

Patent Owner's Presentation

Aylo Freesites Ltd

v.

DISH Technologies L.L.C.

IPR2024-00940 (U.S. Patent No. 11,991,234)



Patent Trial and Appeal Board
August 22, 2025

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I. Summary

Summary of Arguments

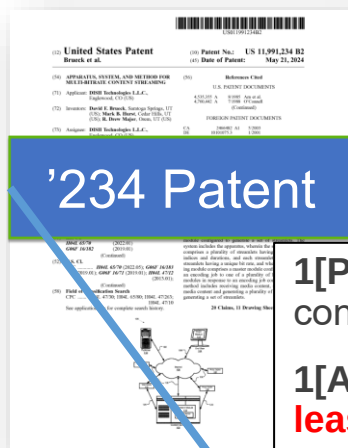
- **Leaning Fails to Disclose or Render Obvious “Arranging” Sub-Files with or without Klemets (All Challenged Claims)**
- **Leaning Fails to Disclose or Render Obvious “Continuous Playback” with or without Klemets (Claims 12 - 20)**
 - The Claims Recite making “successive determinations ... to change a requested bit rate ... to achieve continuous presentation.”
 - Leaning discloses streaming content where playback is interrupted at each and every shift. Leaning does not disclose or suggest any embodiment with continuous media playback.
 - The Petition mapped solely to Leaning’s disclosures of interrupted playback for video without any modifications.

Summary of Grounds

- **Obviousness** – Petitioner challenges all claims under §103 relying on **Leaning**
 - As an alternative, Petitioner adds **Klemets** in combination with Leaning for all Challenged Claims
 - Petitioner adds **Gamble** (with or without **Klemets**) to allegedly show dependent claim limitations reciting “requesting sub-parts of the files over different ones of the plurality of TCP connections”
- **Objective Indicia** – Petitioner argues that DISH’s overwhelming objective evidence of nonobviousness lacks a “nexus” with the Challenged Claims

Summary of Challenged Claims

- Each Challenged Claim requires client-side “arranging”



1[Pre] “An end user station for adaptive-rate content streaming of digital content...”

1[A][1] “a client module configured to be connected to a network having **at least one server** ...,”

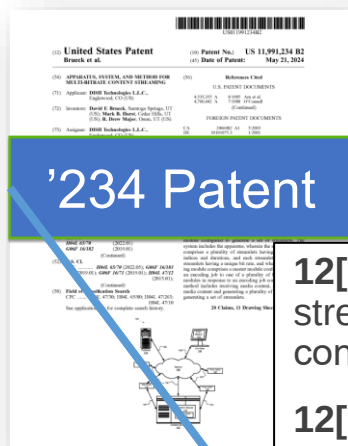
1[B] “**requesting** a first streamlet **from the at least one server**”

1[C][1] “automatically **requesting from the at least one server** subsequent portions of the digital content ...”

1[E] “**arranging the streamlets requested from the at least one server** in order of ascending presentation time for output to a presentation device.”

Summary of Challenged Claims

- Challenged Claims 12-20 requires shifting playback quality to achieve “continuous playback” of the video



12[Pre] “A method executable by a client device to output rate-adaptive streams received via at least one transmission control protocol (RCP) [sic] connection with at least one server over a network...”

12[B] “requesting by the client device a plurality of sequential individually-requestable portions of one of the copies from the at least one server”

12[C][1] “automatically requesting by the client device from the at least one server subsequent portions of the digital content ... dependent upon successive determinations by the client device to change a requested bit rate to a higher or lower bit rate one of the different copies, ...”

12[D] “making the successive determinations whether to change the requested bit rate based on the factor **to achieve continuous presentation** of the digital content...”



II. Overview of DISH's ABR Technology Recited by the Challenged Claims

ABR in “Continuous” Operation

00:24
Until start

Warm Up

SKIP INTRO

Quality: High
Bandwidth: 1472 Kbps

ALL TIME HERE NOW

All 21,872

stevo07
M · 20s · London

GiraffeJazz
Atkinson Net

realbristane2
D&DBlessed@LOVE>hate
@ PeelLive@L258

RDHmom

jillybean101

Peloton Bike

Sp-link

Device	Port	Aggregate Rate/Port	Egress Rate/Port	Link
port 1	10/12	10/12	10/12	10/12
port 2	Undetected	Undetected	Undetected	Undetected
port 3	Undetected	Undetected	Undetected	Undetected
port 4	Undetected	Undetected	Undetected	Undetected
port 5	Undetected	Undetected	Undetected	Undetected

Apply

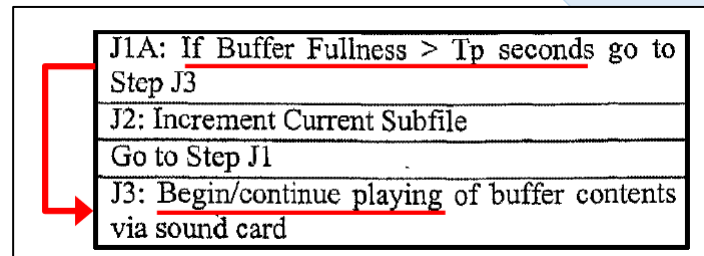
Note: If you select "Manual" in the bandwidth control table, the system will automatically select integral multiples of 10Mbps that closest to the rate you entered as the real aggregated rate. The range of input is 1-1000Mbps.

EX2018

III. Overview of Asserted Prior Art

WO 2002/049343 (“Leaning”)

- Leaning is directed to “delivery, over a telecommunications link, of digitally coded material for presentation to a user.”
- Every embodiment disclosed in Leaning “waits to begin playback until there is enough of the file downloaded” to avoid playback outpacing the download of content.
- Leaning delivers primarily MP3 audio.
- Leaning acknowledges that the techniques required for video are “more complex” with “further implications” than audio.



EX1004 at 10 (annotations added); POR at 12; EX2141, ¶ 48

The delivery of video recordings does however have further implications for file partitioning if switching or jumps are to be permitted. In the case of recordings where each frame of a picture is coded independently, it is sufficient that a sub-file contains a whole number of 20 frames of a picture. If compression involving inter-frame techniques is in use, however, the situation is more complex. Some such systems (for example the MPEG standards) generate a mixture of independently coded frames (“intra-frames”) and predictively coded frames; in this case each sub-file should preferably begin with an intra-frame.

In the case of inter-frame coding systems such as the ITU H.261 standard, which do not 25 provide for the frequent, regular inclusion of intra-frames, this is not possible. This is because – taking rate-switching as an example, if one were to request sub-file n of a higher bit rate recording followed by sub-file n+1 of a lower bit-rate recording, the first frame of the lower bit-rate sub-file would have been coded on an inter-frame basis using the last decoded frame of sub-file n of the lower rate recording, which of course the terminal does not have at its disposal – it has the last 30 decoded frame of sub-file n of the higher rate recording. Thus serious mistracking of the decoder would occur.

EX1004 at 16:17-31 (annotations added); EX2141, ¶ 67

POR at 11-17; EX2141 (Jeffay Declaration), ¶¶ 42, 47-48, 67; EX1004 (Leaning) at 1:3-4, 9-11, 16:6-31; EX1001 ('234 Patent) at 1:64-2:5.

Leaning “Clear Buffer” Teachings

- Every time Leaning performs a rate shift (e.g., “Stepup” or “Stepdown”) or “jump,” Leaning discloses that the buffer is cleared.
- Leaning explains that shifting bitrates “when the buffer is already empty is advantageous as the sound card is not playing anything and it may be necessary to reconfigure it.”
- Leanings solution prefers “to suspend decoding and clear the buffer so that the new request [for a sub-file] is sent immediately.”

POR at 11-17; EX2141 (Jeffay Declaration), ¶¶42, 47-50; EX1004 (Leaning) at 1:3-4, 2:5-7, 8:20-23, 11:19-20; EX1001 ('234 Patent) at 1:64-2:5.

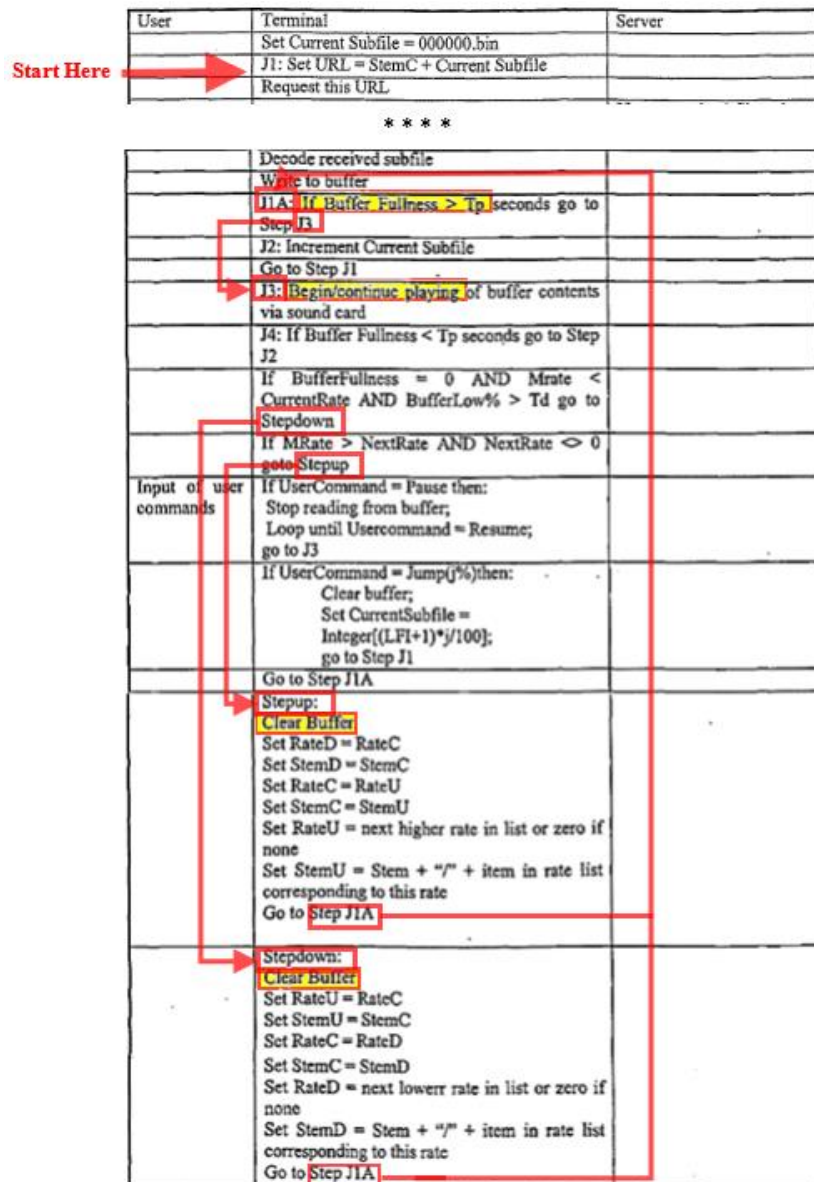
```
If UserCommand = Jump(j%)then:  
  Clear buffer;  
  Set CurrentSubfile =  
  Integer[(LFI+1)*j/100];  
  go to Step J1
```

```
Stepup:  
Clear Buffer  
Set RateD = RateC  
Set StemD = StemC  
Set RateC = RateU  
Set StemC = StemU  
Set RateU = next higher rate in list or zero if  
none  
Set StemU = Stem + “/” + item in rate list  
corresponding to this rate  
Go to Step J1A
```

```
Stepdown:  
Clear Buffer  
Set RateU = RateC  
Set StemU = StemC  
Set RateC = RateD  
Set StemC = StemD  
Set RateD = next lowerr rate in list or zero if  
none  
Set StemD = Stem + “/” + item in rate list  
corresponding to this rate  
Go to Step J1A
```

EX1004 (Leaning), at 10-11
(annotations added); EX2141 (Jeffay
Declaration), ¶ 49; POR at 13

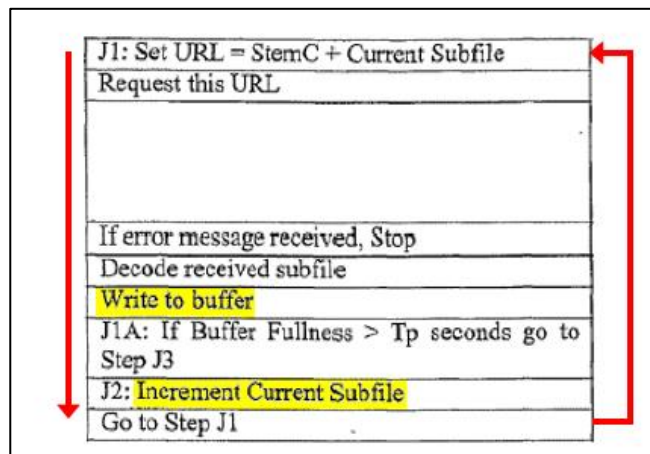
Leaning's “Clear Buffer” Causes “Temporal Discontinuity”



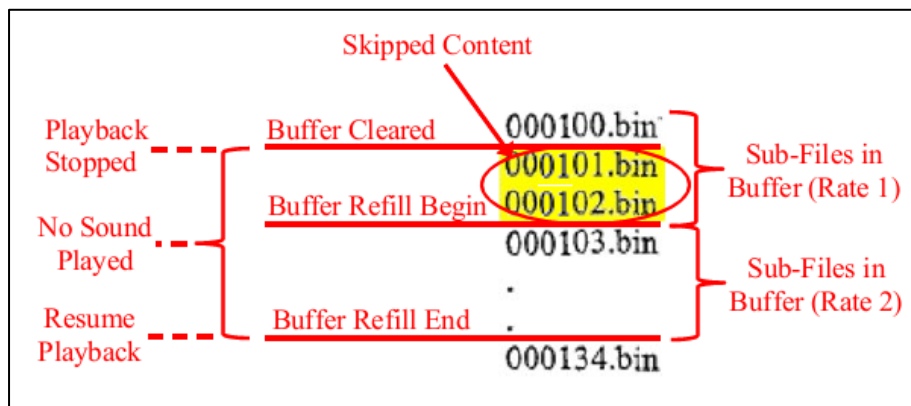
EX1004 at 10-11
(annotations and
highlighting added);
POR at 14;
EX2141 (Jeffay
Declaration), ¶ 50

Leaning's "Clear Buffer" Causes Discontinuity in the Content

- In addition to clearing its buffer, Leaning increments the sub-file number sequentially every time a subfile is written to the buffer.
- Leaning does not account for the buffer being cleared.
- Leaning would upshift (Stepup) after requesting subfile "000102.bin" and playback would resume at sub-file "000103.bin" after the buffer refills, but before sub-files "000101.bin" and "000102.bin" are played back.



EX1004 at 10 (annotations & highlighting added)



EX1004 at 3:12-18, 10 (annotations & highlighting added)

POR at 16-17; EX2141 (Jeffay Declaration), ¶ 79

Leaning's Temporal and Content-Based Discontinuities - Video

```
J1: Set URL = StemC + Current Subfile
Request this URL

* * *

If error message received, Stop
Decode received subfile
Write to buffer
J1A: If Buffer Fullness > Tp seconds go to Step J3
J2: Increment Current Subfile
Go to Step J1
J3: Begin/continue playing of buffer contents via sound card
J4: If Buffer Fullness < Tp seconds go to Step J2
If BufferFullness = 0 AND Mrate < CurrentRate AND BufferLow% > Td go to Stepdown
If MRate > NextRate AND NextRate < 0 goto Stepup
```

```
Stepup:
Clear Buffer

* * *

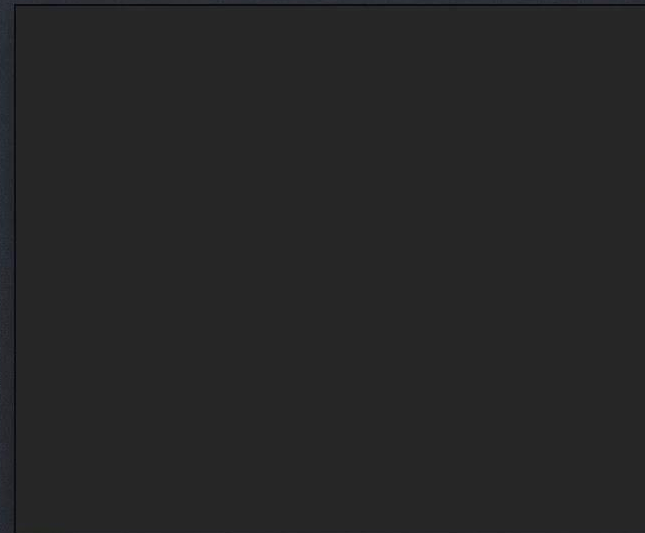
Set RateU = next higher rate in list or zero if none
Set StemU = Stem + "/" + item in rate list corresponding to this rate
Go to Step J1A

Stepdown:
Clear Buffer

* * *

Set RateD = next lower rate in list or zero if none
Set StemD = Stem + "/" + item in rate list corresponding to this rate
Go to Step J1A
```

See Leaning Publication, p. 10-11



VIDEO PLAYBACK

Current Network-Measured Bitrate:

150 Kbps



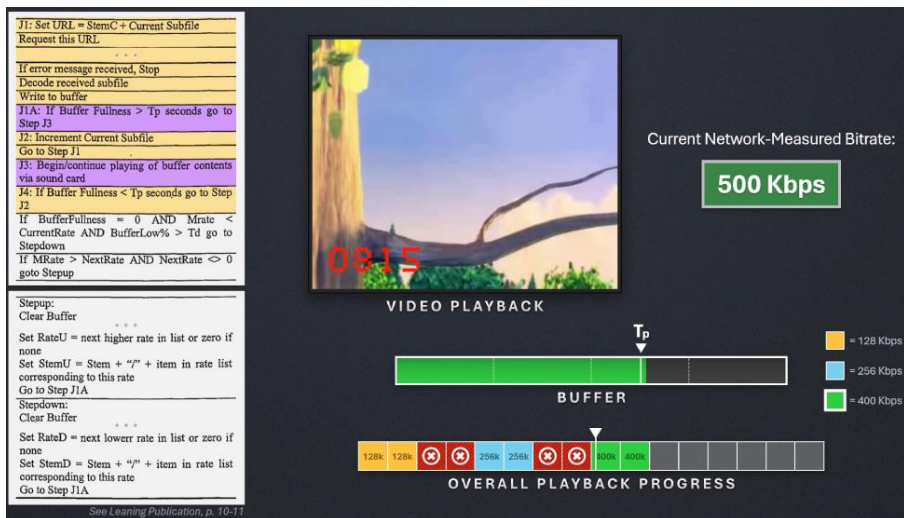
■ = 128 Kbps
■ = 256 Kbps
■ = 400 Kbps



OVERALL PLAYBACK PROGRESS

Leaning's Express Interruptions

Leaning's Playback is Interrupted



Screenshot of EX2133 at 1:26

Claims Require Continuous Playback

making the successive determinations whether to change the requested bit rate based on the factor to achieve continuous presentation of the digital content using the individually-requestable portions of the highest bit rate one of the copies determined receivable at that time at a rate sufficient for presenting the digital content as the



EX1001 at 20:13-14

Leaning's "Serious Mistracking" Issue

- Leaning discloses creating audio and video subfiles by encoding the source file at "different rates" and "then partition[ing] each source file into sub-files...."

In order to provide for rate switching, the person preparing the file for loading onto the server prepares several source files - by encoding the same PCM file several times at different rates. He then partitions each source file into sub-files, as before. These can be loaded onto the server in separate directories corresponding to the different rate, as in the following example structure, where "008k", "024k" in the directory name indicates a rate of 8 kbit/s or 24 kbit/s and so on.

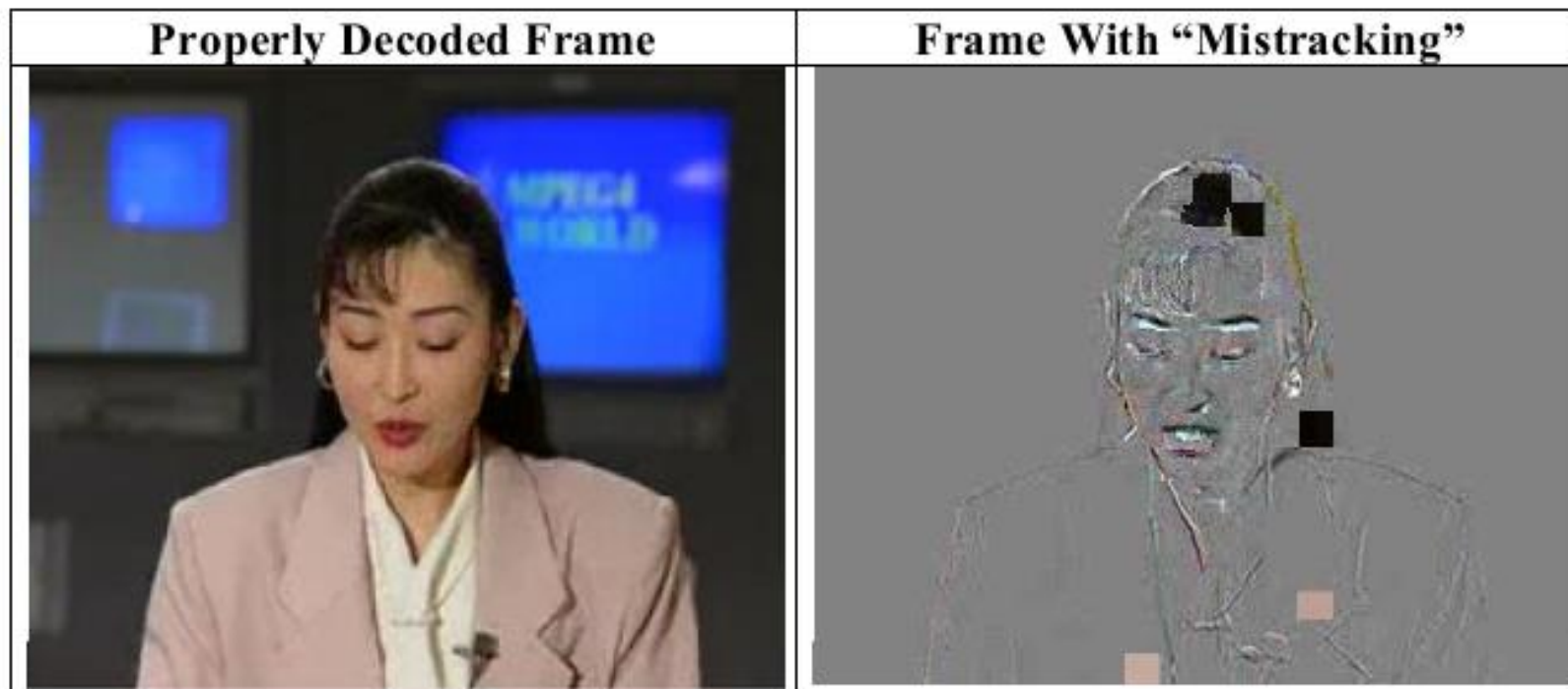
EX1004 at
6:21-23

- But Leaning acknowledges that partitioning video files in this manner would prevent the decoder from properly decoding any video received after a rate switch, yielding "serious mistracking" in the decoded video:

In the case of inter-frame coding systems such as the ITU H.261 standard, which do not provide for the frequent, regular inclusion of intra-frames, this is not possible. This is because – taking rate-switching as an example, if one were to request sub-file n of a higher bit rate recording followed by sub-file n+1 of a lower bit-rate recording, the first frame of the lower bit-rate sub-file would have been coded on an inter-frame basis using the last decoded frame of sub-file n of the lower rate recording, which of course the terminal does not have at its disposal – it has the last decoded frame of sub-file n of the higher rate recording. Thus serious mistracking of the decoder would occur.

EX1004 at
16:30

Leaning's “Serious Mistracking” Issue



Sur-Reply at 14; EX2141 (Jeffay Declaration), ¶ 93-100

Leaning's "Serious Mistracking" Issue

RATE SHIFT

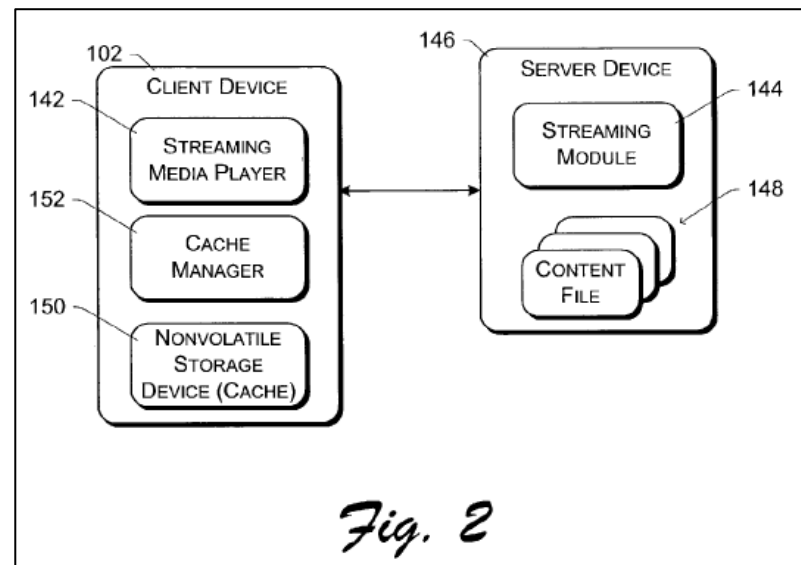


Demonstrative video only – no audio

EX2135, EX2136

EX2151 – Demonstrative Exhibit – Not Evidence

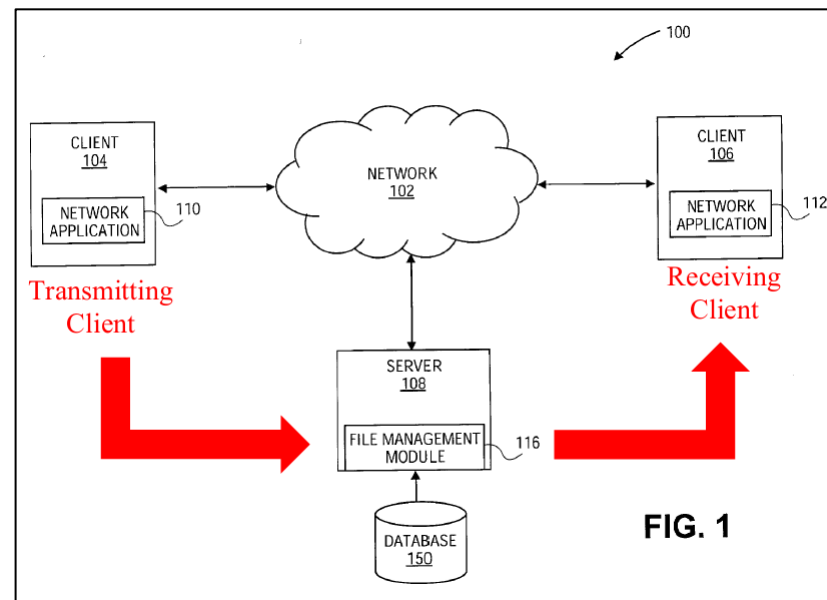
Klemets is directed to a technique for “[c]lient-side caching of streaming media content.” Klemets describes that “[d]ifferent pieces of streaming media content are illustrated as different files 148.” Klemets alternatively describes that “a piece of streaming media content may be stored as multiple files.”



EX1006, Fig. 2

EX1006 (Klemets), ¶ [0023], [0026]; EX2141, ¶53; POR at 36-37.

- Gamble is directed to “data processing systems ... for transferring large data files over parallel connections.” Gamble’s disclosed file transfer techniques involve “transferring [a] data file 702A at a client 104 to client 106 via a server 108.” A “send buffer” is created at Gamble’s transmitting client to store “segments of [a] data file.” The segments are each sent on one of the parallel connections to server 108.” The segments are then “transmitted” to receiving client 106 over corresponding “independent” connections before the data file is reconstructed at the receiving client.
- But Gamble fails to disclose or suggest individual requests for segments or sub-parts of segments as required by Claim 16.



EX1020, Fig. 1 (annotations added); POR at 31; EX2141, ¶ 173

EX1020 (Gamble), ¶ [0001], [0042], [0045], [0049], Fig. 1; POR at 30-32 EX2141, ¶¶ 172-176



IV. Invalidity – Leaning

Petitioner's Leaning-Based Arguments Fail

Petitioner relies primarily on Leaning to disclose or render obvious every limitation of the Challenged Claims

Ground	Reference(s)	Challenged Claims	Basis
1	Leaning	1-15 and 17-20	103
2	Leaning and Klements	1-15 and 17-20	103
3	Leaning (with or without Klements) and Gamble	16	103

Pet. at 4

But Leaning fails to disclose numerous elements, including:

- making successive determinations to achieve “continuous presentation” (Claims 12-15 and 17-20) and
- “arranging” files (all Challenged Claims)

Leaning Fails to Disclose or Suggest “Continuous Presentation”

Leaning Fails to Disclose Making Successive Determinations to Achieve “Continuous Presentation”

Patent/Claims	Representative Element
'234 Patent, Independent Claim 12	Claim 12: “ A method executable by a client device to output rate-adaptive streams received via at least one transmission control protocol (RCP) connection with at least one server over a network, the method comprising, ... making the successive determinations whether to change the requested bit rate based on the factor to achieve continuous presentation of the digital content using the individually-requestable portions of the highest bit rate one of the copies determined receivable at that time at a rate sufficient for presenting the digital content as the individually-requestable portions of the digital content are received...”

Petition Failed to Address “Continuous Presentation” Requirement

The Petition makes only one mention of the “continuous presentation” requirement when it quotes element 12[D]. Sur-Reply at 1. The Petition’s sole analysis is “Leaning teaches 12[D]. See 1[D].” Pet. at 49. This is insufficient. Claim 1 does not include the “continuous presentation” requirement.

- i. 12[D]: “making the successive determinations whether to change the requested bit rate based on the factor to achieve **continuous presentation** of the digital content using the individually-requestable portions of the highest bit rate one of the copies determined receivable at that time at a rate sufficient for presenting the digital content as the individually-requestable portions of the digital content are received, wherein the making of the successive determinations to change the requested bit rate comprises: requesting a subsequent individually-requestable portion from a higher bit rate one of the different copies than a currently requested one of the different copies when the at least one factor is greater than a first threshold; and requesting a subsequent individually-requestable portion from a lower bit rate one of the different copies than the currently requested one of the different copies when the at least one factor is less than a second threshold; and”

Leaning teaches 12[D]. See 1[D]; EX1003, ¶ 105.

Pet. at 49

No “Continuous Presentation” Limitation

- j. 1[D]: “making the successive determinations to change the digital content bit rate based on the factor using the streamlets of one of the different copies of the digital content having the highest bit rate determined receivable for presentation so that the client module selects a higher bit rate one of the different copies when the factor is greater than a first threshold and selects a lower bit rate one of the different copies when the factor is less than a second threshold; and”

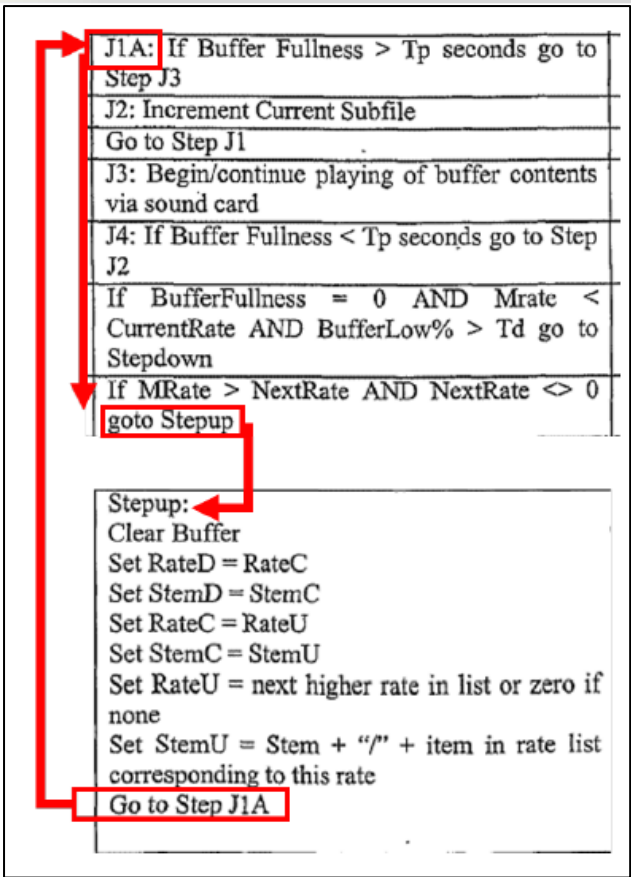
Leaning teaches 1[D]. As explained above, Leaning describes making successive determinations to change the digital content bit rate of requested

31

Pet. at 31

Petition Failed to Address “Continuous Playback” Requirement

The Petition includes an excerpt of Leaning’s pseudo-code. But it ignores Leaning’s “Clear Buffer” instruction (below, left) and expressly relies on the buffer being “empty” when analyzing Leaning’s “shift down” condition (below, right). Sur-Reply, at 8-10, 12.



Pet. at 33

Leaning further explains that in requesting each subsequent portion of the streamlets (sub-files) from the different copies (versions) of the digital content, the player program makes successive determinations to change a currently requested bit rate to a higher or lower bitrate. For example, Leaning describes when determining to shift down, the player determines (1) if the buffer is empty, (2) if the measured rate is less than the current rate, and (3) if the measured Buffer Low Percentage is more than a Step Down Threshold before shifting down and requesting the next sub-file at a lower bitrate version; when determining to shift up, the player determines

Pet. at 28

The excerpted and annotated portion of Leaning’s process flow chart below shows that the player on the terminal beginning with step J1A moves through the process and if MRate [factor; measured rate] is greater than NextRate [first threshold; next highest rate] AND NextRate < 0 [there exists a next higher rate] then goto Stepup; and the Stepup process shifts up by changing the RateC [current rate] to the RateU [next highest rate] and changes RateU to the next higher rate, or to “0” if the current rate is the highest rate then loops back to step J1A and continues the process. Thus, Leaning discloses looping “Stepup” until the highest receivable rate is achieved up to the highest available rate (by setting RateU to zero). EX1004, 9-11; EX1003, ¶¶ 77-78.

Pet. at 32-33

Petitioner Cannot Abandon Original Position of Plain and Ordinary Meaning for Claim Terms

The Petition contended that no constructions were necessary and Petitioner's expert applied the ordinary and customary meaning of the claim terms.

Petitioner submits that, for purposes of institution, no constructions are necessary. However, Petitioner acknowledges that in the ITC Investigation between Patent Owner and iFIT Inc., the Chief Administrative Law Judge ("ALJ") construed "streamlet" as "any sized portion of the content file." EX1009, 38-43. The ALJ also construed "a factor indicative of the current ability to sustain the streaming [of the video ... wherein the set of one or more factors relate to the performance of the network]" according to its plain and ordinary meaning, "*e.g.*, one or more factors relating to the performance of the network that is indicative of an ability to sustain the streaming of the video." EX1009, 53-61. The ALJ also construed "repeatedly generating a factor" as "generating a factor more than once" and construed "successive determinations" according to its plain and ordinary meaning. *Id.*, 61-64.

Pet. at 12

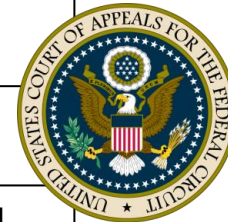
44. For purposes of this declaration, I have applied the ordinary and customary meaning of the claims when read in light of the '234 Patent and the prosecution history of the '234 Patent, as understood by a POSITA at the time of the invention.

EX1003 (Houh Dec.) at ¶ 44

Petitioner Cannot Abandon Original Position of Plain and Ordinary Meaning for Claim Terms

In Reply, Petitioner argued that “continuous presentation” is merely “aspirational” and “not required.” Reply at 1, 2, 12. Petitioner cannot cure its failure to address “continuous presentation” by belatedly arguing for new constructions that contradict itself. This is legally erroneous.

Judges “must give meaning to ***all the words*** in [a patent’s] claims.” *Exxon Chem. Patents, Inv. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995).



A construction that reads limitations out of a claim “would be contrary to the principle that ***claim language should not [be] treated as meaningless***,” *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006).

Sur-Reply at 4-5

Petitioner Cannot Abandon Original Position of Plain and Ordinary Meaning for Claim Terms

Petitioner acknowledged that the ITC construed certain terms that are present in the Challenged Claims. Pet. at 12. Petitioner's Reply position is inconsistent with the ITC's interpretation of the plain meaning of "continuous [presentation]" as "uninterrupted viewing of the content." EX1009 at 56.



Petitioner submits that, for purposes of institution, no constructions are necessary. However, Petitioner acknowledges that in the ITC Investigation between Patent Owner and iFIT Inc., the Chief Administrative Law Judge ("ALJ") construed "streamlet" as "any sized portion of the content file." EX1009, 38-43. The ALJ also construed "a factor indicative of the current ability to sustain the streaming [of the video ... wherein the set of one or more factors relate to the performance of the network]" according to its plain and ordinary meaning, "e.g., one or more factors relating to the performance of the network that is indicative of an ability to sustain the streaming of the video." EX1009, 53-61. The ALJ also construed "repeatedly generating a factor" as "generating a factor more than once" and construed "successive determinations" according to its plain and ordinary meaning. *Id.*, 61-64.

a) "sustain the streaming of the video"

Respondents contend a person of ordinary skill in the art would not have understood the scope of the phrase "sustain the streaming of the video." Resps. Br. at 36.¹¹ But respondents' own

¹¹ Respondents concede "at least in concept, a person of skill may have understood what it means to 'achieve continuous playback' (uninterrupted viewing of the content)." Resps. Br. at 37-38.

EX1009 at 56 (highlighting added).

Pet. at 12

“Continuous Presentation” is Limiting

- Claim 12 expressly requires that “continuous presentation” be “achieve[d].” Sur-Reply, 6.
- Petitioner also argues in Reply that DISH’s arguments are based on “an overly narrow interpretation that precludes any disruption during playback.” Reply at 1.
 - Patent Owner reads “continuous” as anyone, including courts and Petitioner’s own expert would, as excluding interruptions. Sur-Reply at 6-7.



Continuous

The Court construes the term “continuous” as “playing one segment of a video followed by the playing of another segment in an uninterrupted sequence.”

'772 Sur-Reply, at 7; *Nissim Corp. v. Clearplay, Inc.*, No. 04-21140-CIV, 2005 WL 6220714, at *3 (S.D. Fla. Mar. 7, 2005).

EX2150 (Houh2 Tr.) at 148:19-150:12

So you've been handed now what's been marked as Exhibit 2200, correct?

A Well, I do see a sticker on this document that says "Exhibit 2200."

Q Perfect.

And it's entitled "Declaration of Dr. Henry H. Houh in Support of Petition for Inter Partes Review of US Patent No. 7,166,062," correct?

A Yes.

Q The last sentence of that paragraph, which begins on page 83 and carries over, reads, "A POSITA would understand that data that is smooth and continuous is substantially uninterrupted because any interruption would cause disruption or jerkiness."

Did I read that correctly?

A I think you -- you read it correctly. And this is in regards to another patent that I think is Studor, which is talking about terrain

DISH's MOVE Player Embodies Challenged Claims

- Petitioner adopts a fallback argument that the MOVE player sometimes exhibited playback stalls in extreme circumstances. Reply at 7. This is irrelevant.
- Regardless, as found by the ITC, DISH's objective evidence shows the MOVE player consistently wowed users with its smooth end user experience. EX1009 at 213; see *also* POR, 39-61.



claimed method. While we express no view on the ultimate question whether Vitalink's DLS system infringes Claim 6, either literally or by equivalents, it should be noted that any future infringement analysis respecting the assigning step should be undertaken with due attention to the principle that **an accused product that sometimes, but not always, embodies a claimed method nonetheless infringes.** See *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20, 223 USPQ 591, 597 (Fed.Cir.1984) (“[I]mperfect

Sur-Reply at 7-8; *Bell Communications Research, Inc. v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 622-623 (Fed. Cir. 1995)

ITC Findings



In contrast, Dr. Jeffay demonstrated through corroborating evidence that Move's success is tied to the “unique characteristics of the claimed invention.” See *Fox Factory*, 944 F.3d at 1373-74. As Dr. Jeffay testified, the Move system was described as early as 2008 as offering “a **smooth end user experience** as the Move Media Player up-shifts and down-shifts in response to network and client CPU availability.” CX-0008C (Jeffay RWS) at Q/A 304 (quoting CX-1096C (Move Networks Tech Overview) at 19). Moreover, the Move Media Player's encoding technique allowed streaming via HTTP, and the use of “[s]imple HTTP protocol transfer of media files from standard Web servers rather than deployment of expensive media servers’ reduces cost and complexity.” *Id.* at Q/A 324 (quoting CX-1096C at 22). DISH further adduced evidence demonstrating that the Move Media Player was recognized as **superior in streaming performance** relative to its competitors, rebutting respondents’ argument that “advancements in compression and encoding technologies,” etc. account for the Move Media Player's success. See CX-1047C

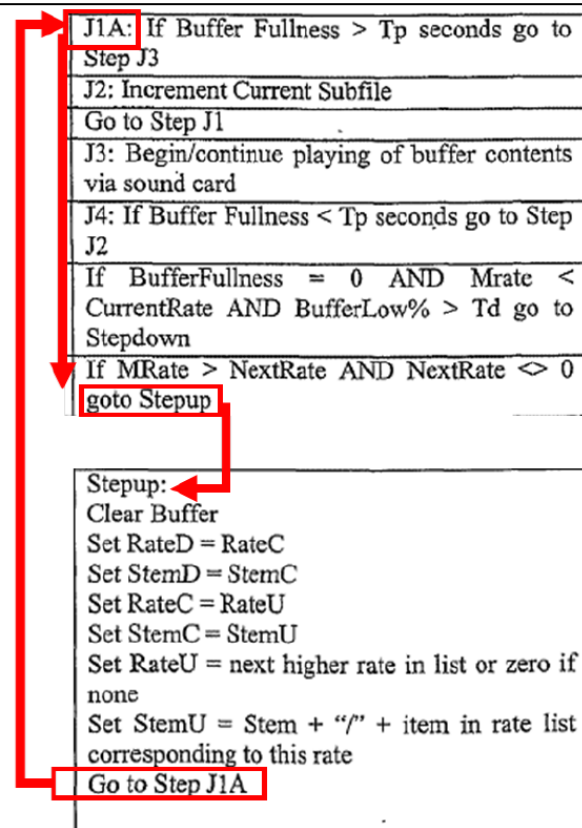
EX1009 at 213

Leaning Fails to Disclose or Suggest “Continuous Presentation”

The Petition and Petitioner’s initial expert declaration rely on Leaning’s pseudo-code “Stepup” procedures *without any proposed modification* in the context of 1[D].

Leaning teaches 1[D]. As explained above, Leaning describes making successive determinations to change the digital content bit rate of requested sequential sub-files based on the factor (e.g., “measured rate”). See 1[C][1]-1[C][2]. Leaning further describes requesting, or using, the streamlets (sub-files) from one of the different copies having the highest bit rate determined receivable for presentation where the client module (i.e. player program) selects a higher bit rate of one of the different copies when the factor (e.g., measured rate) is greater than a first threshold (e.g., next highest rate) for a period of time, then shifts up until no longer true—meaning shift up to highest version possible—and selects a lower bit rate one of the different copies when the factor (e.g., measured rate) is less than a second threshold (e.g., current rate). EX1004, 9-11 (flowchart). For example, Leaning explains that “if the measured rate exceeds not only the current rate but also the next higher rate for a given period of time . . . [the player program will] increase the current rate.” EX1004, 8:24-26; 9:3-7, 9-11 (flowchart).

Pet. at 31-32



EX1004, 10 (flowchart excerpted and annotated); EX1003, ¶ 78.

Pet at 31-34; PO Sur-Reply, at 1. See also EX1003 (Houh Decl.) at ¶¶ 77-79 (same)

Pet. at 33

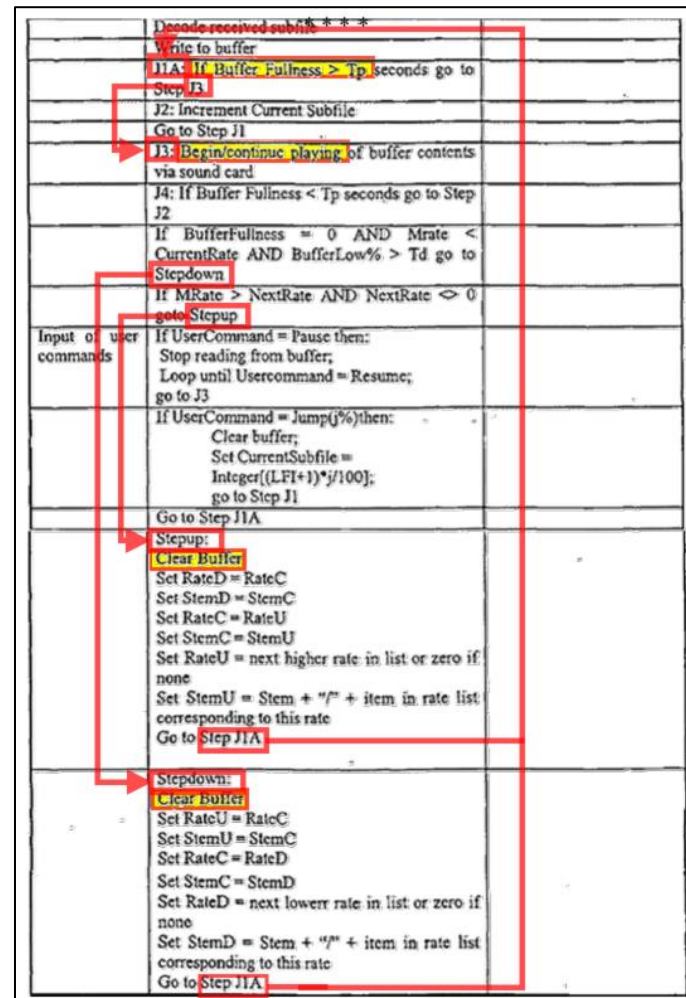
Leaning Fails to Disclose or Suggest “Continuous Presentation”

Dr. Jeffay explains that Petitioner’s expert testimony uses a demonstrative from Leaning but ignores the yellow highlighted portions. EX2141, ¶ 72.

Every time Leaning upshifts at the “Stepup” routine, it clears the buffer (“Clear Buffer”)

Leaning waits until the buffer is refilled (“If Buffer Fullness > T_p ”) before resuming playback (“Begin/continue playing”)

Sur-Reply, at 20; EX2141, ¶ 72.



EX1004 at 10-11
(annotations &
highlighting
added)

Leaning Fails to Disclose or Suggest “Continuous Presentation”

Dr. Jeffay further explains that Leaning consistently teaches clearing and re-filling a playback buffer as part of every shift. This mirrors the “progressive download” approach disparaged by the Challenged Patent. EX2141, ¶ 42.

Existing Approach with Reliability, Efficiency, and Latency Challenges

Another technology, known as “progressive downloads,” attempts to combine the strengths of the above two technologies. When a progressive download is initiated, the media file download begins, and the media player waits to begin playback until there is enough of the file downloaded that playback can begin with the hope that the remainder of the file will be completely downloaded before playback “catches up.” This waiting period before playback can be substantial depending on network conditions, and therefore is not a complete or fully acceptable solution to the problem of media presentation over a network.

EX1001 at 2:15-25

Challenged Patent’s Solution

The policy determination about whether or not to upshift **1010** playback quality begins by comparing $\phi_{current}$ with a trigger threshold Θ_{up} . If $\phi_{current} \geq \Theta_{up}$, then an up shift to the next higher quality stream may be considered **1016**. In one embodiment, the trigger threshold Θ_{up} is determined by a combination of factors relating to the current read ahead margin (i.e. the amount of contiguously available streamlets that have been sequentially arranged by the staging module **709** for presentation at the current playback time index), and a minimum safety margin. In one embodiment, the minimum safety margin may be 24 seconds. The smaller the read ahead margin, the larger Θ_{up} is to discourage upshifting until a larger read ahead margin may be established to withstand network disruptions. If the agent controller module **702** is

EX1001 at 17:44-58

Leaning Fails to Disclose or Suggest “Continuous Presentation”

Aylo Premium Ltd, RPI to Petitioner Aylo Freesites Ltd, expressly acknowledged Leaning’s discontinuous playback in submitting arguments before the European Patent Office (EPO) on a related patent.

Aylo admitted that Leaning discloses clearing up to 2 minutes of content from the buffer, resulting in dramatic content discontinuity during playback.

	<p>Europäisches Patentamt European Patent Office Office européen des brevets</p>	<p>Submission in opposition proceedings</p>
<p>- representing the opponent(s):</p>		<p>Aylo Premium Ltd</p>

This corresponds to at least 120 seconds of playing time¹. Since the upshift simply relates to the next sub-file being requested from the directory in which the higher quality copy is stored (E12, page 9, top), clearing the buffer would mean that for each upshift, there is a jump in the file by at least 120 seconds or 2 minutes. This would not make any technical sense at all. Hence, already from the upshift criterion disclosed on page 8, lines 24-

EX2016, at 9.

Leaning Fails to Disclose or Suggest “Continuous Presentation”

In Reply, Petitioner proposes four new modifications to Leaning. None of these address Leaning’s teaching that it will only perform “Stepdown” after multiple “buffer empties.” This results in discontinuities prior to every downshift. Sur-Reply at 10-12; EX2141, ¶91.

Leaning’s downshift test has three “AND” conditions

If BufferFullness = 0 AND Mrate < CurrentRate AND BufferLow% > Td go to Stepdown

EX1004 at 10 (highlighting and annotations added)

Leaning explains that the third condition—“BufferLow%”—ensures multiple buffer empties occur prior to downshifting

The Buffer Low Percentage is the percentage of the time that the buffer contents represent less than 25% of the playout time (i.e. the buffer is getting close to being empty). If the Step Down Threshold is set to 0% then when the buffer empties the system always steps down when the other conditions are satisfied. Setting the Step Down Threshold to 5% (this is our preferred default value) means that if the buffer empties but the measured Buffer Low Percentage is greater than 5% it will not step down. Further buffer empties will obviously cause this measured rate to increase and will eventually empty the buffer again with a Buffer Low Percentage value exceeding 5% if the rate can not be sustained. Setting the value to 100% means the client will never step down.

EX1004, 8:27–9:2; see also EX2124, ¶ 91 (explaining the same)

The Petition expressly relies on this interruption-causing “BufferLow%” condition without modification. And Petitioner does not address this condition in Reply

Sur-Reply, 10-12

Petitioner's Changing Arguments

Petition

A single, conclusory sentence.

- i. 12[D]: “making the successive determinations whether to change the requested bit rate based on the factor to achieve continuous presentation of the digital content using the individually-requestable portions of the highest bit rate one of the copies determined receivable at that time at a rate sufficient for presenting the digital content as the individually-requestable portions of the digital content are received, wherein the making of the successive determinations to change the requested bit rate comprises: requesting a subsequent individually-requestable portion from a higher bit rate one of the different copies than a currently requested one of the different copies when the at least one factor is greater than a first threshold; and requesting a subsequent individually-requestable portion from a lower bit rate one of the different copies than the currently requested one of the different copies when the at least one factor is less than a second threshold; and”

Leaning teaches 12[D]. See 1[D]; EX1003, ¶ 105.

Pet., at 49

Reply

Four newly-minted obviousness modifications:

1. Software video codecs
2. Encoding with I-Frames
3. Altering T_P threshold
4. Playing out, as opposed to clearing, the buffer

Reply at 3-4; EX2124, ¶ 91; Sur-Reply at 10-17

EX2151 – Demonstrative Exhibit – Not Evidence

Leaning's "Clear Buffer" Instruction is Not "Optional"

Leaning discloses that the first of the three downshift conditions—"BufferFullness=0," requiring the buffer be empty—"would be omitted" in the alternative embodiment.

The "interruption" being avoided is solely the interruption due to underflow that occurs for the "BufferFullness=0" condition.

It does not avoid interruption resulting from the act of downshifting itself (i.e., clearing and refilling the buffer).

Reply at 3-4; Sur-Reply at 8-10

Changes of sampling rate (and indeed switching between mono and stereo operation) have some practical implications for operation of the audio interface 36. Many conventional sound cards, although capable of operation at a range of different settings, require re-setting in order to change sampling rate, and necessarily this causes an interruption in its audio output. Thus in a further modification, we propose that the sound card could be run continuously at the highest sampling rate envisaged. When the player program is supplying, to the buffer, data at a lower sampling rate, this data is then up-sampled to this highest rate before or after the buffer. Similarly, if the card is always operated in stereo mode, decoded mono signals can be fed in parallel so feed both the left and right channels of the sound card input. Again, if the number of bits per sample of the decoded signal is lower than expected by the card, the number of bits can be increased by padding with zeros.

Recollecting that the criteria discussed earlier for automatic data rate switching downwards envisaged a rate reduction only in cases of buffer underflow (involving therefore interruptions in the output), we note that with this modification such interruption can be avoided and therefore it is preferable to employ a criterion which anticipates underflow and avoids it in the majority of cases. In this case the first of the three AND conditions mentioned above (namely, that the buffer is empty) would be omitted.

EX1004, 14:25-15:8

Leaning's "Clear Buffer" Instruction is Not "Optional"

- Leaning's "clear buffer" command is performed in an embodiment using a single, fixed sampling rate and is indifferent to whether the sound card needs to be reset. Sur-Reply, 8-9.
- If the "clear buffer" command is "avoided" by running the sound card at the same, high sampling rate, as Petitioner contends, there would be no reason for Leaning to require buffer clearing in a scenario where sampling rate remains constant.
- Petitioner's theory is contradicted by Leaning's disclosures.

slightly. Note that in this embodiment of the invention, the available data rates, though they use different degrees of quantisation, and differ as to whether they encode in mono or stereo, all use the same audio sampling rate and in consequence the same frame size. Issues that need to be addressed when differing frame sizes are used are discussed below.

EX1004, 12:23-26

As for the actual sub-file length, excessively short sub-files should preferably be avoided because (a) they create extra network traffic in the form of more requests, and (b) on certain types of packet networks - including IP networks - they are wasteful in that they have to be conveyed by smaller packets so that overhead represented by the requesting process and the packet header is proportionately greater. On the other hand, excessively large sub-files are disadvantageous in requiring a larger buffer and in causing extra delay when starting play and/or when jumps or rate changes are invoked. A sub-file size of between 30% and 130% of the playout time, or preferably around half the playout time (as in the examples given above), is found to be satisfactory.

EX1004, 12:31-33

Leaning also acknowledges that interruption is unavoidable and merely aims to reduce "extra delay"

Stepdown:

Clear Buffer

Set RateU = RateC

Set StemU = StemC

Set RateC = RateD

Set StemC = StemD

Set RateD = next lowerr rate in list or zero if none

Set StemD = Stem + "/" + item in rate list corresponding to this rate

Go to Step J1A

EX1004 at 10-11 (highlighting added)

New Modification No. 1: Software Video Codecs

- In New Modification No. 1, Petitioner argues that the “Clear Buffer” command is obviated because video “would have decoded using software” and there’d be no need to “reset” any hardware video card upon rate switching. Reply at 5-6.
- Leaning expressly discloses use of hardware video cards for decoding video. 4:9-10.
- Leaning performs “Clear Buffer” even when sound card does not need to be reset.
- Petitioner’s failure to acknowledge these express teachings are fatal. Sur-Reply at 13.

Turning now to the terminal, this may typically take the form of a conventional desktop computer, with, however, additional software for handling the reception of the audio files discussed. If desired, the terminal could take the form of a handheld computer, or even be incorporated into a mobile telephone. Thus Figure 2 shows such a terminal with a central processor 30, memory 31, a disk store 32, a keyboard 33, video display 34, communications interface 35, and audio interface (“sound card”) 36. For video delivery, a video card would be fitted in place of, or in addition to, the card 36. In the disk store are programs which may be

EX1004 (Leaning) at 4:9-10

New Modification No. 1: Software Video Codecs

- A POSITA would understand that Leaning's video card would also need to be cleared when switching streams. Sur-Reply at 12-13.

89. To achieve continuous playback, the self-contained teaching of Leaning would have to be fundamentally changed. Indeed, a POSITA would have to abandon one of the central teachings of Leaning—specifically, the clearing of the buffer when changing the data rate. Leaning explains how clearing the playback buffer is “advantageous” and “may be necessary” during a “rate shift” because it provides time to “reconfigure” the “sound card” and to retrieve the next audio sub-file “immediately.” EX1004, 8:20-23, 11:19-20. Although Leaning primarily addresses these benefits in the context of a “sound card,” a POSITA would have understood that those teachings applied equally to hardware video cards at the time of Leaning for the decompression and display of full-motion, color video, which also would have needed to be cleared and reset in order to decode video according to the specific parameters of any new incoming bitstream. EX2139 (‘332 Patent) at 10:18-32 (“for the decoder to adapt to the context” of “one MPEG transport stream to another,” “undesirable audio and video discontinuities may result.” “One attempt to solve this discontinuity problem is to reset the decoder, squelch the audio and freeze the video for a certain amount of time”).

90. Leaning's teachings are entirely consistent with this technical requirement of video cards at the time of Leaning. Leaning recognizes that a video card would be required for video playback, and that “[f]or video delivery, a video card would be fitted in place of, or in addition to, the [sound] card.” EX1004, 4:9-10. But Leaning does not make any special accommodation for video cards. Thus, when Leaning teaches to “clear [the] buffer,” a POSITA would understand that instruction (possibly Leaning's “same principle” to also apply to the decode buffer of a video card in the same way it applies to a sound card). Indeed, Petitioner's expert, Dr. Houh, admitted during cross-examination that (i) Leaning expressly discloses clearing the sound card buffer when rate switching and (ii) Leaning does not disclose or suggest that the corresponding video card buffer would *not* be cleared for rate switching. EX2129 (Houh Tr.) 103:18-104:9.

EX2141, ¶¶ 89-90.

New Modification No. 1: Software Video Codecs

Dr. Jeffay explained why Petitioner is wrong – a POSITA would understand that, like Leaning's audio card, a video card would also need to be reset when switching

Leaning discloses hardware video cards

interface 35, and audio interface ("sound card") 36. For video delivery, a video card would be fitted in place of, or in addition to, the card 36. In the disk store are programs which may be

EX1004, 4:9-10

Contemporaneous publications acknowledge "discontinuities" and confirm a "reset" was required for switching video streams

In the set-top application as shown in FIG. 2, a problem arises when the viewer rapidly scans through the channels available from the decoder 61. If a simple demultiplexer is used to switch from one MPEG transport stream to another from the cable 62, a considerable time will be required for the decoder to adapt to the context of the new stream. During this adaptation process, undesirable audio and video discontinuities may result. One attempt to solve this discontinuity problem is to reset the decoder, squelch the audio, and freeze the video for a certain amount of time after switching from one MPEG transport stream to another. However, this approach will slow down the maximum rate at which the viewer can scan through the channels while looking for an interesting program to watch.

EX2139, 10:18-32

EX2141 (Jeffay Dec.) ¶ 89.

89. To achieve continuous playback, the self-contained teaching of Leaning would have to be fundamentally changed. Indeed, a POSITA would have to abandon one of the central teachings of Leaning—specifically, the clearing of the buffer when changing the data rate. Leaning explains how clearing the playback buffer is "advantageous" and "may be necessary" during a "rate shift" because it provides time to "reconfigure" the "sound card" and to retrieve the next audio sub-file "immediately." EX1004, 8:20-23, 11:19-20. Although Leaning primarily addresses these benefits in the context of a "sound card," a POSITA would have understood that those teachings applied equally to hardware video cards at the time of Leaning for the decompression and display of full-motion, color video, which also would have needed to be cleared and reset in order to decode video according to the specific parameters of any new incoming bitstream. EX2139 ('332 Patent) at 10:18-32 ("for the decoder to adapt to the context" of "one MPEG transport stream to another," "undesirable audio and video discontinuities may result." "One attempt to solve this discontinuity problem is to reset the decoder, squelch the audio and freeze the video for a certain amount of time").

New Modification No. 2: Encode Sub-Files to Begin With I-Frames

- For New Modification No. 2, Petitioner proposes modifying Leaning's sub-files to each begin with an ***I-Frame***. Reply, 5-6; Sur-Reply at 14-15.

The Petition expressly relies on Leaning's teaching of ***first*** encoding the content into multiple rates, ***then*** partitioning into subfiles

- d. 1[A][3]: "wherein each copy of the digital content is divided into a plurality of streamlets, each of the plurality of streamlets of a corresponding copy comprising a different portion of the digital content during presentation,"

Leaning teaches 1[A][3]. Leaning describes that each copy (version) is divided into a plurality of streamlets (sub-files) because Leaning describes, after encoding into several different versions, "partition[ing] each source file into sub-files." EX1004, 6:21-22. Leaning further describes "dividing the material into a sequence of sub-files" (EX1004, Abstract) such that the larger audio or video file "is divided into smaller files before being stored on the server 1" (*id.*, 3:5-6).

Pet p. 24

In order to provide for rate switching, the person preparing the file for loading onto the server prepares several source files - by encoding the same PCM file several times at different rates. He then partitions each source file into sub-files, as before. These can be loaded onto the

Leaning 6:21-23

New Modification No. 2: Encode Sub-Files to Begin With I-Frames

Following Leaning's teaching would lead to mistracking, even if the sub-files could somehow start with I-Frames

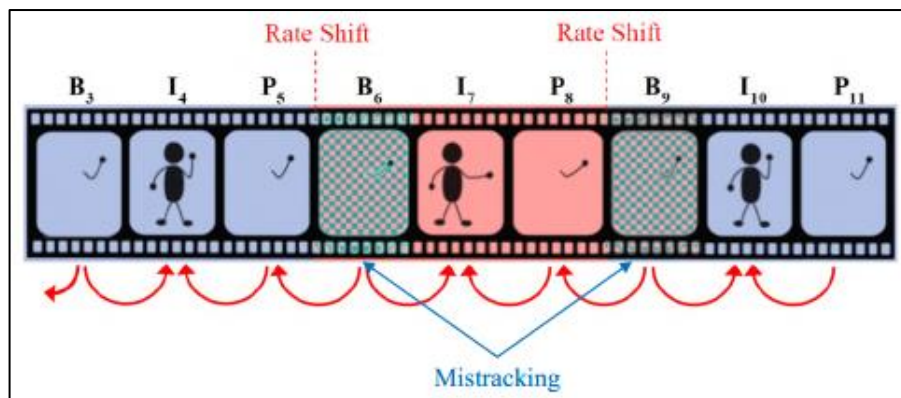
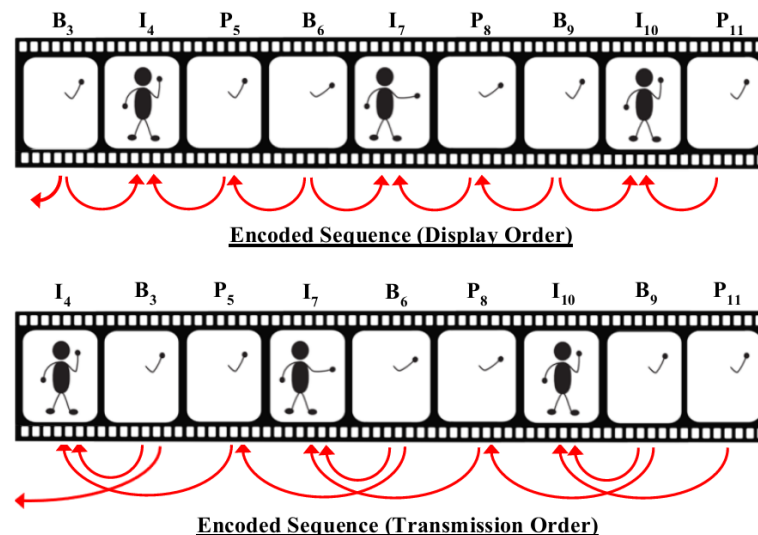
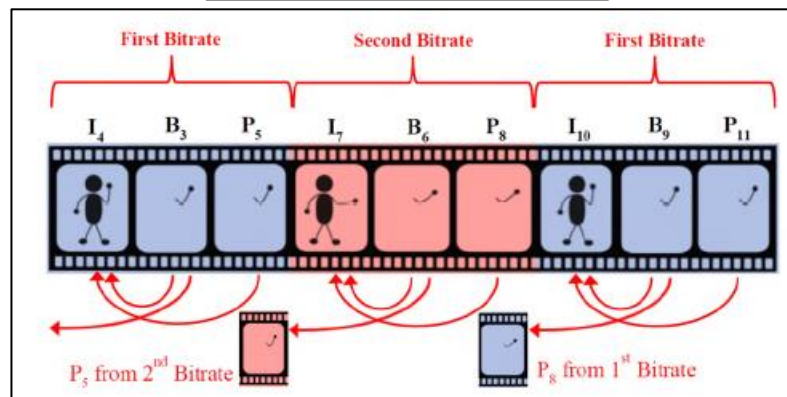
Dr. Jeffay explains that MPEG video files include B frames that would not decode correctly if sliced at I-Frame boundaries.

EX2141, ¶¶ 166-170

the results would still include mistracking at the

decoder if a video is divided into sub-files with an I-frame at the beginning of each sub-file, as depicted below.

EX2141 ¶169



New Modification No. 3: Alter T_p Threshold

- For New Modification No. 3, Petitioner argues that buffer delay could be avoided by setting T_p to 3 seconds instead of the 10-second value disclosed in Leaning. Reply at 7-9.
- For any T_p value, Leaning requires downloading an entire sub-file before playback can resume (temporal discontinuity).
- Reducing T_p may shorten interruption but does not eliminate it. Sur-Reply at 16.

7. The player program increments the filename to 000001.bin and requests, receives, decodes and stores this second sub-file as described in (4) and (5) above. It repeats this process until the contents of the buffer reach or exceed the playout time T_p . Note that it is not actually essential that the decoding occurs before the buffer but it simplifies matters as since the audio is decoded back to raw PCM then the duration of the buffered material is then explicitly known. It simplifies the control of the audio buffer if each of the sub-files is the same audio playback size.
8. Having reached the playout threshold T_p the decoded data are sent from the buffer to the audio interface 36 which plays the sound through a loudspeaker (not shown).

EX1004, 5:23-31

New Modification No. 4: Playing, Not Clearing, the Buffer

For New Modification No. 4, Petitioner then argues Leaning’s “clear buffer” command does not actually clear (discard) the buffer contents. Instead, Petitioner argues that Leaning’s “clear buffer” command simply waits until the buffered content finishes playing out. Reply at 5-6. This is implausible and contradicted by Leaning. Sur-Reply at 16-17.

Leaning does not wait for residual content to empty from the buffer

recording would result in a request for the 26th sub-file - i.e. 000025.bin. It will be apparent that this calculation is considerably simplified if each sub-file corresponds to the same fixed duration. We prefer, in the case of the jump, to suspend decoding and clear the buffer so that the new request is sent immediately, but this is not actually essential.

proportionately greater. On the other hand, excessively large sub-files are disadvantageous in requiring a larger buffer and in causing extra delay when starting play and/or when jumps or rate changes are invoked. A sub-file size of between 30% and 130% of the playout time, or preferably

EX1004, 11:19-20, 12:31-33; see also EX2129 at 97:24-98:24.

“Clear Buffer” and “play[] buffer” are separate commands

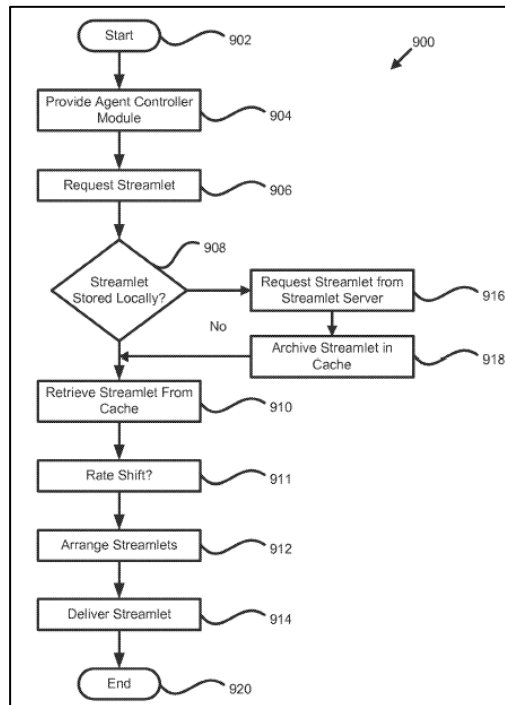
User	Terminal	Server
	Set Current Subfile = 000000.bin	
	J1: Set URL = StemC + Current Subfile	
	Request this URL.	
		If requested subfile exists, Send requested subfile; otherwise send error message
	If error message received, Stop	
	Decode received subfile	
	Write to buffer	
	J1A: If Buffer Fullness > Tp seconds go to Step J3	
	J2: Increment Current Subfile	
	Go to Step J1	
	J3: Begin/continue playing of buffer contents via sound card	
	J4: If Buffer Fullness < Tp seconds go to Step J2	
	If BufferFullness = 0 AND MRate < CurrentRate AND BufferLow% > Td go to Stepdown	
	If MRate > NextRate AND NextRate < 0 go to Stepup	
Input of user commands	If UserCommand = Pause then: Stop reading from buffer; Loop until Usercommand = Resume; go to J3	
	If UserCommand = Jump(j%) then: Clear buffer; Set CurrentSubfile = Integer[(LF1+1)*j/100]; go to Step J1	
	Go to Step J1A	
	Stepup: Clear Buffer Set RateD = RateC Set StemD = StemC Set RateC = RateU Set StemC = StemU Set RateU = next higher rate in list or zero if none Set StemU = Stem + “/” + item in rate list corresponding to this rate Go to Step J1A	
	Stepdown: Clear Buffer Set RateU = RateC Set StemU = StemC Set RateC = RateD	

EX1004, 10 (highlighting added).

Leaning Fails to Disclose or Render Obvious “Arranging” Files/Streamlets

Claims 1 and 12 require “arranging” streamlets or portions of files requested from the server “in order of ascending presentation time.” The Petition alleges that Leaning teaches this limitation because “sub-files are requested, received, decoded, and written to the buffer one after the other.” Pet. at 34-35. Leaning does not teach the claimed “arranging.”

The Challenged Patent *simultaneously* requests a *plurality* of streamlets, creating a need to then *arrange* the streamlets *into the proper order*. EX1001 at 16:43-57; Figure 9.



By contrast, Leaning requests each sub-file *individually*, in a pre-defined sequence. Leaning *waits* to receive each requested sub-file before decoding and saving the sub-file:

At the terminal, the control mechanisms are unchanged, but the decoding and buffering process is modified :

1. Receive sub-file S1;
2. Decode sub-file S1;
3. Write into the buffer only the first four seconds of the decoded audio samples (discard the remainder);
4. Receive sub-file S2;
5. Decode sub-file S2;
6. Write into the buffer only the first four seconds of the decoded audio samples;
7. Continue with sub-file S3 etc..

EX1004, 14:4-13

Leaning Fails to Disclose or Render Obvious “Arranging” Files

Leaning does not contemplate a need to “sequentially arrang[e]” sub-files on the user terminal. As Dr. Jeffay explains, Leaning only discloses its sub-files being stored and played back in the order in which they are received by giving its sub-files “file names which include a serial number indicative of their sequence in the original file.” EX1004, 3:10-18; EX2141, ¶120; POR at 24-26.

Person preparing file for loading onto web server partitions the file in Leaning:

```
000000.bin  
000001.bin  
000002.bin  
000003.bin  
.  
.  
000134.bin
```

EX1004, 3:10-18

Leaning prefers this approach as it is simple to implement:

The sub-file naming convention used here, of a simple fixed length sequence of numbers starting with zero, is preferred as it is simple to implement, but any naming convention can be used provided the player program either contains (or is sent) the name of the first sub-file and an algorithm enabling it to calculate succeeding ones, or alternatively is sent a list of the filenames.

EX1004, 6:5-8

Leaning has no expectation of receiving sub-files in any order other than “original sequence:”

First, it should be noted that if (as in the first version described above), there is no expectation that a sub-file will be followed by a sub-file other than that which immediately follows it in the original sequence, then it matters little where the boundaries between the sub-files are located. In that case

EX1004, 12:9-11

Leaning Fails to Disclose or Render Obvious “Arranging” Files

In Reply, Petitioner pivots its focus to Leaning’s disclosure that “an algorithm enabling it to calculate succeeding ones, or alternatively is sent a list of the filenames” and that Leaning “checks each sub-file it receives” and “make[s] a note of the playtime.” Reply, 11 (citing EX1004, 6:6-8, 21:30-22:3, 5:15-17). Petitioner contends a POSITA would have understood this ensures sub-files are written into the buffer in the correct play time order.

Petitioner previously acknowledged sub-files are requested “sequentially” in Leaning based on file name.

Once a sub-file is written to the buffer, the current sub-file number is increased (J2) and the next sub-file is requested (J1) sequentially in the order of ascending playback time (firstly sub-file 000000.bin, then sub-file 000001.bin, etc.). Thus, the buffer will subsequently store the decoded sub-files in the corresponding order for sequential playback (in order of ascending playback time) to enable proper sequential playback of the video or audio file. EX1004, 1:13-28, 4:4-21, 5:23-6:2,

Pet. at 35

Leaning teaches away from the additional client-side logic that would be required to read the “play time” and “arrang[e]” the sub-files in temporal order based on that “play time,” as Petitioner’s modification would require. Sur-Reply at 18.

V. Invalidity – Obviousness: Leaning in View of Gamble

The Combination Fails to Disclose “requesting sub-parts of the files ... over different ... connections”

The Petition modifies Leaning’s client-server architecture to request sub-parts of files as taught by Gamble and argued that utilizing multiple connections to request and retrieve different parts of a single file was well known, as exemplified by Gamble. Pet. at 57-58.

A POSITA would have been motivated to configure Leaning’s apparatus to request sub-parts of the files (sub-files) over different TCP connections and reassemble the files from the received subparts, such as taught by Gamble. A POSITA would have understood that this improves reliability in situations where one connection fails by retrieving other subparts over other connections and retrieving more file data more quickly. A POSITA also would have understood that it takes advantage of available bandwidth by parallelizing retrieval of a segment to increase throughput where an individual TCP connection’s maximum throughput is the bottleneck. EX1003, ¶ 123; EX1012, 108-109 (explaining that parallel TCP connections were known and may be faster). A POSITA would have had a reasonable expectation of success with such a modification because the TCP protocol allows for multiple connections, and utilizing multiple connections to request and retrieve different parts of a single file was well known, as exemplified by Gamble. *Id.*

Pet. at 57-58

This fails because Gamble does not disclose or suggest client “requests” and cannot cure the fact that Leaning does not have different TCP connections, let alone request sub-parts over different connections. And Petitioner does not propose any modification to Leaning that might cure these deficiencies.

Leaning Fails to Disclose or Render Obvious “requesting sub-parts of the files ... over different ... connections”

Claim 16 recites that “the requesting of the plurality of sequential individually-requestable portions included **requesting sub-par[t]s** of the individually-requestable portions **over different ones of the plurality of different TCP connections**.” This “requesting” is performed “by a client device.” POR 26 (citing Claim 12).

In the Petition, Petitioner argued that Leaning “(or, alternatively, Leaning in view of Klements) teaches that the at least one TCP connection over which the files are requested may comprise a plurality of TCP connections.” Pet. at 56. Leaning does not.

The Challenged Patent explains the challenge of delays/losses with TCP connections

Generally, three basic challenges exist with regard to data transport streaming over a network such as the Internet that has a varying amount of data loss. The first challenge is reliability. Most streaming solutions use a TCP connection, or “virtual circuit,” for transmitting data. A TCP connection provides a guaranteed delivery mechanism so that data sent from one endpoint will be delivered to the destination, even if portions are lost and retransmitted. A break in the continuity of a TCP connection can have serious consequences when the data must be delivered in real-time. When a network adapter detects delays or losses in a TCP connection, the adapter “backs off” from transmission attempts for a moment and then slowly resumes the original transmission pace. This behavior is an attempt to alleviate the perceived congestion. Such a slowdown is detrimental to the viewing or listening experience of the user and therefore is not acceptable.

The Challenged Patent avoids delays/losses and maintains continuous presentation by using multiple TCP/IP connections

In a further embodiment, streamlet requests may comprise requesting pieces of any streamlet file. Splitting the streamlet **304** into smaller pieces or portions beneficially allows for an increased efficiency potential, and also eliminates problems associated with multiple full-streamlet requests sharing the bandwidth at any given moment. This is achieved by using parallel TCP/IP connections for pieces of the streamlets **304**. Consequently, efficiency and network loss problems are overcome, and the streamlets arrive with more useful and predictable timing.

Leaning Fails to Disclose or Render Obvious Use of a Plurality of TCP Connections

- Leaning does not mention, and has no use for, multiple TCP connections.
- Rather, Leaning explicitly states that it “need contain no ... provision” for “the masking of errors due to packet loss,” which allows its system to use “an ordinary ‘web server’” to implement its playback process. EX1004, 2:27-32; POR at 36-37.
- Leaning explains that its playback process “is repeated until a ‘file not found error’ is returned by the server to each client terminal.
- A POSITA would appreciate that “an ordinary ‘web server’” would generate a standard error message under these circumstances.

The Challenged Patent avoids delays/losses and maintains continuous presentation by using multiple TCP/IP connections

In a further embodiment, streamlet requests may comprise requesting pieces of any streamlet file. Splitting the streamlet 304 into smaller pieces or portions beneficially allows for an increased efficiency potential, and also eliminates problems associated with multiple full-streamlet requests sharing the bandwidth at any given moment. This is achieved by using parallel TCP/IP connections for pieces of the streamlets 304. Consequently, efficiency and network loss problems are overcome, and the streamlets arrive with more useful and predictable timing.

EX1001, 14:25-34

Leaning uses standard error messages to manage the playback of subfiles and show the end of a content file

Terminal	Server
Request this URL	
	If requested subfile exists, Send requested subfile; otherwise send error message
If error message received, Stop	

Terminal	Server
Set Current Subfile = 000000.bin	
J1: Set URL = StemC + Current Subfile	
Request this URL	
	If requested subfile exists, Send requested subfile; otherwise send error message
If error message received, Stop	
Decode received subfile	
Write to buffer	

EX1004 at 10
(annotations and highlighting added)

Leaning Fails to Disclose or Render Obvious Use of a Plurality of TCP Connections

Leaning describes requesting sub-files individually, one-at-a-time in a predefined sequence. EX1004, 12:9-11.

It is of interest to discuss further the process of partitioning the original file into sub-files. First, it should be noted that if (as in the first version described above), there is no expectation that a sub-file will be followed by a sub-file other than that which immediately follows it in the original sequence, then it matters little where the boundaries between the sub-files are located. In that case

EX1004, 12:9-11

This confirms that Leaning fails to contemplate use of multiple TCP connections and the adaptive architecture equipped to handle network failures involving multiple TCP connections, as required by Claim 16. POR at 26-32; Sur-Reply at 18; EX2141 (Jeffay Decl.), ¶¶106-110.

The Combination Fails to Disclose “requesting sub-parts of the files ... over different ... connections”

Like Leaning, Gamble also does not disclose or suggest “*requesting sub-parts* plurality of the files *over different* ones of the plurality of *TCP connections*.” POR at 30-32.

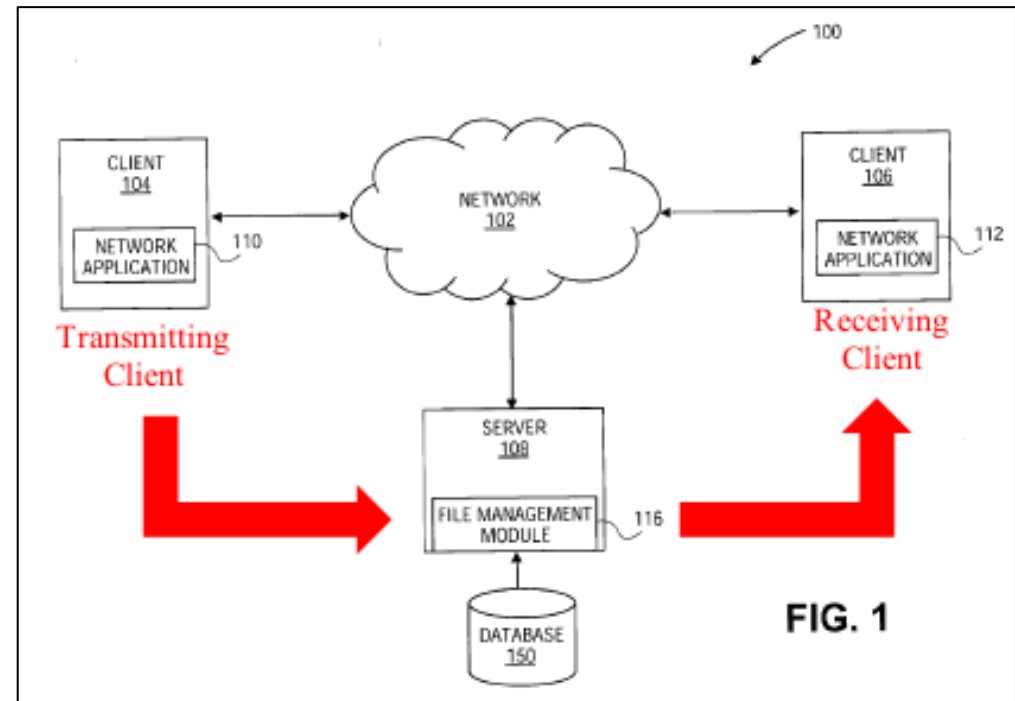
Furthermore, in Gamble, it is the *transmitting* client that establishes “parallel connections” for sending each segment to the receiving client (via that intermediate server). *Id.*, ¶¶[0021], [0039]; EX2141, ¶175. The transmitting client does all this *without receiving any segment requests* from the *receiving* client. In fact, Gamble is silent on any request at all from the receiving client, much less requests over a plurality of TCP connections. Accordingly, Gamble fails to disclose or suggest “receiving” requests over a plurality of TCP connections, as claimed.

POR at 32

The Combination Fails to Disclose Requesting Sub-Parts Over Different TCP Connections

Dr. Jeffay identified that while Gamble discusses **transmitting** “segments” of a larger file over multiple “connections,” Gamble fails to disclose or suggest **“requesting”** segments, files, or sub-files over a plurality of TCP connections:

1. The transmitting client establishes “parallel connections” for sending segments to receiving client
2. The transmitting client does not receive any segment requests from receiving client
3. Petition fails to account for intermediate server 108

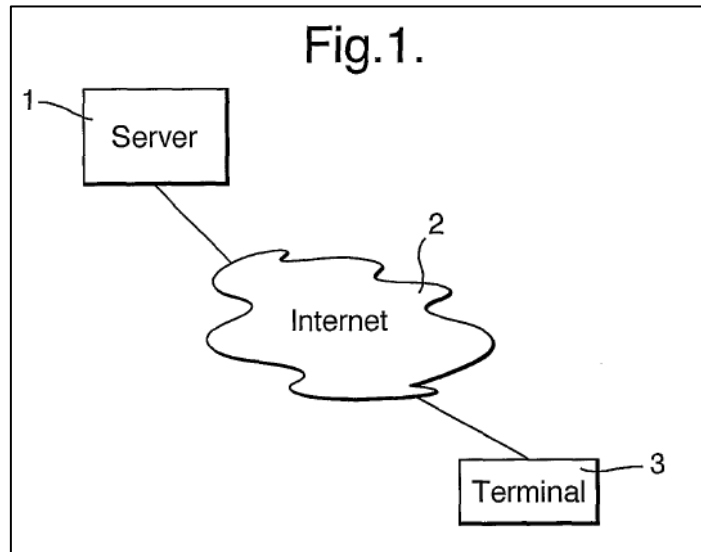


EX1020 at Fig. 1 (annotations added); POR at 30-32; EX2141 (Jeffay Declaration), ¶173-176

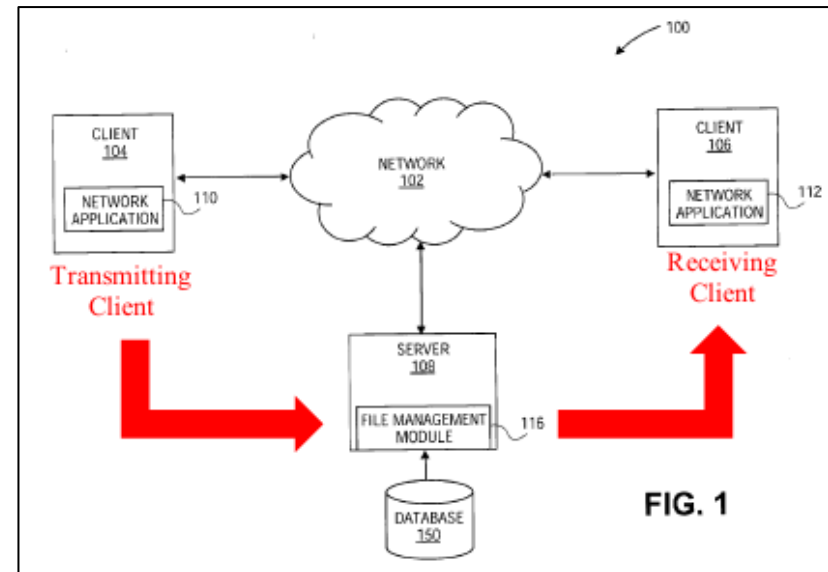
The Combination Fails to Disclose Requesting Sub-Parts Over Different TCP Connections

A POSITA would not have combined Leaning (with or without Klemets) and Gamble) because the systems are incompatible. Leaning discloses a traditional 2-device client-server architecture, while Gamble discloses a 3-device peer-to-peer architecture.

Leaning (EX1004)



Gamble (EX1020)



In Gamble, transmitting client 104 sends data to a server, which then sends data to a different client (106); neither place “requests.” Sur-Reply at 19-20.

The Combination Fails to Disclose Requesting Sub-Parts Over Different TCP Connections

Leaning and Gamble are further incompatible as each discloses different preferred file sizes.

Leaning = smaller, 4 second file sizes

conventional streamer would be stored as this one single file. Here, however, the file is divided into smaller files before being stored on the server 1. We prefer that each of these smaller files is of a size corresponding to a fixed playing time, perhaps four seconds. With a compressed format

EX1004 at 3:5-7

Gamble = larger file sizes

[0001] This invention relates generally to data processing systems, and, more particularly, to a method and system for transferring large data files over parallel connections.

EX1020 at [0001]

Petitioner fails to explain how or why a POSITA would have incorporated Gamble's peer-to-peer architecture for large file transfers into Leaning's client-server system architecture for small file transfers. POR 30-32; Sur-Reply 19-20.

The Combination Fails to Disclose “Requesting...”

Having failed to explain how or why a POSITA would combine Leaning (with or without Klemets) and Gamble, Petitioner now argues that a POSITA would have been motivated to modify the combined Leaning-Gamble or Leaning-Klemets-Gamble system to implement teachings of the Challenged Patent “using well-known HTTP RANGE requests.” Reply, 18. This is belated and conclusory.

An argument grounded in fact that elements were “known in the prior art” was found legally insufficient: “[t]hat is an error as a matter of law. It does not suffice to simply be known. A reason for combining must exist.” *Virtek Vision v. Assembly Guidance*, 97 F.4th 882, 888 (Fed. Cir. 2024)

Sur-Reply at 20



The law requires more than the mere existence of HTTP RANGE requests to render obvious “requesting sub-parts ... over different TCP connections.” Sur-Reply at 20.

VI. Objective Indicia of Non-Obviousness

Petitioner & Dr. Houh Failed to Address Known Objective Indicia

PO Sur-Reply, at 21-22

“Known evidence of secondary considerations *should be addressed in the Petition.*”
Aardevo N. Am., LLC v. Agventure B.V., IPR2025-00136, Paper 9, 32 (P.T.A.B. May 1, 2025).

III. MATERIALS CONSIDERED

time of the alleged invention. Of the materials cited as an exhibit to the '234 Patent IPR petition, I reviewed the following:

Exhibit Number	Description
1001	U.S. Pat. 11,991,234 (“the '234 Patent”)
1002	File History of the '234 Patent
1004	International P.C.T. Publication WO 2002049343 to Leaning et al. (“Leaning”)
1006	U.S. Patent Publication No. 2003/0236906 to Klements (“Klements”)
1007	U.S. Patent No. 6,848,004 to Chang (“Chang”)
1008	WO1997044942 to Kliger (“Kliger”)
1009	337-TA-1265 ITC Investigation Initial Determination

EX1003 (Houh Decl.) ¶21.

X. GRAHAM FACTORS (NO SECONDARY CONSIDERATIONS)

More specifically, the purported “unique” claimed feature of “a smooth end user experience” that “up-shifts and down-shifts in response to network and client CPU availability,” was already present in the prior art. For example, Leaning discloses upshifting and downshifting quality of the stream in response to, for example, network congestion to ensure a smooth and uninterrupted stream. *Id.*; see, e.g., Section IX.A.1 Ground 1: 1[C][1]-1[D].

Additionally, the alleged “unique” claimed feature of “use of simple HTTP protocol transfer of media files from standard Web servers rather than deployment of expensive media servers” cannot be a basis for finding a nexus explained in the Grounds above, at least Leaning discloses using simple HTTP protocol for clients to request transfer of files from standard web servers, rather than specialized media servers. See Section IX.A.1 Ground 1: 1[C][1], claim 2; EX1004, 2:9-32, 3:19-4:3.

Additionally, the alleged “unique” claimed feature of “use of simple HTTP protocol transfer of media files from standard Web servers rather than deployment of expensive media servers” cannot be a basis for finding a nexus because at least Leaning discloses using simple HTTP protocol for clients to request transfer of files

60

Petition, at 60-61.

- 1) A Presumption of Nexus Is Warranted**
 - a) There Are No Critical Unclaimed Features**
- 2) The Objective Indicia Are Tied to The Claimed Combination of Features**
- 3) British Telecom's FastNets Product Confirms the Validity of the Challenged Patents**

1) A Presumption of Nexus Is Warranted

a) There Are No Critical Unclaimed Features

2) The Objective Indicia Are Tied to The Claimed Combination of Features

3) British Telecom's FastNets Product Confirms the Validity of the Challenged Patents

The ITC Correctly Found a Presumption of Nexus Applies

POR, at 39-40;
PO Sur-Reply, at 21.

In contrast, Dr. Jeffay demonstrated through corroborating evidence that Move's success is tied to the "unique characteristics of the claimed invention." *See Fox Factory*, 944 F.3d at 1373-74. As Dr. Jeffay testified, the Move system was described as early as 2008 as offering "a smooth end user experience as the Move Media Player up-shifts and down-shifts in response to network and client CPU availability." CX-0008C (Jeffay RWS) at Q/A 304 (quoting CX-1096C

In view of this record evidence, I find DISH is entitled to a presumption that there is a nexus between the objective evidence of non-obvious DISH proffers and the claimed invention. I

find respondents have not rebutted that presumption.

EX1009 at 213 (ITC Decision)

The ITC's Presumption of Nexus Is Not Due To A "Concession"

POR, at 39;
PO Sur-Reply, at 21

The ITC Explicitly Cited to Evidence Explaining How MOVE's Media Player And Sling TV Embody the Claimed Invention

DISH argues that it is entitled to a presumption of nexus because the product it relies on, the Move Media Player, is "the invention disclosed and claimed" and is coextensive with the asserted claims. See Compls. Br. at 232-33 (quoting *Fox Factory*, 944 F.3d at 1373). The inventors listed on the asserted patents worked for a company called Move, which was later acquired by DISH. CX-0001C (Major DWS) Q/A 3, 13. DISH argues that respondents and the Staff have conceded that the Move Media Player embodies the claimed invention because those parties argued that public use of the Move Media Player in 2005 was an invalidating use meeting every element of the asserted claims. *See id.* at 233; *infra* Sec. XIV.C.

I find that the Move Media Player embodies the claimed invention. See Compls. Br. at 232-36; Resps. Br. at 232-41. Accordingly, DISH is entitled to a presumption that the commercial

EX1009 (ITC ID), at 212.

MOVE's Player Addressed Then-Present Issues With Continuity

PO Sur-Reply, at 21-22



move ADAPTIVE STREAM

Move Adaptive Stream offers the Highest Quality,
Lowest Cost, and Most Flexibility

How does it work?

Move Adaptive Stream leverages a process called Simulcoding that breaks large video files into many small files called streamlets. Streamlets are multi-second video segments that are delivered using a highly-

Helix streaming server. Enabled by this patent-pending technology and protocol, Move Adaptive Stream provides a continuous, high-quality stream unattainable with competing technologies.

When an Internet user requests a video using a standard HTTP "GET" request, streamlets are transferred over the Internet from the origin Web server to the client's Web browser or client application where they are reassembled in the correct order. The delivery protocol uses multiple TCP sessions to substantially improve the reliability of the transmission and increase the total carrying capacity during each unit of time.

EX2077, 1-2 (MOVE Adaptive Stream)

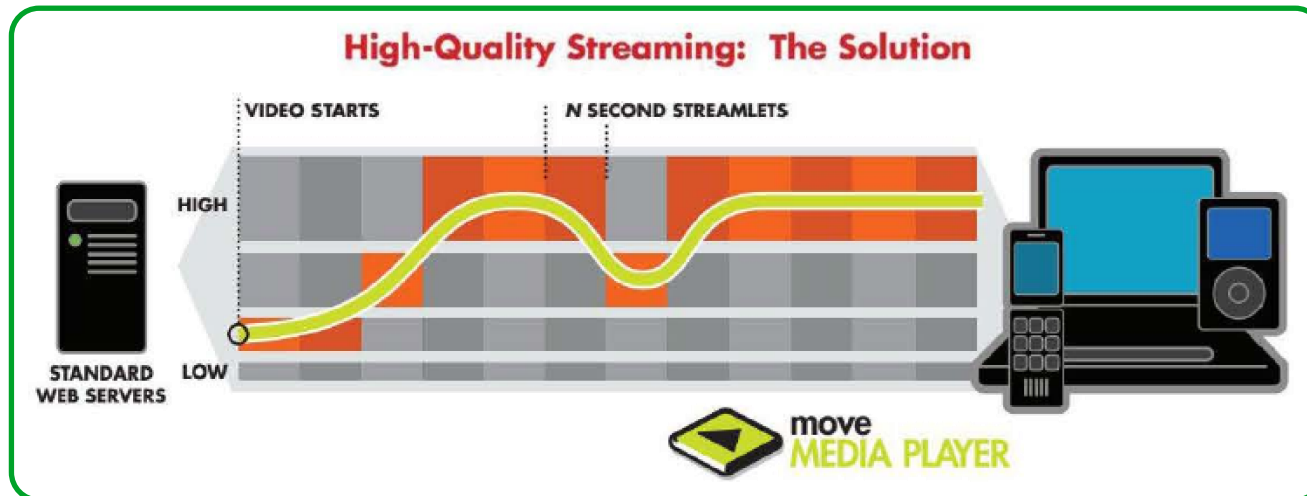
MOVE's Player Worked Because of The Combination of Claimed Features

MOVE's Player Addressed Then-Present Issues With Continuity

POR, at 41;
PO Sur-Reply, at 21-22



EX2077, 1 (MOVE Adaptive Stream)



EX2077, 1-2 (MOVE Adaptive Stream)

MOVE's Player Provided Continuous Playback of Video

POR, at 38, 42-43, 45-55, 58-60;
PO Sur-Reply, at 23-24

63

1 So it's -- it's a lot more --
2 you -- you -- you're -- you're talking a
3 very -- very simple case, which is kind of
4 core, but -- but we did a whole bunch of
5 other things, very clever, around that to --
6 to -- again, to guarantee that the playback
7 was smooth and as highest quality as we
8 could, but we could deal with pretty much
9 whatever the internet threw at us in terms of
10 losing -- occasionally losing some bandwidth.
11 Q. Understood.

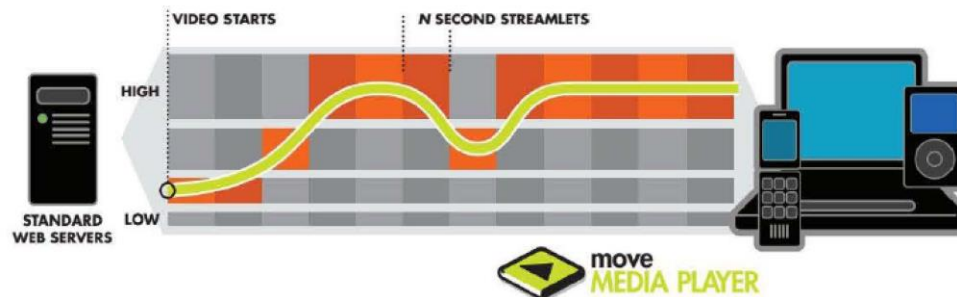
EX1025, 63 (Major Dep. Tr.)

The Sports Page: ESPN 360 Relaunches With Move

"The interface is simple, user-friendly, and extremely quick...On a slow wireless connection, I was able to get a relatively good looking picture and more importantly, an entirely fluid stream."

"One of the most impressive features of the player is the tv-like speed of switching between games. The video is immediately available, ramping up in the first few seconds to the best quality possible for a given end user. And on a really high-speed connection, I would imagine it looks pretty amazing in full screen."

EX2040 (ESPN 360 Article)



Petitioners' Hyper-Focus on Speculative "Blips" and "Stalls"

PO Sur-Reply, at 23-24

6 Q. Okay. So your technology doesn't
7 ensure that viewers will never experience
8 buffering or stalling, correct?

9 MR. GUY: Objection, form.

10 THE WITNESS: Yeah, we can't --

11 I -- can't ensure it. Just like cable
12 and satellite, you can get

13 pixelization and see little black
14 dots. It -- there's -- it's number of

15 nines imperfection that were -- we

16 have a lot of. We had way more than

17 anyone else had. In terms of all the

18 things we did to guarantee, we did

19 some very clever and hard things to,

20 hell or high water, try and keep the

21 video continuous and -- yet quality.

22 We did way more than anyone else was

EX1025, 127 (Major Dep. Tr.)

24 Q. And so Move's technology was
25 attempting to provide reliable video 218

1 D. Ericson

2 viewing over the internet, but it wasn't
3 required.

4 Do you agree?

5 MR. SHEPARD: Objection. Form.

6 A. I don't agree with the way it was

7 -- you are saying it because no technology

8 is 100 percent reliable. So every patent

9 in that way in my view would be unreliable.

10 Like nothing is reliable -- right? Your

11 car is going to break down. Everything

12 else. All those components are patentable.

13 So it was trying to accomplish reliability.

14 If it was able to do so with absolute

15 perfection, then, great. But to my

16 knowledge, I have never seen a technology

17 or anything that man has created that is

18 perfect.

EX1027, 217-218 (Ericson Dep. Tr.)

Petitioners' Hyper-Focus on Speculative "Blips" and "Stalls"

PO Sur-Reply, at 23-24

11 Q. Okay. You did say in your
12 deposition that the MOVE Network's Viewer
13 would prevent the stream from buffering.

14 Is that right?

15 A. Yes.

16 Q. Does that mean that there was
17 never any buffering at all for any viewers
18 who ever looked at the MOVE Network stream?

19 MR. LYNN: Objection. Form.

20 A. No. That's -- I mean, obviously,
21 if a network connection completely failed,
22 there would definitely be buffering.

EX1026, 53 (Mitchell Dep. Tr.)

EX1026, 71 (Mitchell Dep. Tr.)

8 At the time in 2006, was your
9 technology so improved that literally no
10 one who was using your technology would
11 experience freezing?

12 A. No.

13 MR. SHEPARD: Objection. Form.

14 A. The answer is no. Just like
15 today. I still can't watch satellite TV
16 sometimes. I mean, I don't know what the
17 point of the thing is. No technology is
18 perfect.

EX1027, 113 (Ericson Dep. Tr.)

3 Q. Would you also agree that the
4 MOVE player's video playback would
5 sometimes be interrupted as a result of
6 buffering?

7 MR. LYNN: Objection. Form.

8 A. I mean, as I stated before, in
9 certain cases -- certain extreme cases,
10 that is a possibility. Just like --

Summary of Objective Indicia of Non-Obviousness

1) A Presumption of Nexus Is Warranted

a) There Are No Critical Unclaimed Features

2) The Objective Indicia Are Tied to The Claimed Combination of Features

3) British Telecom's FastNets Product Confirms the Validity of the Challenged Patents

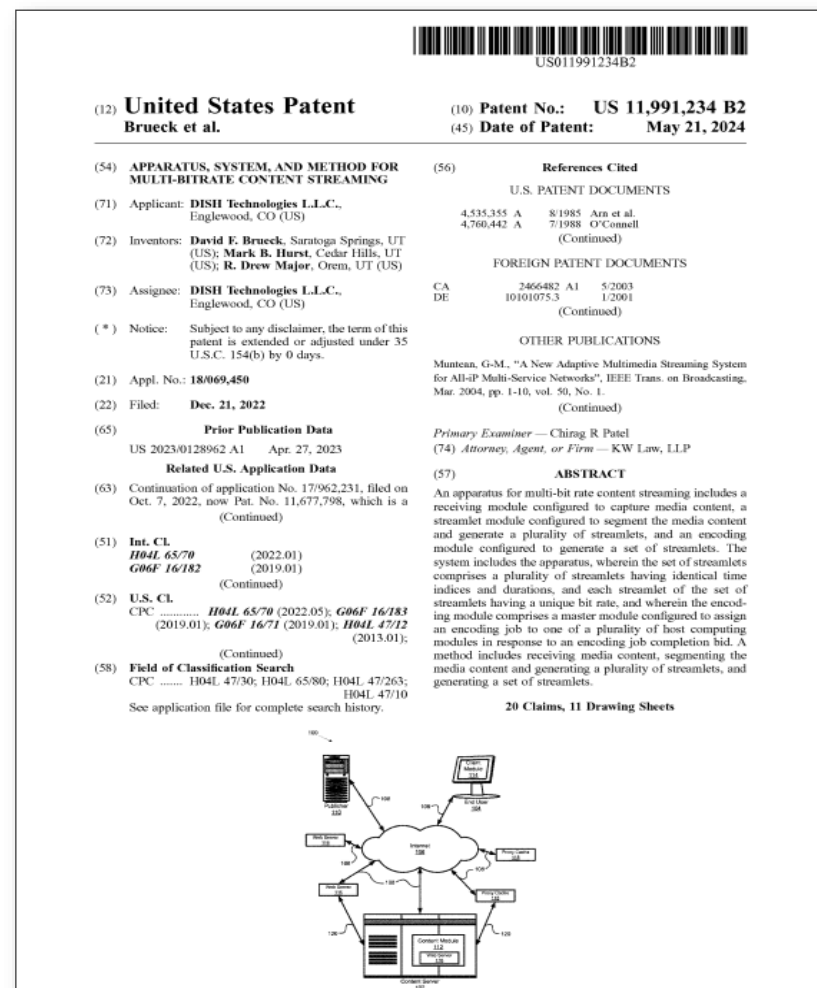
The Alleged "Critical Unclaimed Features" in the Ogdon IPRs Are Claimed Here

PO Sur-Reply, at 21-22

“Given that Petitioner has shown **multiple TCP connections to be a critical unclaimed feature of the MOVE Media Player** that is associated with a different patent (see Ex. 1027; Ex. 2011, 6; Ex. 2059, 11), we find that Petitioner has successfully rebutted any presumption of nexus.”

Ogdon FWD, at 42-43.

Claim	Limitation Language
16	“...wherein the at least one TCP connection comprises a plurality of different TCP connections... ”



'234 Patent

Petitioners' "Unclaimed Features" Argument Is Conclusory and Unsupported

PO Sur-Reply, at 21-22

"A patent challenger may not rebut the presumption of nexus with argument alone."

Quanergy Sys., Inc. v. Velodyne Lidar USA, Inc., 24 F.4th 1406, 1418 (Fed. Cir. 2022) (citing *WBIP, LLC v. Kohler*, 829 F.3d 1317, 1329 (Fed. Cir. 2016)).

B. The Claims Lack a Critical Unclaimed Feature

DISH argues "the MOVE Media Player is essentially the claimed invention" and "no critical unclaimed features remain," citing to equally conclusory statements by Dr. Jeffay. POR, 41. However, the MOVE player, which implemented DISH's so-called "quantum streaming," contains at least one critical unclaimed feature—requesting in parallel streamlets over multiple TCP connections. EX1022, ¶45.

Petitioners' Reply, at 28

Petitioners' One Paragraph of Argument Is Insufficient

Petitioners' "Unclaimed Features" Argument Is Conclusory and Unsupported

PO Sur-Reply, at 21-22

DISH TECHNOLOGIES L.L.C., Exhibit 2021, p. 4
fuboTV MEDIA INC., and Yanka Industries, Inc., v. Dish Technologies L.L.C., IPR2024-00045

rates) also aligned with the same start and end points. Consistent sizes makes implementation a bit easier.)

Consent Origin Point

In practice, streamlets are encoded into files, one file per streamlet. The streamlets are then stored where they are accessible by any industry-standard web server that requires no modifications. Streamlets are retrieved through standard HTTP GET requests; streamlet paths and file names are selected to uniquely identify each streamlet's time sequence in the content as well as stream rate.

All other streaming solutions available today rely on:

1. Specialized media servers.
2. Specialized protocols, (even if using HTTP as a carrier protocol).
3. Coordinated exchange of control logic information between a client and the specialized media server. This logic covers at least the selection of stream rate (if supported) and the position within the content being selected for playback. (As an example of rate selection, the Windows Media 9 Series (WM9) server decides what stream rates to send to each connected client.)
4. A direct connection with the origin server. Therefore, the media server must be supported by a very large infrastructure to support many clients and is not very scalable.

Quantum streaming eliminates all of those elements and in comparison provides significant improvements in capability and performance over the other solutions.

- A. An ordinary web server becomes the origination point for the quantized content. No software installation or management software is needed to serve the content. (Consider the hundreds of pages of documentation to operate a Microsoft Media Server.)
- B. The only protocol employed is an industry standard HTTP "GET" method for requesting a web object from a web server. No custom or dynamic responses are required.
- C. All control logic for rate adjustments and content seeking occur in the client, eliminating the need for a specialized server.
- D. The streamlets retrieved from the web server can be cached by industry-standard web caching devices. (Dynamically generated responses usually are not cacheable. And a dynamically generated response implies special handling and customization to process the custom requests.)

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DISH TECHNOLOGIES L.L.C., Exhibit 2021, p. 4
Aylo Freesites Ltd. v. Dish Technologies L.L.C., IPR2024-00045

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- C. All control logic for rate adjustments and content seeking occur in the client, eliminating the need for a specialized server.
- D. The streamlets retrieved from the web server can be cached by industry-standard web caching devices. (Dynamically generated responses usually are not cacheable. And a dynamically generated response implies special handling and customization to process the custom requests.)

EX2021 (Streaming Media Technology, Inventor Hurst's White Paper)

Evidence From 2004 Sets Forth The Player's "Critical" Features

Summary of Objective Indicia of Non-Obviousness

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 - a) There Are No Critical Unclaimed Features
- 2) The Objective Indicia Are Tied to The Claimed Combination of Features**
- 3) British Telecom's FastNets Product Confirms the Validity of the Challenged Patents

Absent the Presumption, Nexus is Tied to The Claimed Combination

POR, at 45-51;
PO Sur-Reply, at 23-24

MOVE's Player Accomplished What Others Could Not

Generally, the quality, fluidity and reliability of most broadband streaming has rarely ever matched that of typical cable, DBS or terrestrial television. Yet ABC/Disney is counting on a lot of consumers getting into the habit of thinking last night's missed episode of "Boston Legal" is only a few mouse clicks away—and that the simple process of viewing it in long form via streaming will be both uneventful and positive. Adding HD to the experience is designed to push the habit-changing experience a bit further along.

from
Move
Networks.

EX2050 (Industry Article)

High-Quality Streaming: The Problem

Viewers are used to high-quality viewing, and they want it online too. Unfortunately, anyone who has tried knows that current streaming technologies are fraught with problems—including delayed starts, poor video quality, and long buffering interruptions. Additionally, the size of most streaming video frames is too small

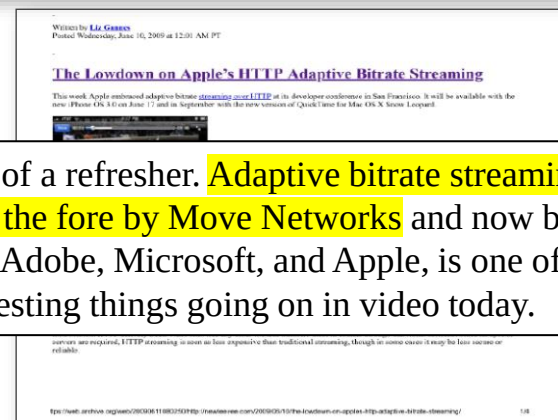
EX2077
(MOVE Adaptive Stream)

AOL and CBS Put Online HD Video Efforts on Hold



EX2047 (NYT Article)

First, a bit of a refresher. Adaptive bitrate streaming, brought to the fore by Move Networks and now being pushed by Adobe, Microsoft, and Apple, is one of the more interesting things going on in video today.



EX2046 (The Lowdown on Apple)

DISH's MOVE Player Success Lay In The Claimed Combination Of Features

POR, at 41-42, 47-48, 57;
PO Sur-Reply, at 22-24

“[I]t is the claimed combination **as a whole**”—not any single element—“that serves as a nexus for the objective evidence.”
PO Sur-Reply, at 25 (citing *WBIP*, 829 F.3d at 1330).

“[T]here are a lot of components to make the technology work as a solution in the player, how you prepare the content, how you—how it's requesting content over the TCP/IP network, the “GET” requests. How there's profiles that are decided with audio, video, how to decide the length of those to achieve maximum quality. How to decide the size of those from a profile to ensure the continuous playback.

[***]

There are lots of things that are part of the MOVE solution that ensures ... minimizing buffering [and] latency.”

EX1027 (D. Ericson (MOVE's VP of Engineering) Dep. Tr.), 165:13-166:2

“[Y]ou're talking a very – very simple case, which is kind of core, but – but [MOVE] did a whole bunch of other things, very clever, around that to – to again, to guarantee that the playback was smooth and as highest quality as we could.”

EX1025 (Major (MOVE Founder/Inventor) Dep. Tr.), 62:2-8

According to a Move Networks press release,

“The seminal patent covers the encoding and use of multiple bit rate ‘streamlets’ with the same time index; such that the aggregate set of streamlets, stored on standard web servers, independently yield playback of the original full length video. This is accomplished through intelligent requests of successive unique optimal streamlets sent by a client device.”

EX2062 (MOVE Awarded Fundamental Streaming Patent Article)

DISH's MOVE Player Success Lay In The Claimed Combination Of Features

POR, at 41-42, 47-48, 57;
PO Sur-Reply, at 22-24

Move Networks and the Quality Solution

"On one side are the Verizons of the world installing fiber to IPTV over a closed network. On the other side are those developing new codecs and technologies to **leverage existing networks and deliver a broadcast-like experience over the Internet.** MOVE Networks is focused on this latter area, improving what they call the 'quality of experience' for online media delivery over public networks."

"But the key is in [MOVE's] plug-in ... MOVE's adaptive protocol means that the plug-in can determine the best encoding profile for a user based on available bandwidth."

EX2048
(Industry Article)

Move Over, Joost

"MOVE's innovative peer-to-peer video delivery platform lets professional content publishers stream ... in a full-screen, **broadcast-quality format.**"

"MOVE's bottom-line technology advantage: its service is profoundly more efficient and less expensive, and **it provides a dramatically better viewing experience.**"

EX2036 (Industry Article), at 2

Level 3 Collaborates With Move Networks to Provide 'True' HD Streaming

"Level 3's Move-enabled streams will dynamically adapt to changing network and end-user computer conditions."

"With the Move Media Player, customers know...the viewers of their content will always be able to watch the video stream on whatever computer they are using."

EX2039 (Industry Article)

MOVE's Success Lay In The Claimed Combination Of Features

POR, at 41-42, 47-48, 57;
PO Sur-Reply, at 22-24

Online HD: Coming Faster Than You Think

I think that several technologies are coming together to speed up the high-def experience. What are they?

Client Technology. Media standards such as Adobe Flash, Microsoft's Windows Media, and Apple Quicktime have been upgraded lately to improve the way that rich media is handled and streamed. Or, in some, cases, people like Move Networks have built an embedded client for their content provider

EX2037 (Industry Article)

The Sports Page: ESPN 360 Relaunches With Move

“The interface is simple, user-friendly, and extremely quick...On a slow wireless connection, I was able to get a relatively good looking picture **and more importantly, an entirely fluid stream.**”

“One of the most impressive features of the player is the tv-like speed of switching between games. The video is immediately available, ramping up in the first few seconds to the best quality possible for a given end user. And on a really high-speed connection, I would imagine it looks pretty amazing in full screen.”

EX2040 (ESPN 360 Article)

MOVE Networks Makes Web TV Watchable

MOVE's trick...is to deliver video as a standard web object, cached in small bits. This borrows some aspects of peer-to-peer, but is friendlier to ISPs. Move doesn't use special media servers, and adjusts the video quality based on available bandwidth. The streaming is made possible using a small applet that users must download to the browser.

EX2031 (Industry Article)

The ITC's Nexus Findings Are Not Due To A "Concession"

POR, at 39;
PO Sur-Reply, at 21

The ITC Explicitly Relied On The Same Evidence Showing The Objective Indicia is Tied to the Claimed Invention

b) Long-Felt But Unresolved Need and Failure of Others

Respondents argue that adaptive bitrate streaming was known and in use prior to the priority dates of the asserted patents. *See Resps. Br. at 242 (citing RX-0001C (Richardson DWS))*

The record evidence demonstrates a long-felt but unresolved need for improved Internet streaming, and that others failed to provide the requisite streaming performance. RealNetworks broadcasts were "too choppy and too fuzzy, with a viewing window far too small to enjoy." CX-1151 (Baseball Tests Online Broadcasts). Other streaming protocols at the time, like Adobe's Flash, were "broken" even with "enough bandwidth." CX-1047C (Email 5.15.07). Similarly, Microsoft had been working on adaptive streaming for years, but the record shows that customer Disney preferred Move's Media Player over Microsoft's Silverlight, which failed to natively adapt to network conditions. JX-0073C (Carper Dep.) at 26:5-16, 35:15-23, 36:24-37:14; CX-1050C (Email 11.26.07); JX-0062C (Major Dep.) at 186:10-188:7.

EX2103

EX2041

(Email 11.26.07); JX-0062C (Major Dep.) at 186:10-188:7.

I thus find that DISH has demonstrated long-felt but unresolved need and failure of others.

EX1009 (ITC ID), at 213-14.

The ITC's Nexus Findings Are Not Due To A "Concession"

POR, at 39;
PO Sur-Reply, at 21

The ITC Explicitly Relied On The Same Evidence Explaining How MOVE's Media Player Embodies the Claimed Invention

c) Surprising Results

DISH argues that users expressed a substantial amount of surprise when they first experienced Move's technology. *See* Compls. Br. at 237-38 (citing CX-0008C (Jeffay RWS) at Q/A 342-43). Move's product was described as being "shockingly good," JX-0021, and one user

EX2032

Q/A 342-43). Move's product was described as being "shockingly good," JX-0021, and one user stated that he was "a bit shocked to come home one night and find Lost streaming across a 19" flat-screen computer monitor in crisp, clear glory," JX-0023 ("Judging from the ABC site, the Move Networks stuff really works.").

above, I find that DISH has demonstrated a nexus between the Move Media Player and the asserted claims.

I find that DISH has adduced evidence demonstrating surprising results.

EX2041

EX1009 (ITC ID), at 214-15.

The ITC's Nexus Findings Are Not Due To A "Concession"

POR, at 39;
PO Sur-Reply, at 21

The ITC Explicitly Relied On The Same Evidence Explaining How MOVE's Media Player Embodies the Claimed Invention

d) Commercial Success

DISH argues that the Move Media Player has exhibited substantial commercial success.

EX2053

EX2130

EX2125

EX2142

See Compls. Br. at 238-41. By March 2008, viewership using Move Media Player rose to more than 34 million and users were averaging 50 minutes or more per session. CX-0008C (Jeffay RWS) at Q/A 357. By October 2008, both ESPN and ABC employed the Move Media Player to stream content on their websites. See CX-1105; CX-1132. In October 2010, [REDACTED] solicited a license to Move's ABR technology covered by the parent '783 application. CX-1061C. [REDACTED] invested in Move Networks in June 2007, CX-1071C, and DISH acquired Move in 2010, and used its technology to create Sling TV, a successful Internet streaming television platform, CX-0008C (Jeffay RWS) at Q/A 366. DISH has since licensed the asserted patents to [REDACTED] s. JX-0034C; JX-0033C.

DISH has demonstrated a nexus between the Move Media Player and the asserted claims.

I find that DISH has adduced evidence demonstrating commercial success.

EX1009 (ITC ID), at 215.

Long-Felt Need But Failure of Others

POR, at 48-49;
PO Sur-Reply, at 23-24

Other Providers Could Not “Get The Results” MOVE Got

From: Taylor, Mark [mailto:Mark.Taylor@Level3.com]
Sent: Thursday, May 10, 2007 5:52 PM
To: jedwards@movenetworks.com
Cc: Gips, Don; Lepard, Cecil
Subject: Follow up

John

Thank you for the time you and your team gave us today. We really appreciated it very much. As discussed I'll follow up directly with an outline of potential collaboration areas.

I have a couple of follow up questions/requests;

1. Could I have an electronic copy of the presentation please?

2. We discussed the patent applications in the meeting. Our patent lawyer has done a search already

- other than the effect. Whether intentional or not the switch from your streaming to the Flash ad was in itself an ad for you! But, in your opinion why are the current streaming protocols broken? There is enough bandwidth but they cannot get the results you do. How long do you think it takes

- other than the effect. Whether intentional or not the switch from your streaming to the Flash ad was in itself an ad for you! But, in your opinion why are the current streaming protocols broken? There is enough bandwidth but they cannot get the results you do. How long do you think it takes

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DISH_337-TA-1265-GS_00001036

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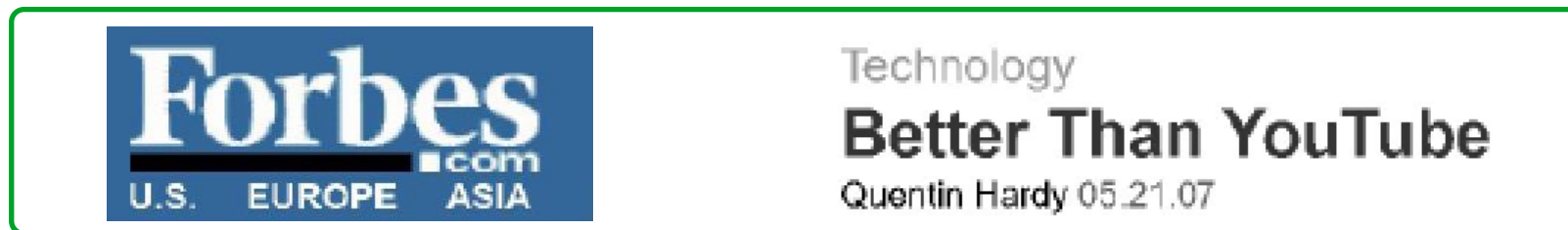
DISH TECHNOLOGIES L.L.C., Exhibit 2031, p. 1
Aylo Freesites Ltd. v. Dish Technologies L.L.C., IPR2024-00045

EX2041 (E-Mail from Level-3 to Declarant J. Edwards)

Long-Felt Need But Failure of Others

POR, at 46;
PO Sur-Reply, at 23-24

Other Providers Could Not “Get The Results” MOVE Got



EX2034, 1 (Better Than YouTube)



Move's trick, as described to me today by Jim Ericson, VP of marketing, is to deliver video as a standard web object, cached in small bits. This borrows some aspects of peer-to-peer, but is friendlier to ISPs. Move doesn't use special media servers, and adjusts the video quality based on available bandwidth. The streaming is made possible using a small applet that users must download to the browser.

Benefits to the viewer: no buffering, no stalling, and backwards and forwards navigation within a live stream, high-quality video. Benefits to the content owner: cheaper, detailed reporting, high-quality video.

EX2031, 1 (MOVE Networks Makes TV Watchable)

MOVE's (and Later, Sling's) Emmy Award Recognizing MOVE's Technology

POR, at 37-40, 56, 59;
PO Sur-Reply, at 23

At the 71st annual Technology & Engineering Emmy Awards, **Sling TV** won the Emmy Award in the category of "Pioneering Development of Large Scale, Cloud Served, Broadcast Quality, Linear Channel Transmission" – April 19, 2020

EX2006 (Jeffay Declaration), ¶¶[217], [280]; EX2023 (Sling Emmy Article)

"I know [this] because the MOVE assets that were acquired [by EchoStar] were literally the technology that Sling TV was running on. So it went from DISH Anywhere to Sling TV from MOVE Networks. We didn't like start from scratch. ***It was the exact same technology and deployed infrastructure that was the basis of all three.***"

EX1027 (Ericson Dep.), 238:25-239:8



Industry Praise and Recognition is Voluminous

POR, at 58-59;
PO Sur-Reply, at 23



Move Networks
OnMedia 100 Winner

EX2028

Move Networks
Red Herring Global 100

EX2029

Move Networks
On Hollywood 100
Company Recognized for Leadership in Internet Television Technologies

EX2026

Move Networks
TechCrunchies Finalist

EX2030

Move Networks
OnHollywood 100 Winner

EX2027

Industry Praise and Recognition is Voluminous

POR, at 38, 55, 60;
PO Sur-Reply, at 23

"But the most awesome (I have probably never used that word in seven years of this site) online video feed is on the official Democratic Convention site, on DemConvention.com site. It is in HD, and uses Move Networks' plugin and using Microsoft Silverlight." Rafat Ali, *Paid Content & Washington Post*

EX2091 (MOVE Company-Wide E-Mail)

"Meanwhile Move burnishes its reputation for high-quality delivery gained through deals with ABC, Discovery, Fox and others. These two are natural partners." Will Richmond- *VideoNuze*

EX2091 (MOVE Company-Wide E-Mail)

"The deal also signals continued momentum for Move Networks, a supplier of high-definition video-delivery technology to publishers including ABC, Discovery, ESPN, and Fox" –Stephanie Olson- *CNET*

EX2091 (MOVE Company-Wide E-Mail)

"The live, online webcast of the Democratic National Convention was the first large demonstration of the integration of Move Networks and Silverlight. It was a technological success and tremendously popular, with visitors to the official convention Web site viewing more than 350,000 hours of video. It allowed viewers to experience the convention online like never before."

EX2070 (Microsoft 2008 Article)

Surprising Results and Praise

POR, at 51-53;
PO Sur-Reply, at 23

Unlike other peer-to-peer competitors such as BitTorrent and Joost, Move delivers its video as a standard web object that's cached in small bits—making its service infinitely more ISP-friendly than traditional streaming technology. Move also doesn't use special media servers, and adjusts the video quality based on available bandwidth. **This means no buffering, no stalling,** and backwards and forwards navigation within a live stream while you're watching.

Move's bottom-line technology advantage: its service is profoundly more efficient and less expensive, **and it provides a dramatically better viewing experience.**

EX2036 at 2 (Move Over, Joost).

"ABC uses a player by Move Networks, which offers a much clearer picture quality ... [I]t's clear that ABC has the superior product."

EX2053 (ABC Offering Full Screen Streaming HD Content).

The best news here is that while only a year ago one would have thought we would be waiting years to see viable streaming HD technology, it now appears to be coming faster than I thought.

I just got back from a trip to L.A., where I talked to a lot of people with insight into what's going on with technology that enables the content providers to more expediently delivery HD. There are many companies working to speed up HD downloads, including **Move Networks, FastSoft, Itiva, and BitGravity** (there are many more -- those just came of the top of my mind). **Judging from the ABC site, the Move Networks stuff really works.** I've also recently seen impressive demos by BitGravity and FastSoft.

EX2037 (Online HD: Coming Faster Than You Think).

*Anatomy, Ugly Betty, and more, right on your computer screen. Until a few days ago, however, the picture was rather small. Now ABC.com has launched a new full-screen "HD-quality" video player, **and the "broadcast" looks shockingly good.***

EX2032 (ABC.com makes watching TV at work better).

MOVE's Commercial Success was Revolutionary

POR, at 53-56;
PO Sur-Reply, at 23-24

- **MOVE's player attracted strategic investors, including:**

- Microsoft (see EX2055, EX2068, EX2070)
- Steamboat Ventures (see EX2057)
- Level 3 Comm'cns. (see EX2039)
- Comcast (see EX2038)
- Cisco (see EX2024)
- Hummer Winblad Venture Partners (see EX2024)

- **MOVE's patents were, and still are, used to deliver content for:**

- FOX
- ESPN
- ABC
- Disney
- Oprah Book Club
- Televisa
- Democratic National Convention
- Comcast
- The CW
- ProSieben
- lululemon
- Peloton
- Univision Communications
- ViacomCBS
- iFit
- and more.

POR, at 61, 62; EX2038; EX2063; EX2083, EX2094, EX2095

Industry giants considered MOVE “a leader in HTTP-based video delivery” and that MOVE helped them “a competitive edge in a crowded marketplace.”

EX2055 at 4

MOVE's Commercial Success was Revolutionary

PO Sur-Reply, at 23-24

DISH TECHNOLOGIES L.L.C., Exhibit 2114, p. 1
fuboTV MEDIA INC., and Yanka Industries, Inc., v. Dish Technologies L.L.C., IPR2024-00919 CX-1201C

Move Networks Powers Seven of Top Ten Online Broadcast TV Network
Entertainment Programs in December

Move Networks Powers Seven of Top Ten Online Broadcast TV Network Entertainment Programs in December

February 24, 2009 -- American Fork, UT – Move Networks, the leader in Internet television services, today announced that its adaptive streaming technology delivered seven out of the top ten most viewed broadcast TV network programs online in December, according to data compiled by Nielsen. In addition, the company streamed approximately 600 live events during that same time, including sporting events for the NFL and ESPN, concerts, an educational series for Oprah, and more. Move Networks' current portfolio of customers also includes ABC, The CW, and Fox amongst others.

Move Networks' adaptive streaming provides a skip-free high-definition television-like viewing experience that does not interrupt with buffering and poor audio or video quality. Additionally, Move Networks remains the only provider of Internet television services capable of delivering high-definition Internet television to any Internet connected device – from Netbooks & laptops to mobile, set-tops and gaming consoles.

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DISH_337-TA-1285-GS_0002272

EX2114 (Seven of Top Ten Press Release)

Move's Player Fundamentally Changed Online Streaming

POR, at 51;
PO Sur-Reply, at 23

“[P]eople today are spending more than an hour per session watching content Move provides. [John Edwards, CEO of Move Networks,] also said that the company has crossed the 34 million viewer mark. **This is an increase from the 50-minute average viewing time** and 20 million viewers Move announced in November.

[T]his means that viewers are sticking around for entire programs (and the ads).”

EX2074 (MOVE Crosses the Hour Threshold)

“In the first year online after its founding in 2005, Move gained more than 35 million unique viewers. The company continues to add an additional 100,000 new unique viewers every day, leading Move to become a valued partner of some of the largest streaming media companies.”

“Move’s mantra is to ‘put the mass back in mass media.’”

EX2087 (MOVE Put Mass Back Into Mass Media)

Objective Evidence Supports Copying

POR, at 56-57
PO Sur-Reply, at 24

“Following [Move’s] market introduction in 2006, practically every major online video provider – including Akamai, Apple, Adobe, Limelight, Microsoft, Netflix, Widevine, and several others – has deployed an adaptive bit rate architecture inspired by our inspiration. We are pleased to see that the USPTO has recognized our technical achievements that make quality IP video delivery a reality.”

EX2024 (MOVE Awarded Fundamental Pat.)

“Adaptive bitrate streaming was brought to the fore by Move Networks and now being pushed by Adobe, Microsoft, and Apple, is one of the more interesting things going on in video today.”

EX2046 (The Lowdown on Apple)

“The most significant recognition of all, however, is that almost all video streaming that happens over the Internet today for live or on-demand content is based on the Adaptive Bitrate approach that we invented. The then-current state-of-the-art approaches used by others have been pretty much abandoned.”

EX2020, ¶ 35

Objective Evidence Supports Copying

POR, at 56-57
PO Sur-Reply, at 24

Microsoft Announces Smooth Streaming

From: Greg Smith [mailto:gsmith@movenetworks.com]
Sent: Monday, February 23, 2009 2:23 PM
To: Christopher Carper
Subject: Re: Smooth Streaming

Thanks. Fuel to the fire. Every time I get heads to cool even a little....

On 2/23/09 1:24 PM, "Christopher Carper" <ccarper@microsoft.com> wrote:

I just wanted to give you a heads up that today we will be announcing our smooth streaming beta. Here are the key messages that will go out with that announcement.

C

Key Messages

- Microsoft is releasing a beta of Smooth Streaming, an Internet Information Services (IIS) 7.0 extension.
- Smooth Streaming delivers the best possible consumer media experience and revenue opportunity for content distributors.
- Get Started Today
 - See it in action, courtesy of CDN partner Akamai: <http://www.smoothhd.com> <<http://www.smoothhd.com>>
 - Download the Smooth Streaming beta extension: <http://www.iis.net/media>
 - Start encoding for Smooth Streaming with Microsoft Expression Encoder 2 SP1. Learn more: www.microsoft.com/expression <<http://www.microsoft.com/expression>>

Use the Silverlight 2 media player templates that ship with Expression Encoder 2 Service Pack1 (SP1) for a Smooth Streaming-enabled Silverlight media experience.

DISH TECHNOLOGIES L.L.C., Exhibit 2057, p. 1
Aylo Freesites Ltd. v. Dish Technologies L.L.C., IPR2024-00045
DISH_337-TA-1265-GS_00000804

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First MOVE/Apple
NDA

EX2065

Second
MOVE/Apple NDA

EX2066

EX2067

2005

2006

2007

2008

2009



First Public Use of MOVE's Product

EX2020 ¶ 23

From: Thomas Demico [mailto:thomd@microsoft.com]
Sent: Tuesday, May 29, 2007 11:30 PM
To: John Edwards, Bob Brown
Subject: Move Networks presentation on Thursday?
Importance: High

Hi John and Bob,

We're hoping a meeting Thursday afternoon will work, but I am not sure who has offered or confirmed a date and time with you. Is Thursday a possibility? We'd hope you could provide a business and technology overview.

Let's talk in the morning to sort out schedule and agenda.

Many thanks,

Tom

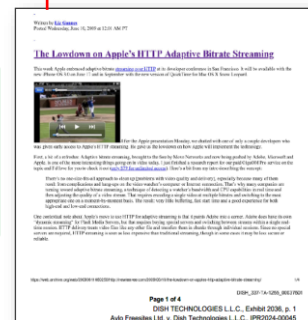
Thomas Demico
Business Development | Windows Vista Media Center
office +1 425 708 7191
mobile +1 781 227 2480
fax +1 425 708 2581

MOVE confidentially demonstrates technology to Microsoft

EX2042

MOVE technology used for
Democratic National
Convention

EX2091



Apple Announces HTTP Live Streaming

EX2046



EX2151 – Demonstrative Exhibit – Not Evidence

93

Summary of Objective Indicia of Non-Obviousness

- 1) A Presumption of Nexus Is Warranted
 - a) There Are No Critical Unclaimed Features
- 2) The Objective Indicia Are Tied to The Claimed Combination of Features
- 3) **British Telecom's FastNets Product Confirms the Validity of the Challenged Patents**

BT's Decision to Not Commercialize Leaning Confirms Its Impracticability

POR, at 45-46, 61;
PO Sur-Reply, at 24-26

If something is both obvious and lucrative, one wouldn't expect it to remain on the shelf for long: surely someone would be motivated to seize on an obvious, and obviously profitable opportunity."

Durie & Lemley, A Realistic Approach to the Obviousness of Inventions, 50 WM. & MARY L. R. 997-98 (2008).

"The length of the intervening time between the publication dates of the prior art and the claimed invention can qualify as an objective indicator of obviousness."

Ex Parte Whirlpool Corp., 2013 WL 5866602, at *8 (P.T.A.B. Oct. 30, 2013) (Informative) (internal quotations omitted).

"Substantial evidence also supports the Board's finding that [Petitioner] had both successful and unsuccessful attempts to design [the claimed invention], but that none of these successful designs were manufactured or sold to consumers. In light of [Petitioner's] failure to manufacture [the claimed invention] that could be sold to consumers, this factor weights in favor of a finding of non-obviousness"

PPC Broadband, Inc. v. Corning Optical Commc'ns RF, LLC, 815 F.3d 723, 746 (Fed. Cir. 2016).

BT's Commercialization of FastNets Proves Leaning Was Unworkable

PO Sur-Reply, at 24-26

“A reference ‘teaches away’ when ... the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.”

Santarus, Inc. v. Par Pharm., Inc., 694 F.3d 1344, 1354 (Fed. Cir. 2012)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 June 2002 (20.06.2002)

PCT

(10) International Publication Number
WO 02/49343 A1

IPR Overview: Issue 1.7 (23rd February 2007)



Innovative Research BT Research & Venturing

Instant video streaming
Video without the waiting

Streamed video is becoming more and more important for Internet services – now especially for mobile access and for IPTV. But video access over the Internet involves lengthy start-up delays of up to 30 seconds. Congestion often causes the picture to freeze, followed by another start-up delay (especially frequent with mobile access).



BT's patented 'Fastnets' technology avoids both the delays and the affects of congestion and, coupled with H.264 video technology, provides perhaps the fastest, highest quality streaming capability available.

EX1038 (BT Article)

EX1004 (Leaning)

BT Chose FastNets Years Later Over Leaning



EX2151 – Demonstrative Exhibit – Not Evidence

BT's Chief IP Lawyer Confirmed Leaning Was Never Commercialized

PO Sur-Reply, at 24-26



EX1036 (BT Article)

“I entered into a correspondence with Baker Botts to understand more what it was they were looking for, what type of help. And it quickly became apparent that the Voyager 2000 system, as they referred to it ... was not something they were interested in; **they were more interested in a Leaning patent and whether we had commercialized the Leaning patent.”**

“And in the course of those communications, when I spoke to [the inventors’] line manager, Mike Whybray, Mike Whybray identified ... that an audio product was trialed when the Leaning patent was first invented, if you will, around that time...[H]e followed up by saying but no video product was commercialized.”

EX1037 (Ratcliffe Dep. Tr.), 19:5-14, 19:20-20:6.

Mr. Ratcliffe Researched The Leaning Reference, Not “Voyager 2000”

If FastNets is Leaning, then the Challenged Patent is Non-Obvious

PO Sur-Reply, at 24-26

The Challenged Claims Require “automatically requesting by the client device.”

Cf. '234 Patent, cl. 12

The same feature is used to achieve a near-instant start. The server streams initially at 8Kbps (in this example), which can be displayed immediately with little or no buffering (it's not needed at this low rate). This gives surplus capacity that can be used to build up a buffer in the background, and after a few seconds, the server can switch up to the 30Kbps stream. In practice, the users rarely notice the initial reduced quality unless they are looking for it; it takes a few seconds to assess quality, by which time the quality has built up.

EX1038 (BT Article), at 2.

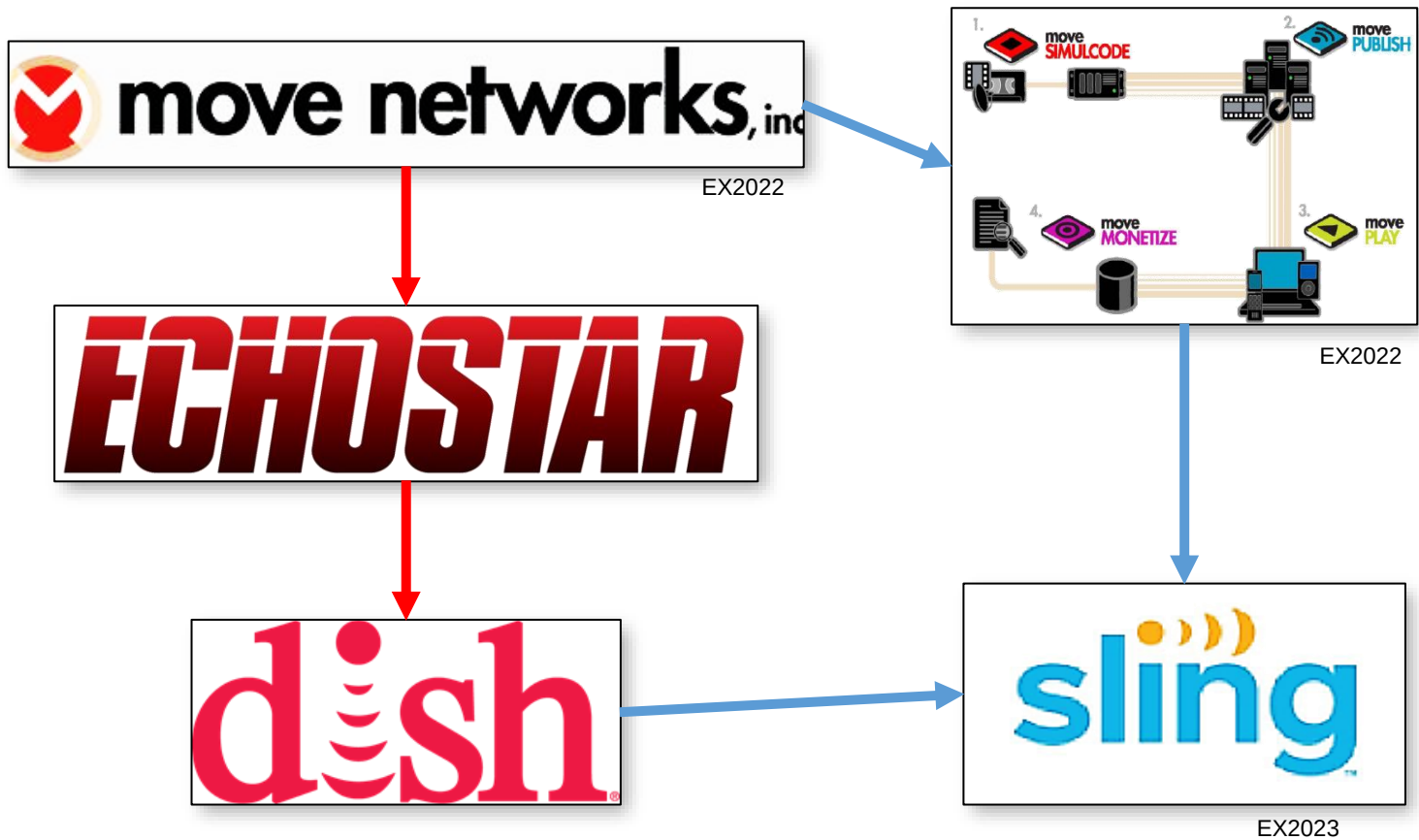
FastNets Uses Intelligent Servers, Not An Intelligent Client

Sling TV Evolved Out of MOVE's Technology

POR, at 38, 40, 56, 59;
PO Sur-Reply, at 21, 23

Sling TV and MOVE's Player used "the exact same technology and deployed infrastructure."

EX1027 (Ericson Dep.), 238:25-239:8



VII. Motion to Strike

Summary of Arguments

- The Petition did not propose a construction of “continuous presentation” and relied on an unmodified embodiment of Leaning as allegedly disclosing that limitation.
- Petitioner’s Reply proposes entirely new claim construction obviousness arguments with no foundation in the Petition. Those arguments and supporting evidence should be struck.
 - New Claim Construction – Petitioner’s new “non-limiting” construction of “continuous presentation” is contrary to the interpretation applied by the ITC—which was expressly acknowledged in the Petition
 - New Obviousness Theories – Petitioner’s Reply includes new theories on this limitation, sounding exclusively in obviousness, which have no basis in the unmodified embodiment of Leaning relied on in the Petition.

Untimely Nature of Petitioner's Arguments is Fatal

“Unlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.” *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).



A petitioner “may not submit new evidence or argument in reply that it could have presented earlier....” CTPG at 73 (citing *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1077-78 (Fed. Cir. 2015)). “It is also improper for a reply to present ... new expert testimony[] that could have been presented in a prior filing.” *Id.* at 74.

MTS at 1-2

Petitioner's Belated Claim Construction Should Be Struck

Petitioner's arguments that "continuous presentation" is "aspirational, ***not limiting***, language" is contradictory and legally erroneous. MTS at 2-3. At a minimum, Petitioner was obligated to make that argument in its Petition ***not*** in Reply.

The Petition contended that no constructions were necessary and Petitioner's expert applied the ordinary and customary meaning of the claim terms.

Petitioner submits that, for purposes of institution, no constructions are necessary. However, Petitioner acknowledges that in the ITC Investigation between

Pet. at 12

53. For purposes of this declaration, I have applied the ordinary and customary meaning of the claims when read in light of the '772 Patent and the prosecution history of the '772 Patent, as understood by a POSITA at the time of the invention.

EX1003 (Houh Dec.) at ¶ 53

It is well-settled that judges "must give meaning to all the words in [a patent's] claims." *Exxon Chemical Patents, Inv. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995). A construction that reads limitations out of a claim "would be contrary to the principle that claim language should not [be] treated as meaningless." *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006).



MTS at 2-3

Petitioner's Belated Claim Construction Should Be Struck

Petitioner's change of position in Reply is untimely as the Petition itself acknowledged that the ITC construed certain terms that are present in the Challenged Claims. MTS at 3-4.

Petition acknowledged ITC constructions

Petitioner submits that, for purposes of institution, no constructions are necessary. However, Petitioner acknowledges that in the ITC Investigation between Patent Owner and iFIT Inc., the Chief Administrative Law Judge ("ALJ") construed "streamlet" as "any sized portion of the content file." EX1009, 38-43. The ALJ also construed "a factor indicative of the current ability to sustain the streaming [of the video ... wherein the set of one or more factors relate to the performance of the network]" according to its plain and ordinary meaning, "e.g., one or more factors relating to the performance of the network that is indicative of an ability to sustain the streaming of the video." EX1009, 53-61. The ALJ also construed "repeatedly generating a factor" as "generating a factor more than once" and construed "successive determinations" according to its plain and ordinary meaning. *Id.*, 61-64.

Pet. at 12

The ITC provided a clear interpretation of the plain and ordinary meaning of "continuous playback"



a) "sustain the streaming of the video"

Respondents contend a person of ordinary skill in the art would not have understood the scope of the phrase "sustain the streaming of the video." Resps. Br. at 36.¹¹ But respondents' own

¹¹ Respondents concede "at least in concept, a person of skill may have understood what it means to 'achieve continuous playback' (uninterrupted viewing of the content)." Resps. Br. at 37-38.

EX1009 at 56 (highlighting added).

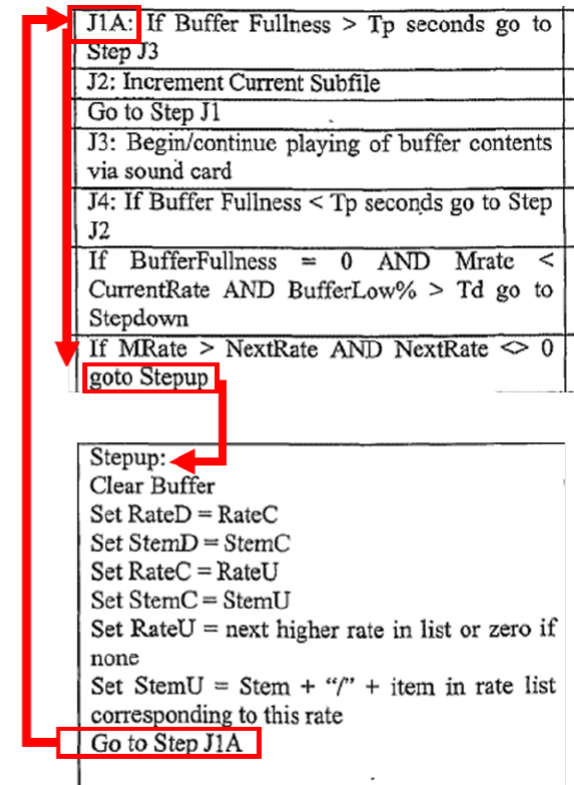
Any deviation from plain and ordinary meaning could and should have been addressed in the Petitioner. MTS at 4. Petitioner's new claim construction arguments should be struck.

Petitioner's Untimely Modification to Leaning's "Clear Buffer" Command Should Be Struck

The Petition and Petitioner's initial expert declaration rely on Leaning's pseudo-code "Stepup" procedures *without any proposed modification* in the context of 1[D].

Leaning teaches 1[D]. As explained above, Leaning describes making successive determinations to change the digital content bit rate of requested sequential sub-files based on the factor (e.g., "measured rate"). See 1[C][1]-1[C][2]. Leaning further describes requesting, or using, the streamlets (sub-files) from one of the different copies having the highest bit rate determined receivable for presentation where the client module (i.e. player program) selects a higher bit rate of one of the different copies when the factor (e.g., measured rate) is greater than a first threshold (e.g., next highest rate) for a period of time, then shifts up until no longer true—meaning shift up to highest version possible—and selects a lower bit rate one of the different copies when the factor (e.g., measured rate) is less than a second threshold (e.g., current rate). EX1004, 9-11 (flowchart). For example, Leaning explains that "if the measured rate exceeds not only the current rate but also the next higher rate for a given period of time . . . [the player program will] increase the current rate." EX1004, 8:24-26; 9:3-7, 9-11 (flowchart).

Pet at 31-34; see also EX1003, ¶¶ 77-79 (same)



EX1004, 10 (flowchart excerpted and annotated); EX1003, ¶ 78.

The Petition pointed to code, without modification, that requires discontinuities in playback

Petitioner's Untimely Modification to Leaning's "Clear Buffer" Command Should Be Struck.

Petitioner tacitly admits the Petition failed to address "continuous presentation" recited in limitation 12[E]. In Reply, Petitioner pointed to citations from the Petition for entirely different limitations. MTS 4-5.

The reliance on Claim 1 is insufficient: Claim 1 does not recite the "continuous presentation" requirement.

DISH's argument is also factually incorrect. For limitation 12[D], the Petition cites the analysis of limitation 1[D], which further cites the analysis of limitations 1[C][1]-1[C][2], all of which show that Leaning teaches the "to achieve continuous presentation" limitation. Petition, 49, 28-32; EX1022, ¶32. For example, the

Reply at 13-14 (highlighting added).

Petitioner's expert similarly admits that he did not "piece together" his analysis until after the opening declaration.

other embodiments. It's just what I relied on are the embodiments I relied on that I think are proper and do disclose and render obvious the -- the challenged claims for the reasons I've given in my declarations -- well, my opening declaration, which I further kind of piece together the analysis, in some cases pointing back to my original declaration, in my supplemental declaration in response to Dr. Jeffay's arguments.

EX2150 at 57:16-25 (highlighting added).

Petitioner's Untimely Modification to Leaning's "Clear Buffer" Command Should Be Struck.

Petitioner then pivots from its express reliance on Leaning's "flowchart showing successive determinations to shift up or shift down" for limitation 12[E] and mandate that and argues that the "Clear Buffer" command is "optional." MTS 4-5.

Petitioner points for the first time in Reply to a different section of Leaning

Petitioner's expert uses that new section to develop an entirely new modified version of Leaning

DISH myopically focuses on the words "clear buffer" in Leaning's exemplary flowchart and ignores all of Leaning's other teachings. POR, 11-23. That flowchart relates to a specific audio streaming situation when needing to reset old sound cards from the 1990s. EX1004, 14:25-29 ("Many conventional sound cards ... require re-setting in order to change sampling rate, and necessarily this causes an interruption in its audio output."); EX2129, 97:6-9; EX1022, ¶13. As explained by Dr. Houh,

Reply at 3 (highlighting added).

Petitioner's Untimely Modification to Leaning's "Clear Buffer" Command Should Be Struck.

Petitioner's belated modification to Leaning is derived solely from Dr. Houh's post-Petition *ipse dixit* pronouncements. MTS 5.

19 Q. All right. Can you point to me
20 in the Leaning reference where it says in
21 a specific case not to clear the buffer in
22 a step down condition?

23 (Pause.)

24 A. So I think there are general
25 discussions. If you look at page 14

Petitioner's new arguments
and opinions should
therefore be struck.

2 starting around line 25, it discusses a
3 reason that -- about the conventional
4 sound cards at the time. It says "Changes
5 of sampling rate (and indeed switching
6 between mono and stereo operation) have
7 some practical implications of audio
8 interface 36. Many operation sound card
9 although capable of operation at a range
10 of different settings require resetting in
11 order to change sampling rate and
12 necessarily this causes an interruption in
13 audio output. Thus in a further
14 modification we are propose that sound
15 card could be run continuously at the
16 highest sampling rate envisioned. When a
17 player program is supplied to buffer at a
18 lower sampling rate, this data is then
19 up-sampled to this highest rate before or
20 after the buffer.

EX2129 at 95:19-96:20 (highlighting added).

Petitioner's Untimely Arguments For Decoding in Software + Encoding with I-Frames Should Be Struck

Petitioner argues that the need for sound cards to clear their buffers is eliminated when Leaning is modified for video because video is decoded “using software.” MTS at 6. Petitioner then further modifies Leaning's sub-files to begin with I-Frames.

None of these significant and complicated modifications are supported by the Petition. Petitioner relies on a portion of Leaning not cited in the Petition.

Leaning only states that applying Leaning's audio rate-shifting process to video **may** be possible. Petitioner fails to explain **how**. MTS at 6-7.

The same principle may be applied to the delivery of video recordings, or of course, video recordings with an accompanying sound track. In the simpler version, where there is only one recording, the system differs from the audio version only in that the file is a video file (e.g. in H.261 or MPEG format) and the player program incorporates a video decoder. The manner of partitioning the file into sub-files is unchanged.

EX1004 at 16:6-10

These new and untimely arguments should be struck. MTS at 7.

Petitioner's Untimely Changing Playout Time + "Playing Contents" Theory Should Be Struck

Another of Petitioner's new theories requires (1) the extrapolation of a new playout time (T_P), in combination with (2) a nonsensical interpretation of Leaning in which "Clear Buffer" is read to mean waiting for the buffer to clear on its own, rather than actively clearing the buffer, as expressly disclosed in Leaning. MTS at 7-8.

- d) Jump: implemented by the user indicating which part of the recording he wishes to jump to - for example by moving a cursor to a desired point on a displayed bar representing the total duration of the recording; the player then determines that this point is x % along the bar and calculates the number of the next sub-file needed, which is then used for the next request. In the Bach example with 125 sub-files then a request to play from a point 20% into the recording would result in a request for the 26th sub-file - i.e. 000025.bin. It will be apparent that this calculation is considerably simplified if each sub-file corresponds to the same fixed duration. We prefer, in the case of the jump, to suspend decoding and clear the buffer so that the new request is sent immediately, but this is not actually essential.

EX1004, 11:19-20

Both are entirely new and inconsistent with Petitioner's prior positions and therefore should be struck.

Petitioner's Untimely Changing Playout Time + "Playing Contents" Theory Should Be Struck

To avoid temporal discontinuities, Petitioner proposes a new, 3-second T_P that appears nowhere in Leaning or the Petition. MTS at 7-8.

First, DISH argues Leaning has "temporal discontinuities" because "playout time" T_P is allegedly set at 10 seconds "in Leaning's only example" and, after a rate shift, Leaning clears the buffer and "halts audio playback ... until there is another 10 seconds of content" in the buffer. POR, 12-15. DISH is wrong. Setting T_P to 10 seconds is just an example. EX1004, 4:16-18 (Leaning teaches that "*typically*" the playout time T_P "*might* be 10 seconds"); *id.*, 5:20-21 ("In this *example* it is set at 10 seconds"); EX1023, 55:18-56:3, 61:2-6 (Dr. Jeffay admitting that "the 10-second value is just an example" and that " T_P is not limited to 10 seconds"); EX1022, ¶21.

Leaning discloses that sub-file size could be "between 30% and 130% of the playout time" (EX1004, 12:33-34), and T_P "could be made user-selectable" (*id.*, 5:20-21). Thus, Leaning teaches examples where the duration of a sub-file is equal to or greater than the playout time, e.g., $T_P \sim 3$ seconds for 4-second sub-files, or where T_P time is user-selectable. Moreover, Dr. Jeffay testified that he "[did not]

Reply at 7-8.

As for the actual sub-file length, excessively short sub-files should preferably be avoided because (a) they create extra network traffic in the form of more requests, and (b) on certain types of packet networks - including IP networks - they are wasteful in that they have to be conveyed by smaller packets so that overhead represented by the requesting process and the packet header is proportionately greater. On the other hand, excessively large sub-files are disadvantageous in requiring a larger buffer and in causing extra delay when starting play and/or when jumps or rate changes are invoked. A sub-file size of between 30% and 130% of the playout time, or preferably around half the playout time (as in the examples given above), is found to be satisfactory.

EX1004 at 12:27-34.

Leaning's specified 4-second sub-file is ***more than*** 130% of a 3-second T_P :

$$(i.e., \frac{4 \text{ sec.}}{3 \text{ sec.}} \times 100 \text{ yields } 133.33\%).$$

These new and contradictory arguments should be struck.

Petitioner's Untimely Changing Playout Time + "Playing Contents" Theory Should Be Struck

The Petition relies heavily on the "Stepup" function in Leaning's flowchart, but does not address the "Clear Buffer" command or how it might be modified. MTS at 8-9. Yet in Reply, Petitioner argues that the "Clear Buffer" command results in the contents being *read* rather than *cleared*.

This new argument contradicts Petitioner's own prior expert testimony.

A. I think generally if you reset a card like that it is kind of teaching that that is kind of what happens. Is that you have to reset the parameters, but the reason to clear the buffer is that if the data in the buffer were at the wrong -- a different sampling rate like say -- and the sampling rate was changed that, you know, you would either get an octave lower or octave higher if you reproduce it at a range -- the rate changed by a factor of two.

EX2129 at 98:3-14

These new and contradictory arguments should be struck.

Petitioner's Untimely Modification to "Arrange" Based on "Play Time" Should Be Struck

In another new theory, Petitioner modifies Leaning to (1) read the "play time," rather than the file name of the sub-file and then (2) "arrang[e]" the sub-files in temporal order. MTS at 9-10; Reply at 11.

Petitioner points to a previously uncited portion and embodiment of Leaning to support this modification.

Second, Leaning also explains that to guard against playback running faster than the generation of sub-files for a live stream, "it may be arranged that the player program *checks each sub-file it receives* to ascertain whether it is marked with a later time than the previous one: if not the sub-file is discarded." *Id.*, 21:30-22:3. Leaning also contemplates that its player "make[es] a note of the *play time* of the sub-file," (*id.*, 5:15-17), which a POSITA would have understood ensures sub-files are written into the buffer in the correct play time order. EX1022, ¶¶25-27.

Reply at 11

These new arguments should be struck.

Petitioner's belated Invalidity Theories Are Not Excused by an Alleged "New" Claim Construction

There is nothing new or unexpected about PO's adoption of the plain and ordinary meaning of "continuous presentation." MTS at 10. There is no precedent for Petitioner's new obviousness theories as PO adopted the plain and ordinary meaning conceded during the ITC proceedings, of which Petitioner was aware. MTS at 10.

Petitioner submits that, for purposes of institution, no constructions are necessary. However, Petitioner acknowledges that in the ITC Investigation between Patent Owner and iFIT Inc., the Chief Administrative Law Judge ("ALJ") construed "streamlet" as "any sized portion of the content file." EX1009, 38-43. The ALJ also construed "a factor indicative of the current ability to sustain the streaming [of the video ... wherein the set of one or more factors relate to the performance of the network]" according to its plain and ordinary meaning, "e.g., one or more factors relating to the performance of the network that is indicative of an ability to sustain the streaming of the video." EX1009, 53-61. The ALJ also construed "repeatedly generating a factor" as "generating a factor more than once" and construed "successive determinations" according to its plain and ordinary meaning. *Id.*, 61-64.

Pet. at 12



a) "sustain the streaming of the video"

Respondents contend a person of ordinary skill in the art would not have understood the scope of the phrase "sustain the streaming of the video." Resps. Br. at 36.¹¹ But respondents' own

¹¹ Respondents concede "at least in concept, a person of skill may have understood what it means to 'achieve continuous playback' (uninterrupted viewing of the content)." Resps. Br. at 37-38.

EX1009 at 56 (highlighting added).

Petitioner's belated invalidity theories should be struck.