

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRIGHT DATA LTD.
Petitioner,

v.

OXYLABS, UAB,
Patent Owner.¹

IPR2023-00186
Patent 9,516,091 B2

Before THOMAS L. GIANNETTI, STACEY G. WHITE, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

AHMED, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

¹ The caption of this proceeding has been revised to reflect the current ownership of the challenged patent. *See infra* Section II.A.

I. INTRODUCTION

Petitioner, Bright Data Ltd., filed a Petition for *inter partes* review of claims 1–20 of U.S. Patent No. 9,516,091 B2 (Ex. 1003, “the ’091 patent”). Paper 1 (“Pet.”). Patent Owner, oxylabs, UAB,² filed a Preliminary Response. Paper 7. Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of claims 1–20 (the “Challenged Claims”) of the ’091 patent. Paper 9 (“Inst. Dec.”).

After institution, Patent Owner filed a Patent Owner Response (Paper 14, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 16, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 17, “PO Sur-reply”). A consolidated oral hearing with IPR2023-00185 and IPR2023-00187 was held on April 5, 2024. A transcript of the hearing is part of the record. Paper 24 (“Tr.”).

We have jurisdiction pursuant to 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on which we instituted trial. Petitioner bears the burden of proving unpatentability of the Challenged Claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2020). Having reviewed the arguments and the supporting evidence, we determine that Petitioner has not shown, by a preponderance of the evidence, that claims 1–20 of the ’091 patent are unpatentable.

² As set forth below, metacluster It, UAB, now operates as oxylabs, UAB, its successor in interest. Accordingly, the caption of this proceeding has been revised to reflect this change.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 1. Patent Owner identifies oxylabs, UAB as the real party in interest. Paper 4, 1. Patent Owner explains that “oxysales, UAB and metaccluster lt, UAB have been merged into Teso LT, UAB,” and that “[a]s of November 30, 2022, Teso LT, UAB will operate as oxylabs, UAB.” *Id.*

B. Related Matters

The parties indicate that the '091 patent is involved in the following proceeding: *Metaccluster LT, UAB v. Bright Data Ltd.*, No. 2-22-cv-00011 (E.D. Tex.). Pet. 1; Paper 4, 1; Paper 5, 2.

The parties also indicate that Petitioner has challenged patents related to the '091 patent in IPR2023-00185 (challenging U.S. Patent No. 9,503,498) and IPR2023-00187 (challenging U.S. Patent No. 8,924,457). Pet. 2; Paper 5, 2; Paper 4, 1.

C. Overview of the '091 Patent

The '091 patent relates to the management of web page scripts using a network appliance that intercepts the web page sent from a server to a client browser, modifies the web page by executing an embedded script, and sends the modified web page to the client browser. Ex. 1003, codes (54), (57). According to the '091 patent, performing web analytics for tracking consumer interaction with websites may employ embedded scripts in web pages. *Id.* at 1:21–44. Some drawbacks to this approach, however, are that embedded scripts may be large and may cause delay in web page retrieval, and that “retrieval and execution of embedded scripts may be inconvenient

or costly to visitors accessing the web page through networks with bandwidth-restrictive networks.” *Id.* at 1:44–51.

Figure 1 of the '091 patent is reproduced below.

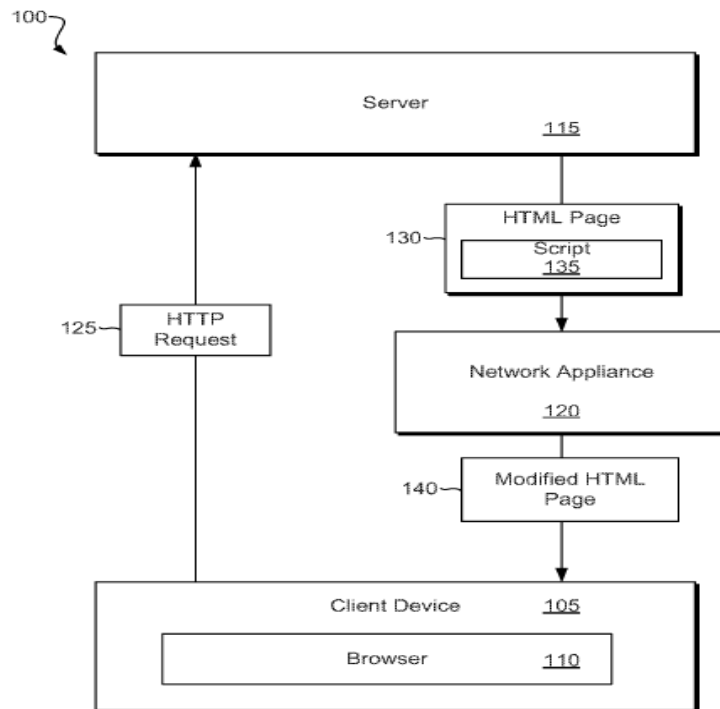


Fig. 1

Figure 1 shows a block diagram of the '091 patent's system that is used to manage the execution of embedded scripts in web pages. *Id.* at 5:13–25. In response to receiving a HTTP request for a certain web page from client browser 110, server 115 may send a copy of web page 130 which may include an embedded script 135. *Id.* at 5:36–43. Network appliance 120 may intercept the web page and modify it by removing the embedded script. *Id.* at 5:44–55. The network appliance may execute a removed script and send the modified web page 140 to the client browser. *Id.* at 5:62–6:3. These steps are shown in Figure 5 of the '091 patent, reproduced below.

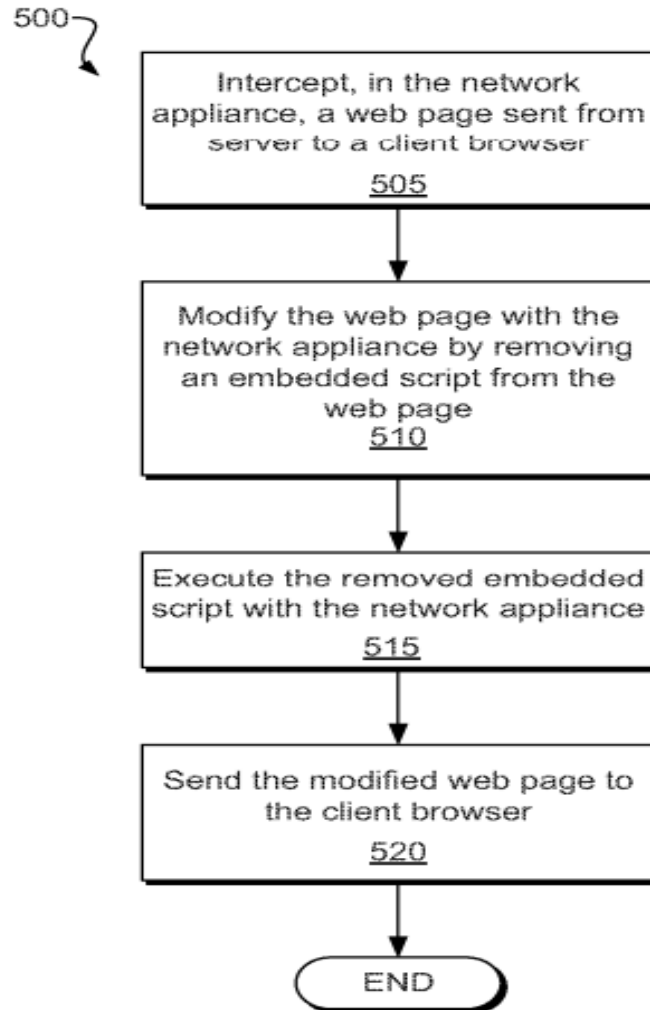


Fig. 5

Figure 6 of the '097 patent is reproduced below.

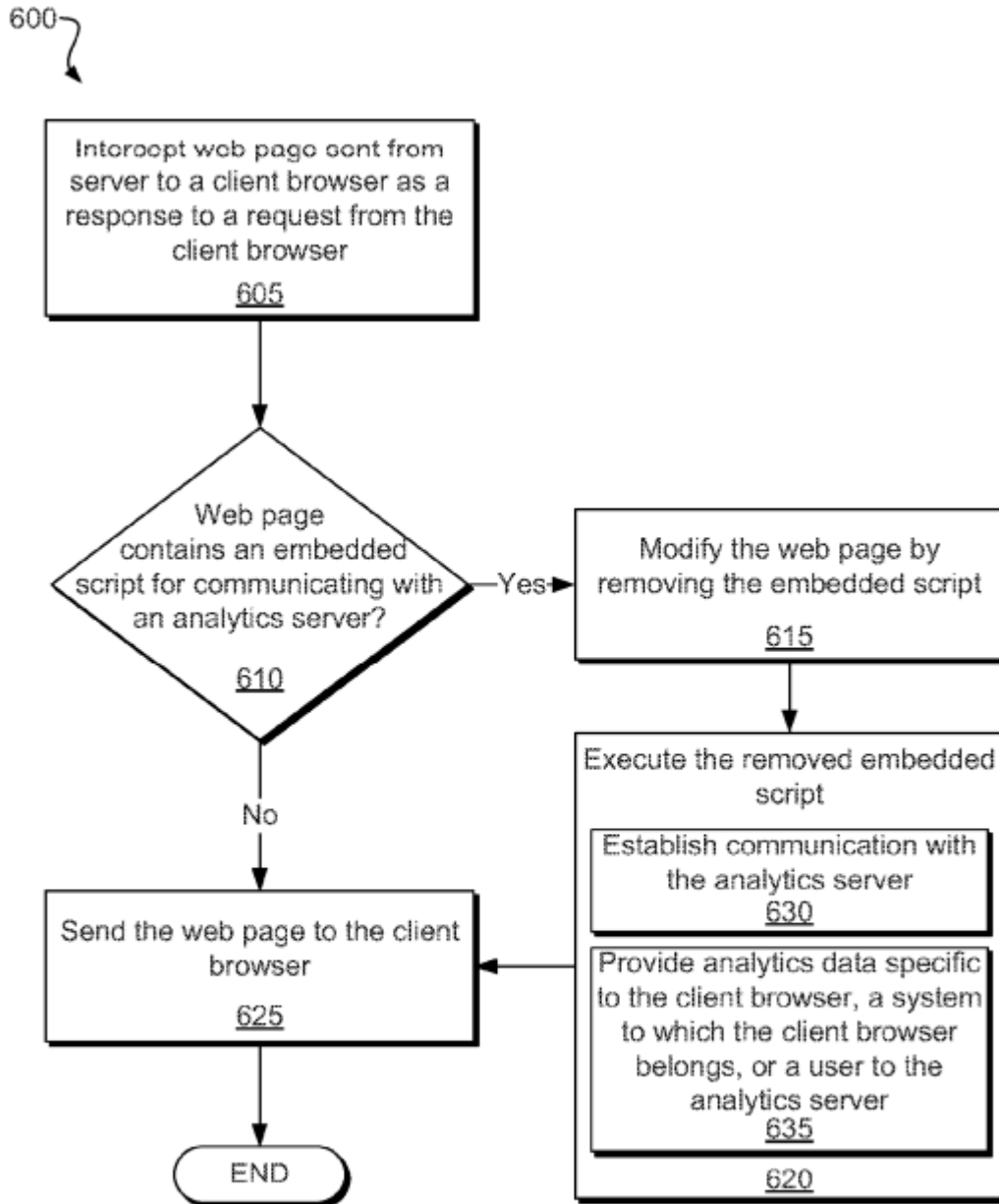


Fig. 6

Figure 6 is a flowchart showing another example of the web page script management method. *Id.* at 2:65–67. In this example, the network appliance also determines whether the intercepted web page contains an embedded script for communicating with an analytics server, and if so, the

web page is modified by removing and executing that embedded script, and establishing communication with the analytics server. *Id.* at 9:13–32. The network appliance provides information specific to the client browser, such as the client’s system and/or user information, to the analytics server. *Id.* at 9:33–41.

D. Illustrative Claims

Petitioner challenges claims 1–20 of the ’091 patent, of which claims 1, 13, and 19 are independent. Claims 1 and 13 are illustrative of the claimed subject matter and are reproduced below, with formatting and bracketed material added:

1. A machine-implemented method of web page script management, said method comprising:
 - [1a] in a network appliance implemented by at least one processor, intercepting a web page sent from a server and addressed to a client browser;
 - [1b] modifying the web page with the network appliance by removing an embedded script from the web page;
 - [1c] executing the removed embedded script with the network appliance; and
 - [1d] sending the modified web page from the network appliance to the client browser.

Ex. 1003, 11:49–51 (bracketed designations added (*see* Ex. 1031)).

13. A method of web page script management comprising:
 - [13a] with a network computing device:
 - [13b] intercepting a web page sent from a first server and addressed to a client browser;
 - [13c] modifying the web page by removing an embedded script from the web page;
 - [13d] establishing communication between the network computing device and a second server to transmit analytics information to the second server;

[13e] executing, by the network computing device, the removed embedded script;

[13f] sending the modified web page from the network computing device to the client browser; and

[13g] providing a second server with information specific to the client browser as embedded script results.

Ex. 1003, 12:31–45 (bracketed designations added (*see* Ex. 1031)).

E. The Instituted Grounds of Unpatentability

We instituted trial based on the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 13, 19	102(e) ³	Scoda ⁴
1–20	103(a)	Scoda, Matthys ⁵
1, 13, 19	102(e)	Hallak ⁶
1–20	103(a)	Hallak, Matthys

Inst. Dec. 53; Pet. 7. Petitioner supports its arguments with declaration testimony of Dr. Tim Arthur Williams (Ex. 1007). Patent Owner supports its arguments with declaration testimony of Dr. Kevin C. Almeroth.

Ex. 2009.

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), amended 35 U.S.C. §§ 102, 103 effective March 16, 2013. Because the parties do not dispute that the ’091 patent has an effective filing date earlier than March 16, 2013, we refer to the pre-AIA versions of §§ 102 and 103. *See* Ex. 1003, codes (22), (63).

⁴ U.S. Patent Publication No. 2011/0307238 A1, published on December 15, 2011 (Ex. 1016, “Scoda”).

⁵ U.S. Patent Publication No. 2008/0306816 A1, published on December 11, 2008 (Ex. 1013, “Matthys”).

⁶ U.S. Patent No. 8,464,318 B1, issued on June 11, 2013 (Ex. 1011, “Hallak”).

III. ANALYSIS

A. Principles of Law

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). A reference, however, can anticipate a claim even if it does not expressly spell out all the limitations arranged or combined as in the claim, “if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.” *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015); *see also Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344 (Fed. Cir. 2016) (“[A] reference may still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination.”).

A claim is unpatentable under § 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 ordinary

skill in the art; and (4) when in evidence, objective indicia of non-obviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

Petitioner asserts that a person of ordinary skill in the art at the time of the invention of the ’091 patent would have had master’s degree or higher in the field of electrical engineering, computer engineering, or computer science, or would have had a bachelor’s degree in the same fields and two or more years of experience in internet communications. Pet. 15–16 (citing Ex. 1007 ¶¶ 30–31). Patent Owner does not dispute Petitioner’s definition for a person of ordinary skill in the art. *See generally* PO Resp.

We adopt the level of ordinary skill as articulated by Petitioner because, based on the current record, this proposal appears to be consistent with the ’091 patent and the prior art of record and is supported by the testimony of Dr. Williams.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b),

⁷ With respect to the fourth *Graham* factor, the parties do not present arguments or evidence regarding objective indicia of non-obviousness. *See generally* Pet.; PO Resp.

following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2022). In applying this standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–14.

Petitioner asserts that all claim terms should have their plain and ordinary meaning. Pet. 16.

Patent Owner asserts that the '091 patent expressly defines a number of claim terms including “web page,” “network appliance,” “browser,” and “embedded script.” PO Resp. 7–8.

1. “executing . . . the removed embedded script”

Patent Owner contends that in the co-pending litigation, Petitioner succeeded in arguing that “executing . . . the removed embedded script” requires that the webpage is modified by removing the embedded script *before* the embedded script is executed. PO Resp. 8 (citing Ex. 1033, 28). Shortly before our Institution Decision, the District Court for the Eastern District of Texas issued a claim construction order construing this phrase according to its plain and ordinary meaning but finding that “[a]s a matter of grammar and logic, there is not any reasonable interpretation of the claim language that allows for executing ‘the *removed* embedded script’ before it is ‘removed.’” *See* Ex. 1033, 27–29; *Metacluster LT, UAB v. Bright Data Ltd.*, No. 2:22-cv-01111-JRG-RSP, Dkt. 155 (E.D. Tex. July 7, 2023).

Patent Owner argues that “the District Court’s interpretation of the plain and ordinary meaning requires the embedded script to be removed before that script is executed,” and that interpretation “is consistent with what Petitioner advanced in the litigation.” *Id.* (citing Ex. 2004, 15). Patent

Owner further contends that “[t]o avoid inconsistent results in this proceeding, Petitioner should be held to that construction here.” *Id.*

Petitioner responds that it “has consistently maintained that the removal of embedded script must occur prior to execution of the removed embedded script.” Pet. Reply 1.

We find that the parties’ agreed upon construction is supported by the record before us and apply it in our patentability analysis below, requiring the embedded script to be removed *before* that script is executed.

We determine that no other claim terms require express construction. *See Realtime Data LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. Eng’g, Inc.*, 200 F.3d 795, 803) (Fed. Cir. 1999))).

D. Overview of the Asserted References

1. Scoda (Ex. 1016)

Scoda relates to proxy servers that utilize a JavaScript emulator to extract JavaScript instruction sets a web page and inserts a JavaScript field identifier into the web page to optimize it and provide it to the web client. Ex. 1016, code (57), ¶¶ 1, 7.

Figure 1 of Scoda is reproduced below.

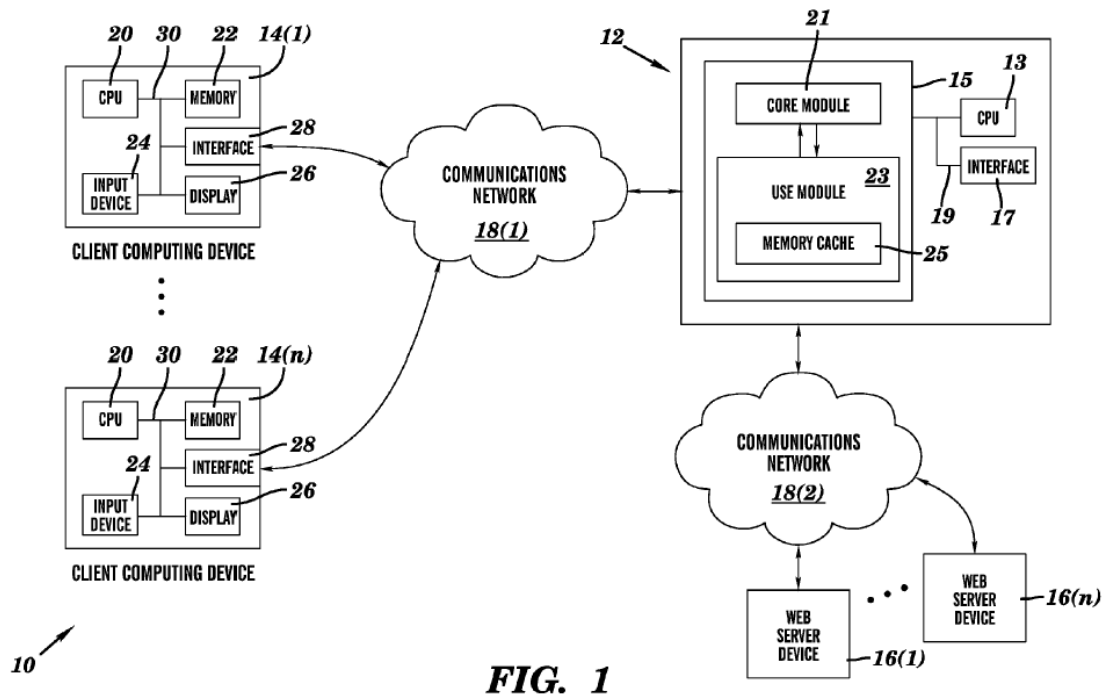


Figure 1 illustrates a block diagram of Scoda's system comprising an optimized web content proxy server 12 ("proxy server") with a JavaScript emulator. *Id.* ¶ 17. Scoda discloses that web server devices 16(1)–16(n) provide web pages to client devices 14(1)–14(n) via the proxy server. *Id.* ¶ 35.

Figure 8 of Scoda is reproduced below.

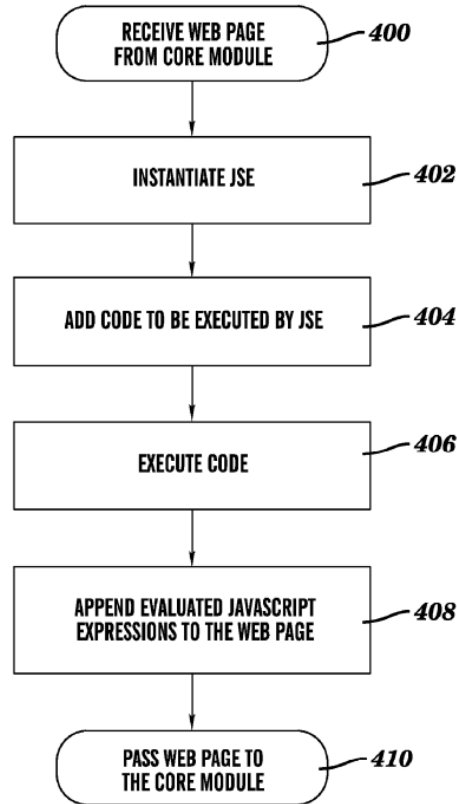


FIG. 8

Figure 8 is a flow chart of a method for processing a received web page with a JavaScript instruction set at the proxy server with a JavaScript emulator.

Id. ¶¶ 24, 59. Scoda discloses that when a web page with JavaScript code is received at the proxy server, the proxy server creates a document object model of the web page, adds the JavaScript code from the web page to the document object model, executes the JavaScript instruction set, and appends any obtained content in an “optimized version” of the received web page.

Id. ¶¶ 60–64. The web page is then provided by the proxy server for use in a web browser on one of the client devices. *Id.* ¶ 65.

2. Hallak (Ex. 1011)

Hallak relates to “securing a web client against malicious web attacks.” Ex. 1011, code (57). Hallak describes implementing a secure

gateway in a web application environment that performs all client-side execution on behalf of a web client, such that “client code is typically executed in a ‘sandbox’ to secure the gateway.” *Id.* at 3:14–27. Figure 2A illustrates a deployment option for a secure gateway (*id.* at 2:57–59), and is reproduced below.

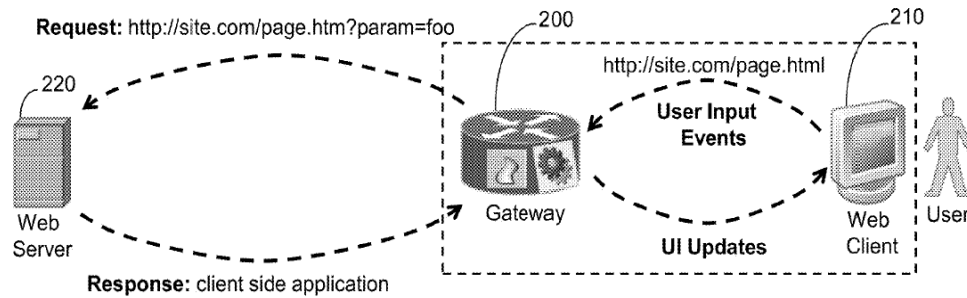
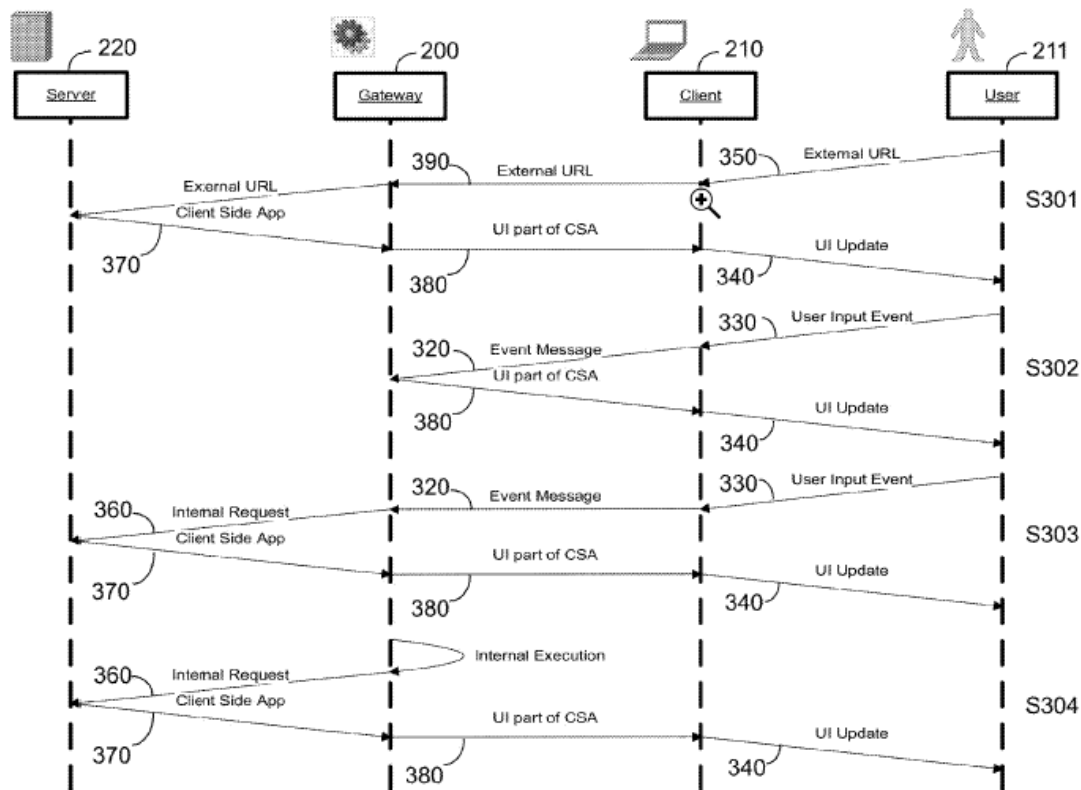


FIG. 2A

In the example shown in Figure 2A, execution of client-side application (CSA) code of a web application by the secure gateway 200 (instead of by the client itself) provides protection against harmful attacks, thereby protecting the client 210. *Id.* at 3:28–31. This way, “the inherently insecure protocols of the Internet are now limited to run in a secure environment between the server 220 and the gateway 200.” *Id.* at 3:45–48. “In an ‘un-trusted zone’ between the gateway 200 and client 210, a secure gateway-client protocol is utilized,” which “uses harmless HTML constructs and accepts a limited set of user events.” *Id.* at 3:48–51. The operation of the secure gateway in Hallak is illustrated in Figure 3 reproduced below.



In Figure 3, Hallak discloses that “client 210 is physically split into two distributed entities: an execution entity which is the gateway 200, and a UI entity which may be a web browser of the client 210.” *Id.* at 4:46–49.

“Updated UIs 380 are generated by the execution component in the gateway 200 and sent to the client 210, possibly in the form of static HTML (i.e., HTML code which does not include original scripts), and displayed to the user as UI updates 340.” *Id.* at 4:53–57. But “[e]ven when the code is executed by the gateway 200 there is no change in the user’s experience.” *Id.* at 4:65–67.

Gateway 200 may include a plurality of client zones, each of which is assigned to a single web client, and includes an execution component of a web virtualization engine (“WVE”) and a cookie manager. *Id.* at 5:45–49. A WVE represents an active client-server session, and a client may have

several simultaneous WVEs active at a time, each of which may be either of a browser window or a tab opened on the client. *Id.* at 5:51–54.

3. Matthys (Ex. 1013)

Matthys relates to “replacing an advertisement in a webpage from a website with another advertisement.” Ex. 1013, code (57). Matthys describes that when a client machine requests to visit a website, a network device may intercept the request and the response for analysis. *Id.* ¶ 51. If it is determined that there are “one or more appropriate advertisements that may be of high interest to the user,” such an “advertisement is then placed in the response.” *Id.* Matthys describes detecting whether a web page sent in response to a request includes any advertisements based on “the presence of such an advertisement or a script thereof,” and determining “whether the advertisement is replaceable.” *Id.* ¶ 93. If so, “the original advertisement in the web page is replaced by the preferable advertisement” such that “the original advertisement is either modified or replaced so that the webpage now carries a script including a link to the preferable advertisement,” and the web page is then displayed on a client machine. *Id.* ¶ 96.

E. Asserted Anticipation over Scoda

Petitioner contends that independent claims 1, 13, and 19 of the ’091 patent are unpatentable under 35 U.S.C. § 102(e) as anticipated by Scoda. Pet. 23–34. Patent Owner opposes. PO Resp. 11–28. For the reasons that follow, we are not persuaded that Petitioner has established by a preponderance of the evidence that these claims are unpatentable under § 102(e) in view of Scoda.

1. Claims 1, 13, and 19

Patent Owner argues that Scoda fails to disclose “intercepting a web page sent from a server and addressed to a client browser” limitation of

independent claim 1 (the “intercepting” limitation). PO Resp. 14–19; Ex. 1001, 11:51–53. Claim 19 recites an identical limitation, and claim 13 recites a similar limitation: “intercepting a web page sent from a first server and addressed to a client browser.” Ex. 1001, 12:33–34, 13:4–5. Patent Owner relies on the same arguments for these claims. PO Resp. 23.

We focus our analysis below on the “intercepting” limitation.

a. Petitioner’s Contentions

Petitioner contends that “Scoda describes the process of a client computing device requesting a web page from a web server and having that web page intercepted by the network appliance proxy server.” Pet. 25. Petitioner asserts that Scoda discloses that “[e]ach of the client devices 14(1)–14(n) enables a user to request, get and interact with web pages from one or more web sites hosted by the web server devices 16(1)–16(n) through the web content proxy server 12.” *Id.* (citing Ex. 1016 ¶ 29; Ex. 1007 ¶ 119). Petitioner contends that “Scoda also discloses that the web page is addressed to the client browser where ‘[t]he core module 21 is executed by the web content proxy server 12 to determine where to provide the response with the executed JavaScript functionality in the exemplary environment 10, such as to a web browser on one of the client devices 14(1)–14(n).’” *Id.* at 26 (citing Ex. 1016 ¶ 55; Ex. 1007 ¶¶ 120–121). Petitioner presents similar arguments for the “intercepting” limitation in claims 13 and 19. *Id.* at 29, 32.

b. Patent Owner’s Arguments

Patent Owner responds that Petitioner’s “cited disclosure fails to address (1) the response [from the core module] is *not* a web page; and (2) the response is generated at the proxy and *not* sent from a server. Petitioner.” PO Resp. 14–17. Patent Owner argues that paragraph 55 of

Scoda describes “step 310” of the method depicted in Figure 6, which Patent Owner contends discloses that JavaScript module 23 determines if the request from the client device includes hidden JavaScript identifiers and sends a response back to core module 21 (at step 310) that can determine where to send the response. *Id.* at 16–17 (citing Ex. 1016 ¶¶ 50–55). Patent Owner contends that “[t]he core module 21 then determines whether to provide the *HTTP request* from the client to the web server or to send the response generated by the proxy server back to the client device.” *Id.* at 17 (citing Ex. 2009 ¶ 69). According to Patent Owner, “at no point during this method is a web page being sent from a server and addressed to a client browser.” *Id.* Instead, Patent Owner argues, “an HTTP request is sent to the web server or a response to the HTTP request is sent *from proxy server 12* to client 14.” *Id.* (citing Ex. 2009 ¶ 69).

Patent Owner further argues that “Dr. Williams simply parrots the quoted allegation from the Petition” and “fails to explain the necessary inferences and logical steps that would be required to jump from the quoted portions of [Scoda] and arrive at the specific language found in the claim.” *Id.* at 18 (citing Ex. 1007 ¶¶ 120–121; Ex. 2009 ¶ 71).

c. Petitioner’s Reply

Petitioner responds that Scoda also discloses, in Figure 8, an exemplary method for processing a received web page at the proxy server with a JavaScript emulator for delivery to one of the client computing devices. Pet. Reply 2–3 & n.4 (citing Ex. 1016 ¶¶ 59, 65, Fig. 8).

d. Analysis.

After considering the parties’ arguments and evidence developed during trial, we determine that Petitioner has not shown by a preponderance of the evidence that Scoda discloses intercepting a web page sent from a

server and addressed to a client browser, as required by claims 1, 13, and 19. We agree with Patent Owner that portions of Scoda cited in the Petition do not disclose a web page, let alone one sent from a server and addressed to a client browser. *See* PO Resp. 17; Tr. 73:10–23. Scoda discloses that “[t]he core module 21 is executed by the web content proxy server 12 to determine where to provide the response with the executed JavaScript functionality in the exemplary environment 10, such as to a web browser on one of the client devices 14(1)–14(n).” Ex. 1016 ¶ 55. But this functionality does not refer to a web page from a server. Instead, this discussion is about a HTTP *request* that comes *from a client device* and may include one or more hidden JavaScript identifiers. *See id.* ¶¶ 50–55. The discussion about providing a response to a web browser on a client device refers to a response to the client device’s HTTP request, in the form of an error message, that is sent from the proxy server to client device. *Id.* ¶ 58. As Patent Owner points out, this is one of the two scenarios presented in Scoda, the other one being that HTTP *request* is sent *to* the server. *Id.*; PO Resp. 36; *see also* Ex. 2009 ¶ 70. We agree with Patent Owner and Dr. Almeroth that these communications between the client and proxy server or the proxy server and the content server do not disclose the “intercepting” limitation.

(i) Petitioner’s New Reply Argument

In response to Patent Owner’s argument that Scoda’s disclosure is deficient, Petitioner attempts to change the focus of its argument. Pet. Reply 2–3. Petitioner instead relies on Figure 8 and related discussion as “Scoda’s disclosure of proxy server 12 processing a web page that was sent from a web server.” *Id.*

We agree with Patent Owner that Petition does not cite to Figure 8 of Scoda, and Petitioner’s argument based on this disclosure is, therefore, an untimely new argument presented in the Reply. *See* 37 C.F.R. § 42.23(b); *see also Intelligent Bio-Sys.*, 821 F.3d at 1369 (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”) (citing 35 U.S.C. § 312(a)(3)).

Even if not forfeited, Petitioner’s new theory still fails to establish anticipation. As Petitioner points out, Scoda discloses “an exemplary method for processing a received web page at the optimized web content *proxy server* 12 with a JavaScript emulator for delivery to one of the client computing devices 10 is illustrated with reference to FIGS. 1, 7, and 8.” Ex. 1016 ¶ 59. Although Scoda discloses that its proxy server receives a web page from one of the web server devices, Scoda does not disclose that that web page is *addressed to the client device*, as required by the “intercepting” limitation.⁸ *Id.* And we agree with Patent Owner that “the general disclosure that web servers provide web pages to clients via the proxy server does not explicitly disclose that those web pages are addressed to the client.” PO Resp. 19; Tr. 76:4–18. Instead, anticipation requires “that the reference describe not only the elements of the claimed invention, but

⁸ Patent Owner also argues, based on the operation of conventional proxy servers, that it is not at all necessary for a web page from a server be addressed to a client device, and therefore, that Scoda cannot inherently disclose the limitation. *See* PO Sur-reply 8–9 (citing Ex. 1013 ¶ 72; Ex. 2011, 115:7–118:12). We do not address Patent Owner’s argument because Petitioner does *not* rely on inherent disclosure of Scoda for anticipation. *See* Pet. 23–26, Pet. Reply 1–2.

also that it describe those elements ‘arranged as in the claim.’” *Net MoneyIN*, 545 F.3d at 1371 (explaining that “differences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness, not anticipation”); *see also Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1343 (Fed. Cir. 2016) (“Identification of one element, the row, in one table and another element, the column, in another table is insufficient for anticipation” of “the claimed single table having a row defining a column in that same table”); *TF3 Ltd. v. Tre Milano, LLC*, 894 F.3d 1366, 1374 (Fed. Cir. 2018) (“Claims cannot be anticipated by devices that are not the same. Invalidity for anticipation requires that the identical invention must be shown in as complete detail as contained in the patent claim.” (internal quotations omitted)). We are therefore not persuaded that Scoda discloses the “intercepting” limitation of claims 1, 13, and 19.

Petitioner asserts that, at institution, we agreed with Petitioner that Scoda satisfies this limitation and “found this anticipation challenge met the compelling merits standard” as set forth in the Director’s Memo.⁹ Pet. Reply 2 & n.3 (citing Inst. Dec. 31). Our findings at institution, however, were based on the preliminary record and, at that time, Patent Owner had not argued this specific deficiency in Petitioner’s contentions to us. *See* Inst. Dec. 26–30. Moreover, we have “an obligation to assess the [validity] question anew after trial based on the totality of the record.” *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1377 (Fed. Cir. 2016); *see also*

⁹ *See* Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022) (“Director’s Memo”), *available at* https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

Trivascular, Inc. v. Samuels, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (“The Board is free to change its view of the merits after further development of the record, and should do so if convinced its initial inclinations were wrong.”). Petitioner’s reliance on our preliminary findings from the institution decision in support of its arguments is therefore misplaced.

e. Conclusion as to Anticipation of Claims 1, 13, and 19

Because we conclude, based on the evidence and arguments presented by Petitioner in its Petition and the Reply, that Petitioner has not met its burden to show by a preponderance of the evidence that Scoda discloses “intercepting a web page sent from a server and addressed to a client browser,” as claimed, Petitioner has not shown that the subject matter of claims 1, 13, and 19 of the ’091 patent would have been anticipated over Scoda at the time of the invention.

F. Asserted Obviousness over Scoda and Matthys

Petitioner contends that claims 1–20 of the ’091 patent are unpatentable as obvious over Scoda or Scoda and Matthys. *See* Pet. 35–55. Patent Owner opposes. PO Resp. 37–50. For the reasons discussed below, we conclude that Petitioner has not demonstrated by preponderance of the evidence that claims 1–20 are unpatentable on this asserted ground.

Petitioner relies upon its explanations and evidence for Ground 1 as to Scoda’s disclosure of the limitations recited in claims 1, 13, and 19, and specifically as to the intercepting limitation. Pet. 38–43. Petitioner asserts that to the extent Scoda does not expressly disclose “intercepting a web page . . . addressed to a client browser,” a person of ordinary skill in the art “would have known that because Scoda’s web server is responding to the original request sent by the client browser/device, the web server would have used the IP address of the client browser/device as the destination IP

address.” *Id.* (citing Ex. 1007 ¶ 170). Petitioner does not present any particularized arguments regarding Matthys in connection with the intercepting limitation. *See generally* Pet.

Patent Owner responds that because the “Petition incorporates its discussion of limitation [1a] for Ground 1 into Ground 2 for each of claims 1, 13, and 19,” “Petitioner fails to establish the cited portions of Scoda disclose the claimed features.” PO Resp. 29. Patent Owner argues that Petitioner’s reliance on a person of ordinary skill in the art’s knowledge for this ground is unsupported by Dr. Williams and is merely attorney argument that cannot legally support a showing of obviousness. *Id.* (citing Ex. 1007 ¶ 116). Patent Owner also points out that “[t]he Petition does not cite to any disclosure of Matthys for teaching this limitation and cannot establish a *prima facie* case of obviousness based on the combination.” *Id.* Thus, Patent Owner contends, Petitioner’s analysis of claim 1 for this ground fails for the same reasons as the anticipation ground based on Scoda. *Id.*

We agree. Petitioner does not cite to Dr. William’s testimony or any other evidence in support of its contention that a person of ordinary skill in the art would have understood that Scoda’s web server would have used the IP address of the client browser/device as the destination IP address. Pet. 38. Petitioner’s assertion is thus unsupported attorney argument. It is especially notable that although much of Dr. William’s declaration testimony mirrors Petitioner’s contentions, he provides no opinions in support of Petitioner’s assertions as to the understanding of an ordinarily skilled artisan on this claim limitation. *See* Ex. 1007 ¶ 166 (incorporating his opinions presented as to the anticipation ground). Petitioner does not point us to, and we do not find, any basis in the record to decide that a person of ordinary skill in the art would have known that Scoda’s web server

would have used the IP address of the client browser/device as the destination IP address. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (explaining that attorney argument is not evidence).

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1361 (Fed. Cir. 2017). Because we conclude, based on the evidence and arguments presented by Petitioner in its Petition and the Reply, that Petitioner has not met its burden to show by a preponderance of the evidence that the combination of Scoda and Matthys teaches “intercepting a web page sent from a server and addressed to a client browser,” as claimed, Petitioner has not shown that the subject matter of claims 1, 13, and 19 of the ’091 patent would have been obvious over Scoda and Matthys at the time of the invention.

For the same reasons, we conclude that Petitioner has not shown that the subject matter of dependent claims 2–12, 14–18, and 20 of the ’091 patent would have been obvious over Scoda and Matthys at the time of the invention. *Mylan Pharm. Inc. v. Research Corp. Techs., Inc.*, 914 F.3d 1366, 1376 (Fed. Cir. 2019) (“Dependent claims, with added limitations, are generally not obvious when their parent claims are not.”).

G. Asserted Anticipation over Hallak

Petitioner contends that independent claims 1, 13, and 19 of the ’091 patent are unpatentable under 35 U.S.C. § 102(e) as anticipated by Hallak. Pet. 56–65. Patent Owner opposes. PO Resp. 58–65. For the

reasons that follow, we are not persuaded that Petitioner has established by a preponderance of the evidence that these claims are unpatentable under § 102(e) in view of Hallak.

1. Claims 1, 13, and 19

Patent Owner argues that Hallak fails to disclose “executing the removed embedded script with the network appliance” limitation of independent claim 1 (the “executing” limitation). PO Resp. 24–32; Ex. 1001, 11:56–57. Claim 13 recites a similar limitation: “executing, by the network computing device, the removed embedded script.” Ex. 1001, 12:40–41. Claim 19 also recites a similar limitation: “executing, by the network computing device, the removed embedded script.” Ex. 1001, 13:13–14. Patent Owner relies on the same arguments for these claims as well. PO Resp. 61, 64.

We focus our analysis below on the “executing” limitation.

a. Petitioner’s Contentions

Petitioner contends that Hallak discloses “executing the client side application code on behalf of the web client.” Pet. 59 (citing Ex. 1011, 2:23–24; Ex. 1007 ¶ 255). Petitioner contends that Hallak explains that the

Secure gateway 200 separates, in real time, between execution and UI components of a client side application (CSA) code 370 . . . [and] [t]he secure gateway 200 further executes the execution component in a sandbox, and generates a new CSA, consisting of UI components 380 of the original application, to be sent to the client 210.

Id. (quoting Ex. 1011, 4:25–30) (alterations in original). Petitioner presents the same arguments for the “executing” limitation in claims 13 and 19. Pet. 61, 64.

b. Patent Owner's Arguments

Patent Owner responds that Petitioner fails to address the temporal aspect of the “executing” limitation, which requires execution of the embedded script *after* removal of that script. PO Resp. 58. Patent Owner argues that Petitioner identifies the execution of the CSA 370 in the sandbox as execution of the removed script, but that execution occurs before the removal of any scripts. *Id.* (citing Ex. 1011, 4:25–30, 5:6–8, 67:8–16; Ex. 2009 ¶ 152).

Patent Owner argues that Petitioner relies on Hallak’s serialization of a document as removing embedded scripts, but that serialization is performed after the execution of the CSA by the execution component. *Id.* at 58–59 (citing Ex. 2011, 9:42–46, 71:2–7; Ex. 2009 ¶ 153). Patent Owner argues that Hallak’s document object model (DOM) change handler “listens to an event indicating the loading of a new HTML document and while the new document is being loaded, the UI extractor serializes the document and sends it to the UI component 820.” *Id.* at 59 (citing Ex. 1011, 8:52–57). Patent Owner contends that “the execution engine executes (i.e., loads) the web page CSA 370 and then generates a DOM structure based on that execution,” while “[t]he extraction of UI that is performed after the passing of the DOM to WVE Interface is done after execution of CSA that is sent from the web page.” *Id.* at 59–60 (citing Ex. 2009 ¶ 154). Thus, Patent Owner concludes, any omission of scripts during serialization would not be removed before execution of the purported script. *Id.*

c. Petitioner's Reply

Petitioner responds that Hallak’s WVE serializes the document received from a web server and only sends the serialized version, without the script, to the client. Pet. Reply 21 (citing Ex. 1011, Fig. 3 (“S301”)).

Petitioner contends, that the client can then send an event message back to the WVE, in response to which, the WVE will execute that previously removed script. *Id.* (citing Ex. 1011, Fig. 3, 9:34–40, 11:25–30). Under Petitioner’s interpretation of Hallak, the serialization process includes removal of embedded script since that the serialized document does not include the original script. *Id.* at 22. As to execution, Petitioner points to the following disclosure from Hallak:

At S302, the user 311 performs an action, which causes the client 210 to send an event message 320 to the gateway 200, where the action is executed. This action causes the display to change (without server intervention) through client side scripts executed by the gateway 200.

Id. (quoting Ex. 1011, 5:13–18). Thus, Petitioner argues, “the removed script is not executed until the client receives the serialized document and sends an event message back to the gateway.” *Id.* (citing Ex. 1011, 5:20–30, Fig. 3).

Petitioner alternatively relies on Dr. Almeroth’s testimony in a related litigation to argue that “a conventional client browser would have removed the JavaScript from the web page and then executed the JavaScript that had been removed from the web page.” *Id.* at 22–23 (citing Ex. 1035, 7:14–9:6; Ex. 1034, 9:5–10:11, 13:2–14:10). Petitioner contends Hallak’s gateway emulates the client browser by rendering the entire web page at the proxy server, and thus, executes the removed JavaScript in the required temporal order. *Id.*

d. Analysis

After considering the parties’ arguments and evidence developed during trial, we determine that Petitioner has not shown by a preponderance of the evidence that Hallak discloses the “executing” limitation, as required

by claims 1, 13, and 19. As discussed above (*supra* § III.C.1), we apply the parties’ agreed construction for the claim limitation “executing . . . the removed embedded script,” requiring that the embedded script to be removed *before* that script is executed.

Patent Owner argues that the disclosure relied on by Petitioner in the Petition does not meet the “temporal aspect” of the claims. PO Resp. 58 (citing Ex. 1011, 4:25–30). We agree with Patent Owner and find, for the reasons given, that Hallak’s cited disclosure does not meet the requirement that the execution of the removed script happens *after* the script has been removed from the web page.

The Petition identifies Hallak’s execution of the CSA 370 in the sandbox as execution of the removed script. Pet. 58 (citing Ex. 1011, 4:25–30). “But, the execution of the CSA 370 occurs *before* the removal of any scripts, and therefore, the cited portion of Hallak fails to show executing the *removed* embedded script.” PO Resp. 58 (citing Ex. 2009 ¶ 152; Ex. 1011, 5:6–8) (citation omitted); Tr. 53:12–54:17.

Figure 5 of Hallak is reproduced below.

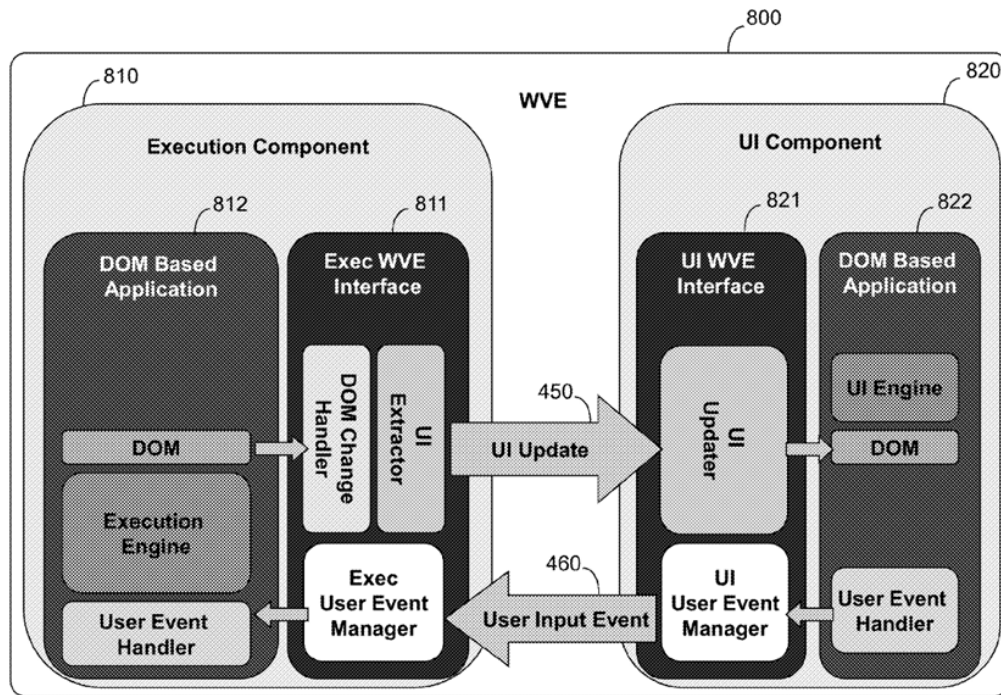


FIG. 5

Figure 5 is a block diagram of Hallak's web virtualization Engine.

Ex. 1011, 2:65–67. Dr. Almeroth testifies that “[a]s depicted [in Figure 5], the execution engine executes (i.e., loads) the web page CSA 370 and then generates a DOM structure based on that execution,” while “[t]he extraction of UI that is performed after the passing of the DOM to WVE Interface is done after execution of CSA that is sent from the web page.” Ex. 2009 ¶ 154 (citing EX1011, 7:53–58, 8:52–57). We credit Dr. Almeroth's testimony because it is consistent with Hallak's disclosure.

Hallak's Figure 3 is reproduced below.

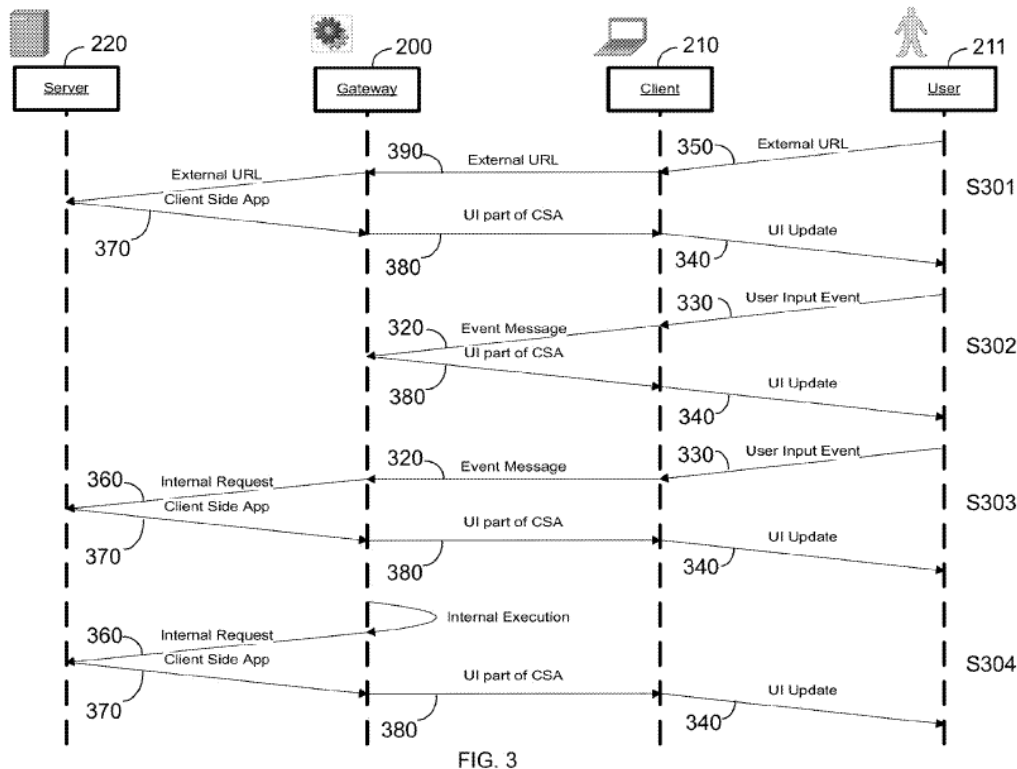


Figure 3 shows the operation of Hallak's secure gateway. Ex. 1011, 2:60–63. Patent Owner contends that Figure 3 shows that “the execution of CSA code 370 occurs during step 301 when the gateway receives the CSA 370.” PO Sur-reply 10–11 (citing Ex. 1011, 4:63–65). Dr. Almeroth testifies that Hallak is clear that the gateway's execution of code 370 is what generates the updated UIs 380 because Hallak discloses that “gateway 200 further *executes* the execution component in a sandbox, and *generates a new CSA*, consisting of UI components 380.” Ex. 2009 ¶ 155 (quoting Ex. 1011, 4:25–30). We find Dr. Almeroth's testimony persuasive because it is supported by Hallak's disclosure.

Dr. Williams's testimony, on the other hand, mirrors Petitioner's contentions. Similar to the Petition, Dr. Williams testifies that Hallak meets the “executing” limitation, pointing to the execution of the components of

the client-side application (CSA) 370 in the sandbox and the generation of a new “serialized” CSA to be sent to the client. Ex. 1007 ¶ 255. But he too fails to address the sequencing of the sandbox execution of the removed script and the generation of the new CSA, which execution Hallak describes as occurring *before* the UI part of the CSA is generated and sent to the client. See Ex. 1011, Fig. 3, 4:27–30. Petitioner’s original contentions therefore do not show that Hallak discloses the “executing” limitation.

(i) Petitioner’s New Event Message Theory

In response to Patent Owner’s argument that Hallak’s disclosure cited by Petitioner is deficient in this respect, Petitioner attempts to change the focus of its argument. Pet. Reply 21–22. According to Petitioner’s new theory, the “execution” of the embedded script takes place later, after the UI component is received by the client, in response to an “event message” from the client. *Id.* at 21. Petitioner now asserts that “the removed script is not executed until the client receives the serialized document and sends an event message back to the gateway.” *Id.* at 22.

At the outset, this “event message” theory does not appear in the Petition or Dr. Williams’s testimony, and, is therefore, an untimely new argument presented in the Reply. See 37 C.F.R. § 42.23(b); *see also Intelligent Bio-Sys.*, 821 F.3d at 1369; PO Sur-reply 11–12.

Even if not forfeited, we find this new argument by Petitioner to be unavailing. The argument is without testimonial support in the record and is not consistent with the testimony of Petitioner’s expert or the earlier position of Petitioner in this proceeding. None of the cited Hallak portions disclose removing a script from a web page and then subsequently executing that script. See Ex. 1011, 9:34–40, 11:25–30 (cited in Pet. Reply 21). Petitioner

also relies on Step S302 (shown in Figure 3 above), where “the user 311 performs an action, which causes the client 210 to send an event message 320 to the gateway 200, where the action is executed.” Pet. Reply 22 (citing Ex. 1011, 5:20–30, Fig. 3). However, as Patent Owner points out, that disclosure relates to “client side scripts” *generated at gateway 200* and cannot teach executing the first embedded script *from the webpage*. PO Sur-reply 15–16 (citing Ex. 1011, 4:27–30, 5:13–18, 6:28–33, 10:64–65; Ex. 2011, 67:5–16, 70:22–71:7); Tr. 55:3–56:19. Petitioner’s new “event message” argument is therefore untimely and unpersuasive.

(ii) Petitioner’s New Internet Explorer Theory

Petitioner’s other argument raised in its Reply, based on “conventional browsers,” also is without adequate support in the Petition or evidence of record. *See* Pet. Reply 22–23 (“a conventional client browser would have removed the JavaScript from the web page and then executed the JavaScript that had been removed from the web page”). As Patent Owner points out, Dr. Almeroth’s testimony cited by Petitioner (Ex. 1035, 7:14–9:6) was given in another proceeding, and related to a specific browser (Internet Explorer) and time period (2009). PO Sur-reply 13. Petitioner has failed to properly develop this argument with expert testimony or other evidence to establish the relevance of Dr. Almeroth’s testimony from another proceeding regarding a specific browser in 2009 to the patent claims in this case. We find this argument by Petitioner not sufficiently supported by the record before us in this case to be persuasive.

e. Conclusion as to Anticipation of Claims 1, 13, and 19

Because we conclude, based on the evidence and arguments presented by Petitioner in its Petition and the Reply, that Petitioner has not met its

burden to show by a preponderance of the evidence that Hallak discloses “executing the removed embedded script with the network appliance,” as claimed, Petitioner has not shown that the subject matter of claims 1, 13, and 19 of the ’091 patent would have been anticipated over Hallak at the time of the invention.

H. Asserted Obviousness over Hallak and Matthys

Petitioner contends that claims 1–20 of the ’091 patent are unpatentable under 35 U.S.C. § 103 as obvious over Hallak or Hallak and Matthys. *See* Pet. 65–78. Patent Owner opposes. PO Resp. 65–67.

Petitioner relies upon its explanations and evidence for Ground 3 as to Hallak’s disclosure of the limitations recited in claims 1, 13, and 19, and specifically as to the executing limitation. Pet. 68–70 (incorporating by reference *id.* § VI.C). Petitioner does not present any particularized arguments regarding Matthys in connection with claims 1, 13, and 19. *See id.*

Patent Owner responds that because the “Petition incorporates its mapping from Ground 3 into its Ground 4 for each of claims 1, 13, and 19,” and “provides no additional explanation or citations to either Hallak or Matthys,” “Ground 4 must fail for at least the same reasons as Ground 3.” PO Resp. 65. We agree. Because Petitioner does not provide any additional argument with respect to the executing limitation under this ground, our analysis from Ground 3 above applies equally to this ground.

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic*, 876 F.3d at 1361. Because we conclude, based on the evidence and

arguments presented by Petitioner in its Petition and the Reply, that Petitioner has not met its burden to show by a preponderance of the evidence that the combination of Hallak and Matthys teaches “executing the removed embedded script with the network appliance,” as claimed, Petitioner has not shown that the subject matter of claims 1, 13, and 19 of the ’091 patent would have been obvious over Hallak and Matthys at the time of the invention.

For the same reasons, we conclude that Petitioner has not shown that the subject matter of dependent claims 2–12, 14–18, and 20 of the ’091 patent would have been obvious over Hallak and Matthys at the time of the invention.

IV. CONCLUSION

For the reasons discussed above, Petitioner has not demonstrated, by a preponderance of the evidence, that claims 1–20 of the ’091 patent are unpatentable. Our conclusions regarding the Challenged Claims are summarized below:

Claims Challenged	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 13, 19	102(e)	Scoda		1, 13, 19
1–20	103(a)	Scoda, Matthys		1–20
1, 13, 19	102(e)	Hallak		1, 13, 19

Claims Challenged	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–20	103(a)	Hallak, Matthys		1–20
Overall Outcome				1–20

V. ORDER

Accordingly, it is

ORDERED that claims 1–20 of U.S. Patent No. 9,516,091 B2 are not determined to be unpatentable; and

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

.

IPR2023-00186
Patent 9,516,091 B2

PETITIONER:

Thomas Dunham
Elizabeth O'Brien
CHERIAN LLP
tom@dunham.cc
elizabetho@cherianllp.com

PATENT OWNER:

Eagle Robinson
Daniel Leventhal
Chad Wallis
NORTON ROSE FULBRIGHT US LLP
eagle.robinson@nortonrosefulbright.com
daniel.leventhal@nortonrosefulbright.com
chad.wallis@nortonrosefulbright.com