

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

SANDPIPER CDN, LLC,
Patent Owner.

IPR2026-00180

Patent No. 10,701,173

PETITIONER'S PRELIMINARY REPLY

EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 10,701,173 (“’173 Patent” or “’173Pat.”)
1002	File History of the ’173 Patent (“’173FH”)
1003	Declaration of Mark Lanning (“Lanning”)
1004	Curriculum Vitae of Mark Lanning
1005	U.S. Patent No. 7,912,921 (“O’Rourke”)
1006	U.S. Patent Publication No. 2011/0060812 (“Middleton”)
1007	U.S. Patent Publication No. 2012/0096106 (“Blumofe”)
1008	[MS-MSSO]: Media Streaming Server System Overview (Microsoft Corporation, 2009), available at https://web.archive.org/web/20100130235412/http://download.microsoft.com/download/9/5/e/95ef66af-9026-4bb0-a41da4f81802d92c/Windows_communication_protocols.zip (“MS-MSSO”)
1009	Reserved
1010	Rajkumar Buyya, Lecture Notes in Electrical Engineering (Volume 9): Content Delivery Networks (Springer-Verlag Berlin Heidelberg, 2008) (“Buyya”)
1011	Abraham Silberschatz, Henry F. Korth, S. Sudarshan, <i>Database System Concepts - Sixth Edition</i> (McGraw-Hill, 2011) (“Silberschatz”)
1012	Kalapatapu Kalyani, <i>Internet Programming and Web Design</i> (Vikas Publishing House Pvt. Ltd., 2013) (“Kalyani”)
1013	John Dilley, et al., <i>Globally Distributed Content Delivery</i> , IEEE Internet Computing, September-October 2002, pp. 50-58 (“Dilley”)
1014	Jianliang Xu, et al., <i>Caching and Prefetching for Web Content Distribution</i> , in Computing in Science & Engineering, IEEE CS and the AIP, July/August 2004, pp. 54-59 (“CiSE”)
1015	U.S. Patent No. 7,024,466 (“Outten”)
1016	Declaration of June Ann Munford (“Munford”)
1017	Akamai White Paper: Turbo-Charging Dynamic Web Sites with Akamai EdgeSuite (Akamai Technologies, Inc., 2001), available at https://www.andrew.cmu.edu/course/15749/READINGS/optional/Akamai_EdgeSuite_Turbocharging_Websites.pdf (“Akamai EdgeSuite”)
1018	U.S. Patent No. 7,240,100 (“Wein”)

Exhibit	Description
1019	David Gourley & Brian Totty, HTTP The Definitive Guide, O'Reilly (Sept. 2002) ("Gourley")
1020	U.S. Patent Publication No. 2002/0065899 ("Smith")
1021	U.S. Patent No. 8,180,720 ("Kovacs")
1022	Stipulation letter, dated February 4, 2026
1023	EPO Form 1703 01.91 for European Patent Application No. 15870782.8
1024	Sandpiper CDN, LLC, Division of Corporations - Filing
1025	Assignment from Level 3 Communications to Sandpiper CDN, LLC
1026	<i>Sandpiper CDN, LLC v. Google LLC</i> , No. 2:24-cv-03951, Dkt. 1 (C.D. Cal.)
1027	<i>Sandpiper CDN, LLC v. Google LLC</i> , No. 2:24-cv-03951, Dkt. 28 (C.D. Cal.)
1028	<i>Sandpiper CDN, LLC v. Google LLC</i> , No. 2:24-cv-03951, Dkt. 45-1 (C.D. Cal.)
1029	<i>Sandpiper CDN, LLC v. Google LLC</i> , No. 2:24-cv-03951, Dkt. 93 (C.D. Cal.)
1030	<i>Sandpiper CDN, LLC v. Comcast Cable Commc'ns LLC</i> , No. 2:24-cv-00886, Dkt. 1 (E.D. Tex.)
1031	<i>Sandpiper CDN, LLC v. Comcast Cable Commc'ns LLC</i> , No. 2:24-cv-00886, Dkt. 62 (E.D. Tex.)
1032	<i>Sandpiper CDN, LLC v. Microsoft Corp.</i> , No. 2:25-cv-00664, Dkt. 1 (E.D. Tex.)
1033	<i>Sandpiper CDN, LLC v. Microsoft Corp.</i> , No. 2:25-cv-00664, Dkt. 41 (E.D. Tex.)
1034	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00806, -00826, Paper 13 (Sept. 12, 2025) (referring petitions)
1035	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00860, -00969, -01010, Paper 14 (Oct. 10, 2025) (referring petitions)
1036	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00826, Paper 15 (Nov. 7, 2025) (Institution Decision)
1037	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00806, Paper 14 (Nov. 10, 2025) (Institution Decision)
1038	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00860, Paper 15 (Nov. 25, 2025) (Institution Decision)
1039	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-00969, Paper 14 (Nov. 28, 2025) (Institution Decision)

Exhibit	Description
1040	<i>Google LLC v. Sandpiper CDN, LLC</i> , IPR2025-01010, Paper 17 (Dec. 1, 2025) (Institution Decision)
1041	Middleton File History (App. No. 12/836,418)
1042	Docket Navigator, Sandpiper CDN, Cases Search
1043	<i>Sandpiper CDN, LLC v. Comcast Cable Commc'ns LLC</i> , No. 2:24-cv-00886, Dkt. 132 (E.D. Tex.)
1044	<i>Sandpiper CDN, LLC v. Microsoft Corp.</i> , No. 2:25-cv-00664, Dkt. 43 (E.D. Tex.)
1045	<i>Sandpiper CDN, LLC v. Microsoft Corp.</i> , No. 2:25-cv-00664, Dkt. 57 (E.D. Tex.)
1046	U.S. 2006/0095532
1047	Reserved
1048	Reserved
1049	<i>Sandpiper CDN, LLC v. Microsoft Corp.</i> , No. 2:25-cv-00664, Dkt. 32 (E.D. Tex.)
1050	Federal Court Management Statistics for the 12-Month Period Ending 12-31-2025
1051	Search 1 - FPO IP Research & Communities
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1056	Results 3 - FPO IP Research & Communities
1057	U.S. 19/263,989 (U.S. 2026/0006107) - Bibliographic Data - Application - Patent Center - USPTO
1058	U.S. 2026/0006107

I. Implicit “Cache Policy” Construction (1[b][i]/8[b][i])

Middleton’s TTL is compared to the content’s age to determine staleness (i.e., whether a time period for expiration has passed). Pet., 66-68. Middleton thus discloses a *cache policy* consistent with the claim language, which recites that determining a cache policy comprises *determining a time period for expiration of content in the cache*. EX1001, cl.1, cl.8; *see also id.*, 3:14-19 (relevant policies include “policies relating to the expiration of content”). PO argues no construction is required, yet asserts the term is “highly contextual” (POPR, 14-15) and Middleton’s TTL value is not a cache policy (*id.*, 33-34). The claims/specification do not support PO’s narrow (and unclear) interpretation.

II. Implicit “Determining” a Cache Policy Construction (1[b][i]/8[b][i])

O’Rourke Determines a Current Cache Policy. In O’Rourke, upon receiving a request for content, the cache server identifies current cache policies (O’Rourke, Fig. 5, block 504), determines whether the content is stored locally (*id.*, Fig. 5, block 505), and then applies those policies in response to the request (*id.*, Fig. 5, blocks below line 501A). Pet., 27-28 (citing O’Rourke, Fig. 5, 6:1-10, 6:20-22, 6:31-34; EX1003, ¶120). After it is determined that the content is cached locally, O’Rourke decides to apply an identified cache policy to determine content acceptability. Pet., 28. Content may not be acceptable if it is too stale, e.g., stored for more than 30 minutes. *Id.*, 24. O’Rourke’s decision to apply the identified policy results in

determining whether the time period for content expiration has passed, which is all the claims require. EX1001, cl.1, cl.8 (*determining the current cache policy comprises determining a time period for expiration of content in the cache...*). PO argues no claim construction is required, yet argues O'Rourke does not teach “the specific cache policy of the challenged claims.” POPR, 28 (emphasis added); *see also id.*, 26-29. The Office should reject PO's implicit (and unclear) claim interpretation.

Middleton Determines a Current Cache Policy. Middleton teaches an edge server attempting to revalidate content and subsequently receiving either a revalidation failure or a new TTL value. Pet., 67-68. Either response is determining a *current cache policy*. PO adopts an implicit construction of *determining...a current cache policy*, arguing that the claims require a “request-time mechanism for determining whether updated caching rules govern cached content.” POPR, 34 (emphasis added). But the claims only require determining that a cache policy is *current*—not determining “updated caching rules.” It also does not matter that this only occurs after a staleness event (POPR, 36) because nothing in the '173 claims or specification would exclude policies obtained after a staleness event.

III. Obviousness of Swapping O'Rourke's Steps 504/505 (1[b][i]/8[b][i])

It would have been obvious to swap steps 504/505 so that the cache server identifies the applicable policy after determining that content is cached locally. Pet.,

12-13 (citing EX1003 ¶¶79-80), 22-23, 28-29 (citing EX1003, ¶121). O’Rourke suggests the same (Pet., 12 (citing O’Rourke, 10:40-45)), and reordering these steps was known (Pet., 12-13). The EPO agreed this would have been obvious when it evaluated identical disclosures in O’Rourke’s application’s publication. EX1023, 3 (“effectively swapping” steps 504/505 “is merely one of several straightforward possibilities which the skilled person would select, depending on the circumstances, without exercising inventive skill, in order to save processing resources...”); EX1046, Fig. 5. Thus, PO’s argument that this would not have been obvious is incorrect. POPR, 29-30.

IV. Implicit “Causal Link” Construction (1[b]/8[b] and 1[b][i]/8[b][i])

These limitations recite determining that content is cached locally, and *then*, *after* that determination, determining the current cache policy. Swapping O’Rourke’s steps 504/505 teaches that sequence. §III. PO’s argument that there must be a “causal link” reads in a requirement that is not in the claims. POPR, 30-32.

V. The Petition Has No Gap Filling

There are no “gaps.” POPR, 37-39. The Petition cites O’Rourke, Middleton, and extrinsic support to show why a POSITA would have read the disclosures to teach the limitations. *See, e.g.*, Pet., 12-13, 20-28. And Petitioner’s expert may explain “what [a prior art]’s teachings would indicate to a skilled artisan.” *Yealink (USA) Network Tech. Co. v. Barco N.V.*, IPR2025-00491, Paper 20, 28 (July 29, 2025).

Dated: May 12, 2026

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that true copies of Petitioner's Preliminary
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