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12 UNITED STATES DISTRICT COURT
 13 NORTHERN DISTRICT OF CALIFORNIA
 14 SAN JOSE DIVISION

15 IN RE PERSONALWEB TECHNOLOGIES,
 16 LLC, ET AL., PATENT LITIGATION

CASE NO.: 5:18-md-02834-BLF

FIRST AMENDED COMPLAINT

DEMAND FOR JURY TRIAL

19 _____
 20 PERSONALWEB TECHNOLOGIES, LLC, a
 21 Texas limited liability company, and
 LEVEL 3 COMMUNICATIONS, LLC,
 a Delaware limited liability company,

Case No.: 5:18-cv-06043-BLF

22 Plaintiffs,

23 v.

24 TRELLO, INC., a Delaware corporation,

25 Defendant.
 26 _____
 27
 28

1 Plaintiff PersonalWeb Technologies, LLC (“Plaintiff” or “PersonalWeb”) files this First
2 Amended Complaint (“Complaint”) for patent infringement against Defendant Trello, Inc.
3 (“Defendant”). Plaintiff PersonalWeb Technologies, LLC alleges:

4
5 **PRELIMINARY STATEMENT**

6 1. PersonalWeb and Level 3 Communications, LLC (“Level 3”) are parties to an
7 agreement between Kinetech, Inc. and Digital Island, Inc. dated September 1, 2000 (the “Agreement”).
8 Pursuant to the Agreement, PersonalWeb and Level 3 each own a fifty percent (50%) undivided
9 interest in and to the patents at issue in this action: U.S. Patent Nos. 6,928,442, 7,802,310, and
10 8,099,420 (“Patents-in-Suit”). Level 3 has joined in this Complaint pursuant to its contractual
11 obligations under the Agreement, at the request of PersonalWeb.

12 2. Pursuant to the Agreement, Level 3 has, among other rights, certain defined rights to
13 use, practice, license, sublicense and enforce and/or litigate the Patents-in-Suit in connection with a
14 particular field of use (“Level 3 Exclusive Field”). Pursuant to the Agreement PersonalWeb has,
15 among other rights, certain defined rights to use, practice, license, sublicense, enforce and/or litigate
16 the Patents-in-Suit in fields other than the Level 3 Exclusive Field (the “PersonalWeb Patent Field”).

17 3. All infringement allegations, statements describing PersonalWeb, statements
18 describing any Defendant (or any Defendant’s products) and any statements made regarding
19 jurisdiction and venue are made by PersonalWeb alone, and not by Level 3. PersonalWeb alleges that
20 the infringements at issue in this case all occur within, and are limited to, the PersonalWeb Patent
21 Field. Accordingly, PersonalWeb has not provided notice to Level 3—under Section 6.4.1 of the
22 Agreement or otherwise—that PersonalWeb desires to bring suit in the Level 3 Exclusive Field in its
23 own name on its own behalf or that PersonalWeb knows or suspects that Defendant is infringing or
24 has infringed any of Level 3’s rights in the patents.

THE PARTIES

1
2 4. Plaintiff PersonalWeb Technologies, LLC is a limited liability company duly organized
3 and existing under the laws of Texas with its principal place of business at 112 E. Line Street, Suite
4 204, Tyler, TX 75702.

5 5. Plaintiff Level 3 Communications, LLC is a limited liability company organized under
6 the laws of Delaware with its principal place of business at 100 CenturyLink Drive, Monroe,
7 Louisiana, 71203.

8 6. PersonalWeb’s infringement claims asserted in this case are asserted by PersonalWeb
9 and all fall outside the Level 3 Exclusive Field. Level 3 is currently not asserting patent infringement
10 in this case in the Level 3 Exclusive Field against any Defendant.

11 7. Defendant Trello, Inc. is, upon information and belief, a Delaware corporation having
12 a principal place of business and regular and established place of business at 55 Broadway, 25th Floor,
13 New York, New York 10006.

14
15 **JURISDICTION AND VENUE**

16 8. The court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a)
17 because this action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

18 9. Venue is proper in this federal district pursuant to 28 U.S.C. §§ 1391(b)–(c) and
19 1400(b) because Defendant is incorporated in the State of Delaware, and on information and belief,
20 has a regular and established place of business in the Southern District of New York and has committed
21 acts of infringement in such District.

22 10. Venue is also proper in this Court because this action has been transferred to this
23 District by the Judicial Panel on Multidistrict Litigation for consolidated pretrial proceedings pursuant
24 to 28 U.S.C. § 1407.

25 11. This court has personal jurisdiction over Defendant because, in addition to the
26 allegations in above paragraphs, on information and belief, Defendant is domiciled in the Southern
27 District of New York. Further, on information and belief, Defendant purposefully directed activities
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1 at residents of New York, the claims herein arise out of and relate to those activities, and assertion of
2 personal jurisdiction over Defendant would be fair.

3 12. On information and belief, Defendant is subject to this Court’s jurisdiction because this
4 action has been transferred to this District by the Judicial Panel on Multidistrict Litigation for
5 consolidated pretrial proceedings pursuant to 28 U.S.C. § 1407.

6
7 **PERSONALWEB BACKGROUND**

8 13. The Patents-in-Suit cover fundamental aspects of cloud computing, including the
9 identification of files or data and the efficient retrieval thereof in a manner which reduces bandwidth
10 transmission and storage requirements.

11 14. The ability to reliably identify and access specific data is essential to any computer
12 system or network. On a single computer or within a small network, the task is relatively easy: simply
13 name the file, identify it by that name and its stored location on the computer or within the network,
14 and access it by name and location. Early operating systems facilitated this approach with standardized
15 naming conventions, storage device identifiers, and folder structures.

16 15. Ronald Lachman and David Farber, the inventors of the Patents-in-Suit, recognized
17 that the conventional approach for naming, locating, and accessing data in computer networks could
18 not keep pace with ever-expanding, global data processing networks. New distributed storage systems
19 use files that are stored across different devices in dispersed geographic locations. These different
20 locations could use dissimilar conventions for identifying storage devices and data partitions.
21 Likewise, different users could give identical names to different files or parts of files—or unknowingly
22 give different names to identical files. No solution existed to ensure that identical file names referred
23 to the same data, and conversely, that different file names referred to different data. As a result,
24 expanding networks could not only become clogged with duplicate data, they also made locating and
25 controlling access to stored data more difficult.

26 16. Lachman and Farber developed a solution: replacing conventional naming and storing
27 conventions with system-wide “substantially unique,” content-based identifiers. Their approach
28 assigned substantially unique identifiers to “data items” of any type: “the contents of a file, a portion

1 of a file, a page in memory, an object in an object-oriented program, a digital message, a digital
2 scanned image, a part of a video or audio signal, or any other entity which can be represented by a
3 sequence of bits.” Applied system-wide, this invention would permit any data item to be stored,
4 located, managed, synchronized, and accessed using its content-based identifier.

5 17. To create a substantially unique, content-based identifier, Lachman and Farber turned
6 to cryptography. Cryptographic hash functions, including MD4, MD5, and SHA, had been used in
7 computer systems to verify the integrity of retrieved data—a so-called “checksum.” Lachman and
8 Farber recognized that these same hash functions could be devoted to a vital new purpose: if a
9 cryptographic hash function was applied to a sequence of bits (a “data item”), it would produce a
10 substantially unique result value, one that: (1) virtually guarantees a different result value if the data
11 item is changed; (2) is computationally difficult to reproduce with a different sequence of bits; and
12 (3) cannot be used to recreate the original sequence of bits.

13 18. These cryptographic hash functions would thus assign any sequence of bits, based on
14 content alone, with a substantially unique identifier. Lachman and Farber estimated that the odds of
15 these hash functions producing the same identifier for two different sequences of bits (i.e., the
16 “probability of collision”) would be about 1 in 2 to the 29th power. Lachman and Farber dubbed their
17 content-based identifier a “True Name.”

18 19. Using a True Name, Lachman and Farber conceived various data structures and
19 methods for managing data (each data item correlated with a single True Name) within a network—
20 no matter the complexity of the data or the network. These data structures provide a key-map
21 organization, allowing for a rapid identification of any particular data item anywhere in a network by
22 comparing a True Name for the data item against other True Names for data items already in the
23 network. In operation, managing data using True Names allows a user to determine the location of
24 any data in a network, determine whether access is authorized, and to selectively provide access to
25 specific content not possible using the conventional naming arts.

26 20. On April 11, 1995, Lachman and Farber filed their patent application, describing these
27 and other ways in which content-based “True Names” elevated data-processing systems over
28 conventional file-naming systems. The first True Name patent issued on November 2, 1999. The last

1 of the Patents-in-Suit has expired, and the allegations herein are directed to the time period before
2 expiration of the last of the Patents-in-Suit.

3 21. PersonalWeb has successfully enforced its intellectual property rights against third
4 party infringers, and its enforcement of the Patents-In Suit is ongoing. This enforcement has resulted
5 in PersonalWeb obtaining settlements and granting non-exclusive licenses regarding the Patents-in-
6 Suit.

7 8 **GENERAL BACKGROUND**

9 22. A webpage is a type of document that is typically retrieved over the World Wide Web,
10 made viewable and formatted (rendered) by a web browser, and displayed electronically. A “webpage”
11 often refers to what is visible in a browser, but sometimes also refers to a computer file (“webpage
12 base file”), usually written in Hypertext Markup Language (“HTML”) or a comparable markup
13 language. Such HTML webpage base files typically include text, formatting, and references
14 (hyperlinks) to other web content, such as style sheets, scripts, and images that make up part of the
15 webpage. Web content referenced in an HTML or similar file are also called “asset files” herein. The
16 web browser coordinates the retrieval of the various asset files of a webpage and renders the webpage
17 for display from the webpage base file and the asset files referenced in the webpage base file or
18 referenced in other asset files.

19 23. On the World Wide Web, hyperlinks generally include Uniform Resource Identifiers
20 (“URIs”), which each typically include an address of a server (“host”) from which the asset file is to
21 be retrieved (*e.g.*, “www.website.com”), a “path” to the location of that asset file on the host server
22 (*e.g.*, “/directory/”), and a filename (*e.g.*, “filename.ext”).

23 24. On the Internet, a web browser typically retrieves a webpage base file from a remote
24 web server and retrieves referenced asset files from the same or different servers. The web browser
25 retrieves a webpage base file or an asset file by making a GET “request” to a web server using the
26 Hypertext Transfer Protocol (“HTTP”), an industry standard. The web server may respond to such an
27 HTTP request with a HTTP “response” that includes the requested web content and may include other
28 information or instructions.

1 25. A static webpage is delivered exactly as stored, as web content in the web server’s file
2 system or memory. In contrast, a dynamic webpage is generated by a web server application, usually
3 driven by server-side software, upon receipt of a request from a browser (user). For example, a picture
4 of a building might be delivered as static content (a picture) whereas the latest traffic conditions may
5 be delivered dynamically based on real time traffic information.

6 26. The speed of a browser retrieving webpage base files and incorporated asset files can
7 be increased by the browser storing previously retrieved webpage base files and asset files in a browser
8 “cache” on the computer running the browser. If a browser’s user later requests a previously retrieved
9 webpage base file or requests a webpage that includes an asset file previously used by the browser in
10 rendering the same or a different webpage (for example, by reloading a webpage or visiting the same
11 webpage again), the browser may use the cached webpage base file or asset file rather than having to
12 download the same file repeatedly over the Internet again.

13 27. Two computers communicating over the Internet usually are not directly connected to
14 each other but rather interact via chains of network appliances and other computers (*e.g.*, “switches”
15 and “intermediate” servers). Many intermediate servers have caches similar to and complementing
16 the browser cache that store webpage base files and assets that pass through that intermediate server.
17 If a browser or server requests a file from the intermediate server that is present in that intermediate
18 server’s cache, the intermediate server can use the content in its cache to respond to the request rather
19 than send the request upstream towards the web server from which the file initially originated (also
20 called the “origin server”).

21 28. Responses to HTTP requests may include header elements (control elements) and a
22 body (the “object” that was requested). Under HTTP, web servers can include a “cache-control”
23 header with a response that includes a webpage or asset file. A “cache-control” header includes one
24 or more directives that instruct browsers and intermediate server caches (“intermediate caches”) as to
25 whether and for how long the file (object) included in the response may be cached or under what
26 circumstances and under what conditions the cached content may be used. HTTP also provides for
27 including other headers in responses that provide similar types of instructions to browsers and
28

1 intermediate caches. Collectively, these other headers and directives in a “cache-control” header are
2 referred to herein as “cache-control headers.”

3 29. Given that webpage content changes, sometimes rather quickly and regularly, a
4 problem that website owners face is effectively instructing a browser that is re-rendering a previously
5 cached webpage that one or more of its cached files for that webpage are no longer the correct and
6 authorized content (the content of those files has changed) and similarly reauthorizing the use of those
7 cached files whose content has not changed.

8 30. On one hand, website owners want to encourage the browsers that render their web
9 pages to use cached files thereby reducing the number of requests for these files that are being made
10 to their webpage servers. Therefore, they frequently will set cache-control headers that authorize the
11 browser to cache their webpage base files and asset files so the files are on hand when the browser
12 needs to render that webpage again. On the other hand, website owners want the browsers to use the
13 latest authorized files so that their users do not see the wrong content when viewing their webpage.

14 15 **DEFENDANT’S BACKGROUND**

16 31. On information and belief, Defendant has operated a website located at **trello.com**, and
17 has done so since before expiration of the last to expire of the Patents-in-Suit, which has operated to
18 provide authorized webpage content to its users in the manner herein described.¹

19 32. On information and belief, Defendant’s web servers utilized a system of notifications
20 and authorizations to control the distribution of content, *e.g.*, what webpage content may be served
21 from web servers and intermediate caches and what cached webpage content a browser is re-authorized
22 to use to render Defendant’s webpage(s).

23 33. On information and belief, Defendant’s system and its associated method of providing
24 webpage content used “conditional” HTTP GET requests with If-None-Match headers and associated
25 content-based ETag values for various webpage base files and asset files required to render various
26 webpages of the Defendant.

27 _____
28 ¹ While the complaint is sometimes written in the present or present perfect tense, all specific
allegations are directed to the system’s operations and the method’s performance in the relevant time
period.

1 34. On information and belief, Defendant's system and associated method used these
2 ETags to instruct both the intermediate cache servers and the endpoint caches at browsers to verify
3 whether they were still authorized to reuse the previously cached webpage base files of Defendant and
4 to instruct them to obtain newly authorized content in rendering Defendant's webpage when that
5 content had changed. In other words, whether the previously cached content was still considered valid
6 for use by the Defendant website operator.

7 35. On information and belief, Defendant thereby reduced the bandwidth and computation
8 required by its origin servers and any intermediate cache servers to field user requests to render
9 Defendant's webpages as those servers only need to serve files whose content has changed. On
10 information and belief, this has allowed for the efficient update of cached information only when such
11 content has changed, thereby reducing transaction overhead and bandwidth and allowing the
12 authorized content to be served from the nearest cache.

13 36. More particularly, on information and belief, each of Defendant's webpages included
14 a webpage base file (*e.g.*, a main or initial HTML file) and one or more asset files referenced in the
15 webpage base file (or referenced in other asset files that contained references to other asset files). On
16 information and belief, the references in the webpage base file to the asset files needed to render the
17 webpage were typically Uniform Resource Identifiers ("URIs"), which each typically included a
18 filename, the address of a host server from which the asset file could be retrieved, and a "path" to the
19 location of that asset file on that server.

20 37. On information and belief, for at least one of the asset files ("CBI ETag asset files"),
21 the asset file comprised a sequence of bits and an associated ETag value was generated by Defendant
22 by applying a hash function to the sequence of bits; wherein any two CBI ETag asset files comprising
23 identical sequences of bits had identical associated ETag values. Thus, on information and belief,
24 when a CBI ETag asset file's content was changed a new associated ETag value was generated by
25 Defendant. On information and belief, Defendant caused the origin server for each CBI ETag asset
26 file to serve such CBI ETag asset file with its associated Etag value in response to HTTP GET requests
27 for the CBI ETag asset file.

28

1 38. On information and belief, Defendant contracted with Amazon to use Amazon's S3
2 system to store and serve at least some of Defendant's CBI ETag files ("S3 asset files") on its behalf.
3 On information and belief, once Defendant's S3 asset files were compiled and are complete, Defendant
4 uploaded them to an Amazon S3 server as objects. On information and belief, such objects comprised
5 a sequence of bits and, upon upload, an associated ETag value was generated by the S3 system on
6 behalf of Defendant by applying a hash function to the sequence of bits, wherein any two S3 asset
7 files comprising identical sequences of bits had identical associated ETag values. On information and
8 belief, in this way, Defendant generated the associated ETag values for its CBI ETag asset files that
9 were S3 asset files. On information and belief, the S3 server for each S3 asset file served the S3 asset
10 file with the its associated ETag value to HTTP GET requests for the S3 asset file.

11 39. On information and belief, when Defendant created a webpage base file for a webpage,
12 whether dynamic or static, that webpage base file included a sequence of bits and an associated ETag
13 value was generated by Defendant by applying a hash function to the sequence of bits; wherein any
14 two webpage base files comprising identical sequences of bits had identical associated ETag values.
15 Thus, on information and belief, when a webpage base file's content was changed and a new associated
16 ETag value was generated by Defendant, it thereafter instructed the respective service by intermediate
17 cache servers or use by endpoint caches such as browser caches to no longer use the previous cached
18 webpage base file's content.

19 40. On information and belief, when an intermediate cache server or a browser requested
20 a webpage from the Defendant for the first time, it sent an HTTP GET request with the webpage's
21 URI and Defendant's origin server or an upstream cache server responded by sending an HTTP 200
22 (OK) response message containing the webpage base file, along with its respective associated ETag.
23 On information and belief, a browser then sent individual HTTP GET requests, each with an asset
24 file's URI that was referenced in the webpage base file, and the asset files' origin servers or
25 intermediate cache servers responded by sending individual HTTP 200 responses containing the
26 requested asset files, along with, if available, their respective associated ETags. On information and
27 belief, upon receipt of the HTTP 200 responses, the intermediate cache server or browser cached the
28 webpage base file and asset files with their associated URI and associated ETag values and the browser

1 used them in rendering the requested web page of the Defendant. On information and belief, the origin
2 servers, intermediate cache servers, and browser caches were caused to maintain databases/tables
3 which mapped the URIs of webpage base files and asset files to their respective responses and, if
4 applicable, associated cache-control headers and ETags.

5 41. On information and belief, by responding to an HTTP GET request for a given webpage
6 by transmitting content of a webpage base file or asset file with an associated ETag, Defendant
7 instructed the browser cache and all intermediate cache servers, to use an HTTP conditional GET
8 request the next time that webpage base file or asset file is requested. More specifically, on information
9 and belief, the browser or intermediate cache is instructed to include the ETag in the HTTP conditional
10 GET request with an “If-None-Match” header to re-verify that they are still authorized to serve or use
11 that content or determine that they are no longer authorized to use that content and therefore must use
12 new content.

13 42. On information and belief, Defendant did this, for example, by causing cache-control
14 headers to be included in HTTP responses containing its webpage base file or asset files. On
15 information and belief, Defendant benefits from using the ETags to control the distribution of its
16 webpage content by communicating to a downstream cache and to a browser which of Defendant’s
17 cached webpage base files it is reauthorized to serve/use and what newly authorized files it must first
18 obtain in serving/rendering Defendant’s webpages.

19 43. More particularly, on information and belief, when a browser again requested the
20 Defendant’s webpage, the browser either used a cached copy, if allowed by the cache-control headers,
21 or retrieved a new copy of the webpage base file for Defendant’s webpage. Similarly, on information
22 and belief, for asset files referenced in the new or cached webpage base file, the browser either used a
23 cached copy, if allowed by the cache-control headers, or retrieved a new copy of the asset files for
24 Defendant’s webpage.

25 44. On information and belief, for a webpage base file or an asset file stored in the
26 browser’s cache with an ETag, and based on the cache-control headers received in the original
27 response, the browser sent a conditional GET request with an If-None-Match header using the
28 associated ETag value and the URI for the webpage base file or asset file so as to be notified whether

1 the browser still had Defendant's authority to render the webpage with its locally cached webpage
2 base file or asset file. In other words, whether the cached content was still valid for use in rendering
3 Defendant's webpage.

4 45. On information and belief, under most circumstances, a responding intermediate cache
5 server having content cached for the URI in the conditional GET request and having an ETag for that
6 URI responded to the request by determining whether it had the same associated ETag value for that
7 URI. If it had no ETag value for that URI, on information and belief, the request was passed up to an
8 upstream intermediate cache server capable of responding or, if none, to the URI's origin server, which
9 responded to the request. On information and belief, if the intermediate cache server did not have
10 content cached for the URI in the conditional GET request, the request was similarly passed up to an
11 upstream intermediate cache server capable of responding or, if none, to the URI's origin server.

12 46. On information and belief, if the responding server had the webpage content for that
13 URI and there was a match between the ETag it received in the request with the ETag it currently had
14 associated for that URI, it sent back an HTTP 304 (Not Modified) response message; this message
15 notifying the browser that the same webpage content was present at the responding server and that the
16 browser was still authorized to use that previously cached webpage base file or asset file to render the
17 webpage. On information and belief, upon receipt of the HTTP 304 response, the browser accessed
18 the locally cached webpage base file or asset file in rendering the webpage.

19 47. On information and belief, if the webpage base file's or asset file's associated ETag
20 sent by the browser in the conditional GET If-None-Match request did not match the associated ETag
21 maintained at the responding server (or other intermediate cache servers further upstream or the origin
22 server) for that URI, the responding server sent back an HTTP 200 response along with the new
23 webpage base file or asset file and its new ETag value. The HTTP 200 response indicated to the
24 browser that it was not authorized to use (or serve, in the case of an intermediate cache server receiving
25 the HTTP 200 response) the previously cached webpage base file or asset file. In response to receiving
26 the HTTP 200 response, the browser (or intermediate cache server) was instructed to update its
27 respective cache with the new webpage base file or asset file and associated ETag. The browser
28

1 subsequently used the new webpage base file (and the asset file URIs contained therein) or asset file
2 to render the webpage.

3 48. Exhibit 1 to the complaint lists specific examples of files that were, on information and
4 belief, served by or on behalf of Defendant during the relevant time period. The examples in Exhibit
5 1 include: a webpage base file served with a content-based ETag for the webpage base file; and an
6 asset file served by S3 with a content-based ETag generated by S3 for that asset file.

7 49. On information and belief, in this manner, Defendant used ETag values based on the
8 asset files' content to control the behavior of downstream intermediate cache servers and browser
9 caches to assure that they only accessed and used Defendant's latest authorized webpage content to
10 serve or to render its webpages.

11
12 **FIRST CLAIM FOR RELIEF**

13 **INFRINGEMENT OF U.S. PATENT NO. 6,928,442**

14 50. PersonalWeb repeats and realleges paragraphs 1–49, as if the same were fully stated
15 herein.

16 51. On August 9, 2005, United States Patent No. 6,928,442 (the "'442 patent") was duly
17 and legally issued for an invention entitled "Enforcement and Policing of Licensed Content Using
18 Content-Based Identifiers." PersonalWeb has an ownership interest in the '442 patent by assignment,
19 including the exclusive right to enforce the '442 patent within the PersonalWeb Patent Field, and
20 continues to hold that ownership interest in the '442 patent.

21 52. Defendant has infringed at least claims 10 and 11 of the '442 patent by its manufacture,
22 use, sale, importation, and/or offer for sale of products or services, and/or controlling the distribution
23 of its webpage content in the manner described herein. Defendant's infringement is literal and/or
24 under the doctrine of equivalents and Defendant is liable for its infringement of the '442 patent
25 pursuant to 35 U.S.C. § 271.

26 53. For example, claim 10 covers "a method, in a system in which a plurality of files are
27 distributed across a plurality of computers." On information and belief, Defendant has used a system
28 of notifications and authorizations to distribute a plurality of files, *e.g.*, Defendant's files containing

1 content necessary to render its webpages, across a plurality of computers such as production servers,
2 origin servers, intermediate cache servers and endpoint caches used by browsers rendering
3 Defendant's webpages.

4 54. Claim 10 then recites the act of "obtaining a name for a data file, the name being based
5 at least in part on a given function of the data, wherein the data used by the function comprises the
6 contents of the particular file." As set forth above, on information and belief, Defendant generated or
7 otherwise obtained ETags for its webpage base file and asset files used to render its webpages using a
8 hash function, wherein the ETags were based on the contents of the particular files. Moreover,
9 Defendant caused the intermediate caches servers and endpoint caches to obtain the ETags in HTTP
10 200 responses sent from Defendant's origin servers. On information and belief, Defendant caused
11 intermediate cache servers and its origin servers to obtain ETags in conditional GET messages from
12 endpoint and intermediate caches, as described *supra*.

13 55. Claim 10 then recites the act of "determining, using at least the name, whether a copy
14 of the data file is present on at least one of said computers." On information and belief, as set forth
15 above, Defendant has caused its origin servers and the intermediate cache servers between an endpoint
16 cache and one of its origin servers to, in response to receiving a conditional GET request with an If-
17 None-Match header, determine whether it has a file present that matches the URI in the conditional
18 GET and to compare the ETag in the conditional GET to the ETag for that URI and determine whether
19 a copy of the content having that ETag is present.

20 56. Claim 10 then recites the act of "determining whether a copy of the data file that is
21 present on a at least one of said computers is an unauthorized copy or an unlicensed copy of the data
22 file." On information and belief, as set forth above, if there was a match, the origin or intermediate
23 cache server determined that the copy of the file present at the downstream intermediate cache server
24 and/or the endpoint cache was an authorized or licensed copy of the data file. Conversely, if there was
25 no match, it determined that the copy of the file present at the downstream intermediate cache server
26 and/or the endpoint cache was an unauthorized copy of the data file. Likewise, if the browser
27 determined that it had a file with a matching URI, the browser determined that it was still authorized
28 to use that file.

1 57. Defendant's acts of infringement caused damage to PersonalWeb and PersonalWeb is
2 entitled to recover from Defendant the damages sustained by PersonalWeb as a result of Defendant's
3 wrongful acts in an amount subject to proof at trial.

4
5 **SECOND CLAIM FOR RELIEF**

6 **INFRINGEMENT OF U.S. PATENT NO. 7,802,310**

7 58. PersonalWeb repeats and realleges paragraphs 1–49, as if the same were fully stated
8 herein.

9 59. On September 21, 2010, United States Patent No. 7,802,310 (the "'310 patent") was
10 duly and legally issued for an invention entitled "Controlling Access to Data in a Data Processing
11 System." PersonalWeb has an ownership interest in the '310 patent by assignment, including the
12 exclusive right to enforce the '310 patent within the PersonalWeb Patent Field, and continues to hold
13 that ownership interest in the '310 patent.

14 60. Defendant has infringed at least claim 20 of the '310 patent by its manufacture, use,
15 sale, importation, and/or offer for sale of products or services, and/or controlling the distribution of its
16 webpage content in the manner described herein. Defendant's infringement is literal and/or under the
17 doctrine of equivalents and Defendant is liable for its infringement of the '310 patent pursuant to
18 35 U.S.C. § 271.

19 61. For example, claim 20 covers a "computer-implemented method operable in a system
20 which includes a plurality of computers." On information and belief, Defendant used the claimed
21 computer implemented method by using a system of notifications and authorizations to control the
22 distribution of data items, such as various webpage base file and asset files, necessary to render its
23 webpages, across a plurality of computers such as production servers, origin servers, intermediate
24 cache servers, and endpoint caches.

25 62. Claim 20 then recites "controlling distribution of content from a first computer to at
26 least one other computer, in response to a request obtained by a first device in the system from a second
27 device in the system, the first device comprising hardware including at least one processor, the request
28 including at least a content-dependent name of a particular data item, the content-dependent name

1 being based at least in part on a function of at least some of the data comprising the particular data
2 item, wherein the function comprises a message digest function or a hash function, and wherein two
3 identical data items will have the same content-dependent name.” On information and belief, as set
4 forth above, Defendant has caused downstream intermediate cache servers and endpoint caches to
5 send conditional GET requests with If-None-Match headers containing ETags that are fielded by
6 upstream cache or origin servers. On information and belief, the ETags were content-dependent names
7 for a data item based on hashing the data item’s contents; and when the file’s content changed a new
8 content-dependent name was determined. On information and belief, in Defendant’s method, a first
9 computer, such as the intermediate cache server or origin server, received such conditional GET
10 requests from a second computer, such as a user browser or other intermediate cache server, regarding
11 data items, such as webpage or asset files, the requests including ETags associated with the respective
12 data items.

13 63. Claim 20 then recites “based at least in part on said content-dependent name of said
14 particular data item, the first device (A) permitting the content to be provided to or accessed by the at
15 least one other computer if it is not determined that the content is unauthorized or unlicensed,
16 otherwise, (B) if it is determined that the content is unauthorized or unlicensed, not permitting the
17 content to be provided to or accessed by the at least one other computer.” On information and belief,
18 the first computer, such as an upstream intermediate cache server or origin server, maintained a
19 plurality of ETags associated with Defendant’s asset and webpage base files. On information and
20 belief, the ETag in a request and the ETag maintained by the first computer for the particular data item
21 sought by the request were compared to determine whether the associated content present at the
22 downstream computer was still authorized to be used/served or whether new authorized content must
23 be provided thereto. If it was determined that the data item corresponding to the received ETag was
24 still authorized to be used, the first computer sent back an HTTP 304 response authorizing the
25 downstream cache server or end-user cache to access the file content already present in order to serve
26 it or to use it to render the webpage. On information and belief, if it had been determined that the data
27 item corresponding to received E-tag was no longer authorized, the first computer sent back an HTTP
28 200 response which indicated to the downstream cache server or end-user cache that was not

1 authorized to access the old content and must access the new authorized file content contained in the
2 HTTP 200 response to serve it or to use it to render the webpage.

3 64. Defendant's acts of infringement have caused damage to PersonalWeb and
4 PersonalWeb is entitled to recover from Defendant the damages sustained by PersonalWeb as a result
5 of Defendant's wrongful acts in an amount subject to proof at trial.

6
7 **THIRD CLAIM FOR RELIEF**

8 **INFRINGEMENT OF U.S. PATENT NO. 8,099,420**

9 65. PersonalWeb repeats and realleges paragraphs 1–49, as if the same were fully stated
10 herein.

11 66. On January 17, 2012, United States Patent No. 8,099,420 (the "'420 patent") was duly
12 and legally issued for an invention entitled "Accessing Data in a Data Processing System."
13 PersonalWeb has an ownership interest in the '420 patent by assignment, including the exclusive right
14 to enforce the '420 patent within the PersonalWeb Patent Field, and continues to hold that ownership
15 interest in the '420 patent.

16 67. Defendant has infringed claims 25, 26, 27, 29, 30, 32, 34–36, and 166 of the '420 patent
17 by its manufacture, use, sale, importation, and/or offer for sale of products or services, and/or
18 controlling the distribution of its webpage content in the manner recited herein. Defendant's
19 infringement is literal and/or under the doctrine of equivalents and Defendant is liable for its
20 infringement of the '420 patent pursuant to 35 U.S.C. § 271.

21 68. For example, claim 166 covers a "system comprising hardware, including at least a
22 processor, and software, in combination with said hardware." On information and belief, Defendant
23 has controlled the distribution of its website content across a system that included hardware including
24 a processor, such as its production servers as well as origin servers, intermediate cache servers, and
25 endpoint caches; and software, in combination with such hardware, such as a web development
26 framework, software utilized in implementing the HTTP web protocol, and the software used on host
27 servers that Defendant used to serve its webpages.

28

1 69. Claim 166 then recites “(A) for a particular data item in a set of data items, said
2 particular data item comprising a corresponding particular sequence of bits.” On information and
3 belief, Defendant’s system has controlled the distribution of webpage base files and asset files
4 necessary to render its webpages which represent particular data items, and each of these files comprise
5 a corresponding sequence of bits.

6 70. Claim 166 then recites that for the particular data item to “(a1) determine one or more
7 content-dependent digital identifiers for said particular data item, each said content-dependent digital
8 identifier being based at least in part on a given function of at least some of the bits in the particular
9 sequence of bits of the particular data item, wherein two identical data items will have the same digital
10 identifiers as determined using said given function.” On information and belief, Defendant’s system
11 has applied hash functions to each of various Defendant’s webpage base files to all of the bits of the
12 file’s content to determine an ETag for the file’s content; whereby two identical data items have the
13 same ETag values. On information and belief, ETag values were associated with files’ URIs.

14 71. Claim 166 then recites that for the particular data item “(a2) selectively permits the
15 particular data item to be made available for access and to be provided to or accessed by or from at
16 least some of the computers in a network of computers, wherein the data item is not to be made
17 available for access or provided without authorization, as resolved based, at least in part, on whether
18 or not at least one of said one or more content-dependent digital identifiers for said particular data item
19 corresponds to an entry in one or more databases, each of said one or more databases comprising a
20 plurality of identifiers, each of said identifiers in each said database corresponding to at least one data
21 item of a plurality of data items, and each of said identifiers in each said database being based, at least
22 in part, on at least some of the data in a corresponding data item.”

23 72. On information and belief, Defendant’s system has included one or more web servers
24 with databases containing ETag values associated with the URIs for various of the webpage base files
25 and asset files necessary to render its webpages; moreover, Defendant’s system has used a system of
26 conditional GET requests with If-None-Match headers and HTTP 304 and HTTP 200 responses
27 containing the ETags, as described more particularly *supra*, to ensure that downstream caches only
28 access authorized file content to either serve that file content further downstream or to use it to render

1 Defendant's webpages. On information and belief, in particular, as more fully described *supra*, the
2 system compared the ETag received in a given conditional GET request with the ETags contained in
3 the database to selectively determine whether the requesting computer could access the file content it
4 already had or must access newly received authorized content.

5 73. Defendant's acts of infringement have caused damage to PersonalWeb and
6 PersonalWeb is entitled to recover from Defendant the damages sustained by PersonalWeb as a result
7 of Defendant's wrongful acts in an amount subject to proof at trial.

8
9 **PRAYER FOR RELIEF**

10 WHEREFORE, Plaintiff PersonalWeb requests entry of judgment in its favor and against
11 Defendant as follows:

12 a) Declaration that Defendant has infringed U.S. Patent Nos. 6,928,442, 7,802,310, and
13 8,099,420 as described in this action;

14 b) Awarding the damages arising out of Defendant's infringement of U.S. Patent Nos.
15 6,928,442, 7,802,310, and 8,099,420, together with pre-judgment and post-judgment interest, in an
16 amount according to proof;

17 c) An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by
18 law; and

19 d) For costs incurred and such other and further relief as the Court may deem just and
20 proper.

21
22 Respectfully submitted,

23 Dated: October 4, 2018

STUBBS, ALDERTON & MARKILES, LLP

24
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Dated: October 4, 2018

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DEMAND FOR JURY TRIAL

Pursuant to Fed. R. Civ. P. 38(b) and Local Rule 3–6, Plaintiff PersonalWeb Technologies, LLC hereby demands a trial by jury on all issues triable in this action.

Respectfully submitted,

Dated: October 4, 2018

STUBBS, ALDERTON & MARKILES, LLP

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