

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRIGHT DATA LTD.,
Petitioner,

v.

OXYLABS, UAB,
Patent Owner.¹

IPR2023-00185
Patent 9,503,498 B2

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

GIANNETTI, *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*, n.2

I. INTRODUCTION

Bright Data Ltd. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–19 (“the challenged claims”) of U.S. Patent No. 9,503,498 B2 (Ex. 1001, “the ’498 patent”). Paper 1 (“Pet.”), 1. oxylabs, UAB (“Patent Owner”)² filed a Preliminary Response (Paper 7).

We determined that the Petition established a reasonable likelihood that Petitioner would prevail with respect to at least one claim, and we instituted *inter partes* review as to all challenged claims of the ’498 patent and all grounds of unpatentability asserted in the Petition. Paper 9 (“Institution Dec.”).

Following institution of the trial, Patent Owner filed a Response. (Paper 14, “PO Resp.”), Petitioner filed a Reply (Paper 16, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 17, “PO Sur-reply”).

A consolidated oral hearing with IPR2023-00186 and IPR2023-00187 was held on April 5, 2024. A transcript of the hearing is part of the record. Paper 24 (“Hearing Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision issued pursuant to 35 U.S.C. § 318(a). For the reasons we discuss below, we determine that Petitioner has not proven by a preponderance of the evidence that any of claims 1–19 of the ’498 patent are unpatentable.

² As set forth below, we have been advised that metacluster lt, UAB, now operates as oxylabs, UAB, and the ’498 patent has been assigned to oxylabs, UAB. Paper 4, 1. Accordingly, the caption of this proceeding has been revised to reflect this change.

II. PRELIMINARY MATTERS

A. Related Matters

The parties indicate that the '498 patent is involved in a district court infringement proceeding in the Eastern District of Texas captioned as *Metacluster LT, UAB v. Bright Data Ltd.*, Case No. 2:22-cv-00011 (E.D. Tex.) (“Texas Litigation”). Pet. 1; Paper 4, 1. Petitioner states that this case also involves U.S. Patent Nos. 10,601,948 and 9,516,091. Pet. 1.

Petitioner has challenged patents related to that '498 patent in IPR2023-00186 (challenging U.S. Patent No. 9,516,091) and IPR2023-00187 (challenging U.S. Patent No. 8,924,457). Paper 4, 1; Paper 5, 2.

Petitioner previously challenged related U.S. Patent No. 10,601,948, in IPR2021-00983, where institution was denied. Pet. 2.

Petitioner states that Patent Owner and other real parties-in-interest have filed several petitions for *inter partes* review, post-grant review, and requests for *ex parte* reexamination with respect to a number of patents assigned to Petitioner. *Id.* at 2–4.

Petitioner further states that there are numerous other district court cases, *inter partes* reviews, post grant reviews, and reexaminations filed by Patent Owner or Patent Owner’s real parties-in-interest that involve, or have involved, patents assigned to Petitioner. *Id.* at 4–5.

B. Real Parties-in-Interest

Petitioner identifies itself, Bright Data Ltd., as the real party-in-interest. Pet. 1. Additionally, Petitioner contends that the following entities are real parties-in-interest, “[b]ased on the history of litigation between

Petitioner and Patent Owner”: “Code200, UAB”; “Teso LT, UAB”; “Oxysales, UAB”; and “Coretech lt, UAB.” *Id.* at 2.

Patent Owner identifies oxylabs, UAB as the real party-in-interest. Paper 4, 1. Patent Owner also identifies “OXYLABS, UAB as successor in interest to metaccluster lt, UAB.” *Id.* 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.*

C. The '498 Patent

The '498 patent is titled “Web Page Script Management.” Ex. 1001, (54). The patent “relates to the management of network traffic by controlling the execution of embedded scripts in web pages.” *Id.* at 1:6–9.

According to the '498 patent, performing web analytics for tracking consumer interaction with websites may employ embedded scripts in web pages. *Id.* at 1:10–33. 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 1:33–40.

The patent describes “[a] machine-implemented method of web page script management.” *Id.* at 1:44–45. This is illustrated in Figure 1 of the '489 patent, reproduced below.

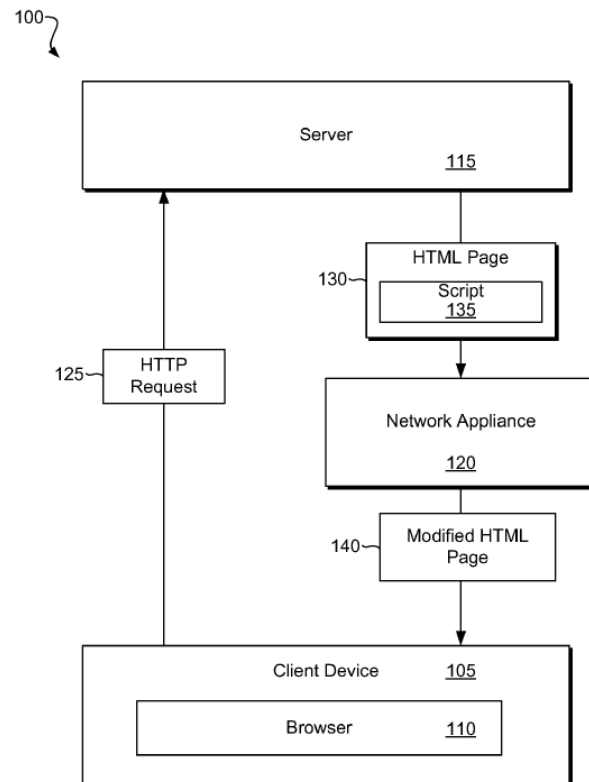


Fig. 1

Figure 1 depicts “a block diagram of an illustrative system for web page script management.” *Id.* at 2:36–37. This system “that may be used to manage the execution of embedded scripts in web pages.” *Id.* at 4:66–5:1. System 100 includes client device 105 implementing browser 110. *Id.* at 5:2–3. The system also implements server 115 and network appliance 120 disposed in a communication path between server 115 and client device 105. *Id.* at 5:3–5.

Server 115 is a web server and has access to stored web pages. *Id.* at 5:14–15. Server 115 responds to HTTP requests from client device 105, for example, by sending requested web page 130 with embedded script 135,

which may be “JavaScript with instructions for providing statistical information to an external web analytics service.” *Id.* at 5:15–28.

Network appliance 120 may intercept web page 130 to analyze its contents and determine whether any embedded scripts meet a predefined criterion, and if so, remove or replace such scripts. *Id.* at 5:29–46. If an embedded script is removed or replaced, network appliance 120 sends modified web page 140 that retains the original content of the web page, but without the embedded script. *Id.* at 5:47–55. The original script may be replaced by a second script generated by the network appliance. *Id.* at 5:53–55. According to the ’498 patent, executing embedded script 135 at network appliance 120, rather than client device 105, “poses significant advantages over prior solutions,” such as providing a reduced size modified web page and conserving processing resources of client device 105. *Id.* at 5:56–6:2.

Network appliance 120 may also “have access to additional information about the user of the client device,” making its execution of an embedded script more useful to the source of the embedded script than execution by browser 110 on client device 105. *Id.* at 6:5–26.

D. Illustrative Claim

Of the challenged claims, claims 1, 10, and 19 are independent. Claim 1 is illustrative:³

1. An apparatus, comprising:
[1a] at least one processor;

³ Reference numbers provided by Petitioner appear in brackets.

[1b] a memory communicatively coupled to the at least one processor, the memory storing executable code that, when executed by the at least one processor, causes the at least one processor to implement a network appliance by:

[1c] intercepting a web page sent from a server and addressed to a client browser;

[1d] modifying the web page by removing an embedded script from the web page;

[1e] executing, by the network appliance, the removed embedded script; and

[1f] sending the modified web page to the client browser.

Ex. 1001, 11:34–47.

E. Prior Art and Other Evidence

Petitioner relies upon the references listed below (Pet. 7):

Name	Reference	Date	Exhibit No.
WebShield	WebShield: Enabling Various Web Defense Techniques without Client Side Modifications	Dec. 11, 2010	1008
Kothari	U.S. Patent App. Pub. No. 2007/0061700 A1	Mar. 15, 2007	1009
Hallak	U.S. Patent No. 8,464,318 B1	June 11, 2013	1011
Matthys	U.S. Patent App. Pub. No. 2008/0306816 A1	Dec. 11, 2008	1013
RFC 1812	“Requirements for IP Version 4 Routers”	June 1995	1015

Petitioner relies also on a Declaration of Dr. Tim Arthur Williams. Ex. 1007 (“Williams Decl.”). Patent Owner has submitted a Declaration of Kevin C. Almeroth, Ph.D. Ex. 2009 (“Almeroth Decl.”). Petitioner has

submitted a transcript of Dr. Almeroth’s deposition in this proceeding. Ex. 1034. Petitioner has also submitted excerpts from Dr. Almeroth’s testimony in the Texas Litigation. Ex. 1035. Patent Owner has submitted a transcript of Dr. Williams’s deposition. Ex. 2011.

F. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 7):

Claims Challenged	35 U.S.C. §⁴	References
1, 10, 19	102(a) ⁵	WebShield
1, 10, 19	103(a)	WebShield, Knowledge of a person of ordinary skill in the art
1, 10, 19	103(a)	Kothari, WebShield
1, 10, 19	102(e) ⁶	Hallak
1–10, 14–19	103(a)	Hallak, Matthys
10–13	103(a)	Hallak, RFC 1812

⁴ We assume the claims at issue have an effective filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), and we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

⁵ Petitioner asserts that “WebShield qualifies as prior art under pre-AIA 35 U.S.C. § 102(a).” Pet. 17. Patent Owner does not challenge this assertion.

⁶ Petitioner asserts that “Hallak qualifies as prior art under pre-AIA 35 U.S.C. § 102(e), at least as pertaining to its nonprovisional filing date of November 23, 2009.” Pet. 25. Patent Owner does not challenge this assertion.

III. CLAIM CONSTRUCTION

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b) (2020). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Petitioner proposed that all terms should be given their plain and ordinary meaning. Pet. 17. We found that for our Institution Decision, it was unnecessary expressly to construe any claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe 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))). Institution Dec. 16–17.

Post-institution, Patent Owner proposes two claim constructions. PO Resp. 7–8. Patent Owner proposes that we construe the term “embedded script,” as defined in the ’498 patent, as “a script that is included or incorporated by reference into a markup language description of a web page and executable by a browser rendering that web page.” *Id.* at 8 (citing Ex. 1001, 3:23–26). According to Patent Owner, a “script” is “a sequence of machine-readable instructions.” *Id.* (citing Ex. 1001, 3:21–23).

Patent Owner proposes that we construe “executing . . . the removed embedded script” as requiring the removal of the script embedded in the web

page to take place before the script is executed. *Id.* This limitation is recited in claim 1 and in each of the other independent claims. Ex. 1001, 11:43–46 (claim 1), 12:17–20 (claim 10); 12:58–63 (claim 19).

Petitioner responds that “[t]hese claim terms have already been construed by the district court and those constructions are not disputed in this proceeding.” Pet. Reply 2. We find that these undisputed constructions are supported by the record before us. We, therefore, adopt them for this Decision. We do not find it necessary to expressly construe any other terms for this Decision.

IV. ANALYSIS

A. Principles of Law

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). When evaluating a single prior art reference in the context of anticipation, the reference must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

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

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) (quotation marks omitted).

Petitioner asserts that a person of ordinary skill in the art of the ’498 patent would have had “a Master’s Degree or higher in the field of electrical engineering, computer engineering, or computer science, or as of that time had a Bachelor’s Degree in the same fields and two or more years of experience in Internet Communications.” Pet. 16 (citing Williams Decl. ¶¶ 30–31). For our Institution Decision, we adopted Petitioner’s formulation. Institution Dec. 18–19.

Patent Owner has not provided a description of the ordinarily skilled artisan. However, Dr. Almeroth testifies that although he “do[es] not necessarily agree with every aspect of Dr. Williams’ explanation,” he bases

⁷ Neither party has presented evidence or arguments regarding objective evidence of non-obviousness.

his opinions on Dr. Williams’s description of the person of ordinary skill in the art. Almeroth Decl. ¶ 36. For this Decision, therefore, we adopt the description of the person of ordinary skill articulated by Petitioner and used previously in our Institution Decision. In light of our review of the complete record, we find that this formulation is consistent with the ’498 patent, the prior art of record, and is supported by the testimony of Dr. Williams. *See* Williams Decl. ¶¶ 30–31.

C. Overview of the Prior Art

1. WebShield (Exhibit 1008)

WebShield describes “a general secure proxy for enabling different security protection mechanisms.” Ex. 1008, 2.⁸ WebShield is directed to defensive techniques for web attacks by employing “a general middlebox framework.” *Id.* In particular, WebShield “propose[s] to run *all* JavaScript from remote web servers *only* at *shadow browser* instances inside the middlebox, and only run our trusted JavaScript rendering agent at client browsers.” *Id.*

Figure 4 from WebShield shows the basic architecture and is reproduced below:

⁸ Unless otherwise specified, our citations to exhibits use the page numbers assigned by the parties and not the original page numbers.

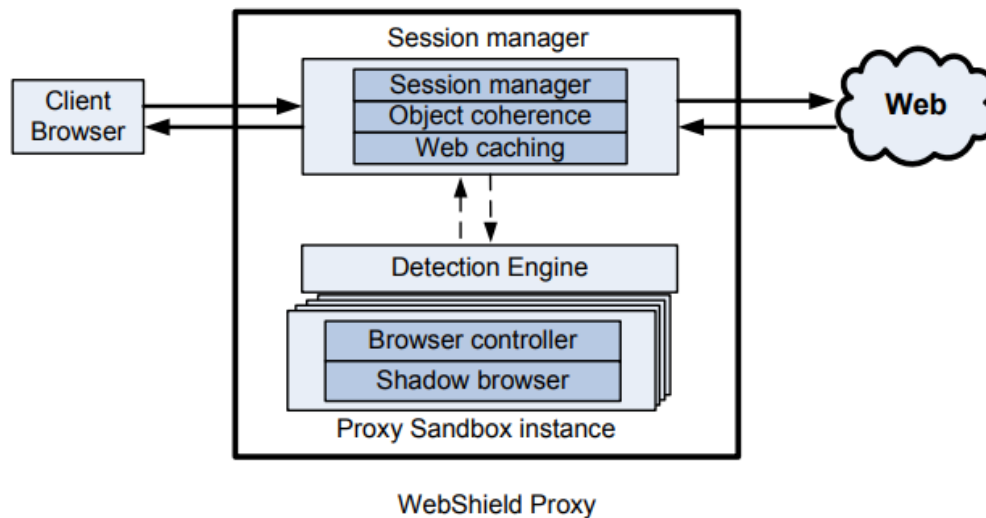


Figure 4. The framework of WebShield.

Figure 4 illustrates an architecture that enables the basic design scheme described in WebShield. *Id.* at 5. Within this architecture, “the session manager manages the web sessions, object coherence, and web caching.” *Id.* (emphasis omitted). For web page requests, “the session manager assigns a proxy sandbox instance for each client IP address,” and the shadow browser in the proxy sandbox renders the webpage. *Id.*

WebShield describes that “[t]he HTML page, embedded JavaScript files and embedded CSS [Cascading Style Sheet] files will be parsed and executed to create the DOM [Document Object Model] data structures of the webpage.” *Id.* The DOM data structures are encoded “as a list of transformed strings *S*.” *Id.* at 6. WebShield describes that instead of transferring the HTML page, JavaScript and CSS files to the client browser, “we transfer an HTML page with our JavaScript rendering agent and *S*,” where “[o]ur JavaScript rendering agent will parse *S* and utilize the DOM

data structures to render the page.” *Id.* WebShield further describes the process of transforming the original HTML web page as follows:

If the original HTML page is R , we call the new HTML page we transfer to the client browser $T(R)$. T is the transforming function that transforms the original HTML page as well as its embedded JavaScript and CSS files to a form that includes the JavaScript rendering agent, and the encoded DOM data structures of the original page rendering result.

Id.

2. Kothari (Exhibit 1009)

Kothari describes a computing system where a “server simulates and executes a client-side script that generates the initial content of a Web page.”

Ex. 1009, (57). Figure 2 from Kothari is reproduced below:

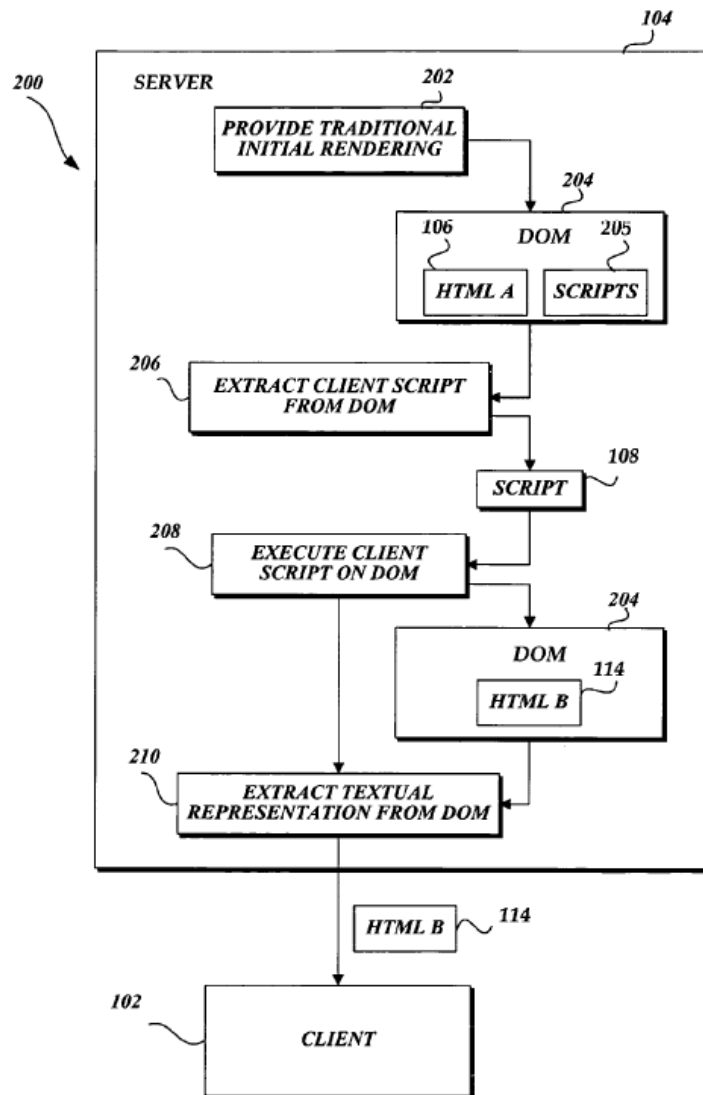


Fig.2.

Figure 2 is a diagram illustrating “an exemplary server-side rendering of initial content of a Web page.” *Id.* ¶ 14. As shown in Figure 2, “server 104 starts with a traditional initial rendering, i.e., providing HTML A (106) that contains layout information and static content of a Web page.” *Id.* ¶ 19. Kothari describes then generating DOM (Document Object Model) 204, which simulates HTML A. *Id.* Aside from “simulating layout information

and static content of a Web page, the DOM 204 also simulates scripts 205 for the Web page, including the script 108 for generating initial content of the Web page.” *Id.* ¶ 20.

The server 104 extracts script 108, which was designed to be run on client 102, and executes the script on DOM 204. *Id.* ¶¶ 20–21. This modifies DOM 204 so that it “now contains both the layout information and the initial content for the Web page; i.e., the DOM 204 now simulates the HTML B (114).” *Id.* ¶ 23. “[S]erver 108 then extracts the text representation of the DOM 204 and sends it to the client 102,” where “[t]he text representation forms the HTML B (114).” *Id.* Thus, client 102 receives an initial rendering from server 104—HTML B—that contains the full initial content of the Web page. *Id.*

3. Hallak (Exhibit 1011)

Hallak relates to “securing a web client against malicious web attacks.” Ex. 1011, (57). Hallak describes 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 from Hallak is reproduced below:

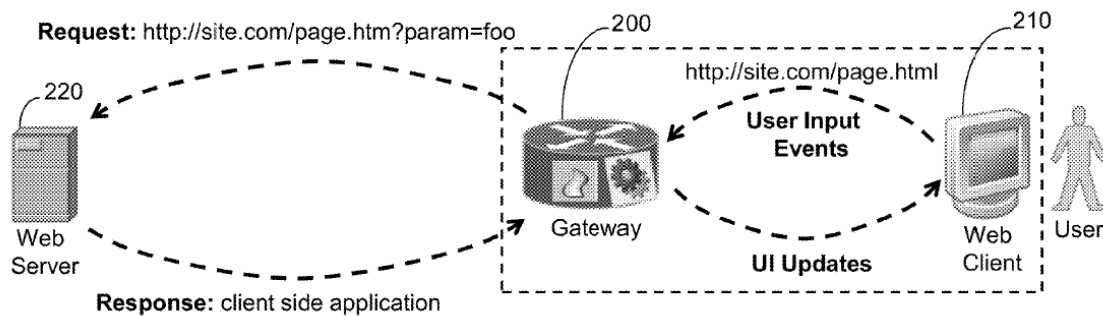
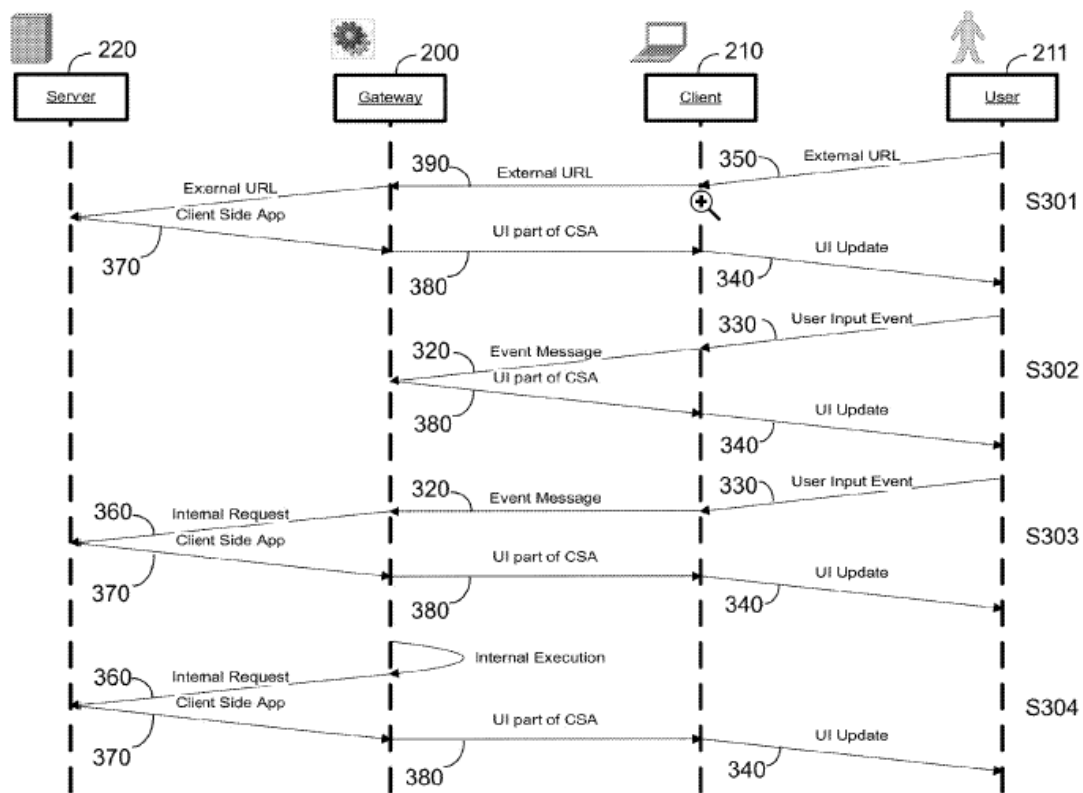


FIG. 2A

Figure 2A illustrates a deployment option for a secure gateway according to Hallak. *Id.* at 2:57–59. In this example, execution of “client side application 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. In 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.

4. Matthys (Exhibit 1013)

Matthys relates to “replacing an advertisement in a webpage from a website with another advertisement.” Ex. 1013, (57). Matthys discloses 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 “advertisement is then placed in the response.” *Id.*

Matthys describes detecting whether a webpage 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 webpage 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 webpage is then displayed on a client machine. *Id.* ¶ 96.

5. RFC 1812 (Exhibit 1015)

RFC (Request for Comment) 1812 “defines and discusses requirements for devices that perform the network layer forwarding function of the Internet protocol suite,” where “[t]he Internet community usually refers to such devices as IP routers or simply routers.” Ex. 1015, Introduction.

D. WebShield Grounds

Petitioner asserts that claims 1, 10, and 19 are anticipated by WebShield or, alternatively, those claims would have been obvious over WebShield and the “common knowledge” of a person of ordinary skill in the art. Pet. 31–40. Upon consideration of Petitioner’s arguments, Patent Owner’s responses, and the supporting evidence in this record, we are persuaded that Petitioner has not demonstrated by a preponderance of the evidence that claims 1, 10, and 19 are anticipated by or would have been obvious in light of WebShield. Our analysis follows.

1. Claim 1

Petitioner asserts that each limitation of claim 1 is met by WebShield and provides an element-by-element analysis. Pet. 31–35; Williams Decl. ¶¶ 128–139. For example, Petitioner contends WebShield meets limitation 1a (“An apparatus, comprising . . . at least one processor”) by disclosing “a proxy positioned between a client browser and a remote web server.” Pet. 31. Similarly, Petitioner contends that limitation 1b (“a memory . . .”) is met by the 16 GB RAM in WebShield. *Id.* at 32. In similar fashion, Petitioner asserts that the remaining limitations (claim elements 1c–1f) are met by WebShield. *Id.* at 33–35.

a. Limitations 1c-1f

Limitations 1c–1f call for “intercepting a web page sent from a server and addressed to a client browser; modifying the web page by removing an embedded script from the web page; and executing, by the network appliance. (Claims 10 and 19 have similar limitations. *See infra.*)

For these limitations, Petitioner cites the transformation of HTML web page R to web page T(R) in WebShield. Pet. 33–35. Citing testimony from Dr. Williams, Petitioner asserts that “[t]he proxy of WebShield transmits the transformed webpage to the client, e.g., ‘we call the new HTML page we transfer to the client browser *T(R)*.’” *Id.* at 35 (citing Ex. 1008, 6; Williams Decl. ¶ 138). As Dr. Williams explains, “the encoded DOM data structures remove all the content of the <script>, <style>, and <link rel=stylesheet> nodes; and instead, include empty nodes solely for maintaining the DOM tree structure.” Williams Decl. ¶ 138.

Patent Owner argues that WebShield does not disclose removing the embedded script from a web page *before* the network appliance (identified by Petitioner as WebShield’s proxy) executes the script. PO Resp. 9–16. As Patent Owner points out, this sequence is required by the district court’s claim construction accepted by the parties and adopted by us in this proceeding. *Id.* at 13–16; *see also* Section III, *supra*. Patent Owner asserts that “[i]n operation, WebShield ‘transfer[s] encoded DOM data structures (generated by shadow browser execution) *instead of* transferring HTML or CSS sources directly or after encoding them.’” PO Resp. 13 (citing Ex. 1008, 5) (alterations in original). Further quoting WebShield, Patent Owner asserts, “[t]he HTML page, embedded JavaScript files and embedded CSS

files will be parsed and executed to create the DOM data structures of the webpage.” *Id.* (emphasis omitted).

We agree that Petitioner’s citations to WebShield do not disclose the sequence of operations called for by the claims. WebShield expressly states that “the HTML page, embedded JavaScript files and embedded CSS files will be *parsed and executed* to create the DOM data structures of the webpage.” Ex. 1008, 5 (emphasis added). As Dr. Almeroth explains, “WebShield does not remove an embedded script and then subsequently execute the removed embedded script. . . . WebShield . . . executes the embedded JavaScript without first removing that JavaScript from the web page, and only subsequently generates ‘the new HTML page [that WebShield] transfers to the client browser T(R).’” Almeroth Decl. ¶ 78 (quoting Ex. 1008, 6) (final alteration in original).

We are not persuaded by Dr. Williams’s testimony that WebShield teaches or suggests this limitation. *See* Williams Decl. ¶¶ 132–137. His testimony does not address the claimed sequence required by the claims and, in fact, quotes WebShield’s description of parsing and executing the embedded JavaScript files to create the DOM data structures relied on by Patent Owner and Dr. Almeroth. *See id.* at ¶ 136 (quoting Ex. 1008, 5).

Nor are we persuaded by Petitioner’s belated focus on WebShield’s event handler, or to its reliance on what it terms “conventional client browser” operation. *See* Pet. Reply 5–6; Hearing Tr. 17:9–12 (Petitioner’s counsel conceding “event handler” is not mentioned in the Petition). As to the event handler theory,⁹ as Patent Owner points out, aside from being

⁹ According to this theory, the “execution” step in the claims is performed

nowhere mentioned in the Petition, there is no supporting testimony from Dr. Williams that would be subject to cross-examination by Petitioner. PO Sur-reply 3–4. This is a failure of proof by Petitioner.

Petitioner’s other new argument based on “conventional browsers” also is without adequate support in the Petition or the testimony of record. *See* Pet. Reply 5–6 (“In 2009, a conventional client browser . . . would have removed the JavaScript from the web page”). As Patent Owner points out, the testimony by Dr. Almeroth cited by Petitioner (Ex. 1035, 7:14–9:6) was given in another proceeding, and relates to a specific browser (Internet Explorer) and time period (2009). PO Sur-reply 4. Petitioner has failed properly to develop this argument with expert testimony to establish the relevance of that 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.

For the reasons given, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claim 1 is anticipated by or would have been obvious in view of WebShield.

2. Claims 10 and 19

Claims 10 and 19 include limitations similar to claim 1. Patent Owner does not separately address these claims. For the reasons given for claim 1,

on the original event handler from the website. Pet. Reply 5. In contrast, the Petition relies on the parsing of the original HTML web page and the execution of its embedded JavaScript files to create the DOM data structure. *See* Pet. 34.

we determine that Petitioner has not demonstrated by a preponderance of the evidence that these claims are anticipated by or would have been obvious in view of WebShield.

3. Summary and Conclusion

For the reasons given, we find that Petitioner has failed to demonstrate by a preponderance of the evidence that claims 1, 10, and 19 are anticipated by or would have been obvious in view of WebShield.

E. Kothari Ground

Petitioner contends claims 1, 10, and 19 would have been obvious over Kothari and WebShield. Pet. 7. Petitioner presents an element-by-element analysis for each challenged claim in this ground. *Id.* at 40–54; Williams Decl. ¶¶ 173–217. Petitioner also provides a rationale for combining the references. *See* Pet. 40–42; Williams Decl. ¶¶ 173–180.

Petitioner contends that Kothari discloses a server that simulates and “executes a client-side script that generates the initial content of a Web page.” Pet. 40 (citing Ex. 1009, (57)). Petitioner contends that “[i]n an embodiment, Kothari further discloses that server 104 intercepts and ‘then extracts the script 108 for the DOM 204.’” *Id.* (quoting Ex. 1009 ¶ 20). Petitioner contends it would have been obvious to “adapt Kothari . . . to utilize the proxy server architecture of WebShield.” *Id.* at 41.

Patent Owner responds that “Kothari addresses several ‘problems’ with the conventional ‘client-side content rendering mechanism.’” PO Resp. 18 (citing Ex. 1009 ¶ 6). Patent Owner continues, “Kothari therefore discloses a solution, in which the server [104] executes the scripts associated with web pages provided by that server [104].” *Id.* at 19 (quoting Almeroth

Decl. ¶ 87). Patent Owner points out that Kothari’s server includes a server-side “script engine” that simulates or is the same as script engines used by a client. *Id.* (citing Ex. 1009 ¶ 9; Almeroth Decl. ¶ 87). Patent Owner concludes that “Kothari solves the challenges it notes with client-side script execution by moving all script execution to the web server itself.” *Id.* at 20 (citing Almeroth Decl. ¶ 88).

From this, Patent Owner argues that a person of ordinary skill would not have been motivated to combine Kothari and WebShield in the manner asserted in the Petition. *Id.* at 23–27. In particular, Patent Owner argues that a person of ordinary skill “would not have been motivated to modify Kothari by moving script execution from Kothari’s web server 104 to WebShield’s middlebox or proxy server, at least because doing so would fundamentally alter Kothari by removing the central feature of its invention—server-side script execution—and would render Kothari incapable of solving the problems Kothari’s solution addresses.” *Id.* at 26 (citing Ex. 1009 ¶ 96).

At the outset, we agree with Patent Owner and find that Kothari, alone, does not does not disclose a “network appliance.” PO Resp. 21–23. As Dr. Almeroth testifies, Kothari’s server 104 does not “intercept” a web page. Almeroth Decl. ¶ 91. Instead, referring to Figure 2 of Kothari, reproduced *supra*, he testifies that “a [person of ordinary skill) would not have interpreted Kothari’s Figure 2 (or its description) as including a server 104 ‘intercepting’ a webpage sent by that same server 104.” *Id.*

We agree with Patent Owner and find that a person of ordinary skill would not have been motivated to make the modifications to Kothari’s server required under Petitioner’s theory of obviousness. *See* Almeroth

Decl. ¶¶ 92–99. Such a change would have required moving script execution away from the server in Kothari to some intermediary. *Id.* ¶ 96. We find that this would be contrary to Kothari’s stated objective of moving script execution to the server and would fundamentally change the technology adopted by Kothari. *Id.* The Supreme Court has warned against “slipping into use of hindsight.” *KSR*, 550 U.S. at 421 (quoting *Graham*, 383 U.S. at 36). In this regard, the Federal Circuit has said that “combinations that change the basic principles under which the [prior art] was designed to operate . . . may fail to support a conclusion of obviousness.” *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 Fed. Appx. 755, 758 (Fed. Cir. 2015) (quoting *In re Ratti*, 270 F.2d 810, 813 (1959), *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984)) (internal quotation marks and cites omitted) (alterations in original).

In its Reply, Petitioner contends a person of ordinary skill “would have understood that the separate proxy [taught by WebShield] would include the processor/instructions that provide script engine 316 and DOM simulator 314.” Pet. Reply 7. Petitioner does not support this statement with testimony from its expert, Dr. Williams. In fact, Dr. Williams contends that Kothari’s server architecture alone meets the claim limitation calling for script extraction. *See* Williams Decl. ¶¶ 196–197. We agree with Patent Owner that this analysis is inconsistent with Petitioner’s current position that there would have been a motivation to move such functions to WebShield’s middlebox. PO Sur-reply 26; Almeroth Decl. ¶ 96.

In sum, for the foregoing reasons, we find Petitioner’s argument for modifying Kothari’s server-side processing of scripts to be unsupported by the record and unavailing. We find that such a modification would not have

been contemplated by a person of ordinary skill in light of Kothari’s strong teaching of the advantages of server-side interception and processing of scripts. We find that modifying Kothari in the manner advanced by Petitioner would have been a fundamental change in Kothari that would not have been undertaken by a person of ordinary skill.

For the reasons given, we find that Petitioner has not demonstrated by a preponderance of evidence that claims 1, 10, and 19 would have been obvious in light of Kothari and WebShield.

F. Hallak Grounds

Petitioner presents three separate patentability challenges to the ’498 patent based on Hallak. Pet. 7. Petitioner challenges claims 1, 10, and 19 as anticipated by Hallak. *Id.* at 55–61. Petitioner challenges claims 1–10 and 14–19 as obvious in light of Hallak and Matthys. *Id.* at 61–74. Petitioner also challenges claims 10–13 and as obvious in light of Hallak and RFC 1812. *Id.* at 74–78.

In substance, Patent Owner’s response to all three grounds is based on the alleged failure of Hallak’s disclosure to teach or suggest the so-called “temporal aspect” of claim limitation 1e. *See* PO Resp. 28–29; *see supra*, Section III (Claim Construction). That is, the requirement that execution of the embedded script must take place after removal of that script. *Id.* at 28. As noted, this limitation is presented in independent claims 10 and 19, as well as claim 1. *See supra*, Section III.

Referring to Hallak’s Figure 3 (reproduced *supra*, in Section IV.C.3), Patent Owner explains that Hallak discloses that “secure gateway 200 separates, in real time, between execution and UI components of a client

side application (CSA) code 370.” PO Resp. 29 (quoting Ex. 1011, 4:24–27). Going on, Hallak discloses that the 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 client 210. Ex. 1011, 4:27–30.

Patent Owner argues that this disclosure relied on by Petitioner does not meet the “temporal aspect” of the claims: “Petitioner identifies this execution of the CSA 370 in the sandbox as execution of the removed script. 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. 29 (citing Almeroth Decl. ¶ 103; Ex. 1011, 5:6–8) (citation omitted).

We agree with Patent Owner and find, for the reasons given, that this disclosure by Hallak does not meet the requirement that the execution of the removed script happens after the script has been removed from the web page. In explaining his opinion that Hallak meets the “executing” limitation (limitation 1e), Dr. Williams points 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. Williams Decl. ¶ 226. He does not 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.

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. 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. Pet. Reply 10–12. 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 12. As pointed out by Patent Owner, however, this “event message” theory is not discussed by Dr. Williams, and is in fact inconsistent with Dr. Williams’s testimony and Petitioner’s original theory. PO Sur-reply 17–20.

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.

Petitioner’s other response is a repetition of its “conventional client browser” argument, discussed *supra*, in Section IV.D.1, in connection with WebShield. *See* Pet. Reply 13. For the reasons given there, we find this argument to be unpersuasive.

The parties’ discussion of Matthys and RFC 1812 mainly involves dependent claims and other claim limitations. Those reference are not cited by either party as pertinent to the disclosure of sequencing the execution of scripts Patent Owner points to as missing from Hallak, as discussed *supra*.¹⁰ In light of our analysis of Hallak, therefore, we do not address these references further.

¹⁰ Petitioner relies on Matthys mainly for its disclosure of metadata and packet analytics. Pet. 63. Petitioner relies on RFC 1812 for its “standards in the use of gateways, routers, and Internet communications.” *Id.* at 74.

For the reasons given, we find that Petitioner has not demonstrated by a preponderance of the evidence that independent claims 1, 10, and 19 are anticipated by Hallak. Nor are we persuaded that Petitioner has demonstrated by a preponderance of evidence that claims 1–10 and 14–19 would have been obvious over the teachings of Hallak and Matthys, or that claims 10–13 would have been obvious in light of Hallak and RFC 1812.

V. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not demonstrated by a preponderance of the evidence that any challenged claims of the '498 patent are unpatentable.

In summary,

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
1, 10, 19	102(a)	WebShield		1, 10, 19
1, 10, 19	103(a)	WebShield		1, 10, 19
1, 10, 19	103(a)	Kothari, WebShield		1, 10, 19
1, 10, 19	102(e)	Hallak		1, 10, 19
1–10, 14– 19	103(a)	Hallak, Matthys		1–10, 14–19
10–13	103(a)	Hallak, RFC 1812		10–13
Overall Outcome				1–19

VI. ORDER

For the foregoing reasons, it is

ORDERED that claims 1–19 of the '498 patent have not been proven unpatentable by a preponderance of the evidence;

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

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