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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRIS PHILLIPS, ROBERT HAMMOND FORSMAN,
and JENNIFER ANN REYNOLDS

Appeal 2019-000237
Application 14/069,565
Technology Center 2400

Before JAMES W. DEJMEK, SCOTT E. BAIN, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 4–6, 8, 10, 13–16, 18, and 20.² Appeal Br. 2; Reply Br. 2. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ Throughout this Decision, we use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2017). Appellant identifies the real party in interest as Ericsson AB. Appeal Br. 1.

² Appellant initially appealed claims 1, 4–8, 10, 13–18, and 20–22 (Appeal Br. 1), but the Examiner subsequently withdrew the rejection of claims 7, 17, 21, and 22 (Ans. 13). Thus, we review only the remaining claims herein.

STATEMENT OF THE CASE

The Claimed Invention

Appellant's invention generally relates to "systems and methods for optimizing delivery of adaptive bitrate (ABR) assets in a content delivery network." Spec. ¶ 2.

Claim 1, reproduced below, is illustrative of the subject matter on appeal:

1. A method operative at a content delivery node of a content delivery network (CDN) configured to deliver adaptive streaming content, the method comprising:

monitoring historical delivery patterns of adaptive bitrate (ABR) assets downloaded from the content delivery node to a plurality of subscribers in a service area served by the content delivery node, the ABR assets comprising at least one of video components, audio track components and one or more subtitle languages of a plurality of content programs requested by the subscribers over a period of time;

obtaining aggregate statistical distributions of the ABR assets based on the historical delivery patterns monitored at the content delivery node;

establishing delivery rules for the content delivery node based on the aggregate statistical distributions of the ABR assets;

analyzing a manifest available to the content delivery node with respect to a particular content;

analyzing segment files stored in a database cache of the content delivery node for the particular content;

determining that one or more segment files referenced by the manifest are absent from the database cache;

responsive to the determining, applying one or more delivery rules associated with the content delivery node to determine representations of the absent segment files that satisfy one or more delivery rules; and

pulling, from another content delivery node of the CDN, only the representations of the absent segment files satisfying the one or more delivery rules and storing the pulled representations in the database cache of the content delivery node.

Supplemental Appeal Br. 3, filed May 11, 2018 (Claims Appendix).

The Applied References

The Examiner relies on the following references as evidence of unpatentability of the claims on appeal:

Gagliardi	US 2010/0306368 A1	Dec. 2, 2010
Bouazizi	US 2012/0151009 A1	June 14, 2012
Wang	US 2014/0201334 A1	July 17, 2014

The Examiner's Rejection

The Examiner made the following rejection of the claims on appeal:

Claims 1, 4–6, 8, 10, 13–16, 18, and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Wang, Bouazizi, and Gagliardi. Final Act. 6–15.

ANALYSIS³

Appellant disputes the Examiner's finding that the combination of Wang, Bouazizi, and Gagliardi renders obvious claims 1, 4–6, 8, 10, 13–16, 18, and 20, including independent claims 1, 10, and 20. *See* Appeal Br. 9–17; Reply Br. 2–9. Appellant argues the appealed claims as a group.

³ Throughout this Decision, we have considered Appellant's Appeal Brief filed March 22, 2018 ("Appeal Br."); Appellant's Reply Brief filed October 4, 2018 ("Reply Br."); the Examiner's Answer mailed August 10, 2018 ("Ans."); the Final Office Action mailed September 7, 2017 ("Final Act."); and Appellant's Specification filed November 1, 2013 ("Spec").

See Appeal Br. 9–17. Thus, for purposes of our analysis, we select independent claim 1 as the representative claim, and any claim not argued separately will stand or fall with our analysis of the rejection of claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Appellant argues, *inter alia*, that the Examiner has not shown by a preponderance of the evidence that the cited art, particularly Bouazizi as relied on by the Examiner, teaches “monitoring historical delivery patterns of adaptive bitrate (ABR) assets downloaded from the content delivery node to a plurality of subscribers,” as recited in claim 1. Appeal Br. 9–14; Reply Br. 2–6. We find Appellant’s argument persuasive, and turn first to Bouazizi’s disclosure.

Bouazizi generally relates to “systems, methods, and apparatuses for generating and handling streaming media quality-of-experience [QoE] metrics.” Bouazizi ¶ 2. Bouazizi discloses:

During or after presentation of streaming media, in accordance with a periodic QoE reporting interval, a client device, which may be currently presenting the streaming media to user or have previously presented streaming media to a user, may be configured to generate one or more values for various QoE metrics and report the values to a QoE metric collecting server for storage at the QoE metric collecting server.

Bouazizi ¶ 22. Such QoE metrics include “a re-buffering event metric, a buffering time metric, a buffered media time metric, . . . an average inactivity time per segment metric, a sleeping duration metric,” among other disclosed metrics. Bouazizi ¶ 4. For example, “[t]he re-buffering event metric may indicate that a re-buffering event has occurred after a buffer underflow was experienced,” and “[a] large number of re-buffering events reported from one or multiple clients may indicate that the provided bitrate

. . . may exceed the available end-to-end bandwidth bottleneck.”

Bouazizi ¶ 36.

The Examiner finds Bouazizi’s disclosure of reporting “re-buffering events” teaches the limitation at issue, namely, “monitoring historical delivery patterns of adaptive bitrate (ABR) assets downloaded from the content delivery node to a plurality of subscribers.” Final Act. 8; *see* Ans. 18 (“[T]he examiner notes that the monitored/reported information with respect to the re-buffering events is what is equated to the claimed ‘historical delivery patterns’.”); 19 (“Since the reported information is regarding re-buffering events that have already occurred[,] . . . such reported information would be considered ‘historical delivery patterns’.”) (emphasis omitted). The Examiner concludes Bouazizi teaches monitoring historical delivery patterns of ABR assets downloaded from the content delivery node to a plurality of subscribers “by receiving a report on QoE metrics, such as rebuffering events and buffer media time, which have already happened over a period of time.” Ans. 19.

Appellant responds: “There is simply no teaching or even a scintilla of suggestion in *Bouazizi* as to how the re-buffering events or any reports thereof are transformed into historical delivery patterns of multiple ABR assets as set forth in Appellant’s claims.” Appeal Br. 11; *see* Reply Br. 3 (“[R]e-buffering events at a plurality of client devices as disclosed in *Bouazizi*, although they already occurred in the past, do not teach or suggest ‘historical delivery patterns’ as set forth in the claims under any reasonable interpretation.”). In particular, Appellant argues:

It should be noted that the phrase “historical delivery patterns” has a specific meaning in the claims, which the Examiner has repeatedly chosen to ignore throughout the prosecution of the

instant patent application. In the context of the instant patent application, “historical delivery patterns” denotes various categories of video components and audio components of an overall number of media assets delivered from a server over a certain period of time to a plurality of client devices. By way of illustration, a historical video delivery pattern at a server may comprise 35% of downloaded content being high definition, 1080p video encoded at 8-10 Mbs; 45% of downloaded content being high definition, 720p video encoded at 3-8 Mbs, and so on.

Reply Br. 3. Appellant argues “re-buffering events in *Bouazizi* only indicate the occurrence of playback interruptions as noted by the Examiner,” and that “monitoring the number of playback interruptions or re-buffering events does not inform anything about the video/audio percentages of the media assets downloaded from a server over a period of time.” Reply Br. 3–4.

Appellant argues “[t]hese ratios or percentages can remain the same *regardless of whether just one client device or multiple client devices experienced one or more playback interruptions over the year.*” Reply Br. 4 (emphasis added). Appellant submits:

[T]he Examiner is engaging in a comparison of “apples” and “oranges” while purportedly reading the claimed feature of “historical delivery patterns” on *Bouazizi*, without providing an articulated analysis as to how one could go from the “apples” of “re-buffering events”, “playback interruptions” and/or “average information regarding delay jitter” to the “oranges” of the claimed “historical delivery patterns”.

Reply Br. 5.

Appellant’s arguments and the Examiner’s pertinent findings turn on the interpretation of “monitoring historical delivery patterns of [ABR] assets downloaded from the content delivery node to a plurality of subscribers,” as recited in claim 1. When construing claim terminology during prosecution before the Office, claims are to be given their broadest reasonable

interpretation consistent with the Specification, reading claim language in light of the Specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). However, the broadest *reasonable* interpretation differs from the broadest *possible* interpretation. *In re Smith Int'l, Inc.*, 871 F.3d 1375, 1383 (Fed. Cir. 2017).

The correct inquiry in giving a claim term its broadest reasonable interpretation in light of the specification is not whether the specification proscribes or precludes some broad reading of the claim term adopted by the examiner. And it is not simply an interpretation that is not inconsistent with the specification. It is an interpretation that corresponds with what and how the inventor describes his invention in the specification, *i.e.*, an interpretation that is “consistent with the specification.”

Smith, 871 F.3d at 1382–83 (quoting *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997)). Additionally, we are mindful that limitations are not to be read into the claims from the Specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

In this case, the Specification describes “historical delivery patterns of [ABR] assets downloaded from the content delivery node to a plurality of subscribers” with reference to “an ABR asset delivery pattern 116” in Figure 1, which depicts, for example, 35% of downloaded content being high definition, 1080p video encoded at 8–10 Mbs, 45% of downloaded content being high definition, 720p video encoded at 3–8 Mbs, and so on. Spec. ¶¶ 36–37, Fig. 1, Claim 1. The Specification discloses that “[a]s client devices 105 access various content via associated content delivery nodes over a configurable period of time, *a historical delivery pattern learning and updating process is operative to obtain delivery statistics for each content delivery node on a component-by-component basis, i.e., video, audio or*

subtitles.” Spec. ¶ 35 (emphasis added). The Specification also distinguishes “*historical network conditions* associated with each content deliver[y] node,” describing these network conditions as, for example, “download rate distributions, bandwidth utilization and other performance metrics . . . which may be utilized . . . for controlling content distribution through the network.” Spec. ¶ 35 (emphasis added).

Given the Specification’s description of “historical delivery patterns” and its distinguishing of such “delivery patterns” from “historical network conditions” like performance metrics, we find the Examiner’s reliance on Bouazizi’s “re-buffering events” to teach the limitation at issue unpersuasive. More specifically, we find the Examiner does not provide sufficient evidence or technical reasoning to show that interpreting the limitation at issue to include “re-buffering events” is *consistent with the specification* (i.e., corresponds with what and how the inventor describes his invention in the specification). *See Smith*, 871 F.3d at 1383. For example, as argued by Appellant (Reply Br. 3–4), the Examiner does not sufficiently explain how monitoring a number of playback interruptions or re-buffering events teaches historical delivery patterns of downloaded ABR assets, particularly where such assets may be downloaded without such playback interruptions or issues.

Based on the foregoing, we find the Examiner has not persuasively shown how Bouazizi teaches “monitoring historical delivery patterns of adaptive bitrate (ABR) assets downloaded from the content delivery node to a plurality of subscribers,” as recited in independent claim 1. The Examiner also has not persuasively shown how the other cited art remedies this

deficiency. Because we find this issue dispositive here, we do not address Appellant's other arguments.

Accordingly, we do not sustain the Examiner's rejection under 35 U.S.C. § 103 of independent claim 1. For similar reasons, we do not sustain the Examiner's rejection under 35 U.S.C. § 103 of independent claims 10 and 20, which recite commensurate limitations. Additionally, we do not sustain the Examiner's rejection under 35 U.S.C. § 103 of claims 4–6, 8, 13–16, and 18, which depend therefrom.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 4–6, 8, 10, 13–16, 18, 20	103	Wang, Bouazizi, Gagliardi		1, 4–6, 8, 10, 13–16, 18, 20

REVERSED