UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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UNIFIED PATENTS INC.,
Petitioner,

v.

IDEAHUB, INC.,
Patent Owner.

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IPR2020-01338
Patent 8,645,562 B2

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Before BRYAN F. MOORE, MONICA S. ULLAGADDI, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Denying In-Part and Dismissing In-Part Patent Owner's Motion to Amend
35 U.S.C. § 318(a)
Denying Patent Owner's Motion to Exclude
37 C.F.R. § 42.64(c)

I. BACKGROUND

A. *Background and Summary*

Unified Patents Inc. ("Petitioner") filed a Petition for *inter partes* review ("IPR") of claims 1–9 of U.S. Patent No. 8,645,562 B2 (Ex. 1001, "the '562 patent"). Paper 3 ("Pet."). Patent Owner, Ideahub, Inc. ("Patent Owner"), filed a Preliminary Response. Paper 13 ("Prelim. Resp."). Taking into account the arguments presented in Ideahub's Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim. Pursuant to 35 U.S.C. § 314, we instituted this *inter partes* review on February 8, 2021, as to all of the challenged claims and all grounds raised in the Petition. Paper 16 ("Dec. on Inst.").

During the course of trial, Patent Owner filed a Response to the Petition and a Motion to Amend. Papers 22 ("Resp."), 23 ("Mot. Amend"). Petitioner filed a Reply to the Response, and an Opposition to Patent Owner's Motion to Amend. Papers 29 ("Pet. Reply"), 30 ("Opp."). Patent Owner filed a Sur-reply to Petitioner's Reply, and a Reply in support of its Motion to Amend. Papers 31, ("PO Sur-reply"), 32 ("PO Reply Opp."). Petitioner filed a Sur-reply to Patent Owner's Reply in support of its Motion to Amend. Paper 36 ("Pet. Sur-reply Opp."). Patent Owner filed a Motion to Exclude Petitioner's Expert Testimony (Paper 37, "Mot. Exclude"), and Petitioner filed an Opposition to that Motion (Paper 39, "Opp. Mot. Exclude").

An oral argument was held on November 12, 2021, and a transcript of the oral argument is included in the record. Paper 47 ("Tr."). During the oral argument, Patent Owner conceded that proposed substitute claims 17–

20 may be broadening, and proposed, "the board sua sponte act on those claims" because Patent Owner was "not advancing any further arguments regarding those claims." Tr. 29. We treat Patent Owner's concession as a request to withdraw those claims from consideration. Accordingly, we dismiss as moot Patent Owner's Motion to Amend as it relates to substitute claims 17–20.

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–9 of the '562 patent and the patentability of proposed substitute claims 13–16. For the reasons we identify below, we deny Patent Owner's Motion to Amend to substitute claims 13–16, because Petitioner has demonstrated by a preponderance of the evidence that the proposed substitute claims are unpatentable under § 103(a).

B. *Related Matters*

The parties identify the following related matters: *Helios Streaming, LLC et. al v. Starz Entertainment, LLC et al.*, Case No. 8:19-cv-2140 (C.D. Cal.); *Helios Streaming, LLC et al. v. Vudu, Inc.*, Case No. 1:19-cv-1792 (D. Del.); *Helios Streaming, LLC et al. v. Crackle, Inc.*, *et al.*, Case No. 1:19-cv1818 (D. Del.); *Helios Streaming, LLC et al v. Showtime Digital, Inc. et al.*, Case No. 1:19-cv-1978 (D. Del.). Pet. 2; Paper 5, 1–2 (unpaginated).

C. *The '562 Patent*

The '562 patent is directed to an "adaptive Hypertext Transfer Protocol (HTTP) streaming service using metadata of content." Ex. 1001, code (57). Adaptive streaming using HTTP was known in the art at the time of the invention, but the '562 patent purports to achieve more efficient media streaming by implementing a particular method of interpreting the Uniform

Resource Locators ("URL") of media segments. *Id.* at 1:40–43; Prelim.

Resp. 8. The '562 patent discloses "baseURL elements" in metadata to

resolve client requests for media during playback of content. Ex. 1001,

1:40–43; *see also id.* at 7:19–20. The specification describes using such

baseURL elements to direct a client's request for media segments to a

specific server. *Id.* at 1:51–58. In one embodiment, the server sends the

client metadata for the desired media upon a request from a client to a server

for media content. *Id.* at 36:20–22. This metadata can be provided in a

variety of formats, including eXtensible Markup Language ("XML"), which

includes baseURL elements that specify a common place where media

segments requested by a client are located. *Id.* at 1:51–55, 4:52–53. The

baseURL directs the client to the URL that specifies the server location of

the segment of desired media. *Id.* at 1:55–56. This URL can be a relative

URL, which identifies the specific resource to be provided based on the

client request, or an absolute URL, which is a combination of the baseURL

and relative URL and provides all information needed to reach a resource,

such as network location. *Id.* at 1:51–64.

D. *Challenged Claims*

Petitioner originally challenged claims 1–9 of the '562 patent. *See,*

e.g., Pet. 3. Claim 1 is illustrative of the challenged claims and reads as

follows, with Petitioner's reference numbering added:

> 1. **[1.P]** A method for providing media, the method comprising:
>
> **[1.a]** receiving metadata of media, the metadata comprising one
> or more BaseURL elements;
>
> **[1.b]** sending a request for a segment of the media using a
> Uniform Resource Locator (URL) of the segment, the URL being
> resolved with respect to a BaseURL element;

[1.c] receiving the segment; and

[1.d] decoding and rendering data of the media that is included in the segment,

[1.e] wherein the request is sent using an HTTP GET method, the BaseURL element specifies one or more common locations for segments, and the segment is one of the segments.

Ex. 1001, 36:20–32.

E. *Prior Art Relied Upon*

Petitioner relies upon the prior art references listed below. Pet. 10; Pet. Opp. 13.

Chen et al., U.S. Patent Application Publication US 2011/0099594 A1, published Apr. 28, 2011 (Ex. 1003, "Chen");

The Open Archives Initiative Protocol for Metadata Harvesting, Protocol Version 2.0 of 2002-06-14 (Ex. 1005, "OAI");

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Transparent end-to-end Packet-switched Streaming Service (PSS); Protocols and codecs (Release 9) (Ex. 1006, "3GPP").

Brueck et al., U.S. Patent 7,818,444 B2, patented Oct. 19, 2010 (Ex. 1011, "Brueck");

F. *Asserted Grounds of Unpatentability*

Petitioner challenges the patentability of claims 1–9 on the following grounds:

Claims Challenged	35 U.S.C. §[1]	References/Basis
1, 2	103(a)	Chen, OAI

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[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 103 and 112, effective March 16, 2013. Because the application from which the '562 patent issued was filed before this date, the pre-AIA versions of §§ 103 and 112 apply. Ex. 1001, codes (21), (22).

| 3–9 | 103(a) | Chen, OAI, 3GPP |

II. MOTION TO EXCLUDE TESTIMONY OF DR. LEGALL

A. *Background*

On October 19, 2021, Patent Owner moved to exclude the declarations and deposition testimony of Petitioner's declarant Dr. LeGall under 37 C.F.R. § 42.64(c). Mot. Exclude. In the Motion to Exclude, Patent Owner asserts (1) that Dr. LeGall lacks specialized knowledge that will help the trier of fact to understand the evidence or determine a fact in issue as required by Federal Rule of Evidence ("FRE") 702(a), and (2) that Dr. LeGall's opinions are not the product of reliable principles and methods as required by FRE 702(c). *Id.* at 7, 10.

On October 26, 2021, Petitioner filed an opposition to the motion, contesting Patent Owner's arguments in the Motion to Exclude, and additionally arguing that the Motion to Exclude is untimely under 37 C.F.R. § 42.64. Opp. Mot. Exclude 2–4. Also on October 26, 2021, Patent Owner filed a request for a prehearing conference to resolve the issues in its Motion to Exclude. Paper 38, 1. We held a prehearing conference on Monday, November 1, in which the parties presented arguments relating to the Motion to Exclude.

In the Prehearing Conference, Patent Owner argued that it is objecting to Dr. LeGall as a Rule 702 motion under the principles of *Daubert* [*v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)], rather than objecting to any specific testimony by Dr. LeGall. Patent Owner stated that its objection to Dr. LeGall's testimony is not to be considered as a motion to exclude evidence under Rule 42.64, and therefore the timing requirements

for objecting to evidence under that Rule do not apply. Patent Owner argued that this objection is in the interest of justice, because Petitioner had prior opportunity to address Dr. LeGall's qualifications, and because the Petition cannot stand on its own without the support provided by Dr. LeGall's testimony.

Petitioner counter-argues that, although Patent Owner now argues that the Motion is not a motion to exclude, that is the motion before the PTAB. Petitioner argued that if the Motion is to be decided according to the requirements set forth under 37 C.F.R. § 42.64, the prerequisites have not been met, as discussed in Petitioners' Opposition. Petitioner argued that the *Daubert* angle is new, and should not be entertained.

We indicated that the Motion to Exclude would be considered at a later date, and we present our determination here.

B. *Patent Owner's Motion under § 42.64(c) is denied as based on untimely objections to testimony.*

Patent Owner styled its Motion as a "Motion to Exclude Petitioner's Expert Testimony Under 37 CFR § 42.64(c)." Mot. Exclude, Title (emphasis omitted). Thus, the Motion to Exclude is subject to the procedural requirements of such a motion, which include the timeliness requirements of § 42.64.

A motion to exclude evidence must be filed to preserve a prior objection to evidence. 37 C.F.R. § 42.64(c). An objection to deposition evidence "must be made during the deposition." 37 C.F.R. § 42.64(a). An objection to evidence submitted prior to the institution of the trial, including evidence submitted with a petition to institute *inter partes* review, must be filed within ten business days of the institution of the trial. 37 C.F.R.

§ 42.64(b). Once a trial is instituted, any objection must be filed within five business days of the service of evidence to which the objection is directed. *Id.*

Patent Owner seeks to exclude Dr. LeGall's deposition testimony (Ex. 2009) and declarations (Exs. 1010, 1031, 1032). Mot. Exclude 4. To the extent that Patent Owner's motion is based upon prior objections to such evidence, Petitioner argues that each is untimely. Opp. Mot. Exclude 1. Petitioner argues that no objection to Dr. LeGall's deposition testimony was made during the deposition, as required by § 42.64(a). *Id.* at 5–6. Petitioner further argues that the declaration of Exhibit 1010 was filed with the petition, but no objection was made until May 3, 2021, which was outside the 10 business day period after the February 8, 2021 institution of trial that is permitted by § 42.64(b). *Id.* at 2–3. Petitioner further argues that the declarations of Exhibits 1031 and 1032 were filed on July 26, 2021, but no objection was made until September 7, 2021, which was outside the five business day period permitted by § 42.64(b). *Id.* at 4–5. Patent Owner did not contest these arguments in the Prehearing Conference.

Because Patent Owner did not timely file objections to the evidence sought to be excluded, Patent Owner's motion to exclude may not preserve those untimely objections. Consequently, Patent Owner's motion to exclude evidence under § 42.64 is denied.

C. *Dr. LeGall's testimony is not excluded under FRE 702*
1. *Background*

Although styled as a Motion under § 42.64, the Motion provided detailed reasons why Dr. LeGall's testimony should be excluded under FRE 702. Patent Owner, in the Prehearing Conference, expressed a desire to have

the Motion considered under that rationale. Pursuant to 37 C.F.R. 42.62(a), we address those grounds for exclusion, and determine that even if Patent Owner's FRE 702 objections were timely and proper, we would deny the Motion to Exclude.

2. *Legal Principles*

Our determination takes into account that "[t]he policy considerations for excluding expert testimony, such as those implemented by the gatekeeping framework established by the Supreme Court in *Daubert . . .* are less compelling in bench proceedings such as *inter partes* reviews than in jury trials." *Nestle Healthcare Nutrition, Inc. v. Steuben Foods, Inc.*, IPR2015-00249, Paper 76 at 23 (PTAB June 2, 2016); *see also Seaboard Lumber Co. v. U.S.*, 308 F.3d 1283, 1302 (Fed. Cir. 2002) (stating that the concerns underlying *Daubert* are "of lesser import in a bench trial, where no screening of the fact finder can take place"). Additionally, "we take into account the qualifications of an expert witness—and any shortcomings revealed through cross-examination—when evaluating the weight to be given that witness's testimony. . . . the wholesale exclusion of a witness's declarations is rarely called for in a proceeding before the Board." *Ascend Performance Materials Operations LLC c. Samsung Sdi Co., Ltd.*, IPR2020-00349, Paper 53 at 11 (PTAB July 15, 2021). Under that framework, we consider Patent Owner's arguments as they pertain to the *inter partes* review before us.

3. *Dr. LeGall's specialized knowledge under FRE 702(a)*

a) *Patent Owner's assertions*

In Patent Owner's first assertion, Patent Owner argues that the

technologies of the '562 patent are outside Dr. LeGall's field of expertise. Patent Owner characterizes the pertinent technologies of the '562 patent as "streaming content, and more particularly . . . for providing media content using adaptive streaming." Mot. Exclude 7 (citing Ex. 1001). Patent Owner characterizes Dr. LeGall's field of expertise as video compression, and asserts that this is separate from that at issue in the '562 patent or the pertinent art. *Id.* at 8.

Patent Owner points to a statement of Dr. LeGall, "***This is not my field really***," as evidence of his lack of expertise with the technologies of the '562 patent. *Id.* (citing Ex. 2009, 17:5–11). Patent Owner argues that this statement does not address, as asserted by Petitioner, Dr. LeGall's unfamiliarity with patent prosecution, because Dr. LeGall provides testimony relating to patent prosecution issues (such as provisional patent applications) that demonstrate his working knowledge of the patent prosecution process. *Id.* at 9.

Patent Owner further argues that none of Dr. LeGall's experience, including his Ph.D. in electrical engineering, delivery of video programming over cable, or investigating cellular telephony projects, would help him assist a trier of fact to understand evidence relating to media provided via HTTP adaptive streaming over the internet. *Id.*

As an example of reliance upon Dr. LeGall's testimony, Patent Owner points to the following statement in the Petition:

> *Chen*'s methods use the same three basic steps as the '562 patent: (1) retrieving metadata that includes a base URL to specify the location of media; (2) requesting and receiving a segment of video using a URL; and (3) decoding and rendering the segment's data.

Id. at 5 (citing Ex. 1010 ¶ 66). Patent Owner also points to statements in the Petitioner's Reply, for example, "Chen, like the '562 patent, teaches the use of HTTP partial GET methods . . . ." *Id.* at 6 (citing Ex. 1031 ¶ 25). Patent Owner further points to statements in Petitioner's Opposition to Patent Owner's Contingent Motion to Amend, for example, "Dr. LeGall confirms that a POSA would have been familiar with load balancing and would have combines *Chen* and *OAI* to allow for load balancing in order to put different copies of the same file on different servers." *Id.* at 6–7 (citing Ex. 1032 ¶ 18).

b) *Petitioner's assertions*

Petitioner addresses Patent Owner's assertions that Dr. LeGall would not assist the Board in its understanding of the issues. Opp. Mot. Exclude 9–10. Petitioner argues that Dr. LeGall's experience "included work on Available Bit Rate (ABR) technology for adaptive streaming, as well the study of 3GPP adaptive streaming for cellular telephony projects starting in 2009." *Id.* at 9 (citing Ex. 2009, 24:16–23 (3GPP); Ex. 1031, 24–36). Petitioner further points to Dr. LeGall's statement, "I am familiar with adaptive streaming and HTTP." *Id.* at 9–10 (citing Ex. 2009, 9:8–9). Petitioner further argues that such experience is sufficient to render useful testimony relating to adaptive streaming, which Petitioner argues to be sufficient because the claimed invention is not, as argued by Patent Owner, cabined to dynamic adaptive streaming over HTTP. *Id.* at 9.

Petitioner further argues that the statement, "[t]his is not my field really," referred to review of the prosecution history rather than the technologies of the '562 patent. Pet. Reply 23–24. This argument is supported by the testimony of Dr. LeGall, who points out that the statement

was made in response to the question, "[d]id you review the **prosecution history** of the '562 patent?" Ex. 1031 ¶ 41.

c) *Determination*

With respect to Dr. LeGall's specialized knowledge, Patent Owner has not persuasively explained how Dr. LeGall's testimony, in part or in whole, is not of assistance in understanding evidence or determining a fact in issue in this proceeding.

Patent Owner's argument is based on an alleged distinction between the claimed technologies and Dr. LeGall's experience, and on the single highlighted statement, "[t]his is not my field really." With respect to Dr. LeGall's experience, Patent Owner has emphasized that Dr. LeGall did not work in the field of HTTP adaptive streaming over the internet, but has not persuasively explained how Dr. LeGall's experience renders him unqualified to provide assistance relating to the contentions in the *inter partes* review. For example, Petitioner points to Dr. LeGall's experience in adaptive streaming, including delivery of video programming over cable and in cellular telephony projects. Opp. Mot. Exclude 9 (citing Ex. 1031 ¶ 40). We further note that Dr. LeGall stated that, during his professional activities he had recognized in "around 2000 it seemed obvious that the Internet in general would be a very fun way of delivering video content . . . looking at XML, looking at a lot of Internet-related technology was very natural starting 2000, 2001." Ex. 2009, 21:3–8. Dr. LeGall also discussed his familiarity with other types of HTTP live streaming, such as Apple HTTP live streaming, at some point between 2008 and 2012. Ex. 2009, 31–32. Dr. LeGall further characterized Apple HTTP live streaming as "in the same field as the '562 patent." *Id.* at 33. Thus, with respect to the statement,

"[t]his is not my field, really," the record as a whole does not indicate this to be an admission that Dr. LeGall indicates himself to be unfamiliar, unqualified, or of no assistance regarding the claimed technologies.

Additionally, in arguing against Dr. LeGall's later statement that the "not my field" addressed patent prosecution, Patent Owner takes the position that Dr. LeGall is experienced in the field of patent prosecution because Dr. LeGall's testimony "adeptly described . . . issues relevant to the prosecution of patents." PO Sur-reply 8 (citing Ex. 2009, 11:2–14:7). First, such a position discounts Dr. LeGall's contemporaneous statement that his understanding of certain legal matters was provided by Petitioner's attorneys. Ex. 2009, 10. Second, it would be inconsistent to find that Dr. LeGall's descriptions of prosecution-relevant issues *would* be sufficient to demonstrate experience in prosecution, but that Dr. LeGall's descriptions of technology-relevant issues throughout his testimony *would not* be sufficient to demonstrate experience in the relevant technology.

Furthermore, to the extent Patent Owner asserts that certain of Petitioner's contentions as to obviousness are supported by Dr. LeGall's testimony (Motion to Exclude 5–7), Patent Owner has not explained sufficiently how that supporting testimony is outside Dr. LeGall's knowledge and experience.

Finally, we recognize that Dr. LeGall exceeds the undisputed qualifications for one having ordinary skill in the pertinent art in this proceeding, further showing that he can properly be qualified as to offer expert testimony. "[T]o be qualified to offer expert testimony on issues from the vantage point of an ordinarily skilled artisan in a patent case, an expert must at a minimum possess ordinary skill in the art." *See Kyocera*

Senco Indus. Tools Incl. v. ITC, Case 20-1046, 2022 WL 189822, *slip. op.* at 12 (Fed. Cir. Jan. 21, 2022); *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 (Fed. Cir. 2008) ("issues of . . . validity" are "analyzed in great part from the perspective of a person of ordinary skill in the art, and testimony explaining the technical evidence from that perspective may be of great utility to the factfinder").

Patent Owner does not dispute Petitioner's characterization of a person of ordinary skill in the relevant art as having "at least a Bachelor's degree in electrical engineering . . . and two or more years of experience in the field of multimedia streaming over the Internet. Less work experience may be compensated by a higher level of education, such as a Master's Degree." Resp. 19. We adopt this characterization of the level of ordinary skill. *Infra* at III(B); *see also* Dec. on Inst. 6. Patent Owner does not dispute that Dr. LeGall obtained a Ph.D. in electrical engineering. Mot. Exclude 9. Nor does Patent Owner dispute Dr. LeGall's statement that his experience with video coding includes technologies that "involve multimedia streaming over the Internet." Ex. 2009, 43:25–44:1. Thus, Patent Owner has not disputed that Dr. LeGall is at least a person of ordinary skill in the relevant art.

In view of the foregoing, we are not persuaded that Dr. LeGall lacks specialized knowledge that will help the trier of fact to understand the evidence or determine a fact in issue as required by Federal Rule of Evidence ("FRE") 702(a).

4. *Reliability of Dr. LeGall's methods under FRE 702(c)*
   a) *Patent Owner's assertions*

Patent Owner also argues that Dr. LeGall's opinions are not the

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product of reliable methods because they are premised on "impermissible hindsight reconstruction." Mot. Exclude 10 (citing, *inter alia*, *AstraZeneca AB v. Aurobindo Pharma LTD*, 232 F. Supp. 3d 636, 647 (D. Del. 2017); *Warner Chilcott Labs. Ireland Ltd. v. Impax Labs., Inc.*, C.A. No. 08-06304-WJM, 2012 U.S. Dist. LEXIS 60386, at *167 (D.N.J. Apr. 30, 2012)).

Patent Owner points out that Dr. LeGall admits that all prior art references that he relied upon were provided by counsel, and that he conducted no prior art searches on his own. *Id.* at 11 (citing Ex. 2009, 18:23–25, 26:10–13; 27:1–3). Patent Owner further points to a statement by Dr. LeGall that "he only reviewed 'the introduction and the claims' of the '562 patent, thereby admitting he did not evaluate the challenged claims in view of the specification." *Id.* at 12. Patent Owner further points to statements by Dr. LeGall as indicating that Dr. LeGall did not know that the patent used Dynamic Adaptive Streaming over HTTP ("DASH"), or that DASH was available as of the priority date, or that the provisional application included "ADAPTIVE HTTP STREAMING" in its title. *Id.* at 12–13 (citing Ex. 1001, 3:26–29, 3:46–48, 9:4–11; Ex. 2009, 9:24–25, 29:5–8, Reply 24; Ex. 2010, 2).

b) *Petitioner's assertions*

Petitioner argues that challenges to whether a witness employed hindsight reconstruction go to the weight, not the admissibility, of the evidence. Opp. Mot. Exclude 6–7. Petitioner states that the PTAB has previously held, "'[t]o the extent that' patent owner's expert 'has made statements about his lack of knowledge regarding the state of the art, and to the extent that he did not consider certain evidence in providing his opinions, these considerations affect the weight to be accorded to his testimony; these

are not sufficient to exclude his testimony.'" *Id.* at 7 (quoting *Primera Tech., Inc. v. Automatic Mfg. Sys., Inc.*, IPR2013-00196, Paper 50, 30 (PTAB Jul. 17, 2014)).

c) *Determination*

With respect to Patent Owner's argument that Dr. LeGall's entire testimony should be excluded because it hinges on impermissible hindsight reconstruction, Patent Owner points to no support for exclusion on that basis. Rather, Patent Owner's citations illustrate that reliance on hindsight would instead impact a declarant's credibility. In the *AstraZeneca* case cited by Patent Owner, the court found an expert's approach relying on hindsight bias to "fatally undermine[] his credibility," yet still did not exclude the expert's testimony in part or in whole. *AstraZeneca*, 232 F. Supp. 3d at 647 ("Dr. Powers did not perform an analysis of the art as a whole . . . [but] looked to a selection of prior art handpicked by Aurobindo's counsel . . . . This is evidence of classic hindsight bias.")

Moreover, Patent Owner's cite to *Warner Chilcott* illustrates the distinction between excluding an expert's testimony as unreliable and assigning lesser weight to an expert's approach based upon improper hindsight. In *Warner Chilcott*, the court addressed obviousness arguments, based on findings of a defendant's experts, by considering those findings in light of the teachings of the references as a whole to find that the obviousness case had not been made. *Warner Chilcott*, 2012 WL 1551709, at *57. The *Warner Chilcott* court made no mention of excluding the defendant's experts' testimony, at the portion cited by Patent Owner or at any other portion. Instead, the *Warner Chilcott* court did exclude one of the plaintiff's expert's testimony concerning a particular scientific test for which

the court found to lack the requisite reliability and relevance for consideration of expert testimony under FRE 702. *Id*. at *23 (finding a particular humidity treatment test to be unreliable for testing the chemical composition of a particular pharmaceutical product). In excluding that expert's testimony, the court considered at length factors in addition to the qualifications of the expert, such as "whether a method consists of a testable hypothesis," "whether the method has been subject to peer review," and "the known or potential rate of error." *Id.* at *24 (following an eight-factor test articulated by Third Circuit precedent). Thus, *Warner Chilcott* supports addressing hindsight-based arguments in terms of credibility of the declarant, rather than by excluding the entirety of the declarant's testimony as being unreliable.

In view of the foregoing, we are not persuaded that Dr. LeGall's opinions are not the product of reliable principles and methods as required by FRE 702(c). We address Patent Owner's hindsight-based arguments against the credibility of Dr. LeGall *infra* at Section III(D)(5).

5. *Conclusion*

For the foregoing reasons, we determine that neither Dr. LeGall's credentials nor his approach to consideration of the references applied by Petitioner, taken separately or together, represent testimony that lacks scientific, technical, or specialized knowledge that will help the trier of fact understand the evidence or to determine a fact in issue, or is not the product of reliable principles and methods, such that it should be excluded under FRE 702. Consequently, we deny Patent Owner's Motion to Strike the entirety of Dr. LeGall's testimony. We will consider the appropriate weight to be given to individual statements by Dr. LeGall, consistent with the

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entirety of the record.

III.   ANALYSIS OF CHALLENGE TO ISSUED CLAIMS

A. *Legal Standards*

A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are "such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness, i.e., secondary considerations.[2] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. *Level of Ordinary Skill in the Art*

Petitioner offers an assessment as to the level of skill in the art as of the time the '562 patent was filed. Pet. 23. Relying upon testimony by Dr. LeGall, Petitioner characterizes the person of ordinary skill in the art at the time of the earliest claimed priority date of the '562 patent as one that

> would have had at least the equivalent of a Bachelor's degree in electrical engineering, computer engineering, computer science, or a related subject and two or more years of experience in the field of multimedia streaming over the Internet. Less work

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[2] The parties do not address objective indicia of nonobviousness, which accordingly do not form part of our analysis.

experience may be compensated by a higher level of education, such as a Master's Degree, and vice versa.

Id. (citing Ex. 1010 ¶¶ 52–54). Patent Owner "does not dispute this characterization." Resp. 19.

Accordingly, we adopt the assessment offered by Petitioner because it is not disputed by Patent Owner, and because it is consistent with the '562 patent and the asserted prior art. *See Okajima v. Bourdeau,* 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required "where the prior art itself reflects an appropriate level and a need for testimony is not shown" (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

C. *Claim Construction*

Petitioner submits that all terms of the challenged claims should be interpreted according to their plain and ordinary meaning. Pet. 24–25. In its Motion to Amend, Patent Owner did not specifically address the construction of the claim terms. *See generally* Mot. Amend.

"[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'" *Nidec Motor Corp.*, 868 F.3d at 1017 (quoting *Vivid Techs, Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). In view of the foregoing, we determine that no claim terms require explicit construction.

We apply to all claim terms the federal court claim construction standard that is used to construe a claim in a civil action under 35 U.S.C. § 282(b), construing the claim in accordance with the ordinary and customary meaning of such claim, as understood by one of ordinary skill in the art in the context of the patent, and the prosecution history pertaining to

the patent, as articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019).

D. *Asserted Obviousness of Claims 1 and 2 over Chen and OAI*

1. *Overview of Chen*

Chen describes techniques for "supporting streaming transport of encoded video data via a network protocol such as hypertext transfer protocol (HTTP)" to a device such as "a computer or a mobile device such as a cellular telephone with Internet access." Ex. 1003 ¶¶ 6, 45. Specifically, Chen describes "align[ing]" video segments in different presentations "such that they correspond to the same section of video, that is, the same set of one or more scenes." *Id.* ¶ 25. Thus, "an HTTP client may easily change presentations as network conditions change." *Id.* For example, "when a high amount of bandwidth is available, the client may retrieve 3GPP files of a relatively higher quality presentation, whereas when a lower amount of bandwidth is available, the client may retrieve 3GPP files of a relatively lower quality presentation." *Id.* (3GPP is an abbreviation for the "3rd Generation Partnership Project").

2. *Overview of OAI*

OAI describes an HTTP-based protocol enabling users to retrieve metadata pertaining to a "resource" from a media repository. Ex. 1005, §§ 2.2, 4.6. The resource can be "physical or digital." *Id.* at § 2.2. OAI discloses that the metadata includes a "base URL [that] specifies the Internet host and port, and optionally a path, of an HTTP server acting as a repository." *Id.* at § 3.1.1 (URL is an abbreviation for Universal Resource Locator).

3. *Petitioner's assertions*

Petitioner, supported by the testimony of Dr. LeGall, identifies where the asserted references teach or suggest each of the elements [1.P] through [1.e] of claim 1. Specifically, Petitioner asserts the preamble [1.P] is disclosed by Chen's description of "providing streaming transport of encoded video data." Ex. 1003 ¶ 6. Petitioner further asserts element [1.a] is disclosed by Chen's description of "retrieving, by a client device, presentation description data that describes characteristics of a presentation of video data." *Id.* ¶ 12; Pet. 38–39. To the extent Chen does not disclose that the BaseURL is an "element," Petitioner relies on the teachings of OAI, which discloses an HTTP-based protocol to retrieve metadata comprising "one or more BaseURL elements" to identify one or more repositories containing resources. Ex. 1005 § 3.1.1; Pet. 42.

Regarding element [1.b], Petitioner asserts Chen discloses "sending a request" to a source device for a temporal section of video using an HTTP GET request that includes a "URL of the segment." Ex. 1003 ¶¶ 8, 12, 86; Pet. 50 (emphasis omitted). Again, to the extent Chen does not disclose that the BaseURL is an "element," Petitioner relies on the teachings of OAI. Ex. 1005 § 3.1.1; Pet. 52.

As to element [1.c], Petitioner cites Chen's Figure 5, a flow chart that illustrates "receiving the segment" after step 196, where the source device sends the requested 3GPP file to the destination device, which, accordingly "receiv[es] the segment." Petitioner maps element [1.d] to Chen's disclosure of "decoding and displaying the at least one of the video files." Ex. 1003 ¶ 37; Pet. 54. Finally, Petitioner asserts element [1.e] is disclosed by Chen's description of the Media Presentation Description ("MPD") URL,

which specifies a server containing video files, each of which corresponds to "a respective one of the video segments" that can be "individually stored by a server and individually retrieved by a client." Ex. 1003 ¶ 12, Fig. 4.

As to claim 2, Petitioner points to Chen's description of an MPD file retrieved by a user's web browser. Pet. 58 (citing Ex. 1003 ¶ 82). Petitioner asserts that Chen's MPD file "signals characteristic elements [i.e., metadata] of a number of presentations of video data such as, for example, where fragments of video data are stored within the presentations." *Id.* (citing Ex. 1003 ¶¶ 24, 36, 53; Pet. Section VIII.A.1 (overview of Chen); Ex. 1010, ¶ 127) (emphasis omitted).

Petitioner asserts that each of Chen, OAI, and the '562 patent are directed to techniques for providing media content, and are therefore in the same field of endeavor. Pet. 45. Petitioner points to Chen's MPD file listing multiple presentations of encoded media data as part of techniques for supporting streaming transport of video data via HTTP protocol. *Id.* (citing Ex. 1003 ¶ 6, Ex. 1010 ¶ 98). Petitioner points to OAI's description of HTTP-based protocol enabling a media repository to provide metadata about a resource (media content) as an XML-encoded byte stream in response to a protocol request. *Id.* (citing Ex. 1005 § 2.2).

Petitioner further provides a reason to combine Chen and OAI to result in the claimed invention, which we discuss *supra* at (III)(D)(9).

4. *Patent Owner's assertions*

Patent Owner provides four assertions of error in the Petition, each relating to whether the references may be properly combined to teach the claimed invention. First, that Dr. LeGall's opinions are not credible and should be rejected due to hindsight bias. Resp. 25. Second, that Chen

teaches away from, and fails to disclose, key limitations of claim 1. *Id.* at 31. Third, that OAI is not analogous prior art. *Id.* at 44. Fourth, that Petitioner did not demonstrate that a person having ordinary skill in the art (POSITA) would have been motivated to combine Chen and OAI. *Id.* at 54. We address each assertion in turn.

5. *Credibility and Hindsight Bias*

We have addressed Patent Owner's contentions that the entirety of Dr. LeGall's testimony should be excluded due to lack of relevant experience and reliance on hindsight reconstruction of the claimed invention. *Supra* at Section II. Although we have denied Patent Owner's motion to exclude Dr. LeGall's testimony, we shall consider the credibility of individual instances of testimony and whether the process Dr. LeGall used to select and combine references was improper.

With respect to credibility, Patent Owner provides no specific arguments against Dr. LeGall's support for the Petition's allegations against any particular limitation of claim 1. Although Patent Owner points to Dr. LeGall's statement that he "was not aware that DASH was an activity in 2010," Patent Owner has not explained sufficiently how that fact affects any particular assertion in the Petition, or any particular finding made by LeGall in support, with respect to claim 1. Resp. 26–27 (emphasis omitted). We note that claim 1 does not mention the terms "DASH" or "dynamic adaptive streaming over HTTP." Ex. 1001, 36:20–32. Patent Owner does not explain sufficiently how any term, phrase, or limitation in claim 1 is affected by Dr. LeGall's statement. Accordingly, we are not persuaded that any particular limitation of claim 1 is affected.

With respect to hindsight reconstruction, Patent Owner argues that

"the Petition should be rejected" because Dr. LeGall relied on hindsight analysis. Resp. 31; PO Sur-reply 3. Patent Owner further alleges that Dr. LeGall did not read the entirety of the references, consulting only the parts of OAI that related to XML syntax. Resp. 28–29 (citing Ex. 2009, 27:4–19); PO Sur-reply 4–5. Patent Owner discounts Dr. LeGall's statement that his use of key words was based on Chen, because Chen did not refer to XML. Resp. 29–30 (citing Ex. 2009, 51:14–20). Patent Owner further points to Dr. LeGall's statement that he used key words to determine the relevant parts of 3GPP. PO Sur-reply 4–5 (citing Ex. 2009, 27:4–19 (LeGall's statement "It's a large document and *I probably looked at key words more than reading the whole hundreds of pages.*")). Patent Owner further argues that use of keyword searching "has been rejected by multiple courts," as has reliance on references provided solely by counsel, and that such an approach neglects to analyze the art as a whole. Resp. 30–31 (citing *Hitkansut LLC v. U.S.*, 130 Fed. Cl. 353, 386–387 (2017), *aff'd*, 721 F. App'x 992 (Fed. Cir. 2018); *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332, 1337 (Fed. Cir. 2005); *AstraZeneca*, 232 F. Supp. 3d at 647; *Warner Chilcott*, 2012 U.S. Dist. LEXIS 60386, at *167).

We agree with Petitioner that the hindsight issue is a "defect in an obviousness argument that results when the argument relies upon information that was not in the prior art at the time of the claimed invention of a challenged patent." Pet. Reply 24 (citing *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971)).[3] In its Sur-Reply, Patent Owner in fact does

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[3] Petitioner also argues that Patent Owner is simultaneously arguing

fault Dr. LeGall's process, rather than focusing on the substance of the opinion rendered, whether it includes knowledge gleaned only from applicant's disclosure, or whether there exists motivation to combine the references that have been selected. PO Sur-reply 5–7.

As to the substance of the hindsight reconstruction concern, i.e., whether Petitioner relied, at least in part, solely on knowledge gleaned from the patent, we are not persuaded by Patent Owner's arguments. For example, Patent Owner states, "Dr. LeGall testified that he only reviewed 'the introduction and the claims' of the '562 patent." PO Sur-reply 5. Patent Owner does not point to any mention of XML in either of those sections, nor do we find mention of XML outside the '562 patent's discussion of the "best mode for carrying out the invention." Thus, Patent Owner's argument that Dr. LeGall relied on the '562 patent's discussion of XML to lead him to particular parts of OAI is not supported by the evidence that Patent Owner itself presents.

As to Patent Owner's arguments regarding Dr. LeGall's use of key words in his selection of prior art teachings, we have reviewed the cases cited by Patent Owner. Rather than relying solely on how the references were selected, these cases demonstrate that the issue of hindsight reconstruction is part of the obviousness determination that also takes into

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opposing factual positions; i.e., that (1) Dr. LeGall did not review the entirety of the '562 patent and that (2) Dr. LeGall based his search on knowledge only gleaned from the '562 patent. Pet. Reply 25 (citing Resp. 29–30). We are not persuaded by this argument.

account the motivation to combine the references, and whether such motivation is not merely gleaned from the application that matured into the patent. For example, in *Princeton Biochemicals*, the Federal Circuit addressed hindsight within a discussion of a single disputed issue — whether there was motivation to combine the elements already present in the prior art. *Princeton Biochemicals*, 411 F.3d at 1337.

In determining that issue, the Federal Circuit noted that an invention may not be evaluated by breaking an invention "into its component parts, then find[ing] a prior art reference corresponding to each component," because such would import hindsight absent an assessment of the invention as a whole. *Id.* The Federal Circuit described the assessment of the invention as a whole as "some suggestion or motivation, before the invention itself, to make the new combination." *Id.* Under the obviousness test later established by the Supreme Court, the rationale to combine teachings is not limited to a suggestion or motivation, but requires "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418. The Court in *KSR* further emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art." *Id.* at 415.

Similarly, Patent Owner's other citations do not support its contention that hindsight reconstruction is focused on how the references were selected, rather than part of the obviousness analysis that takes into account the articulated reasoning presented to support the legal conclusion of obviousness. *Warner Chilcott* suggest that an expert "start[ing] with the [patent], picked and chose from the already-narrowed list of references that [] lawyers provided, and work[ing] backwards using improper hindsight" is

"legally incorrect." *Warner Chilcott*, 2012 WL 1551709, *57 (quoting *KSR*, 550 US at 418). However, the District Court in *Warner Chilcott* does not cite Federal Circuit authority for the proposition that lawyer cannot choose prior art for an expert nor does Patent Owner provide such authority. Thus, we do not find that that is the standard for determining hindsight. *Warner Chilcott* provided a fulsome analysis of motivation to combine to reach its conclusion and did discuss fact that the lawyers choose the references outside of the line quoted by Patent Owner. *See id.* at *49–57.

Similarly, Patent Owner's citation to *Hitkansut* reveals further application of the principles expressed in *Princeton Biochemicals*, finding a lack of "any motivation to combine," and additionally pointing to "the use of improper hindsight in selecting the prior art references." *Hikansut*, 130 Fed. Cl. at 386.

Nor do we find *AstraZeneca* persuasive as to the facts of this case. First, as a district court decision, *AstraZeneca* is not binding on us. Second, *AstraZeneca* pertains to a lead chemical compound analysis that is not relevant to this proceeding, which does not involve any claimed chemical compound. Specifically, the expert in *AstraZeneca* was faulted for relying on counsel-selected prior art in a lead compound analysis. *AstraZeneca*, 232 F. Supp. 3d at 646. Such a lead compound analysis is a specific analysis in the chemical arts that "requires the challenger to demonstrate . . . that one of ordinary skill in the art would have had a reason to select a proposed lead compound or compounds over other compounds in the prior art." *Id.* (alteration in original). Patent Owner does not explain how *AstraZeneca*'s discussion of the approach to selecting a lead compound applies to the selection of references for an obviousness analysis that does not involve a

claimed chemical compound, as in the instant proceeding. Furthermore, although *AstraZeneca* disparages the fact that the asserted prior art references were "handpicked" by counsel, it does not cite to Federal Circuit authority for this proposition. *AstraZeneca*, 232 F. Supp. 3d at 647.

In view of the foregoing, Patent Owner has not shown support for its contention that the process by which Petitioner or Dr. LeGall assembled the references necessitates a showing of nonobviousness. Because, as demonstrated by the cases cited *supra*, we consider hindsight reconstruction of the claims as part of the analysis of the rationale to combine references to teach or suggest the claimed invention, we address this further in the discussion of the adequacy of Petitioner's rationale to combine Chen and OAI. *Infra* at III(D)(9).

6. *Whether Chen teaches away from the claimed invention*

Patent Owner asserts that Chen teaches away from the claimed invention. Resp. 31–32. Patent Owner asserts that the '562 patent describes a server sending a client a "***full MPD***" of media content, having "the full DASH hierarchical structure," in response to a client requesting metadata of that content. *Id.* at 32 (citing Ex. 1001, 4:1, 5:1–4; Ex. 2007 ¶¶ 25–26 (second Adams declaration)). Patent Owner asserts that Chen instead transmits only "MPD file characteristics," which is a smaller subset than the full MPD. *Id.* (citing Ex. 2007 ¶ 36). Patent Owner asserts that this distinction, allegedly based on differences in what characteristics Chen and the '562 patent were trying to optimize, therefore "discourage[s] the solution claimed" in the '562 patent. *Id.* at 33 (citing *In re Brandt*, 886 F.3d 1171, 1178 (Fed. Cir. 2018)) (alteration in original). Specifically, Patent Owner

alleges that the inventors of the '562 patent were optimizing for client flexibility and quality of service, whereas Chen's authors were attempting to minimize data transfer at startup to minimize server impact. *Id.* (citing Ex. 2007 ¶ 44).

Petitioner disagrees with this assessment. Petitioner asserts that Chen does send a full MPD, pointing out Chen's description that a "user . . . may initially retrieve the MPD file [i.e., the full MPD] from a link on a web page." Pet. Reply 11 (quoting Ex. 1003 ¶ 82) (alterations in original). Petitioner further asserts that the '562 patent's "full MPD" embodiment, relied upon by Patent Owner to show a quality of service improvement lacking in Chen but central to the '562 patent, is not a limitation found in claim 1 (or any of the challenged claims). *Id.* at 11 (citing Ex. 1031 ¶ 26).

In response, Patent Owner argues that each of the dependent claims recites, and the Specification describes, a Media Presentation Description that includes hierarchical layers. PO Sur-Reply 11. Patent Owner points to Dr. LeGall's statement that each of the '562 patent, Chen, and 3GPP describe the same Media Presentation Description. *Id.* at 11–12 (stating "The type of metadata described by *3GPP* is the same 'Media Presentation Description (MPD)' disclosed by *Chen* and recited by the '562 patent.") (citing Ex. 1010 ¶ 134). Patent Owner further points to the dependent claims that recite particular levels as necessarily implying that the claimed MPD has levels. *Id.* at 12.

> With respect to teaching away, the Federal Circuit has stated,
>
> A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.

> A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into *the invention claimed*.

Galderma Labs, L.P. v. Tolmar, Inc., 737 F.3d 731, 738 (Fed. Cir. 2013) (emphasis added) (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009)).

We determine that Chen has not been shown to criticize, discredit, or otherwise discourage investigation into the *invention claimed*. Patent Owner's argument relies on a distinction between the '562 patent's "***full MPD***," having a "full DASH hierarchical structure," and Chen's smaller subset of MPD. Resp. 32. However, claim 1 does not recite any MPD, let alone a full MPD. Ex. 1001, 36:20–32. Claim 2 further limits the metadata in claim 1 to an MPD, illustrating that claim 1 is not inherently limited to an MPD. *Id.* at 36:33–34. Furthermore, even for claim 2, the MPD is not recited as a "full MPD." With respect to Patent Owner's discussion of disclosed features, a claim is not limited to a disclosed embodiment, even if it is the only disclosed embodiment. *See Liebel-Flarsheim Co. v. Medrad Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004); *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004).

Accordingly, even if Chen's MPD is not a full MPD, and even if that distinction permitted different optimizations, such different optimizations would not be reflected in the invention of either claim 1 or claim 2. Thus, we are not persuaded by Patent Owner's "full MPD" argument that Chen teaches away from the invention of claim 1.

Patent Owner's other assertions also fail to show that Chen teaches away from the invention of claim 1 or the invention of claim 2. Patent

Owner also asserts, "the transmitted 'MPD file characteristics'" in *Chen* likely do not include a URL of segments to be requested by a client, but that instead, "*Chen* requires the client to construct its own URL request from scratch," alleging that the '562 patent prioritizes suitability of media content over bandwidth whereas Chen prioritizes bandwidth restriction. *Id.* at 33–34 (citing Ex. 1001, Tables 1–5; Ex. 1003, Fig. 3, ¶ 42; Ex. 2007 ¶¶ 28, 36–37). Patent Owner further asserts, "*Chen* and the '562 patent require very different server storage capacities to enable playback." *Id.* at 34. Petitioner asserts that these differences are not reflected in the limitations of claim 1. Pet. Reply 9–10 (citing Ex. 1031 ¶ 19). We agree with Petitioner. We determine that Patent Owner has not sufficiently connected these differences to the recited limitations of the invention claimed in claims 1 and 2, which neither explicitly recite those differences nor have been shown to require such differences.

Even were such differences required, Patent Owner has not pointed to any statement in Chen of any disadvantage, or any other reason, that a person of ordinary skill would not investigate different bandwidth/content priorities or server storage capacities. Although Patent Owner asserts that Chen and the '562 patent "follow divergent paths," that, by itself, does not show Chen to teach away from the path taken in the '562 patent. At best, Patent Owner shows that one of ordinary skill in the art would understand Chen to express a general preference for lower bandwidth and higher server capacities. Such is insufficient under *Galderma* to show that a reference teaches away from a claimed invention. Thus, to any extent that the invention of either claim 1 or claim 2 would exhibit the features ascribed to it by Patent Owner, Patent Owner does not show that Chen "criticizes,

discredits, or otherwise discourages" investigation into either suitability of media content over bandwidth or server storage capacities.

For the foregoing reasons, we determine that Chen does not teach away from the subject matter of claims 1 and 2.

> 7. *Whether Chen's MPD teaches the '562 patent's disclosed MPD and multiple baseURLs to access the same media segment*

Included within Patent Owner's teaching away assertions is an argument that Chen "does not disclose the media presentation structure disclosed in the '562 patent claims and specification." Resp. 37; PO Sur-reply 11–15 (arguing that Petitioner does not support the concept of an MPD without a hierarchical structure). Further, Patent Owner points to Dr. LeGall's statement that each of the '562 patent, Chen, and 3GPP describe the same Media Presentation Description. PO Sur-Reply 11–12 (stating "The type of metadata described by *3GPP* is the same 'Media Presentation Description (MPD)' disclosed by *Chen* and recited by the '562 patent.") (citing Ex. 1010 ¶ 134). Moreover, Patent Owner characterizes Chen's MPD as having three levels. Resp. 37–38. However, as noted *supra*, claim 1 does not recite any media presentation such a MPD. Although claim 2 does recite a Media Presentation Description ("MPD"), claim 2 does not inherently recite any particular number of levels, and Patent Owner admits Chen describes an MPD as part of its media presentation. Resp. 38. Consequently, based on the record, including Patent Owner's assertions, we agree with Petitioner and are not persuaded that claims 1 or 2 require an MPD having characteristics not taught by Chen.

Patent Owner also argues that Chen "fails to disclose the use of multiple baseURLs to access the same segment of media content." Resp. 42.

However, claim 1 recites the metadata as comprising "one or more BaseURL elements." Patent Owner's declarant, Mr. Adams, stated that having a single baseURL "would be covered by this claim." Ex. 1030, 87:12–18 (Adams deposition). Consequently, claim 1 requires a teaching of only a single BaseURL element. Similarly, claim 2 does not require multiple BaseURL elements.

Although Patent Owner asks us to compare the structure disclosed in Chen to the structure disclosed in the '562 patent (Resp. 38, 42–43), our decision on obviousness is limited to the language of the claims rather than the entirety of the respective disclosures. *See, e.g.*, *In re Hiniker Co.*, 150 F.3d 1362, 1369 ("the name of the game is the claim"). To the extent that Patent Owner presents this argument to show that Chen is non-analogous art, i.e. a person of ordinary skill "would not look to *Chen* to develop the claims of the '562 patent," Patent Owner does not present arguments that would show Chen to be non-analogous art. Pet. 45. Additionally, we agree with Petitioner that Chen, like the '562 patent, is directed to techniques for providing media content, and are therefore in the same field of endeavor, and therefore analogous art. *Id.*

In its Sur-reply, Patent Owner argues that Chen does not teach even a single baseURL. PO Sur-reply 15 (citing Ex. 2003 ¶ 25 (first Adams declaration)). Patent Owner argues that,

> Dr. LeGall testified unambiguously during his deposition that *Chen* does not teach *any* number of baseURLs:
>
> Q: At paragraph 64 [of your declaration] you offer the opinion that Chen does not teach the use of elements for the representation of one or more base URLs; is that correct?
> A: Yes. I don't see this in Chen.

Id. (quoting Ex. 2009, 51:15–19).

However, Dr. LeGall's above-quoted testimony clearly addresses "the use of elements for" baseURLs, not the existence of baseURLs. Further, as acknowledged by Patent Owner, Dr. LeGall explicitly clarifies this in the same deposition:

> Q: I'm sorry, just to be clear, it is your opinion that Chen does not teach the use of base URLs?

> A: No, not at all. Chen actually does teach the concept of base URL if not explicitly, at least by making reference to base URL in the form of ww dot amazon dot com or viacom dot com in this case.

Ex. 2009, 52:8–11. Consequently, we are not persuaded by Patent Owner's argument that Chen is admitted by Petitioner to lack any teaching of a baseURL.

8. *Whether OAI is Analogous Prior Art*

Petitioner set forth reasons why OAI is analogous art in its Petition. *Supra* at III(D)(3). Patent Owner argues that OAI would not have been consulted by one having ordinary skill in the art because it is not analogous to the claimed invention in the '562 patent. Resp. 44.

The Supreme Court has stated, "[A]ny need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). The standard for determining analogous art has been stated in the following manner:

> Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the

field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Bigio, 381 F.3d 1320, 1325 (Fed. Cir. 2004). Either test is sufficient to show that a reference is analogous art.

A reference is reasonably pertinent if "it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992)). The pertinence analysis must be carried out through the lens of a person having ordinary skill in the art who is considering turning to art outside her field of endeavor. *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1360 (Fed. Cir. 2020).

Because we find OAI is reasonably pertinent to the problem, we address only that test below.

a) *Parties' contentions*

Patent Owner states, "the particular problem to be solved by the inventors of the '562 patent was devising more efficient methods of providing media content over the internet via HTTP adaptive streaming." Resp. 50 (citing Ex. 2003 ¶ 46). Patent Owner argues that the goal of OAI is different; i.e., "to provide a broad, generic, and content-neutral 'application-independent interoperability framework based on metadata harvesting,'" but is unconcerned as to "'what is to be done with the metadata once they are aggregated.'" Resp. 50 (citing Ex. 1023, 6; Ex. 2003 ¶ 45) (emphasis omitted). In particular, Patent Owner argues that OAI focuses on "*document-like objects*," not media resources. *Id.* at 51 (quoting Ex. 1023 ("Using the Open Archives Initiative Protocol for Metadata Harvesting"), 4).

Patent Owner draws an analogy to *In re Clay*, in which a reference directed to "the ***extraction*** of crude petroleum was not analogous to an invention directed to "the ***storage*** of refined liquid hydrocarbons," even though both related to the petroleum industry. *Id.* at 49 (citing *Clay*, 966 F.2d at 659). Patent Owner argues that, analogous to *Clay*, the problems facing the '562 patent inventors differ from those facing OAI's authors. *Id.* Patent Owner further states, "OAI's approaches to harvesting, collection, and storage of metadata from 'document-like objects' would not be pertinent to the problems of increasing efficiency in providing actual media content via HTTP adaptive streaming that the inventors of the '562 patent were trying to solve." Resp. 52 (citing Ex. 2003 at ¶ 46.)

Petitioner attempts to distinguish the situation addressed in *In re Clay*, characterizing *Clay* as "replac[ing] one technical solution (an inflexible bladder or large bag) in the primary reference with a completely different kind of technology (a gel)." Pet. Reply 17. Petitioner provides two arguments in support of its contention that OAI is analogous art.

First, Petitioner characterizes the combination offered here as OAI complementing Chen by providing a method of implementing Chen's metadata BaseURL elements using an XML metadata document including such elements. *Id.* (citing Pet. 45–50). Patent Owner argues that Petitioner's reasoning addresses the motivation to combine OAI and Chen, and not whether OAI is analogous to the '562 patent. PO Sur-reply 17.

Second, Petitioner asserts that the background knowledge in the art would have recognized that "XML would have allowed efficient information exchange over the Internet," and therefore, one skilled in the art working on adaptive streaming would find implementation of BaseURLs using XML

elements to be pertinent. *Id.* at 18 (citing Ex. 1030, 53:4–13); Pet. 46. Petitioner asserts that one having ordinary skill in the art faced with the problem of including multiple Base URLs in a single MPD file would have recognized XML elements with the same name, such as BaseURL, would be a "natural fit for solving the problem," because a separate XML element (each named "BaseURL") could be created for each one of the multiple BaseURLs. Pet. 46 (citing Ex. 1010 ¶¶ 100–101).

b) *Analysis*

As an initial matter, we dispose of arguments that deviate from these legal principles. Patent Owner's analysis erroneously focuses on the problem faced by OAI's authors, rather than on the subject matter of OAI; i.e., the "matter with which it deals." *Clay*, 966 F.2d at 659. Additionally, as pointed out by Patent Owner (Sur-reply 17–18), Petitioner's analysis comparing OAI to Chen also errs by not comparing OAI to the '562 patent, or more specifically, the subject matter of OAI to the problem faced by the inventors of the '562 patent. Although we consider the facts underlying those arguments, we discount the reasoning and conclusions therein.

Patent Owner describes the problem faced in the '562 patent as "more efficient methods of providing media content over the internet via HTTP adaptive streaming." Resp. 50 (citing Ex. 2003 ¶ 46). "Adaptive streaming" is described by Patent Owner's declarant as "the process of a client terminal making a request to a server, and the server sending a response back based on the request." Ex. 2003 ¶ 13 (citing Ex. 1001, 1:17–20). Petitioner describes the '562 patent as purporting "to improve video streaming by using an XML element . . . to transmit a base URL." Pet. 22–23 (describing adaptive video streaming, the use of XML to send metadata, and the idea of

combining a base URL with a filename to locate a video segment on a server as well known in the prior art) (citing Ex. 1001, 1:40–43, 1:65–67; Ex. 1010 ¶ 51). The '562 patent, while not explicitly defining the problem faced, states an advantage of "enabl[ing] efficiency in storage and delivery." Ex. 1001, 7:19–20.

In view of the foregoing, OAI is reasonably pertinent if it would have commended itself to an inventor's attention in seeking more efficient methods of providing media content over the Internet via HTTP requests to and from servers to improve video streaming.

Petitioner asserts that it was known in the art that "XML would have allowed efficient information exchange over the Internet." Pet. Reply 18 (citing Ex. 1030, 53:4–13). Petitioner relies on its declarant in asserting that "XML has been widely used for efficiently representing and exchanging information over the Internet." Pet. 46 (citing Ex. 1010 ¶ 100).[4] Thus, the record indicates that the use of the XML format would have commended itself to the attention of an inventor seeking to improve the efficiency of providing Internet content.

OAI uses XML to format its metadata. Ex. 1005, 3. OAI describes HTTP requests made to repositories; i.e., network accessible servers that process the requests, and as "supporting the dissemination of records in

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[4] We credit this assertion by Dr. LeGall because (1) it is supported by reference to Ex. 1021, (2) Dr. LeGall meets the parties' standards for one having ordinary skill in the pertinent art, and (3) Patent Owner does not specifically contest Dr. LeGall's familiarity with XML.

multiple metadata formats from a repository." *Id.* at 2, 8, 16. A "repository" includes both metadata and the physical or digital object that the metadata describes. Resp. 22. (citing Ex. 1005, 2). Although OAI does not address a process of exchanging content, OAI provides a framework for participants to use harvested metadata for "building value-added services." Ex. 1005, 2. Because the subject matter of OAI involves the use of XML to process HTTP requests over the Internet between servers, and OAI describes its participants as those that use metadata as a basis for building value-added services, and XML was recognized as allowing efficient information exchange over the Internet, we determine that OAI would have commended itself to the attention of an inventor seeking to improve the efficiency of providing Internet content.

For the foregoing reasons, we determine that OAI is analogous art to the '562 patent.

9. *Rationale to combine Chen and OAI*
a) *Parties' contentions*

Petitioner asserts that a person having ordinary skill in the art would have been motivated to implement Chen's MPD file using XML, as taught by OAI, "because of its efficiency for exchanging information over the Internet and its track record of wide use in meeting this objective." Pet. 46 (citing Ex. 1010 ¶ 100). Petitioner also asserts that motivation would be provided by the known ability of multiple servers to allow for load balancing between client devices, geographic proximity between server and client device, and higher quality of service, and that use of multiple servers would result from the use of OAI's XML schema of providing multiple BaseURL elements. *Id.* at 46–47 (citing Ex. 1017 ¶¶ 19, 32 (U.S. Patent Application

Publication 2012/004752 ("Lewis")); Ex. 1010 ¶ 102).

Petitioner also asserts that a person having ordinary skill in the art would have been motivated to make the combination because it involves "the simple substitution of one known element (an MPD file with one base URL in Chen) for another (an MPD file implemented as an XML metadata document with one or more BaseURL elements as taught by OAI) to obtain predictable results," namely of "improving quality of service to client devices by providing greater flexibility and robustness of access to data through the option of providing multiple BaseURLs corresponding to multiple data stores." *Id.* at 48 (citing Ex. 1010 ¶ 105).

Petitioner also asserts that a person having ordinary skill in the art would have found the combination of Chen and OAI obvious to try. *Id.* Petitioner asserts that it was known in the art to include multiple URLs in a manifest file to point clients to multiple servers, and inclusion of server URLs in a manifest file could be performed by only two possible options, either a single URL/single server or multiple URLs/multiple servers. *Id.* at 48–49 (citing Ex. 1017 ¶ 32, Ex. 1016, 11:47–49 (U.S. Patent 8,392,598 ("Furbeck")).

Petitioner further asserts that implementing Chen using OAI's XML and OAI's one or more BaseURL elements would have yielded expected and predictable results and performed with a reasonable expectation of success; for example, by simply implementing Chen's MPD file in XML format and including as many BaseURL elements as there are alternative servers. *Id.* at 47, 49 (citing Ex. 1010 ¶ 107). Petitioner asserts that this would have been predictable based on the successful implementation of OAI's method in "a number of use cases, including NASA's Mercury metadata search system."

Id. at 48 (citing Ex. 1010 ¶¶ 103–104).

Patent Owner first argues that there can be no motivation to combine OAI and Chen because OAI is not analogous art to which a person having ordinary skill would not look. Resp. 55–57. Patent Owner next argues that Petitioner's alleged advantage of server load balancing is not supported by evidence, and that Petitioner's reliance on Lewis as evidence for that purpose was newly presented in the Reply, and should not be considered. *Id.* at 58; Sur-reply 19 (citing 37 C.F.R. § 43.23(b)). Patent Owner next argues that, because OAI does not mention media, the combination of OAI and Chen is not "the simple substitution of one known element (an MPD file with one base URL in Chen) for another (an MPD file implemented as an XML metadata document with one or more Base URL elements as taught by OAI) to obtain predictable results." Resp. 58–59 (emphasis omitted). Patent Owner next argues that Petitioner's asserted combination of Chen and OAI would not be obvious to try, because Petitioner does not point to any portions of OAI to support that argument. *Id.* at 59.

b) *Analysis*

With respect to Patent Owner's argument that there is no motivation to combine OAI and Chen because OAI is not analogous art (Resp. 55–57), this argument is not persuasive because we have determined OAI to be analogous, and therefore available as prior art. *Supra* at III(D)(8).

With respect to Patent Owner's arguments that Petitioner does not point to sections of OAI to provide evidence of server load balancing or that it would be obvious to try, such evidence need not be found in OAI. Rather, the motivation to combine references "need not be found in the references sought to be combined, but may be found in any number of sources,

including common knowledge, the prior art as a whole, or the nature of the problem itself." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). The Court in *KSR* stated, "[t]he proper question to have asked was whether [an artisan] of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit" to the combination. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007). Accordingly, Patent Owner's arguments as to the lack of any explicit statement of motivation in OAI do not support a conclusion of nonobviousness.

With respect to Petitioner's reliance on Lewis in its Reply to Patent Owner's Response, Patent Owner does not explain how that reliance violates 37 C.F.R. § 42.23, as alleged. Rule 42.23(b) states that a Petitioner's Reply may "respond to arguments raised in the . . . patent owner's response." Because Patent Owner's Response argued that the load balancing argument was "based solely on attorney argument," and Petitioner's Lewis-backed arguments addressed that argument by providing an independent basis for load balancing, we determine that Petitioner's Reply did not violate § 42.23. Furthermore, to the extent that Patent Owner argues that Lewis was newly addressed such that it should be considered new evidence, not only was Lewis on the record, but § 42.23(b) does not prohibit a Reply from being accompanied by new evidence.

Similarly, Patent Owner argues that Petitioner's Reply violates § 42.23(b) by presenting a new argument that Chen's teaching of a baseURL, not in XML, is sufficient to teach the claimed BaseURL element. Sur-reply 19. However, Petitioner had raised that argument in the Petition by arguing that OAI teaches a BaseURL element to be XML "[t]o the extent

PO argues that *Chen* does not specifically state that the BaseURL is an element." Pet. 42 (emphasis omitted); Pet. Reply 22. Accordingly, Petitioner's argument in the Reply is an extension of the prior-presented argument, addressing new evidence in the form of the Adams deposition taken after the filing of the Petition. Moreover, § 42.23(b) does not prohibit a Reply from introducing deposition evidence in support of those arguments.

We next address Patent Owner's argument that OAI's lack of teaching "media" precludes "the simple substitution of one known element (an MPD file with one base URL in Chen) for another (an MPD file implemented as an XML metadata document with one or more Base URL elements as taught by OAI) to obtain predictable results." Resp. 58–59 (emphasis omitted). The Court in *KSR* stated, "When a work is available in one field, design incentives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, § 103 likely bars its patentability." *KSR*, 550 U.S. at 417. Thus, the relevant question is whether a person of ordinary skill in the art would find the substitution of an MPD file implemented as an XML metadata document with one or more Base URL elements (as taught by OAI) for an MPD file having a single base URL (as taught by Chen) to be a predictable, beneficial variation.

> Regarding this substitution, Dr. LeGall states,
>
> This substitution would have been readily achievable by a POSA using the known and routine markup language (*e.g.*, XML) to implement *Chen*'s MPD file, and would have provided the predictable result of improving quality of service to client devices by providing greater flexibility and robustness of access

to data through the option of providing multiple BaseURLs corresponding to multiple data stores.

Ex. 1010 ¶ 105. Patent Owner's declarant, Mr. Adams, confirms that a person of ordinary skill in the HTTP streaming art would most likely have been familiar with XML. Ex. 1030, 50–52.

In view of the foregoing, we are not persuaded by Patent Owner of any defect in Petitioner's rationales to combine. Petitioner has provided benefits that would result from implementing Chen's MPD file using OAI's XML schema of providing multiple BaseURL elements, in the form of improved efficiency of exchanging information over the Internet using a proven methodology, and taking advantage of the ability of multiple servers to provide load balancing, geographic proximity between server and client device, and higher quality of service. Petitioner has further provided explanations of how one having ordinary skill in the art would have found the use of OAI's XML teaching in Chen to be either a simple substitution of known elements or obvious to try. Petitioner has provided evidentiary support for those findings, including Lewis and Furbeck, and its declarant Dr. LeGall.[5] We have reviewed the testimony of Patent Owner's declarant, and determine Mr. Adams's testimony to be substantially consistent with the factual underpinnings of Petitioner's argument for the combination of Chen and OAI. Consequently, we determine that Petitioner has shown sufficient

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[5] Although Patent Owner attempts to discredit the testimony of Dr. LeGall in support of Petitioner's reasons to combine, Patent Owner provides no reasons beyond those presented to reject Dr. LeGall's entire testimony, which we rejected, *supra* at Section II.

reasons to combine the teachings of Chen and OAI.

Furthermore, we revisit the Patent Owner's assertion of hindsight reconstruction of the claimed invention in light of the rationales discussed here. Petitioner has provided multiple persuasive rationales for combining the teachings of Chen and OAI, drawing on teachings outside the '562 patent, including the knowledge in the art as evidenced by Dr. LeGall's testimony, and other prior art documents such as Lewis and Furbeck. Consequently, we determine the combination to not be drawn solely on knowledge gleaned from the patent, and determine that the combination did not result from hindsight reconstruction of the claimed invention.

10. *Determination*

For the aforementioned reasons, we determine that the combination of Chen and OAI as applied to claims 1 and 2 has been shown to teach or suggest each limitation of the claims, relies on analogous art, is not reliant on hindsight construction of the claims, that Chen does not teach away from the claimed invention, and that Petitioner as set forth sufficient rationale to combine the references as applied. Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1 and 2 are obvious over the combination of Chen and OAI.

E. *Obviousness of claims 3–9 over Chen, OAI, and 3GPP*
1. *Overview of 3GPP*

The 3GPP reference is a technical specification generated from the 3rd Generation Partnership Project. Ex. 1006, 9. 3GPP describes protocols and codecs for a packet switched streaming service. *Id.* at 69. For example, 3GPP illustrates and describes an adaptive HTTP streaming protocol that

"enables delivering content from standard HTTP servers to an HTTP-Streaming client," as illustrated in Figure 12.1. *Id.* at 84.

2. *Claim 3*

Claim 3 recites,

> The method of claim 2, wherein the media comprises a sequence of one or more periods,
>
> wherein a BaseURL element comprises one or more MPD level BaseURL elements of the MPD, and one or more period level BaseURL elements of the periods, and
>
> wherein a URL of a segment included in each of the periods is resolved with respect to a period level BaseURL element.

Ex. 1001, 36:35–43.

Petitioner asserts that claim 3 is obvious over the combination of Chen, OAI, and 3GPP, for the reasons set forth *supra* at section III(D), and for the additional reasons discussed here.

Petitioner asserts that Chen teaches media that comprises a sequence of one or more periods, in the form of files labeled in intervals from time T to time T+N. Pet. 62 (citing Ex. 1003 ¶¶ 12, 27, 41, 42; Ex. 1010 ¶ 136). Petitioner asserts that 3GPP teaches an MPD in XML format that can include a BaseURL on the MPD level and a BaseURL on the period level providing annotated Table 2 of 3GPP, reproduced below.

Table 2 (annotated by Petitioner)

Table 2 Semantics of Media Presentation Description (M=Mandatory, O=Optional, OD=Optional with Default Value, CM=Conditionally Mandatory)

Element or Attribute Name	Type (Attribute or Element)	Cardinality	Optionality	Description
MPD	E	1	M	The root element that carries the Media Presentation Description for a presentation.
baseURL	A		O	Base URL on MPD level
Period	E	1…N	M	Provides the information of each period
start	A		M	Provides the accurate presentation start time relative to the availabilityStart time of the Media Presentation.
SegmentInfoDefault	E	0,1	O	Provides default segment information about segment durations and, optionally, URL construction.
duration	A		O	Default duration of media segments
baseURL	A		O	Base URL on period level

Table 2 contains a first column, titled "Element or Attribute Name," a second column, titled "Type (Attribute or Element)," a third column, titled "Cardinality," a fourth column, titled "Optionality," and a fifth column, titled "Description." Petitioner has highlighted the second row, which lists "baseURL" as the name, "A" as the type, the cardinality column left blank, "O" in the Optionality, and "Base URL on MPD level" as the description. Petitioner has also highlighted the last row, which lists "baseURL" as the name, "A" as the type, the cardinality column left blank, "O" in the Optionality, and "Base URL on period level" as the description.

Petitioner further asserts that 3GPP teaches a second BaseURL at a level below a first BaseURL at a first level. *Id.* at 69 (citing Ex. 1006, 86–87). Petitioner asserts that, given the base URL on the period level as illustrated in Table 2, the URL of a segment in a period would be composed of the period-level base URL. *Id.* (citing Ex. 1010 ¶ 149).

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Petitioner asserts that a person having ordinary skill in the art

> would have been motivated to use *3GPP*'s XML schema of
> providing base URLs at the MPD level and the period level and
> a range attribute (as recited in the '562 patent's claim 4, for
> example) for *Chen*'s MPD file to provide client devices multiple
> options on how to access a media segment depending on what
> metadata is included in the MPD file.

Id. at 65–66 (citing Ex. 1010 ¶ 143). Petitioner further provides reasons why the combination would have been the result of simple substitution of 3GPP's MPD file with MPD-level and period-level baseURLs and range attribute in the place of Chen's MPD file with one baseURL. *Id.* at 67. Alternatively, Petitioner presents reasons why it would have been obvious to try the asserted combination in view of the total of three possible known and predictable options. *Id.* at 67–68 (citing Ex. 1011, 6:41–42, 7:16–20). Petitioner further provides reasons why 3GPP is analogous art, and why its combination with Chen and OAI would have yielded expected and predictable results. *Id.* at 64–65, 67.

Patent Owner does not contest Petitioner's reasons for the obviousness of claim 3 beyond those presented for claim 1. In view of the foregoing discussion, supported by evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 3 is obvious over Chen, OAI, and 3GPP.

3. *Claims 4–9*

Petitioner provides reasoning for its contention that claims 4–9 are obvious. With respect to claim 4, Petitioner points to the discussion of claim 1 for similar limitations in claim 4, and also points to 3GPP for teaching the claimed range attribute. Pet. 71–72. Specifically, Petitioner points to a "range" element or attribute in the first column, described as "the byte

range." *Id.* With respect to claim 7, Petitioner points to the discussion of claim 1 for similar limitations in claim 7, and to 3GPP for teaching the claimed "wherein the URL is an absolute URL or a relative URL." *Id.* at 75. Specifically, Petitioner points to 3GPP's description, "[i]f the *baseURL* supplied at any level is **absolute**, it gives the base URL for the levels below it;" "[o]therwise the base URL for levels below it is formed from the base URL of the higher level composed with the value of the baseURL attribute." *Id.* (citing Ex. 1006, 86–87) (alteration in original). Petitioner further points to 3GPP's description, "[n]ormal URL composition may be used, using **relative URLs** which are composed against a base URL." *Id.* (citing Ex. 1006, 86–87) (alteration in original). Petitioner asserts that a person having ordinary skill in the art would have understood that

> an MPD-level base URL would be an absolute URL if no other lower-level base URL (e.g., a period-level base URL) were provided, and that a period-level base URL would be a relative URL with respect to an upper-level base URL (e.g., an MPD-level base URL).

Id.

Claims 5, 6, 8, and 9 contain limitations addressed in the above discussion, and the Petitioner relies on prior discussion for analogous limitations in those claims. Based on the foregoing reasoning and evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 4–9 are obvious over Chen, OAI, and 3GPP.

IV.   ANALYSIS OF MOTION TO AMEND

Because we conclude that Petitioner shows, by a preponderance of the evidence, that each of challenged claims 1–9 is unpatentable, we consider Patent Owner's Motion to Amend. *See* Mot. Amend 1 (moving to substitute

claims 13–20 for claims 1–9, contingent on a finding of unpatentability with respect to the originally challenged claims). Because Patent Owner requested that we withdraw proposed substitute claims 17–20 in the oral argument (Tr. 29), we consider only proposed substitute claims 13–16.

"Before considering the patentability of any substitute claims, . . . the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121." *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential). Patent Owner bears the burden of persuasion to show, by a preponderance of the evidence, that the motion to amend complies with these requirements. 37 C.F.R. § 42.121(d)(1). Accordingly, a patent owner must provide a claim listing reproducing each proposed substitute claim, and must make an initial showing to demonstrate the following: (1) the amendment proposes a reasonable number of substitute claims; (2) the amendment responds to a ground of unpatentability involved in the trial; and (3) the amendment does not seek to enlarge the scope of the claims of the patent or introduce new subject matter. *See* 35 U.S.C. § 316(d); 37 C.F.R. § 42.121.

The petitioner bears the burden of persuasion to show, by a preponderance of the evidence, that proposed substitute claims are unpatentable. 37 C.F.R. § 42.121(d)(2). To determine whether a petitioner has proven the substitute claims are unpatentable, the Board focuses on "arguments and theories raised by the petitioner in its petition or opposition to the motion to amend." *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020).

For the reasons below, we find that proposed substitute claims 13–16 are unpatentable under 35 U.S.C. § 103(a), and proposed substitute claims 15 and 16 are additionally indefinite under 37 C.F.R. § 112(b).

A. *Proposed Substitute Claims*

Patent Owner proposes claim 13 as a substitute for claim 1, reproduced below with identifying indicia in bolded brackets, and with respect to claim 1, added material is identified with underlining and deleted material is identified with strikethrough:

[13.P] A method for providing media, the method comprising:

[13.1] receiving metadata of media, wherein the media is divided into a plurality of segments some of which are identical to one another, wherein the metadata comprising comprises one or more BaseURL elements and wherein identical segments are accessible at locations indicated by URLs resolved with respect to the one or more BaseURL elements;

[13.2] sending a request for a segment of the media using a Uniform Resource Locator (URL) of the segment, the URL being resolved with respect to a BaseURL element;

[13.3] receiving the segment; and

[13.4] decoding and rendering data of the media that is included in the segment,

[13.5] wherein the request is sent using an HTTP GET method, the BaseURL element specifies one or more common locations for segments, and the segment is one of the segments,

[13.6] wherein the metadata further comprises a range attribute, and wherein the request comprises a request for bytes of a resource indicated by the URL that are designated by the range attribute.

Similarly, Patent Owner proposes claim 14 to replace claim 2:

[14.P] The method of claim [1] 13,

[14.1] wherein the metadata is a Media Presentation Description (MPD) of the media,

[14.2] wherein the media comprises a sequence of one or more periods,

[14.3] wherein a period includes one or more groups,

[14.4] wherein a group includes one or more representations,

[14.5] wherein a representation includes one or more segments,

[14.6] wherein the group includes one or more group elements describing each of the groups,

[14.7] wherein the one or more BaseURL elements are included at only the representation level.

Similarly, Patent Owner proposes claim 15 to replace claim 3:

[15.P] The method of claim [2] 14, ~~wherein the media comprises a sequence of one or more periods wherein a BaseURL element comprises one or more MPD level BaseURL elements of the MPD, and one or more period level BaseURL elements of the periods, and~~

[15.1] ~~wherein a URL of a segment included in each of the periods is resolved with respect to a period level BaseURL element.~~, wherein the BaseURL element of a specific level is resolved with respect to a BaseURL element of a higher level.

Similarly, Patent Owner proposes claim 16 to replace claim 3:

[16.P] The method of claim [2] 14, ~~wherein the media comprises a sequence of one or more periods wherein a BaseURL element comprises one or more MPD level BaseURL elements of the MPD, and one or more period level BaseURL elements of the periods, and~~

[16.1] ~~wherein a URL of a segment included in each of the periods is resolved with respect to a period level BaseURL element.~~, wherein when the metadata does not comprise a sourceURL attribute of the segment, the BaseURL element is mapped to the sourceURL attribute, so that the URL is generated.

B. *Requirements For Amendment*

1. *Claim Listing*

The motion to amend includes a claim listing that clearly shows the changes, as required by 37 C.F.R. § 42.121(b). *See* Mot. Amend 10–12.

2. *Reasonable Number of Substitute Claims*

"There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute claim." *Lectrosonics*, Paper 15 at 4–5 (citing 37 C.F.R. § 42.121(a)(3)). The Petition challenges nine claims, and the Motion to Amend proposes four substitute claims, which is fewer than one substitute claim per each challenged claim. Mot. Amend 1. Petitioner has not argued that there is an unreasonable number of substitute claims proposed. We determine that the number of proposed substitute claims is reasonable.

3. *Responsive to Ground of Unpatentability*

We next consider whether the proposed substitute claims respond to a ground of unpatentability involved in this trial. 37 C.F.R. § 42.121(a)(2)(i); *Lectrosonics*, Paper 15 at 5–6. Patent Owner argues the motion to amend is responsive to the instituted grounds insofar as the amendments are "responsive to the core dispute as to what constitutes the invention," and "consistent with the invention's purpose." Mot. Amend 8. Petitioner has not argued any issues to the contrary. We agree that the amended language addresses the references presented in the grounds of unpatentability raised in the Petition, and is responsive to a ground of unpatentability involved in this trial.

4. *Scope of Amended Claims*

"A motion to amend may not present substitute claims that enlarge the

scope of the claims of the challenged patent." 35 U.S.C. § 316(d)(3);
37 C.F.R. § 41.121(a)(2)(ii); *Lectrosonics*, Paper 15 at 6–7. A "claim that is broader in any respect is considered to be broader than the original claims even though it may be narrower in other respects." *Tillotson, Ltd. v. Walbro Corp.*, 831 F.2d 1033, 1037 n.2 (Fed. Cir. 1987); *see also* 37 C.F.R. § 1.175(b) ("A claim is broadened if the claim is broadened in any respect"). Furthermore, a "claim is enlarged if it includes within its scope any subject matter that would not have infringed the original patent." *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) (quoting *In re Freeman*, 30 F.3d 1459, 1464 (Fed. Cir. 1994)).

Patent Owner argues that proposed substitute claims 13 and 14 only narrow the scope of claims 1 and 2, respectively, by adding additional limitations and maintaining the preexisting limitations. Mot. Amend 2. Patent Owner argues that proposed substitute claims 15 and 16 each narrow the scope of claim 3 by replacing the preexisting limitations of claim 3 with another equally narrow limitation. *Id.*

Petitioner has not argued any issues to the contrary. Proposed substitute claims 13 and 14 only add narrowing limitations that do not enlarge the scope of claim 1. Proposed substitute claims 15 and 16 both narrow and enlarge their scope compared to claim 3, but, as explained below, are not broader than claim 1.

With respect to claims 15 and 16, the limitation "wherein the media comprises a sequence of one or more periods" is omitted, but has been added to claim 14 (limitation 14.2), which claims 15 and 16 both depend from, and thus still limits its scope. The limitation "wherein a BaseURL element comprises one or more MPD level BaseURL elements of the MPD, and one

or more period level BaseURL elements of the periods" has also been omitted. We determine that, even absent that limitation, claims 15 and 16 do not include any BaseURL elements that are not permitted under claim 1, which had no restrictions on the type of BaseURL elements. Similarly, omission of "wherein a URL of a segment included in each of the periods is resolved with respect to a period level BaseURL element" does not permit any method of resolving a URL that was not permitted in claim 1. Similarly, although proposed substitute claim 16 recites a limitation in which the metadata does not comprise a sourceURL attribute of the segment, that limitation is within the scope of original claim 1, which did not mention a sourceURL, much less require metadata to comprise a sourceURL attribute of the segment. Thus, we agree that Patent Owner has not presented substitute claims that enlarge the scope of the originally challenged claims of the '562 patent.

5. *New Matter*

"A motion to amend may be denied where . . . [the] amendment seeks to . . . introduce new subject matter." 35 U.S.C. § 316(d)(3); 37 C.F.R. § 41.121(a)(2)(ii); *Lectrosonics*, Paper 15 at 6–7. Accordingly, "the Board requires that a motion to amend set forth written description support in the originally filed disclosure of the subject patent for each proposed substitute claim, and also set forth support in an earlier filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought." *Lectrosonics*, Paper 15 at 7 (citing 37 C.F.R. § 42.121(b)(1)–(2)). For this requirement, Patent Owner must cite "to the original disclosure of the application, as filed, rather than to the patent as issued." *Id.* at 8. A claim satisfies the written description requirement of 35 U.S.C. § 112 if the

description "clearly allow[s] persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562–63 (Fed. Cir. 1991). The Federal Circuit has further stated,

> whatever the specific articulation, the test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.

Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc).

Patent Owner asserts that the proposed substitute claims are supported by the originally filed disclosure of the '562 patent and U.S. Provisional Application 61/380,277, to which the '562 patent claims priority. Mot. Amend 3 (citing Ex. 1001; Ex. 2011). With respect to the additional language added to proposed substitute claims 13–16 in the Motion, Patent Owner points to numerous passages in the '562 patent for support. *Id.* at 3–5.[6]

In its Opposition to Patent Owner's Motion to Amend, Petitioner argues that claim elements 14.7 and 16.1 introduce new subject matter. With respect to independent proposed substitute claim 13, Petitioner does not argue that the proposed amendment introduces new subject matter. We

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[6] Although Patent Owner states that citations are made to both the patent and to the application, there are no citations to the application. This is considered to be a harmless error because the relied-upon disclosures from the patent appear to have substantially similar corresponding disclosures in the application.

have reviewed the entirety of the '562 patent, including those sections relied upon for support by Patent Owner, and reviewed the application that matured into the '562 patent, and determine that claim 13 is adequately supported by description in the originally-filed application.

a) *Claim 14*

With respect to claim 14, Petitioner argues that limitation 14.7, reciting "the one or more BaseURL elements are included only at the representation level," introduces new matter because the application as filed does not require exclusion of BaseURL elements at levels other than the representation level. Opp. 7–8 (citing Ex. 1001, 6:15–18; Ex. 1032 ¶ 13). Petitioner argues that the application merely describes that the BaseURL elements may be included at the representation level. *Id.* (citing Ex. 1001, 6:15–18 ("A URL of a segment included in each representation may be resolved with respect to the representation level BaseURL element."))

In Patent Owner's Reply to Petitioner's Opposition, Patent Owner argues that claim 14, when viewed in light of the limitations set forth in parent claim 13, does not require exclusion of BaseURL elements at other levels. PO Reply Opp. 2. Patent Owner argues that element 13.1 recites that the "metadata comprises one or more BaseURL elements." *Id.* Patent Owner asserts that this permits one or more BaseURL elements at any of the possible levels (i.e., period, group, or representation). *Id.* Patent Owner asserts that limitation 14.7 merely narrows this limitation to the situation in which there is one or more BaseURL elements that are included only at the representation level. *Id.*

Patent Owner further points to element 13.6 of claim 13 as "confirm[ing] that the BaseURL elements 'included at only the

representation level' are those BaseURL elements that are used to resolve locations of identical segments." *Id.* at 2–3 (citing Ex. 1001, 27:57–67).

Where a claimed feature is discussed as one of alternative features in the original patent application disclosure, that feature may be claimed by itself, along with the exclusion of other alternative features. *Inphi v. Netlist, Inc.*, 805 F.3d 1350, 1356 (Fed. Cir. 2015). The written description inquiry does not turn on whether a limitation is a "negative limitation," because the same standard would apply regardless of whether such a description applies. *Id.* (stating, "Nor do we see any reason to now articulate a new and heightened standard for negative claim limitations.").

As an initial matter, Patent Owner's reliance on elements 13.1 and 13.6 for written description support is unfounded, because claim 13 is a proposed substitute claim not appearing in the application as originally filed. Moreover, limitation 13.6 is entirely new, being identified as representing a change from originally-issued claim 1.

We turn to Patent Owner's argument that "wherein the one or more BaseURL elements are included at only the representation level" merely narrows claim 13's recitation that the "metadata comprises one or more BaseURL elements." PO Reply Opp. 2. Stated another way, Patent Owner is arguing that the "only at the representation level" limitation merely limits the multitude of possible options set forth in claim 13 to a smaller set of options. However, that is simply the nature of a dependent claim. To satisfy the written description requirement, the originally filed patent application must describe that particular set of options. For claim 14, the originally-filed patent application must demonstrate that the applicant for patent described an invention in which BaseURL elements are included only at the

representation level.

We look first to Patent Owner's cited sections of the '562 patent. The cited section of column 27, lines 57 to 67, describes that only a single BaseURL may be provided at each level of description (top level, period level, and representation level). However, that does not describe one or more BaseURLs at only one of those levels, but instead, that each level may have only a single BaseURL. That same cited section also states, "[m]ultiple base URLs may be provided at each description level." Similarly, that describes that each level may have multiple BaseURLs, not that multiple BaseURLs may be at one level but not at other levels.

The cited section at column 28, lines 15 to 20, states, "the client may select one or more BaseURLs in a process of retrieving resources." However, that refers to the action of the client's selection, not the action of providing Base URLs. Nor does that section describe those selected one or more BaseURLs being only at a single level.

The cited section at column 28, lines 28 to 30 states, *inter alia*, "[t]he morebaseURLs attribute (or BaseURLs element) of a lower description level may override the same attribute (or element) of the higher description level." However, that section appears to indicate that BaseURLs elements may be present on two separate levels, and not only on the representation level as required by element 14.7.

Nor does the cited section at column 6, lines 15–18, stating "[t]he BaseURL element may further include a representation level BaseURL element of a representation," indicate that one or more BaseURL elements would not be located on any other level. However, column 6 also describes that the BaseURL elements "may further include a group level BaseURL

element of a group." Ex. 1001, 6:9–10. With respect to representation and group level, the '562 patent clearly indicates that either may be included or not included, therefore describing each of the four potential options (representation and group, representation not group, group not representation, and neither group nor representation). With respect to the MPD and period levels, the '562 patent states that the BaseURL element "may include an MPD level BaseURL element of an MPD, and a period level BaseURL element of each period." *Id.* at 5:66–6:1. Further, "one or more" of these MPD level or period level BaseURL elements may be provided. *Id.* at 6:6–8. Each of the levels may resolve an URL with respect to the BaseURL element at that level or any higher level. *Id.* at 5:22–25; 6:1–26.

Viewed together in context, the patent describes that MPD level and period level BaseURLs may be included, may further include a group level BaseURL and may further include a representation level BaseURL. Although the patent describes MPD "and" period level BaseURLs, because the patent also describes that the period level may resolve a URL with respect to the BaseURL at the period level, the implication is that the MPD level BaseURL is not needed. Thus, because each level is described as capable of resolving a URL with the BaseURL at its level, and describes that BaseURL elements "may" be included at any of the four levels, the patent describes all possible permutations of BaseURL elements at the four levels. Consequently, we agree with Patent Owner that element 14.7 of claim 14 is supported by the written description of the '562 patent. We have reviewed the originally-filed patent application, and found corresponding language in the as-filed specification. Ex. 1027, 286–287.

b) *Claim 16*

With respect to proposed substitute claim 16, Patent Owner, in its Motion to Amend, points for support to "Ex. 1001, 2:6-9, 5:47-51, 27:50-52." Mot. Amend 5. Patent Owner argues that the Specification describes that the sourceURL may or may not be included in the MPD. PO Reply Opp. 3 (citing Ex. 1001 2:5–9, 27:50–52). Patent Owner further argues that no person having ordinary skill in the art would consider claim 16 to comprise new matter because "DASH Standard document ISO/IEC 23009-1: 2014 confirms that the sourceURL attribute is 'optional.'" *Id.* (citing Ex. 2012). Patent Owner further cites the DASH Standard document's description, "if [the sourceURL is] not present, then any BaseURL element is mapped to the sourceURL attribute and the range attribute shall be present." *Id.* (citing Ex. 2012 at 50, Table 13) (alteration in original).

Petitioner argues that the Specification does not describe the recitation of "when the metadata **does not** comprise a sourceURL attribute of the segment, the BaseURL element is mapped to the sourceURL attribute, so that the URL is generated." Opp. 8. Petitioner argues that the Specification instead describes mapping the BaseURL element when the metadata **does** include the sourceURL attribute of the segment. *Id.* Petitioner points to language from the Specification that states,

> The metadata may selectively **include** a sourceURL attribute of the segment. **When the metadata selectively includes the sourceURL attribute of the segment**, a BaseURL element among the BaseURL elements may be mapped to the sourceURL attribute, so that the URL may be generated.

Id. (citing Ex. 1001, 2:5–9, 5:46–51). Petitioner further asserts that none of the other sections of the Specification cited by Patent Owner provides

support, arguing that "[t]he citation to column 27 does not cure this deficiency because it supports the claim limitation only insofar as it says that including a sourceURL attribute may be optional. The mapping of a BaseURL element to a sourceURL attribute is not addressed." *Id.* at 8–9.

Petitioner responds to Patent Owner's assertions in its Motion to Amend by arguing that a description of the sourceURL being "selectively" included does not support a limitation of "*the metadata **does not** comprise a sourceURL attribute.*" Pet. Sur-reply Opp. 4–5. Petitioner further argues that the cited DASH standard has a publication date of 2014, and that Patent Owner does not explain how that DASH standard informs a person having ordinary skill in the art of the scope of claim 16, which requires evidence as of 2010. *Id.* at 5.

In the oral argument, Patent Owner further clarified its position, stating that where the "baseURL already provides a complete URL . . . . the base URL replaces the functionality of the source URL attribute and provides a complete URL[.] And that's why the sourceURL may be unnecessary." Tr. 76 (citing Ex. 1001, 27:50–52).

As an initial matter, Patent Owner's reliance on the cited DASH standard is unfounded because Patent Owner has not established that claim 16 embodies the cited DASH standard such that a person having ordinary skill in the art would understand claim 16 by reference to that standard.

Patent Owner, however, has sufficiently explained how the Specification's description of the sourceURL being "optional" provides support for the BaseURL element being mapped to the sourceURL attribute when the metadata does not comprise a sourceURL attribute of the segment, as recited. As explained by Patent Owner with reference to the

Specification, the sourceURL may be included in the MPD, and if so, a BaseURL element will be mapped to that sourceURL so that the URL of the segment may be generated. *See* Ex. 1001, 5:36–51. If the sourceURL is not included in the MPD, then the BaseURL provides the complete URL, and the sourceURL will not be necessary. *See* Ex. 1001, 27:50–52. Essentially, when the sourceURL is not included in the MPD, the BaseURL element provides the URL that would have been included in the sourceURL attribute, if such an attribute were present.

We recognize Petitioner's argument that claim 16 raises the question "if something is missing, as it is in this claim limitation, how do you map a baseURL to that which is missing. It's confusing language." Tr. 55. Petitioner further argues that there may be other options for the URL to be mapped when the sourceURL is not present. *Id.* However, whether language is confusing is not part of the new matter inquiry; we address Petitioner's indefiniteness argument at Section IV(C)(1)(c), *infra*. The Specification sufficiently describes how the BaseURL would be mapped; i.e., to a URL that would otherwise be in the sourceURL, if the sourceURL and baseURL are the same such that the sourceURL is omitted, to inform one having ordinary skill in the art that the inventor possessed that invention. The possibility that the URL may also be gathered from other than the BaseURL element does not preclude the Specification from describing that it may be gathered from the BaseURL element.

For the foregoing reasons, Patent Owner persuades us that proposed substitute claim 16 has written description support.

c) *Determination*

In view of the foregoing, and on review of the '562 patent, and its

corresponding description in the application that matured into the '562 patent for the limitations of claims 13–16, we find adequate written description support for each of those claims.

Accordingly, we determine that Patent Owner has shown that the proposed substitute claims 13–16 satisfy the above requirements of 35 U.S.C. § 316 and 37 C.F.R. 42.121(a).

C. *Asserted Unpatentability*

Petitioner provides the following arguments for the unpatentability of proposed substitute claims 13–16: (1) that claims 14–16 are indefinite under 35 U.S.C. § 112(b); (2) that claims 14–16 lack written description support under 35 U.S.C. § 112, first paragraph; and (3) that claims 13–16 would have been obvious over the combined teachings of Chen, OAI, 3GPP, and Brueck.

1. *Indefiniteness*

Petitioner asserts: (a) that claim 14 is indefinite due to unclear antecedent basis concerning the term "representation level" (Pet. Opp. 10); (b) that claim 15 is indefinite due to lack of clarity as to the limitation "the BaseURL element of a specific level is resolved with respect to a BaseURL element of a higher level" (*id.* at 11–12); and (c) that claim 16 is indefinite because it is unclear what "the sourceURL attribute" constitutes in light of the coexisting "the metadata does not comprise a sourceURL attribute" limitation (*id.* at 12).

Proposed substitute clams in an *inter partes* review proceeding may be challenged as indefinite. USPTO Memorandum on the Approach to Indefiniteness Under 35 U.S.C. § 112 in AIA Post-Grant Proceedings, 2 n.2 (Jan. 6, 2021); *Uniloc 2017 LLC v. Hulu, LLC*, 966 F.3d 1295, 1304 (Fed.

Cir. 2020) ("The PTAB correctly concluded that it is not limited by [35 U.S.C.] § 311 in its review of proposed substitute claims in an IPR."). The Board assesses indefiniteness under the approach set forth in *Nautilus*. *Id.* at 5 (citing *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014)). Under *Nautilus*, "a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus*, 572 U.S. at 901.

a) *Claim 14*

Petitioner asserts that the term "representation level" and the term "level" contained therein, lacks antecedent basis. Pet. Opp. 10. Petitioner argues that, to the extent there is a correspondence between "representation level" and "one or more representations," it is "unclear which of the 'one or more representations' corresponds to the 'representation level.'" *Id.* at 10–11. Petitioner further argues that this ambiguity is compounded by claim 15's recitation of "one or more BaseURL elements are included **only** at the representation level." *Id.* at 11. Petitioner contends that "representation level" is amenable to construction either as "a specific level" or "a higher level" as pertaining to claim 15.

Patent Owner argues that a person having ordinary skill in the art would recognize a "representation level" as the description level of the "one or more representations" set forth in claim 14; i.e., as one of the levels in the hierarchical syntax structure of the claimed MPD. PO Reply Opp. 4. Petitioner counters, arguing "description level" is not a term that appears in the claim. Pet. Sur-reply Opp. 5–6.

We are not persuaded by Petitioner's arguments. The '562 patent states,

> Each of the representations may be a structured collection of one or more components of the media within a period. The BaseURL element may further include one or more representation level BaseURL elements of the representations[.]

> A URL of a segment included in each of the representations may be resolved with respect to a representation level BaseURL element.

> The representation level BaseURL elements may be resolved with respect to the group level BaseURL elements or the period level BaseURL elements.

Ex. 1001, 2:30–40. Thus, the patent clearly sets forth the relationship between representations and representation level BaseURL elements. With respect to Petitioner's argument that claim 15 causes claim 14's "representation level" to be either "a specific level" or "a higher level," claim 14 does not require the representation level to be at any specific or higher level; therefore, we are not persuaded by that argument. However, we address that argument, *infra* at IV(C)(1)(b), as it relates to claim 15.

b) *Claim 15*

Petitioner asserts that the limitation, "the BaseURL element of a specific level is resolved with respect to a BaseURL element of a higher level," is indefinite when viewed together with the limitations of claim 14, from which claim 15 depends. Opp. 11–12. Petitioner asserts that claim 14 requires that "one or more BaseURL elements are included at **only** the representation level." *Id.* at 11. Petitioner asserts that a person having ordinary skill in the art would "not know how to implement BaseURLs at

two levels when only one level (the representation level) is allowed." *Id.* at 11 (citing Ex. 1032 ¶ 11).

Patent Owner argues that claim 15 must be viewed in light of both claims 13 and 14, which allegedly provide that

> while *some* BaseURL elements that specify one or more common locations for segments are included at only the representation level, *other* BaseURL elements at a "specific level" may be resolved with respect to a BaseURL element of a "higher level," such as the period or group levels.

PO Reply Opp. 4–5 (citing Ex. 1002, 5:36–40, 27:57–67, 28:28–30). Petitioner disagrees that claim 14 allows for BaseURL elements at levels other than the representation level.

We begin with the pertinent language of claim 15, including claims 13 and 14 from which it depends. Claim 13 introduces BaseURL elements, stating (in 13.1) "the metadata comprises one or more BaseURL elements." Claim 13 further states (in 13.2) that the URL associated with a request being sent for a media segment is resolved "with respect to a BaseURL element." Claim 13 further recites (in 13.3 and 13.4) that the segment is received, decoded, and rendered with respect to the media in the segment. Claim 13 further specifies (in 13.5) that "the request is sent using an HTTP GET method, the BaseURL element specifies one or more common locations for segments, and the segment is one of the segments."

Claim limitation 13.5 addresses three terms, "the request," "the BaseURL element," and "the segment." Each of these appears earlier in the step of "sending a request" of 13.2. Claim 13 provides no indication that one of those terms, "the BaseURL element," does not refer to the "a BaseURL" that is used to resolve a URL in the "sending a request" step of

limitation 13.2.

Claim 14 adds (in 14.7), "the one or more BaseURL elements are included at only the representation level." This limitation appears to further limit the "one or more BaseURL elements" recited in limitation 13.1, because only limitation 13.1 recites "one or more BaseURL elements," and the use of "the" implies that limitation 14.7 is referring to a previous, rather than a new, limitation. Because the "one or more BaseURL elements" refers to those in the metadata, claim 14 appears to limit any instance of a "BaseURL element" that refers to the "one or more BaseURL elements" in claim limitation 13.1. Patent Owner advanced this position at the oral argument. Tr. 24, 26.

Claim 15 adds, "wherein the BaseURL element of a specific level is resolved with respect to a BaseURL element of a higher level." Claim 15's "the BaseURL element" appears to address the other instances of "BaseURL element" as set forth in claim 13.

A fair reading of claims 13 and 14 is that they are referring to the same BaseURL in each instance. Claim 14 sets forth a process of receiving metadata comprising BaseURL element(s), sending a request for a media segment by resolving the request with respect to a BaseURL element(s) included at only the representation level, and receiving and decoding the media in the received segment. Claim 15's requirement that the BaseURL element at a specific level be resolved with respect to a BaseURL element at a higher level does not appear reconcilable with a restriction of BaseURL elements to a single level, i.e., the representation level. Nowhere in claim 13 is there any indication that "BaseURL element" is not merely an instance of the "one or more BaseURLs"; i.e., discussing the qualities of the individual

instances of the "one or more BaseURLs"

However, Patent Owner argues that claim 13 sets forth two distinct sets of "one or more BaseURL elements," some of which "specify one or more common locations for segments" and are only at the representation level, and other BaseURL elements that may be at other levels. PO Reply Opp. 4–5. During the oral argument, Patent Owner argued that the phrase "one or more BaseURL elements," as recited in limitation 13.1, is limited by the further recitation, "wherein identical segments are accessible at locations indicated by URLs resolved with respect to the one or more BaseURL elements." Tr. 24. Patent Owner asserts that other instances of BaseURL elements, those which do not refer to identical segments, can be at other levels. *Id.* Although Petitioner argues that this construction of claim 13 was not advanced during briefing (Tr. 55), Patent Owner asserts that this is the plain and ordinary meaning of these claims viewed in light of the specification. *Id.* at 70.

We turn to the Specification to determine whether it supports Patent Owner's construction of "one or more base elements" as pertaining solely to identical segments, and "BaseURL elements" as pertaining solely to non-identical segments. The Specification does not support this distinction. For example, the Specification states, "[i]dentical segments may be accessible at multiple locations indicated by URLs resolved with respect to the respective BaseURL elements." Ex. 1001, 1:65–67; *see id.* at 5:36–40. Here, the term "BaseURL elements" is used in the context of identical segments, contrary to Patent Owner's assertion. Further, we have reviewed the entirety of the '562 patent, and do not find "identical segments" being discussed in the context of "one or more BaseURL elements," as asserted by Patent Owner.

Nor does the Specification support a distinction between the term "one or more BaseURL elements" and the term "BaseURL elements," such that a person of ordinary skill in the art would recognize that these could refer to different classes of segments (i.e., identical vs. non-identical), and would recognize 13.1's "one or more BaseURL elements" as being distinct from 13.2's "a BaseURL element." For example, the Specification states, "[t]he metadata may include BaseURL elements. One or more BaseURL elements may be provided." Ex. 1001, 5:5–6.

Nor do we find Patent Owner's distinction supported by its argument, during the oral argument, that the Specification described a single BaseURL embodiment as including both identical and non-identical segments (citing Ex. 1001, 27:62–65), and a multiple BaseURL embodiment requiring multiple segments that is for identical segments (citing Ex. 1001, 27:65–68). Tr. 72–73. We first note that the identical/non-identical distinction was first raised at oral argument, during which new arguments or evidence is not permitted. Patent Trial and Appeal Board Consolidated Trial Practice Guide, November 2019, 85–86. Even when those arguments in the oral argument are considered, the Specification does not discuss identical or non-identical segments at the section cited by Patent Owner. Furthermore, Patent Owner does not explain how such a distinction is inherent as a technical matter such that the recited "BaseURL element" is not an individual instance of the recited "one or more BaseURL elements."

Thus, we determine that the "representation-level" restriction of "the one or more BaseURL elements" in claim 14 limits the "one or more BaseURL elements" in claim 13, and that each of the "BaseURL element" recitations in claim 15 are ultimately reliant on the "one or more BaseURL

elements" in claim 13, and are limited by the "representation-level" limitation of claim 14 (from which claim 15 depends).

Because claim 15 requires both that a BaseURL element be included only at a single representation level, and that Base URL elements be included at a specific level and a higher level, claim 15 fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. Consequently, we agree with Petitioner that claim 15 is indefinite under 35 U.S.C. § 112, 2nd paragraph.

c) *Claim 16*

Petitioner asserts that claim 16 is indefinite because it is unclear what "the sourceURL attribute" constitutes in light of the coexisting "the metadata does not comprise a sourceURL attribute" limitation. Pet. Opp. 12. Petitioner argues,

> Dependent claim[] 16 [recites] 'wherein when the metadata **does not** comprise a sourceURL attribute of the segment, the BaseURL element is mapped to the sourceURL attribute ....'" It is unclear whether the term "the sourceURL attribute" refers to "the sourceURL attribute of the segment." If it does not, then "the sourceURL attribute" lacks antecedent basis. Otherwise, the term is indefinite because then "the sourceURL element" refers to a non-existent feature because the claim[] require[s] that "the metadata **does not** comprise a sourceURL attribute of the segment."

Id. (citing Ex. 1032 ¶ 12) (third alteration in original).

Patent Owner argues that the claim can be understood as the sourceURL attribute existing, but not in the metadata. PO Reply Opp. 4–5 (citing Ex. 1001, 2:5–9, 27:50–52). Patent Owner alleges, "Petitioner is therefore wrong that the definition of the sourceURL attribute itself is 'non-existent.'" *Id.* Patent Owner refers to a DASH standard document for

support; Petitioner contends that Patent Owner has not established that this document represented the DASH standard at the time of the alleged 2010 priority date of the '562 patent, nor that this document would inform a person of ordinary skill in the art as to the particulars of the invention claimed in proposed substitute claim 16. Pet. Sur-reply Opp. 6–7.

We start with the language of the claim. Claim 16 recites, "wherein when the metadata does not comprise a sourceURL attribute of the segment, the BaseURL element is mapped to the sourceURL attribute, so that the URL is generated." Because of the term "the" in the phrase "the sourceURL attribute," we look for a prior occurrence of that term, and find no antecedent basis for that term beyond the "a sourceURL attribute" recited earlier in claim 16. The natural reading of claim 16 would therefore be that "the sourceURL attribute" refers to the same "sourceURL attribute" as the earlier-recited "a sourceURL attribute"; indeed, Patent Owner asserts that this is the proper reading. PO Reply Opp. 5. However, as noted by Petitioner, the "a sourceURL attribute" is claimed only to the extent that the metadata does not comprise "a sourceURL attribute." Pet. Opp. 12.

Patent Owner alleges that the claim can be understood by interpreting the "a sourceURL attribute" as a sourceURL attribute that exists separately from the metadata. PO Reply Opp. 5. Patent Owner points only to "the DASH standard" to support a source URL attribute that is "defined in standard communication protocols" but "not included in the metadata." *Id.*

Patent Owner appears to present different interpretations of the sourceURL recitations in claim 16. For purposes of written description, the sourceURL is alleged to be unnecessary because the BaseURL replaces its functionality. Tr. 76 (citing Ex. 1001, 27:50–52). However, for purposes of

definiteness, the sourceURL exists, but exists outside the metadata described in the '562 patent. PO Reply Opp. 5.

Patent Owner has not identified the "DASH standard" relied upon in its argument. Even assuming that it is the same DASH standard discussed in its new matter argument, we have explained why Patent Owner has not established that DASH standard to inform a person having ordinary skill in the art of the scope of claim 16. *Infra* at Section IV(B)(5)(b). And even if "the sourceURL" was identified as existing outside the metadata in a DASH standard relevant to claim 16, that would simply cause claim 16 to lack written description, and comprise new matter, because the written description requirement requires its description from "the four corners of the specification," not by "produc[ing] records documenting a written description of a claimed invention." *Ariad*, 598 F.3d at 1351.

We apply a single interpretation to claim 16 for the distinct inquiries of new matter, indefiniteness, and written description. Under that construction, advanced by Patent Owner, the sourceURL is "unnecessary because the BaseURL replaces its functionality. To the extent that the sourceURL is omitted in the metadata, and neither the claims nor the Specification describe the location of the sourceURL to which the BaseURL is mapped, we determine that one having ordinary skill in the art is not informed, with reasonable certainty, about the scope of the invention.

We note that under our interpretation (which is Patent Owner's asserted interpretation), claim 16 is supported by written description but is indefinite. We emphasize that the application disclosure supports Patent Owner's assertion that one reading the application disclosure would recognize that Patent Owner possessed a method of mapping a BaseURL

element to (the value of) a sourceURL attribute, when the sourceURL attribute and BaseURL element would be equivalent such that the sourceURL attribute may be omitted from the metadata. However, the application disclosure does not unambiguously lead one reading claim 16 to recognize that claim 16 is limited to instances in which the sourceURL and BaseURL are equivalent – as evidenced by Patent Owner's assertion that the sourceURL could instead exist in some form outside the metadata. It is this inconsistency that renders the scope of claim 16 indefinite.

d) *Summary*

In summary, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 15 and 16 are unpatentable as being indefinite under 35 U.S.C. § 112, 2nd paragraph. We further determine that Petitioner has not shown, by a preponderance of the evidence, that claim 14 is unpatentable as being indefinite under 35 U.S.C. § 112, 2nd paragraph.

2. *Written Description*

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to a person of ordinary skill in the art that the inventor had possession of the claimed subject matter at the time of filing, rather than the presence or absence of literal support in the specification for the claim language. *Ariad*, 598 F.3d at 1351; *Vas-Cath*, 935 F.2d at 1563; *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983).

Petitioner argues that claims 14–16 lack written description for the reasons set forth in its arguments that those claims introduce new matter. Pet. Opp. 12–13. We have considered those arguments, and determine that claims 14–16 do not introduce new matter, and are supported by the

originally-filed patent application that matured into the '562 patent. *Supra* at Section IV(B)(5)(c). Consequently, we are not persuaded by Petitioner's argument that claims 14–16 lack written description under 35 U.S.C. § 112, first paragraph. Thus, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 14–16 are unpatentable as lacking written description under 35 U.S.C. § 112, 1st paragraph.

3. *Obviousness*

Petitioner asserts that proposed substitute claims 13–16 are unpatentable under § 103(a) as obvious over the combined teachings of Chen, OAI, 3GPP, and Brueck. For the reasons we discuss, *supra* Section III(D)–(E), we conclude that Petitioner articulates adequate reasoning, supported by rational underpinning, to effect the combination of teachings of Chen, OAI, and 3GPP. And we adopt our analysis, *supra* Section III, for those limitations that Patent Owner does not propose to alter with its Motion to Amend. Accordingly, we discuss below only those limitations that are impacted by Patent Owner's Motion to Amend.

a) *Overview of Brueck*

Brueck relates to video streaming over the Internet, particularly to adaptive-rate shifting of streaming content over such networks. Ex. 1011, 1:16–19. Brueck employs a receiving module configured to receive media content, a streamlet module configured to segment the media content and generate a plurality of sequential streamlets, and an encoding module that encodes each streamlet as a separate content file. *Id.* at 2:61–65. Brueck illustrates a group of streamlets in Figure 3B, reproduced below with Petitioner's annotations.
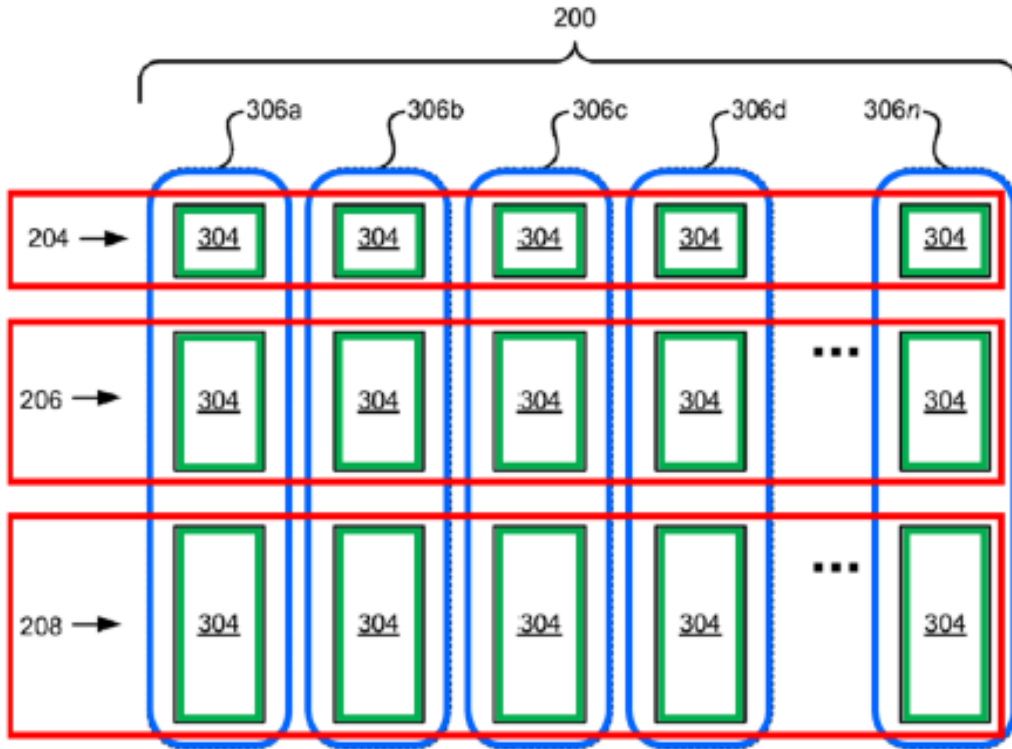
EX1011, FIG. 3b (annotated)

Fig. 3B is a block diagram illustrating sets $306_{(a...n)}$ of streamlets 304, in which "sets" refers to "a group of streamlets having identical time indices and durations but varying bitrates," for example, streamlets having low bitrates 204, medium bitrates 206, and high bitrates 208, generated from original content 200. Petitioner color codes sets ("groups") $306_{(a...n)}$ in blue rounded rectangles, streamlets ("segments") 304 in green rectangles, and bitrate organizations ("representations") 204, 206, 208 in red rectangles.

b) *Claim 13*

(1) *Parties' assertions*

With respect to the added limitation of "wherein the media is divided into a plurality of segments" in element 13.1, Petitioner points to Chen's description of "the **video data comprises a number of video segments**,"

and "receiving, in response to the request, at least one of the video files corresponding to the number of **video segments** of the requested temporal section from the source device." Pet. Opp. 15 (citing Ex. 1003 ¶¶ 8, 12, 37, 86 Fig. 1; Ex. 1032 ¶ 17).

With respect to the limitation, "wherein identical segments are accessible at locations indicated by URLs resolved with respect to the one or more BaseURL elements," Petitioner points to description in 3GPP of a segment that can be "uniquely referenced by an http-URL element in the MPD" *Id.* (citing Ex. 1006, 86; Pet. 69). Petitioner further points to Brueck for describing "streaming media over Internet including retrieval of media split into segments and groups and stored on multiple servers, including through use of HTTP protocol." *Id.* at 14. Petitioner asserts "it would have been a matter of routine optimization to insert the *Brueck'*s group level into *3GPP*'s hierarchy." *Id.* at 19 (citing *In re Aller*, 220 F.2d 454, 456 (CCPA 1955)). Petitioner further asserts that a person having ordinary skill in the art would have been motivated to combine *Brueck* with the Chen-OAI-3GPP teachings to address the problem of latency by allowing a client to request "varying bitrate streams depending upon network conditions." *Id.* (citing Ex. 1011, 2:28–33, 2:42–45, 2:50–51; Ex. 1032, ¶ 20). Petitioner further explains that the combination would be performed with a reasonable expectation of success. *Id.* at 19–20 (citing Ex. 1030, 53:14–20, 70:7–11; Ex. 1032 ¶ 20).

Petitioner further asserts that the concept of maintaining identical segments at multiple locations is not inventive, and that the combination of Chen and OAI would teach the use of multiple servers to host identical content for load balancing among multiple client devices. *Id.* at 15–16

(citing Pet. 46–47; Ex. 1017; Ex. 1032 ¶ 18). Petitioner further points to the deposition of Patent Owner's declarant as admitting,

> 'it was quite likely' that a [person of ordinary skill in the art] would have been familiar with load balancing and that load balancing 'could' include putting different copies of the same file on different servers because 'i]f you wanted to provide an equivalent service to every client, then you would have to make sure that the resources were duplicated. . . .'

Id. at 16 (citing Ex. 1030, 100:21–101:5, 102:9–10) (second alteration in original).

Patent Owner argues that Petitioner's reliance on Lewis is improper because it is not part of the asserted ground of rejection. PO Reply Opp. 6. Patent Owner further argues that Petitioner's reliance on Lewis is inapposite, and teaches away from the claimed invention, because Lewis teaches load balancing controlled by a server, whereas the '562 patent would control load balancing with the client selecting from among multiple BaseURLs, not the server. *Id.* at 6–7.

Petitioner counters by arguing that claim 13 does not require multiple BaseURLs, because the claim recites "one or more BaseURLs." Pet. Sur-reply Opp. 7–8. Petitioner asserts that the claim language would, like Lewis, read on a single BaseURL for which the server determines selection. Petitioner further asserts that Lewis is relied upon solely as evidence to show that a person of ordinary skill in the art would have been aware of load balancing. *Id.* at 8. Petitioner emphasizes that the testimony of Patent Owner's declarant, Mr. Adams, admits that load balancing would have been known. *Id.*

(2) Analysis

Petitioner points to Chen and OAI as teaching the claimed combination, by teaching "the use of multiple servers to host identical content for load balancing among multiple client devices" to meet the claim limitation "identical segments are accessible at locations indicated by URLs resolved with respect to the one or more BaseURL elements." Opp. 16. We note that this is supported by the deposition testimony of Mr. Adams, Patent Owner's declarant, who admits that load balancing could include placing identical content on multiple servers to direct resources to client devices. Ex. 1030, 101–102. Patent Owner argues that the claim requires the client to select a BaseURL from among multiple BaseURLs in the MPD as provided by the server. PO Reply Opp. 6–7 (citing Ex. 1001, 4:37–39, 28:15–17). However, Patent Owner has not sufficiently explained how client-controlled selection is reflected in the language of claim 13. An embodiment described in a specification are not read into a claim where the claim language is broader than the embodiment. *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004).

We agree with Petitioner that Lewis is properly relied upon solely as evidence to show that a person of ordinary skill in the art would have been aware of load balancing. The Federal Circuit has recognized that evidence submitted with the Petition may be considered to demonstrate the knowledge that one of skill in the art "would bring to bear in reading the prior art identified as producing obviousness." *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015); *see also Randall Mfg. v. Rea*, 733 F.3d 1355, 1362–63 (Fed. Cir. 2013) (emphasizing that additional prior art references or evidence are not for the purpose of changing

the prior art combination that forms the basis of the asserted ground, but rather are merely for the purpose of providing evidence of the state of the art, including the general background knowledge of a person of ordinary skill in the art).

With respect to whether Lewis teaches away, we note the Patent Owner has not shown Lewis to "criticize, discredit, or otherwise discourage investigation" into the claimed invention, which we have determined to not be limited to client-controlled selection. Furthermore, Lewis' evidence as to load balancing is redundant to Mr. Adams' testimony to the same effect.

As discussed at Section III(D)–(E), *supra*, Petitioner has shown each of the non-altered limitations of claim 13 to be taught by the combination of Chen, OAI, 3GPP, with sufficient rationale to combine the references as applied. We further determine that Petitioner has shown sufficient rationale to combine the teachings of Brueck as proposed, such that the ordinarily skilled artisan would have combined Brueck with Chen, OAI, and 3GPP. *See* IV(C)(3)(b)(1). Viewing claim 13 as a whole, based on the aforementioned analysis, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Chen, OAI, 3GPP, and Brueck renders obvious proposed substitute claim 13.

c) *Claim 14*

(1) *Parties' assertions*

With respect to the added limitations of claim 14, Petitioner points to Table 2 of 3GPP for its teaching of an MPD having period(s), with representation(s) within a period, and with segment(s) within a representation. Opp. 16–17. Petitioner relies upon Brueck for teaching of groups, in the form of a media file 200 divided into groups $306_{(a...n)}$ of

streamlets 304 (segments), wherein streamlets 203 have low bitrates, streamlets 206 have medium bitrates, and streamlets 208 have high bitrates. *Id.* at 17–18 (citing Ex. 1011, 6:41–42, 7:16–23, Pet. 13–14).

Petitioner maps Brueck's streamlets 304 having different bitrates to the claimed representations, because both are subdivisions of data representing media segments having different bitrates. *Id.* at 18 (Ex. 1011, 6:41–42, 7:16–23; Ex. 1032 ¶ 19). Petitioner alleges that it would have been a matter of routine optimization, within the skill of one having ordinary skill in the art, to "insert one more layer into an already four layer hierarchy of metadata," in view of the lack of any described or asserted criticality of the particular layer structure in the '562 patent, or by Patent Owner. *Id.* at 18– 20. Petitioner further argues that the combination would have involved only the combination of prior art elements according to known methods to yield predictable results, pointing to Mr. Adam's testimony that "an MPD can take **many, many different forms**." *Id.* at 19–20 (citing Ex. 1030, 70:7–11; Ex. 1032 ¶ 20).

With respect to the limitation, "wherein the one or more BaseURL elements are included at only the representation level," Petitioner points to 3GPP's teaching of including a BaseURL at only level. *Id.* at 20–21 (citing Ex. 1006, 86–87 ("There may be a baseURL attribute on MPD level or . . . on Period level;" "If the baseURL supplied at **any level** is absolute, **it gives the base URL for the levels below it**."). Petitioner alleges that selecting the representation level as the level having the sole BaseURL would have been a routine design variation, merely "reus[ing] the MPD structure of BaseURLs and rules for generating URLs already in place for the MPD and period levels," in the absence of any criticality to such placement. *Id.* at 20–21.

Petitioner further alleges, that there are only five layers for a single BaseURL to be, and a person having ordinary skill would have found each of the layers obvious to try using a single BaseURL (or one or more BaseURLs at that level) as a matter of routine experimentation. *Id.* at 21 (citing Ex. 1032 ¶ 22 (an MPD may take "many, many different forms")).

Patent Owner asserts that the combination does not teach the claimed "groups." PO Reply Opp. 7. Patent Owner asserts that Brueck's collections of streamlets (segments) are not the claimed groups of representations. *Id.* Patent Owner argues that the inclusion of the group level provides benefits of providing multiple versions of representations organized by the group level, which improves scalability and reduces latency, benefits not recited anywhere in the individual applied references. *Id.* at 8. Patent Owner further argues that neither Brueck nor 3GPP states any motivation to achieve a group of representations. *Id.* Patent Owner further argues that there are key differences between the objectives of Chen/OAI/3GPP and the proposed claims, such as indicating locations of identical segments. *Id.* at 9.

Petitioner responds by arguing that Patent Owner's asserted benefits of scalability and latency reduction are not supported by any evidence on the record. Pet. Sur-reply Opp. 8–9. Petitioner asserts that Figure 3b of Brueck can be interpreted as a group 306a having one segment 304 from each of three representations (204, 206, 208).

(2) *Analysis*

We find Petitioner's assertions to be supported by the record. Petitioner has shown an organizational scheme in Brueck that places a representation level between a period level and a segment level. Petitioner has further provided reasons to combine that scheme with the teachings of

Chen, OAI, and 3GPP to result in the claimed MPD scheme. Although Patent Owner argues that the combination with Brueck would not provide certain advantages, Patent Owner has not pointed to evidence linking such advantages to the claimed MPD scheme such that Petitioner's combination would not achieve those advantages. Further, although Patent Owner asserts that neither Brueck nor 3GPP individually provides motivation to combine their teachings, Patent Owner has not addressed Petitioner's reliance on alternative reasons to combine, based upon *KSR*-recognized rationales, presented by the Petitioner.

As discussed at Sections III(D)–(E) and IV(C)(3)(b), *supra*, Petitioner has shown each of the non-altered limitations of claim 14 to be taught by the combination of Chen, OAI, 3GPP, and Brueck, with sufficient rationale to combine the references as applied. Viewing claim 14 as a whole, based on the aforementioned analysis, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Chen, OAI, 3GPP, and Brueck renders obvious proposed substitute claim 14.

d) *Claim 15*

With respect to the added limitation of claim 15, "wherein the BaseURL element of a specific level is resolved with respect to a BaseURL element of a higher level," Petitioner points, *inter alia*, to 3GPP's description, "If the baseURL supplied at **any level** is absolute, **it gives the base URL for the levels below it**." Opp. 21–22 (citing Ex. 1006, 86–87; Ex. 1032 ¶ 23).

Patent Owner argues that this is inconsistent with Petitioner's previous argument that a BaseURL must "specif[y] a server name that may host a resource and may be combined with a relative URL specifying the

resource *to form an absolute URL*." PO Reply Opp. 10 (citing Pet. Reply 8) (alteration in original). Petitioner responds by asserting that the cited statement in its Reply concerned "a specific BaseURL ('www.qualcomm.com'), not BaseURLs in general." Pet. Sur-reply Opp. 10–11 (citing Pet. Reply 8; Opp. 22, Ex. 1006, 86–87).

We find Petitioner's combination supported by the art and not inconsistent with its prior statements, based on the citations and explanation above. As discussed at Sections III(D)–(E) and IV(C)(3)(b), *supra*, Petitioner has shown each of the non-altered limitations of claim 15 to be taught by the combination of Chen, OAI, 3GPP, and Brueck, with sufficient rationale to combine the references as applied. Viewing claim 15 as a whole, based on the aforementioned analysis, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Chen, OAI, 3GPP, and Brueck renders obvious proposed substitute claim 15.

e) *Claim 16*

With respect to the added limitation of claim 16, "wherein the metadata does not comprise a sourceURL attribute of the segment," Petitioner points to 3GPP's rules for generating URLs, which specify that "each SegmentInfo element shall contain either a URLtemplate Element **or** one or more Url Elements." Opp. 22 (citing Ex. 1006, 87). Petitioner asserts, "[i]f the URL element is not present, the sourceURL attribute of the URLTemplate is used. Thus, *3GPP* is configured to use a URL generation method based on a template in instances where an explicit sourceURL is absent from the metadata." *Id.* at 23 (citing Ex. 1032 ¶ 24).

With respect to the added limitation of claim 16, "the BaseURL element is mapped to the sourceURL attribute, so that the URL is

generated," Petitioner points to 3GPP's explanation that "when the sourceURL attribute of the URL element is missing, the URL for a media segment is constructed from a template," such a template "using relative URLs which are composed against **a base URL**." *Id.* (citing Ex 1006, 87; Ex. 1032 ¶ 25).

Patent Owner argues that 3GPP's URLtemplate Element is used in the alternative to 3GPP's URL element, and does not contain any teaching of the relationship between the URLtemplate Element and its sourceURL attribute, which is different because it is an identifier and not a string providing an actual URL. PO Reply Opp. 10–11 (citing Ex. 1006, 87–88). Patent Owner further argues that 3GPP's sourceURL attribute of the URL element is mandatory and can never be missing. *Id.* (citing Ex. 1006, 90). Patent Owner further argues that the interaction of the range attribute, set forth in limitation 13.6, and the BaseURL's specifying only common locations for segments, as set forth in limitation 13.5, require a range limitation. *Id.* at 11. Patent Owner argues that the scheme of 3GPP differs by having an optional range limitation, paired with a mandatory sourceURL, not with the BaseURL. *Id.* at 11–12.

Petitioner responds by arguing 3GPP's teaching that its URLtemplate Element is an alternative to its URL element merely reflects the claim's limitation that the BaseURL element is an alternative to the sourceURL attribute. Pet. Sur-reply Opp. 11. Petitioner further asserts that, although the sourceURL attribute is mandatory, it would not be present when the URL element is missing altogether. *Id.* With respect to Patent Owner's argument that 3GPP's sourceURL uses an identifier rather than a URL, Petitioner asserts that 3GPP's "UrlTemplate is used to generate the actual URL

whereby '[n]ormal URL composition may be used, using relative URLs which are composed against a base URL.'" *Id.* at 12 (citing Opp. 23, Ex. 1006, 87) (alteration in original). With respect to Patent Owner's argument that a range attribute is necessary for building the URLs in each segment, Petitioner argues that this requirement is not present in the claims, and that Petitioner has not supported its argument that it is implicitly required.

We find Petitioner's assertions to be supported by the record. The teaching of 3GPP to use a template to generate a non-included URL, when combined with the other applied teachings, fairly teaches claim 16's requirement of a BaseURL element being mapped to a source URL attribute if the sourceURL attribute is not in the metadata. We are persuaded by Petitioner's argument that Patent Owner has not sufficiently supported its argument pertaining the range limitation, because it is not explicitly required in the claims, nor does Patent Owner provide persuasive explanation as to how it is inherently required by the limitations in claim 16 (incorporating parent claims 13 and 14).

We find Petitioner's combination supported by the art and not inconsistent with its prior statements, based on the citations and explanation above. As discussed at Sections III(D)–(E) and IV(C)(3)(b)–(c), *supra*, Petitioner has shown each of the non-altered limitations of claim 16 (i.e., those in claims 13 and 14 from which claim 16 depends) to be taught by the combination of Chen, OAI, 3GPP, and Brueck, with sufficient rationale to combine the references as applied. Viewing claim 16 as a whole, based on the aforementioned analysis, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Chen, OAI, 3GPP, and Brueck renders obvious proposed substitute claim 16.

V.   CONCLUSIONS

For the foregoing reasons, we determine Petitioner has established by a preponderance of the evidence the unpatentability of claims 1–9 of the '562 patent. In summary:

Claims	35 U.S.C. §	References/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2	103(a)	Chen, OAI	1, 2	
3–9	103(a)	Chen, OAI, 3GPP	3–9	
Overall Outcome			1–9	

Patent Owner moved to substitute claims 13–20 for claims 1–9 contingent on a finding of unpatentability with respect to the originally challenged claims 1–9. We also construed Patent Owner's statements during the oral hearing as a request to withdraw proposed substitute claims 17–20 from consideration; therefore, we do not consider proposed substitute claims 17–20. We, however, deny Patent Owner's request to amend the '562 patent to add proposed substitute claims 13–16 because Petitioner has demonstrated by a preponderance of the evidence that claims 13–16 are unpatentable under § 103(a) as obvious over the combined teachings of Chen, OAI, 3GPP, and Brueck, and claims 15 and 16 unpatentable under § 112(b) as indefinite.[7,] A summary of our conclusions is set forth in the table reproduced below.

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[7] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this

Motion to Amend Outcome	Claims
Original Claims Cancelled by Amendment	
Substitute Claims Proposed in the Amendment	13–20
Substitute Claims: Motion to Amend Granted	
Substitute Claims: Motion to Amend Denied	13–16
Substitute Claims: Not Reached	17–20

VI. ORDER

Accordingly, it is

ORDERED that Petitioner establishes by a preponderance of the evidence that claims 1–9 are unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend is *denied* in part as it relates to proposed substitute claims 13–16;

FURTHER ORDERED that Patent Owner's Motion to Amend is *dismissed* in part as it relates to withdrawn proposed substitute claims 17–20;

FURTHER ORDERED that Patent Owner's Motion to Exclude is *denied*; and

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decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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