in practicing the processes, or using the systems, of the '118 patent, and

constitute a material part of the invention. Verizon knows portions of the Accused Infringing Devices to be especially made or especially adapted for use in infringement of the '118 patent, not a staple article, and not a commodity of commerce suitable for substantial noninfringing use. Verizon is thereby liable for infringement of the '118 patent under 35 U.S.C. § 271(c).

34. Upon information and belief, Verizon may have infringed and continues to infringe the '118 patent through other software and devices utilizing the same or reasonably similar functionality, including other versions of the Accused Infringing Devices.

35. Verizon's acts of direct and indirect infringement have caused and continue to cause damage to Uniloc and Uniloc is entitled to recover damages sustained as a result of Verizon's wrongful acts in an amount subject to proof at trial.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 6,628,712

36. The allegations of paragraphs 1-14 of this Complaint are incorporated by reference as though fully set forth herein.

37. The '712 patent, titled "Seamless Switching of MPEG Video Streams," issued on September 30, 2003. A copy of the '712 patent is attached as Exhibit B.

38. Pursuant to 35 U.S.C. § 282, the '712 patent is presumed valid.

39. Invented by Koninklijke Philips Electronics, N.V., the inventions of the '712 patent were not well-understood, routine or conventional at the time of the invention. At the time of invention of the '712 patent, encoding/decoding systems included a method of switching from a first encoded video sequence to a second one. '712 patent at 1:15-19. In order to avoid underflow or overflow of the decoded buffer, transcoding of the input streams is used to shift the temporal position of the switching point and to obtain at the output of the transcoders, streams containing an identical entry point and the same decoder buffer characteristics. *Id*. at 1:19-24. This prior art method has several major drawbacks. According to the background art, the output bit rate of each transcoder is equal to its input bit rate, which makes the switching method not very flexible. *Id*. at 1:15-28. Finally, the solution of the background art

is rather complex and costly to implement as the switching device needs two transcoders. *Id*. at 1:32-35.

40. The inventive solution of the claimed inventions of the '712 patent provides an improved method of switching between encoded video streams that is both flexible and easy to implement and overcomes the disadvantages of the prior art. *Id*. at 1:38-40. For example, the solution of the '712 patent allows switching from a first compressed data stream encoded at a bit rate R1 to a second compressed data stream encoded at a bit rate R2, the output stream resulting from the switch being encoded again, using the transcoding system, at a bit rate R where R may be different from R1 and R2. *Id*. at 1:52-59. Thus, the patented solution has greater flexibility than the prior art. *Id*.

41. A person of ordinary skill in the art reading the '712 patent and its claims would understand that the patent's disclosure and claims are drawn to solving a specific, technical problem arising in the field of video compression. In particular, the present invention relates to the technical problem involved in switching from a first compressed data input stream to a second compressed data input stream, resulting in a compressed data output stream, and is applicable, for example, to switching and editing MPEG compressed video signals. *Id*. at 1:6-12.

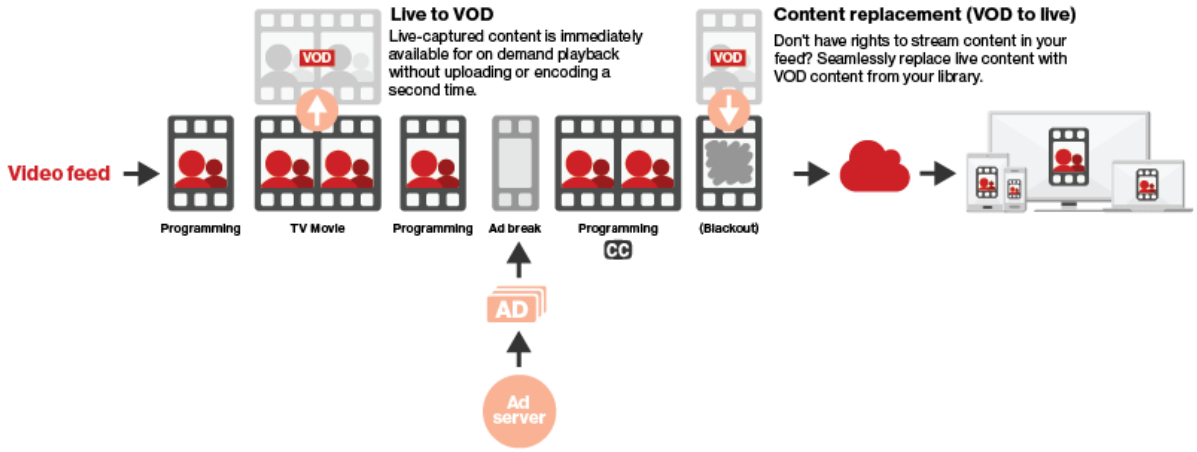
42. Upon information and belief, Verizon makes, uses, offers for sale, and sells in the United States and/or imports into the United States Digital Media Services (DMS), including its Uplynk Video Streaming Services (UVS) that practices a method of switching from a first compressed data input steam to a second compressed data input stream, resulting in a compressed data output stream (collectively, the "Accused Infringing Devices").

43. Upon information and belief, the Accused Infringing Devices infringe at least claim 4 of the '712 patent in the exemplary manner described below.

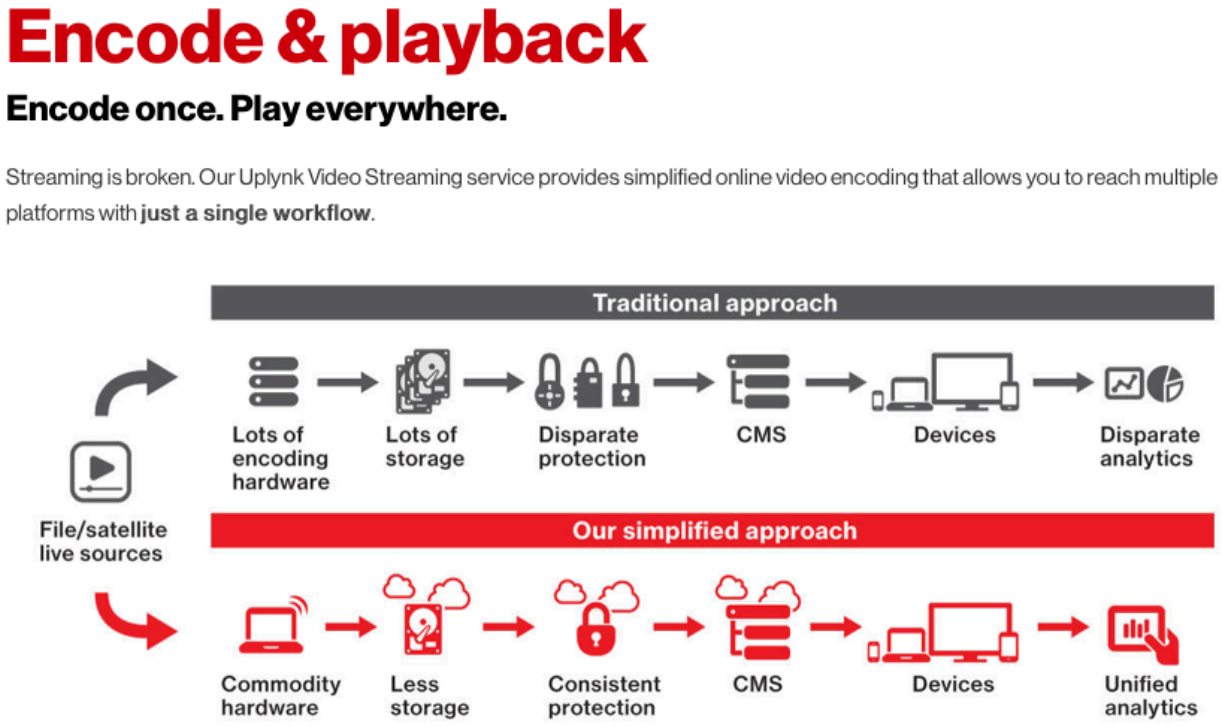
44. The Accused Infringing Devices practice a method of switching from a first compressed data input stream to a second compressed data input stream, resulting in a compressed data output stream.

45. The Accused Infringing Devices implement server-side dynamic ad insertion that switches

from the programming video to the ad video at the beginning of an ad break and from the ad video back to the programing video at the end of an ad break. The Accused Infringing Devices also implement switching to and back from live-captured content during video streaming. The output video is a compressed video data stream encoded in H.264 standard.



Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/live-linear-on-demand/, last accessed Nov. 12, 2018, Exhibit A.



Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/, last accessed Nov. 12, 2018, Exhibit B.

Non-proprietary

Content is encoded to standard H.264 for video and AAC for audio. Don't worry, you're not getting locked into something proprietary.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/, last accessed Nov. 12, 2018, Exhibit B.

46. The Accused Infringing Devices buffer and store the data contained in the first and second input streams. The programming videos, both live and on demand, are uploaded, encoded and stored by the Accused Infringing Devices.

Upload & encode

How does it work?

A small app, called the Slicer runs on basic hardware in your facility (a laptop will do). The Slicer's patent-pending process chops your video into smaller pieces of work, encrypts them, and then pushes them into the cloud for encoding. You get the security benefits of having your own hardware, but with the cost and scalability benefits of the cloud.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/, last accessed Nov. 12, 2018, Exhibit B.

Live and on demand

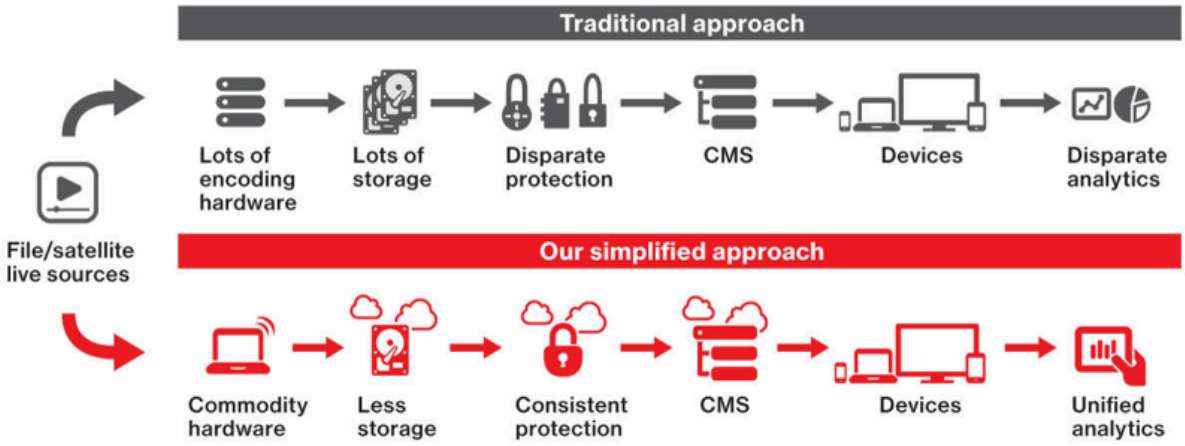
The Slicer process works the same for both live and on-demand content, providing unprecedented flexibility down the road.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/, last accessed Nov. 12, 2018, Exhibit B.

Encode & playback

Encode once. Play everywhere.

Streaming is broken. Our Uplynk Video Streaming service provides simplified online video encoding that allows you to reach multiple platforms with **just a single workflow**.



Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/, last accessed Nov. 12, 2018, Exhibit B.

47. The Accused Infringing Devices buffer and store compressed ad videos retrieved from third-party ad servers for its server-side ad insertion.

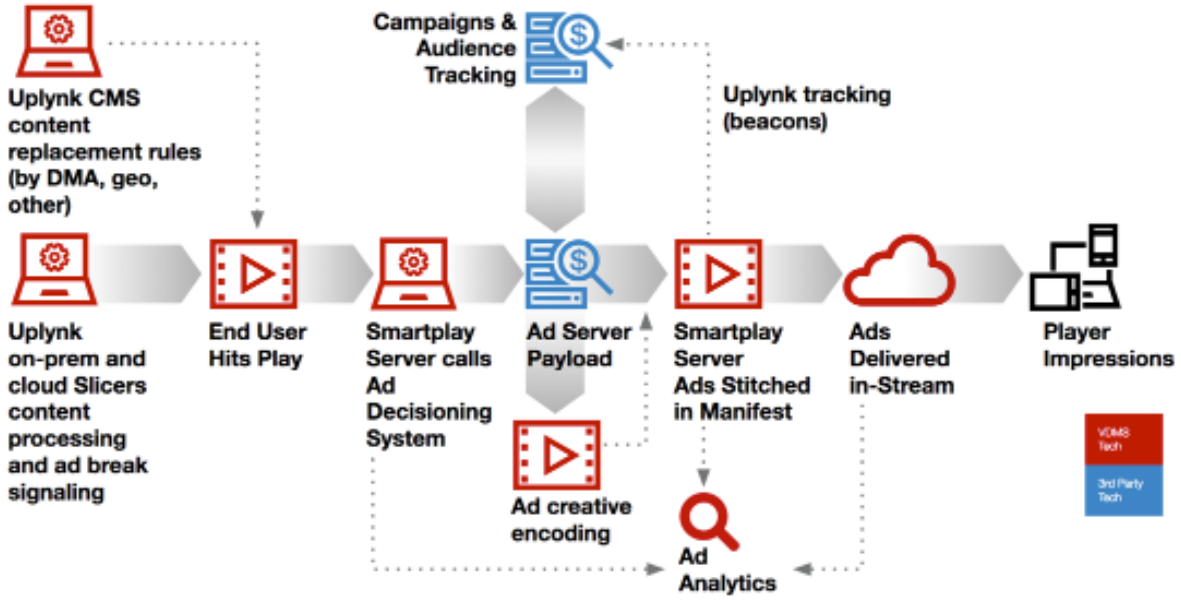
Server-side ad insertion

Simplify & scale your return

What is server-side ad insertion?

Server-side ad insertion, also known as dynamic ad insertion or ad stitching, is a more streamlined approach to advertising than traditional client-side ad insertion. Server-side ad insertion stitches the ad into the video stream rather than delivering it from a third-party ad server, effectively avoiding the threat of ad blockers and providing a better viewer experience with fully dynamic, targeted ads during live and on-demand streaming.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/, last accessed Nov. 12, 2018, Exhibit C.



Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/, last accessed Nov. 12, 2018, Exhibit C.

48. The Accused Infringing Devices control the storage of the input streams in the buffer system in order to switch, at a switch request, from the first input stream to the second input stream for its server-side dynamic ad insertion or ad stitching.

Server-side ad insertion

Simplify & scale your return

What is server-side ad insertion?

Server-side ad insertion, also known as dynamic ad insertion or ad stitching, is a more streamlined approach to advertising than traditional client-side ad insertion. Server-side ad insertion stitches the ad into the video stream rather than delivering it from a third-party ad server, effectively avoiding the threat of ad blockers and providing a better viewer experience with fully dynamic, targeted ads during live and on-demand streaming.

Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/, last accessed Nov. 12, 2018, Exhibit C.

49. The switch request the Accused Infringing Devices use includes the Society of Cable Telecommunications Engineers (SCTE) triggers for identifying an impending ad break.

"Most viewers don't realize there's a signaling system inside each over-the-air (OTA) broadcast: inaudible tones called SCTE triggers that show local affiliate stations where to insert either national or local ads. This works on a broadcasting level, but translating similarly localized ads to a digital format was a challenge for broadcasters – until now.

.....

One-to-one session management drastically reduces this cost by leveraging the same SCTE triggers from the broadcast playout system and uses them to enable dynamically targeted local ads. "

Source: https://www.verizondigitalmedia.com/blog/2018/10/why-one-to-one-session-management-is-the-advertising-strategy-of-the-future/, last accessed Nov. 12, 2018, Exhibit D.

SCTE 35 2016

1. Introduction

1.1. Executive Summary

SCTE 35, Digital Program Insertion Cueing Message for Cable, is the core signaling standard for advertising and distribution control (ex. blackouts) of content for content providers and content distributors. SCTE 35 is being applied to QAM/IP, Title VI/TVE (TV Everywhere), and live/time shifted (DVR, VOD, etc.) delivery. SCTE 35 signals can be used to identify advertising breaks, advertising content, and programming content (ex. specific Programs and Chapters within a Program).

Source: https://www.scte.org/SCTEDocs/Standards/SCTE%2035%202016.pdf, Page 7, last accessed Oct. 1, 2018, Exhibit F.

12.2.1. HLS cue tags

The #EXT-X-SCTE35 is the only tag defined by this standard.

Table 27 - Tag #EXT-X-SCTE35

Tag Name	Attributes	Description
#EXT-X-SCTE35	CUE DURATION ELAPSED ID TIME TYPE	Tag representing an embedded SCT35 message as a binary representation as described in section 7.4 The binary representation ***shall*** be encoded in Base64 as defined in section 7.4 of [RFC 4648] with W3C recommendations. The client or manifest manipulator ***should*** decode the Base64 encoded string, then apply Table 1to interpret the message.

Table 28 - Tag attributes

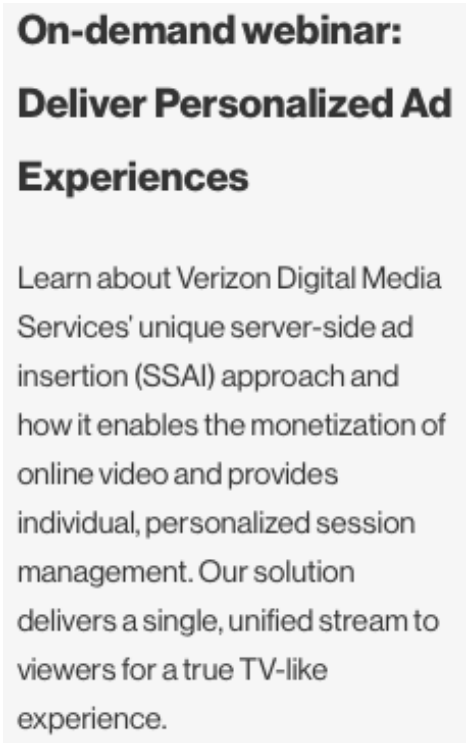
Attribute Name	Attribute Type	Required	Description
CUE	String	Required	The SCTE 35 binary message encoded in Base64 as defined in section 7.4 of [RFC 4648] with W3C recommendations.
DURATION	Double	Optional	The duration of the signaled sequence defined by the CUE. The duration is expressed in seconds to millisecond accuracy.

Attribute Name	Attribute Type	Required	Description
ELAPSED	Double	Optional	Offset from the CUE (typically a start segmentation type) of the earliest presentation time of the HLS media segment that follows. If an implementation removes fragments from the manifest file (ex. live application), the ELAPSED value ***shall*** be adjusted by the duration of the media segments removed. Elapsed is expressed in seconds to millisecond accuracy.

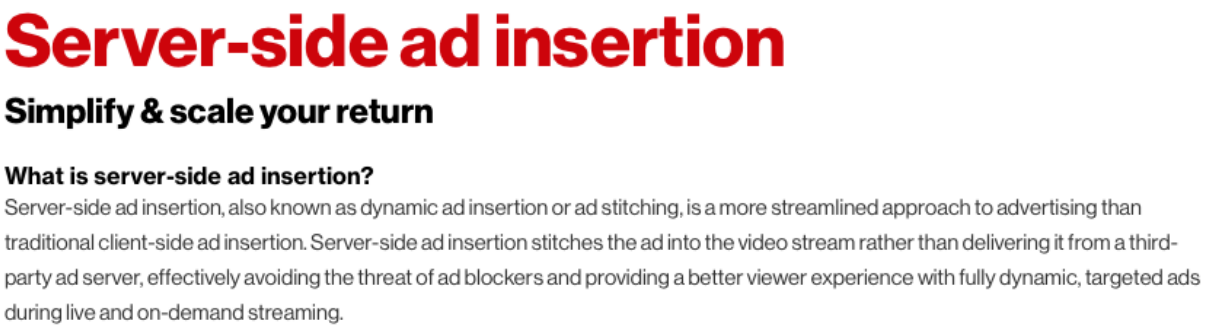
Source: https://www.scte.org/SCTEDocs/Standards/SCTE%2035%202016.pdf, Pages 70-71, last accessed Oct. 1, 2018, Exhibit F.

50. The Accused Infringing Devices provide a transcoding system (TS) including a quantization block and a buffer, wherein occupancy of the buffer in the transcoding system is controlled by feedback to the quantization block to provide the output stream in a seamless way from the output of the commutation device.

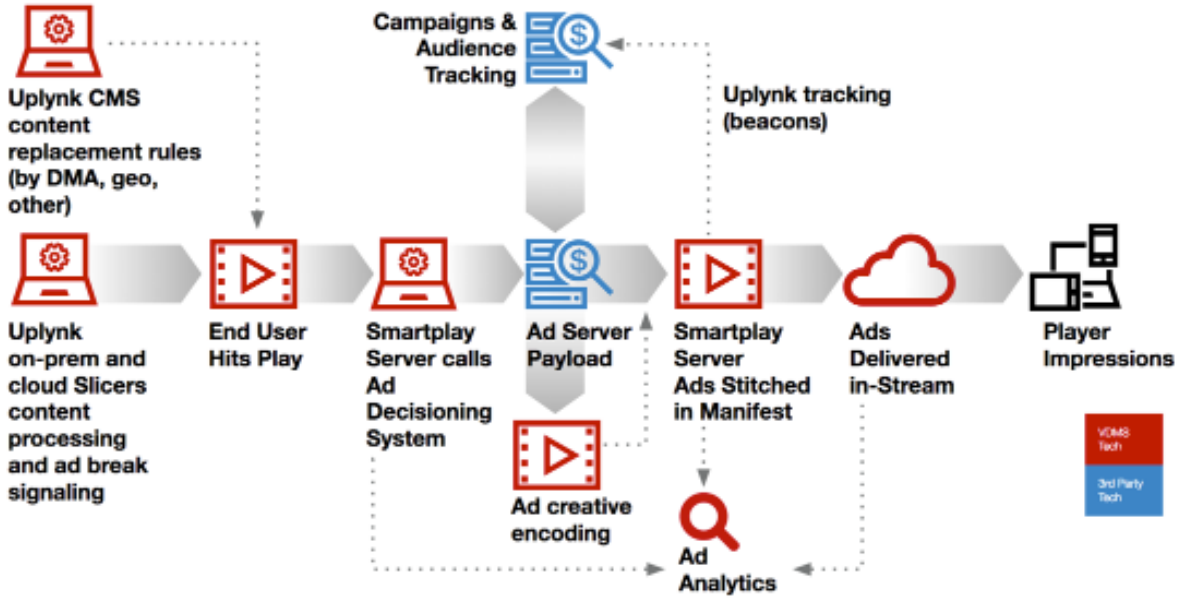
51. For its server-side ad insertion, the Accused Infringing Devices transcode the compressed ad videos retrieved from third party ad servers to "deliver a single, unified stream to viewers for a true TV-like experience."



Source: https://www.verizondigitalmedia.com/server-side-ad-insertion-industry-trends/, last accessed Nov. 12, 2018, Exhibit E.

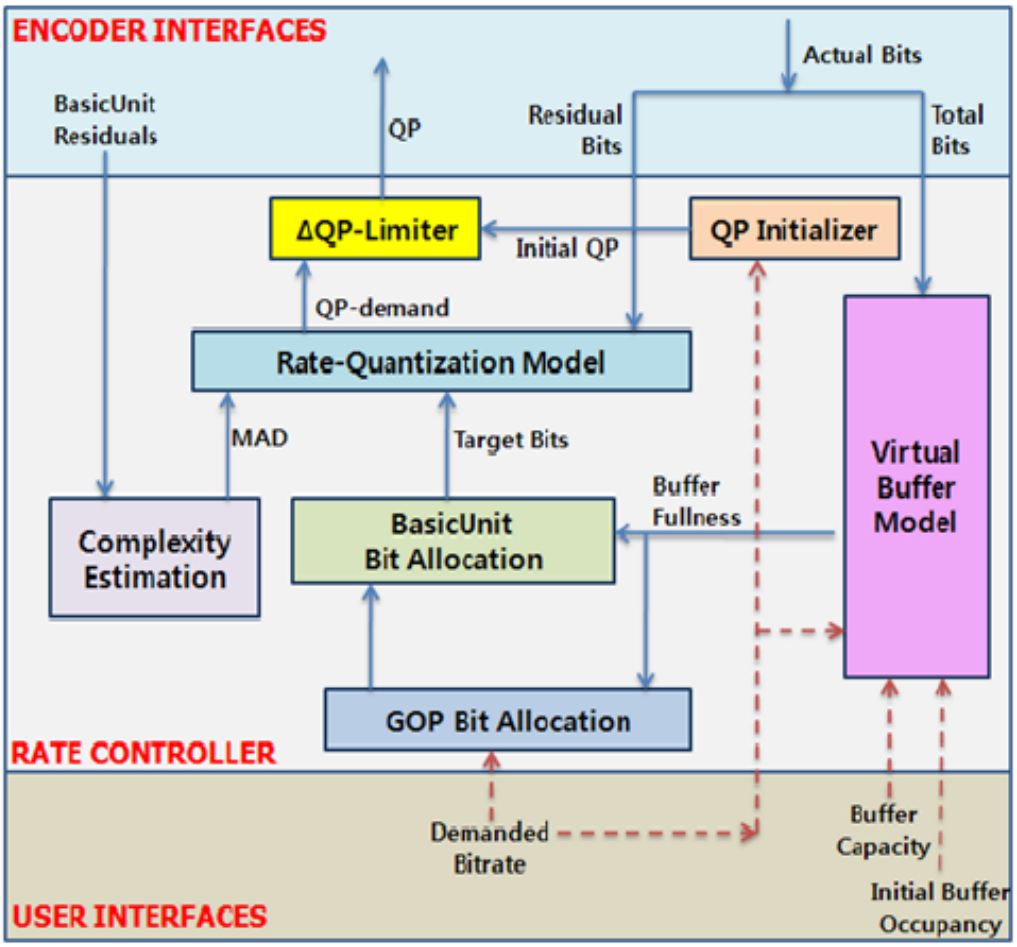


Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/, last accessed Nov. 12, 2018, Exhibit C.



Source: https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/, last accessed Nov. 12, 2018, Exhibit C.

52. The H.264 video codec supported in the Accused Infringing Devices controls occupancy of the encoded bit stream buffer by feedback to DCT coefficient quantization as part of rate control and rate distortion optimization in the video encoders.



Source: https://www.researchgate.net/figure/Rate-control-structure-of-H264-AVC-JM-reference-model_fig1_260585793, last accessed Oct. 1, 2018, Exhibit G.

53. Verizon has infringed, and continues to infringe, at least claim 4 of the ’712 patent in the United States, by making, using, offering for sale, selling and/or importing the Accused Infringing Devices in violation of 35 U.S.C. § 271(a).

54. Verizon also has infringed, and continues to infringe, at least claim 4 of the ’712 patent by actively inducing others to use the Accused Infringing Devices. Verizon’s users, customers, agents or other third parties who use the Accused Infringing Devices in accordance with Verizon’s instructions infringe claim 4 of the ’712 patent, in violation of 35 U.S.C. § 271(a). Verizon intentionally instructs its customers to infringe through support information, demonstrations, brochures and user guides, such as those located at: www.verizonwireless.com/support/; https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/;

https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/encode-and-playback/; https://docs.vdms.com/video/; https://docs.vdms.com/video/#Tutorials/Tutorials.htm; https://www.verizondigitalmedia.com/platform/uplynk-video-streaming/server-side-ad-insertion/. Verizon is thereby liable for infringement of the '712 patent under 35 U.S.C. § 271(b).

55. Verizon also has infringed, and continues to infringe, at least claim 4 of the '712 patent by offering to commercially distribute, commercially distributing, or operating the Accused Infringing Devices which are used in practicing the processes, or using the systems, of the '712 patent, and constitute a material part of the invention. Verizon knows portions of the Accused Infringing Devices to be especially made or especially adapted for use in infringement of the '712 patent, not a staple article, and not a commodity of commerce suitable for substantial noninfringing use. Verizon is thereby liable for infringement of the '712 patent under 35 U.S.C. § 271(c).

56. Verizon is on notice of infringement of the '712 patent by no later than the filing and service of this Complaint. By the time of trial, Verizon will have known and intended (since receiving such notice) that its continued actions would actively induce and contribute to the infringement of at least claim 4 of the '712 patent.

57. Upon information and belief, Verizon may have infringed and continues to infringe the '712 patent through other network technology utilizing the same or reasonably similar functionality, including other versions of the Accused Infringing Devices.

58. Verizon's acts of direct and indirect infringement have caused and continue to cause damage to Uniloc and Uniloc is entitled to recover damages sustained as a result of Verizon's wrongful acts in an amount subject to proof at trial.

PRAYER FOR RELIEF

WHEREFORE, plaintiff Uniloc 2017 LLC respectfully prays that the Court enter judgment in their favor and against Verizon as follows:

a. A judgment that Verizon has infringed one or more claims of the '118 patent literally and/or under the doctrine of equivalents directly and/or indirectly by inducing infringement and/or by contributory infringement;

b. A judgment that Verizon has infringed one or more claims of the '712 patent literally and/or under the doctrine of equivalents directly and/or indirectly by inducing infringement and/or by contributory infringement;

c. That for each Asserted Patent this Court judges infringed by Verizon this Court award Uniloc its damages pursuant to 35 U.S.C. § 284 and any royalties determined to be appropriate;

d. That this be determined to be an exceptional case under 35 U.S.C. § 285 and that Uniloc be awarded enhanced damages up to treble damages for willful infringement as provided by 35 U.S.C. § 284;

e. That this Court award Uniloc prejudgment and post-judgment interest on its damages;

f. That Uniloc be granted its reasonable attorneys' fees in this action;

g. That this Court award Uniloc its costs; and

h. That this Court award Uniloc such other and further relief as the Court deems proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Uniloc demands a trial by jury for all issues so triable.

Date: December 18, 2018

/s/ M. Elizabeth Day
M. Elizabeth Day

M. Elizabeth Day (SBN 177125) *Admitted to Practice*
eday@feinday.com
David Alberti (pro hac vice to be filed)
dalberti@feinday.com
Sal Lim (pro hac vice to be filed)
slim@feinday.com
Marc Belloli (pro hac vice to be filed)
mbelloli@feinday.com
FEINBERG DAY ALBERTI LIM & BELLOLI LLP
1600 El Camino Real, Suite 280
Menlo Park, CA. 94025
Phone: 650 618-4360
Fax: 650 618-4368

Attorneys For Plaintiff Uniloc 2017 LLC