

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GOOGLE LLC,  
Petitioner,

v.

ERICSSON AB,  
Patent Owner.

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Case No. IPR2025-00004  
Patent No. 11,122,313

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**PETITIONER'S OPPOSITION  
TO PATENT OWNER'S MOTION TO AMEND**

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## LISTING OF EXHIBITS

| Exhibit | Description                                                                                                                                                                                                                                                                 |
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| 1001    | U.S. Patent No. 11,122,313 (“’313 Patent”)                                                                                                                                                                                                                                  |
| 1002    | Prosecution History of U.S. Patent No. 11,122,313 (“’313 FH”)                                                                                                                                                                                                               |
| 1003    | Declaration of Anthony J. Wechselberger (“Wechselberger”)                                                                                                                                                                                                                   |
| 1004    | Curriculum Vitae of Anthony J. Wechselberger (“Wechselberger-CV”)                                                                                                                                                                                                           |
| 1005    | U.S. Patent Publication No. 2002/0172368 (“Peterka”)                                                                                                                                                                                                                        |
| 1006    | Certified Translation of Japanese Published Patent Application No. 2004-166153 (“Suzuki”)                                                                                                                                                                                   |
| 1007    | U.S. Patent Publication No. 2010/0235528 (“Bocharov”)                                                                                                                                                                                                                       |
| 1008    | U.S. Patent Publication No. 2008/0270308 (“Peterka308”)                                                                                                                                                                                                                     |
| 1009    | European Patent Publication No. 1,418,756 A2 (“Chen”)                                                                                                                                                                                                                       |
| 1010    | U.S. Patent Publication No. 2005/0138362 (“Kelly”)                                                                                                                                                                                                                          |
| 1011    | U.S. Patent No. 8,677,428 (“Lewis”)                                                                                                                                                                                                                                         |
| 1012    | U.S. Patent No. 8,789,196 (“Pestoni”)                                                                                                                                                                                                                                       |
| 1013    | International Publication No. WO 2010/107625 A2 (“Sood”)                                                                                                                                                                                                                    |
| 1014    | U.S. Patent No. 8,806,050 (“Chen050”)                                                                                                                                                                                                                                       |
| 1015    | T. Stockhammer, “Dynamic adaptive streaming over HTTP: Standards and design principles,” in Proc. ACM MMSys’11, San Jose, CA, USA, Feb. 23–25, 2011, pp. 133–144 (“Stockhammer”)                                                                                            |
| 1016    | W. Van Lancker, D. Van Deursen, E. Mannens and R. Van de Walle, “HTTP adaptive streaming with Media Fragment URIs,” 2011 IEEE International Conference on Multimedia and Expo, Barcelona, Spain, 2011, pp. 1-6, doi: 10.1109/ICME.2011.6012149 (“Van Lancker”)              |
| 1017    | 3GPP TS 26.234 version 9.3.0 Release 9 (2010-06), Technical Specification, “Universal Mobile Telecommunications Systems (UMTS); LTE; Transparent end-to-end Packet Streaming Services (PSS); Protocols and codecs,” Reference RTS/TSGS-0426234v930 (June 2010) (“3GPP-AHS”) |
| 1018    | R. Pantos (Ed.), HTTP Live Streaming, draft-pantos-http-live-streaming-06 (Mar. 31, 2011) (“Pantos”)                                                                                                                                                                        |
| 1019    | RFC793: Transmission Control Protocol (September 1981) (“RFC793”)                                                                                                                                                                                                           |
| 1020    | RFC2616: Hypertext Transfer Protocol – HTTP/1.1 (June 1999) (“RFC2616”)                                                                                                                                                                                                     |
| 1021    | The Secure Sockets Layer Protocol, V. 3.0, <i>available at</i> <a href="https://web.archive.org/web/19970614041044/http://home.netscape.com/eng/ssl3/ssl-toc.html">https://web.archive.org/web/19970614041044/http://home.netscape.com/eng/ssl3/ssl-toc.html</a> and        |

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|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           | <a href="https://web.archive.org/web/19970617034012/http://home.netscape.com/eng/ssl3/3-SPEC.HTM#1">https://web.archive.org/web/19970617034012/http://home.netscape.com/eng/ssl3/3-SPEC.HTM#1</a> (“SSL-Standard”)                                                                                                                                                                                                                     |
| 1022      | U.S. Patent No. 8,756,673 (“Barrus”)                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1023      | Yuan et al., “Layered access control for MPEG-4 FGS video,” Proceedings 2003 International Conference on Image Processing (Cat. No. 03CH37429), Barcelona, Spain, doi: 10.1109/ICIP.2003.1247012 (“Yuan”)                                                                                                                                                                                                                              |
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| 1027      | <i>Apple Inc. v. Ericsson AB</i> , IPR2022-00618, Paper 9 (July 8, 2022)                                                                                                                                                                                                                                                                                                                                                               |
| 1028      | <i>Apple Inc. v. Ericsson AB</i> , IPR2022-00618, Paper 11 (Sept. 1, 2022)                                                                                                                                                                                                                                                                                                                                                             |
| 1029      | <i>Apple Inc. v. Ericsson AB</i> , IPR2022-00618, Paper 13 (Nov. 28, 2022)                                                                                                                                                                                                                                                                                                                                                             |
| 1030      | <i>Apple Inc. v. Ericsson AB</i> , IPR2022-00618, Paper 14 (Nov. 28, 2022)                                                                                                                                                                                                                                                                                                                                                             |
| 1031      | <i>Apple Inc. v. Ericsson AB</i> , IPR2022-00618, Paper 17 (Dec. 30, 2022)                                                                                                                                                                                                                                                                                                                                                             |
| 1032      | <i>In the Matter of Certain Electronic Devices, Including Mobile Phones, Tablets, Laptops, Components Thereof, and Products Containing the Same</i> , Inv. No. 337-TA-1376, Order No. 25 (Mar. 13, 2024)                                                                                                                                                                                                                               |
| 1033      | <i>In the Matter of Certain Electronic Devices, Including Mobile Phones, Tablets, Laptops, Components Thereof, and Products Containing the Same</i> , Inv. No. 337-TA-1376, Complaint, Exhibit 28 (October 12, 2023)                                                                                                                                                                                                                   |
| 1034      | <i>Telefonaktiebolaget LM Ericsson et al. v. Lenovo</i> , 5:23-cv-00570, Order Granting Motion to Stay (E.D.N.C. Feb. 9, 2024)                                                                                                                                                                                                                                                                                                         |
| 1035      | USPTO Binding Interim Guidance Addressing PTAB’s Approach to Discretionary Denials, June 21, 2022, <i>available at</i> <a href="https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf">https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf</a> . |
| 1036      | Declaration of Turhan F. Sarwar in Support of Admission <i>Pro Hac Vice</i>                                                                                                                                                                                                                                                                                                                                                            |
| 1037      | Declaration of Elizabeth A. DiMarco in Support of Admission <i>Pro Hac Vice</i>                                                                                                                                                                                                                                                                                                                                                        |
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| 1040      | Deposition Transcript of John Villasenor Ph.D. (August 21, 2025)                                                                                                                                                                                                                                                                                                                                                                       |
| 1041      | Supplemental Declaration of Anthony J. Wechselberger                                                                                                                                                                                                                                                                                                                                                                                   |
| 1042      | U.S. Patent No. 7,392,381 (“Traw”)                                                                                                                                                                                                                                                                                                                                                                                                     |

## I. INTRODUCTION

The Board should deny Paper No. 23 (“MTA”) because PO does not carry its burden and, in any event, the substitute claims remain unpatentable.

The ’313 Patent claims a key rotation system driven by “content encryption key rotation boundaries.” Each claimed “content encryption key rotation boundary is associated with a change to a *different* content encryption key.”<sup>1</sup> EX1001, claim 1. The challenged claims require a specific sequence of events in relation to these contention encryption key (“CEK”) rotation boundaries: applying a first [CEK] before a first CEK rotation boundary; prior to reaching that first CEK rotation boundary, obtaining a second CEK; and then applying that second CEK *after* the first CEK rotation boundary is reached. EX1001, claims 1-7, 9, 11-17, and 19.

The substitute claims fundamentally—and impermissibly—broaden the scope of the claims by *eliminating* the requirement that the second CEK be applied *after* the rotation boundary. Instead, the substitute claims recite a different and broader requirement that the claimed second CEK *is applied before* the first CEK rotation boundary. The substitute claims also introduce new matter unsupported by the specification. The substitute claims thus violate 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121.

Separately, even if the substitute claims complied with Section 316(d) (they

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<sup>1</sup> Emphasis added throughout unless otherwise specified.

do not), the substitute claims remain unpatentable under Sections 103, 101, and 112.

## **II. THE MTA VIOLATES 35 U.S.C. § 316(D) AND 37 C.F.R. § 42.121**

Petitioner bears the burden of demonstrating the unpatentability of any substitute claims. *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290, 1296-1328 (Fed. Cir. 2017) (*en banc*). However, PO bears the burden to demonstrate that the substitute claims comply with statutory and regulatory requirements. *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, -01130, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential) (before considering substitute claims “the Board first must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121”).

PO must demonstrate, among other requirements, that “the amendment does not seek to enlarge the scope of the claims of the patent and does not introduce new matter.” *K/S HIMPP v. Bragi GmbH*, IPR2023-01204, Paper No. 40, at 47-48 (PTAB Mar. 7, 2025). Here, PO cannot make such a demonstration.

### **A. The Amendments Improperly Enlarge Claim Scope**

Claim amendments in an IPR “may not enlarge the scope of the claims of the patent.” 35 U.S.C. § 316(d)(3). A substitute claim “is broader in scope than the original claim[] if it contains within its scope any conceivable apparatus or process which would not have infringed the original patent.” *Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1237-38 (Fed. Cir. 2023) (reexamination and reissue

standards apply to IPR proceedings). Whether an amendment enlarges claim scope “is a matter of claim construction” and is “a question of law.” *Id.* at 1238.

Original claim 1 recites “obtaining a second content encryption key...to be *used after the first [CEK] rotation boundary* is reached.” EX1001, claim 1. Claim 1 further requires “*applying* the second [CEK] for content decryption *after* the key rotation boundary is reached.” *Id.* A system that obtained a second CEK, applied that second CEK *before* the claimed content encryption key rotation boundary, and discarded that second CEK at or before the boundary (i.e., did not apply it after the boundary) would meet the requirements of this substitute claim yet *would not* meet the requirements of the original claim. EX1041, ¶246.

Substitute limitations [21.5]-[21.6] *change* the CEK “rotation boundary” recited in claim 1 and *eliminate* the critical claim limitation that the second CEK be applied *after* reaching that rotation boundary:

[21.5] prior to reaching the first key rotation boundary, and in response to receiving a notification to change said first content encryption key before said first key rotation boundary, requesting and obtaining a second content encryption key, the second content encryption key to be used **after before** the first content encryption key rotation boundary is reached; and

[21.6] applying the second content encryption key for content decryption **after before the said first** key rotation boundary is reached.

MTA, Claims App., 2 (yellow highlighting added). Substitute claim 21 replaces that limitation with a broader limitation requiring only the application of the second CEK *before* “said first key rotation boundary.” *Id.*

There is no question that applying a second CEK *before* a key rotation boundary *materially differs from* applying a second CEK *after* a key rotation boundary. EX1041, ¶246. PO's own expert admitted at his deposition that switching the word "after" to "before" in the related '178 Patent's original claims is "literally not what the [original] claim says." EX1040, 42:25-43:23. By deleting original claim 1's requirement to apply a second CEK *after* the CEK rotation boundary and replacing it with a *different* requirement, claim 21 is impermissibly "broader in [at least] that respect." *Pannu v. Storz Instruments, Inc.*, 258 F. 3d 1366, 1371 (Fed. Cir. 2001) (A "claim that does not include a limitation present in the original patent claims is broader in that respect.").

Critically, this broadening is dispositive even if the substitute claim "may be narrower in other respects." *Sisvel Int'l*, 81 F.4th at 1241 ("[I]f a substitute claim is broader *in any respect* it is...broader than the original claim even though it may be narrower in other respects.") (emphasis original, internal quotation omitted); see 37 C.F.R. § 1.175(b) (similar).

The Board has routinely rejected similar substitute claims as impermissibly broadening. See *Sisvel Int'l*, 81 F.4th at 1239-40 (substitute claim was broader than original claim where substitute claim replaced requirement that claimed value be set "*based at least in part on information in* at least one frequency parameter" with a requirement that claimed value be set "*using the* frequency parameter"); *Silencerco*

*Weapons Rsch. Center v. Huxwrx Safety*, IPR2024-01214, Paper 22, at 5 (PTAB Aug. 18, 2025) (preliminarily rejecting as broadening a substitute claim that “delete[d] ‘high energy device’ and replace[d] it with ‘weapon’”); *Spectrum Sols. LLC v. DNA Genotek Inc.*, IPR2023-01424, Paper No. 45, at 9-14 (PTAB Feb. 19, 2025) (denying motion to amend on broadening grounds).

PO makes no meaningful effort to meet its burden. The MTA’s unsupported assertion that the substitute claims retain all original features (MTA, 2) is plainly incorrect, yet the MTA fails to even acknowledge—let alone justify—this change in claim scope. *See* MTA, 2-3.

PO’s deletion of the term “after” relative to the application of the second CEK improperly broadens the scope of the original claims. The error permeates all proposed substitute claims. Thus, the Board should deny the MTA in entirety.

#### **B. The Amendments Improperly Introduce New Matter**

PO also bears the burden in an IPR to establish that claim amendments do not introduce new matter. *Aqua Prods.*, 872 F.3d at 1305-06 (“[P]atent owner must satisfy the Board that the statutory criteria in...§ 316(d)(3) are met.”) (lead plurality opinion); *Neuroderm Ltd. v. Abbvie Inc.*, PGR2022-00040, Paper 77, at 14-15 (PTAB Oct. 31, 2023) (rejecting substitute claim where PO failed to show proposed amendment did not introduce new matter); *Red Diamond, Inc. v. Southern Visions*,

LLP, IPR2019-01662, Paper 36, at 21-22 (PTAB Mar. 31, 2021) (same). PO acknowledges its burden (MTA, 9-10) but fails to meet it.

**1. [21.5] and [21.6] Introduce New Matter**

[21.6] recites “applying said second [CEK] for content decryption ~~after~~ before the said first key rotation boundary is reached.” MTA, Claims App., 2. The MTA (at 11) alleges that the following paragraphs of the ’313 Application (EX2004) support [21.6]: ¶¶6, 35-37; Fig. 3; cls. 1, 16. None do.

Every original claim required that a second key be applied for decryption *after* the rotation boundary, and no original claim required that a second key be applied for decryption *before* the rotation boundary. Likewise, the MTA’s cited paragraphs do not support the amendments in [21.6]. Paragraph 6 mimics original claim:

[T]he client device detects [CEK] rotation boundaries between periods of use of different [CEKs] in decrypting retrieved content, issues requests to the license server ahead of a key rotation boundary to *retrieve a second [CEK]* to be used *after* a [CEK] rotation boundary is reached, and *applies the second key* for content decryption *after the key rotation boundary is reached*.

EX2004, ¶6.

Paragraph 37 describes checking the expiration of a “current content key to see if a new key should be applied.” Paragraph 36 similarly describes checking key expiration and the process for requesting a new CEK. Paragraph 35 does not even discuss keys. While paragraphs 36-37 generally describe (and Figure 3 illustrates) “two cases—normal period-based expiration, and an explicit key change

notification,” (*id.* ¶37) there is *no description* of ever applying a second key for decryption *before* any rotation boundary.

Nor would such a requirement make sense. In the “normal period-based expiration” case, the second key is applied for decryption *after* a rotation boundary. And in the “explicit key change notification” case, replacement keys are requested independent of and, agnostic to, key rotation boundaries. Beyond conclusory assertions in a table, PO makes no attempt to demonstrate that a POSA would have understood the specification in a way that supports the new limitations.

[21.5], which recites “in response to receiving a notification to change said first [CEK] before said first key rotation boundary, requesting and obtaining a second [CEK]...to be used ~~after~~ before the first [CEK] rotation boundary is reached,” likewise fails because the MTA’s purported support never describes requesting or obtaining a second key to be used before any key rotation boundary. PO offers no explanation for how such disclosures support the new limitation. *See* EX2004, Abstract, ¶¶6, 36, 37; Fig. 3; cls. 1, 16.

[21.5] and [21.6] thus introduce new matter in violation of § 316(d)(3).

## **2. [21.2] Also Introduces New Matter**

[21.2] recites “receiving a live media playback request response...comprising...[CEK] identifiers that uniquely identify each [CEK] from every other [CEK] for the duration of the media playback.” MTA, Claims App., 1.

As purported support, the MTA cites ¶¶6, 9, 29, 34, 35; cls. 1, 11. Here again, PO fails to carry its burden.

Original claims 1 and 11 did not include the requirement added to [21.2]. EX2004's sole description of "[CEK] identifiers" appears in Paragraph 9: "Each [CEK] in the history is assigned a unique identifier which is referred to herein as the [CEK] identifier." The parties dispute the meaning of "unique identifier." *Compare* Pet., 24-25, *with* POR, 36-38. Regardless of that dispute, the '313 Application indisputably *does not describe* the *duration* for which the uniqueness of any "identifier" must be maintained. EX1041, ¶¶273-275. For example, POSAs understood the "history" described in the specification could—for programs with "long or indefinite durations" (EX2004, ¶2)—be shorter than the entire duration of media playback. EX1041, ¶275. [21.2] thus adds new matter and the MTA should be denied.

### **III. THE SUBSTITUTE CLAIMS REMAIN UNPATENTABLE**

Apart from failing comply with 35 U.S.C. § 316(d), the substitute claims should be rejected as unpatentable for: (1) obviousness under Section 103; (2) indefiniteness under Section 112; (3) claiming unpatentable subject matter under Section 101.

## **A. Ground 6A: Peterka-Traw**

Substitute claims 21-24, 26-27, 29-32, and 35 are obvious over Peterka in view of Traw (“Peterka-Traw”). The proposed claim amendments recite requesting, obtaining, and applying a second CEK *before* reaching the first CEK’s rotation boundary. This basic concept was described long before the ’313 Patent’s priority date, including in U.S. Patent No. 7,392,381 (EX1042, “Traw”). The remaining limitations recite non-functional descriptions, intended purposes, or are otherwise disclosed by Peterka.

### **1. Overview of Peterka**

Peterka (EX1005) relates to securely distributing multimedia content—e.g., “live media”—over a network. Peterka, Abstract, FIG. 1, [0038], [0006]-[0012], [0058]. Peterka’s “client” devices download streaming media from a content distribution system. *Id.*, [0038]. Media content is divided into segments that are each encrypted with a different key. *Id.*, [0080]-[0082], [0091]-[0101], [0122]-[0125], FIGs. 7A-7B. These encrypted media segments are streamed to clients. Peterka, [0043], [0119].

Peterka’s client obtains and applies the key required to decrypt each media segment—e.g., a content key (“CK”). *Id.*, [0011], [0091]-[0093], [0127], FIG. 7A; Wechselberger, ¶49. Peterka describes obtaining such keys through a pull model in which a client tracks its keys and their expiration times and actively requests new/replacement keys as needed. Peterka, [0105]-[0106]; Wechselberger, ¶¶50-51.

## **2. Overview of Traw**

Traw was filed April 13, 2004, issued on June 24, 2008, and is 35 U.S.C. § 102(a)(1)-(2) prior art. Traw is directed to a content protection system that both rotates keys “on a periodic basis” *and* “generate[s] revocation data corresponding to revoked keys in response to... a security compromise.” Traw, Abstract; *see id.*, 1:65-2:6 (key “revocation is also used to prevent access to content if the devices’ keys have been compromised”), 4:37-39. Traw’s system thus “protect[s] content (such as audiovisual entertainment content) against unauthorized access, copying or distribution.” *Id.*, 2:15-19. Traw’s system is “especially” suited for devices that “include software for assisting in implementing content protection” where “software may be updated via a communication mechanism” like the internet. *Id.*, 2:19-51.

Traw describes two types of key revocation in which current content keys are replaced: (1) periodic/planned key revocation (Traw, 5:33-35, 6:10-12); and (2) non-periodic/unplanned key revocation based on compromised keys, security attacks, or emergency situations (*id.*, 3:65-66, 4:37-39, 5:5-7, 5:37-39, FIG. 2). Messages are transmitted “to users and/or devices announcing” the key revocation. *Id.*, 5:63-65.

## **3. Reasons to combine Peterka and Traw**

POSAs would have had numerous reasons to modify Peterka to incorporate Traw’s key revocation techniques and would have reasonably expected success in doing so. EX1041, ¶227; *see also id.*, ¶¶225-238.

*First*, Peterka and Traw are in the same field of art. EX1041, ¶¶228-229. Both

describe systems that distribute secure content encrypted with content keys and changing/rotating those keys. *Compare* Traw, Abstract, 1:65-2:2, 2:56-60, 3:13-19, 4:11-14, *with* Peterka, [0116]-[0121], FIG. 14. Both teach providing content keys to clients for decryption. *Compare* Traw, 3:63-66, 4:11-14, 5:5-19, FIGs. 1-3 *with* Peterka, [0080], [0105]-[0106], [0130], FIGs. 7B, 8. And both teach an identification mechanism for managing keys (e.g., “sequence number or time stamp” in Peterka and “key IDs” in Traw). *Compare* Traw, 3:32-46, *with* Peterka, [0082], [0110].

***Second***, Peterka and Traw share common objectives to prevent unauthorized access to content. *Compare* Peterka, [0135]-[0146] (describing “rules and conditions for providing content in a multicasting environment” to authorized clients), *with* Traw, 2:15-19 (describing protecting content from “unauthorized access”). Peterka recognizes the risk of security attacks and provides security mechanisms to protect against them—e.g., periodically rotation keys “at regular intervals,” “a time stamp” in key-distribution ECMs “to protect against replay attacks.” Peterka, [0105], [0110], [0121]; EX1041, ¶¶230-231. Traw likewise recognizes the benefits of periodic key renewals. *E.g.*, Traw, 3:63-66 (“[R]evocation of keys may be performed proactively on a periodic basis, rather than only reactively in response to an attack.”).

***Third***, POSAs understood well that notwithstanding Peterka’s described security mechanisms including key rotation, the security of systems like Peterka’s could be improved to address breaches. *See* EX1040 (Villasenor Dep.), 135:20-

136:5, 136:6-25, 139:7-140:24. For example, Traw recognizes the benefits of “non-scheduled revocation” in systems like Peterka’s, including for keys that “have been compromised” (*id.*, 6:39-49) and to protect against “a more general set of threats” or attacks (*id.*, 6:49-57). Peterka leaves to POSAs’ discretion how to rectify a security attack. *See* Peterka, [0110]; EX1041, ¶¶231-232. POSAs understood from Traw that compromised keys should be revoked, including in systems like Peterka with key rotation. Traw, 6:39-56; EX1041, ¶232. POSAs also understood Traw’s security-driven key revocation teachings complement and support Peterka’s goal of limiting media access to authorized users—a goal that Traw itself shares. EX1041, ¶232.

POSAs thus would have been motivated to improve Peterka’s system (*see* EX1040, 135:20-136:5, 136:6-25, 139:7-140:24) in view of Traw by: (1) providing a notification to clients that a certain key is compromised and requires early expiration (Traw, 5:63-65, 4:62-65) using Peterka’s content packet “signaling methods” for key changes (Pet., 10-11; Peterka, [0116]-[0120]); (2) having the client obtain a replacement key using Peterka’s “pull” method (Pet., 11-12; Peterka, [0105]-[0106]) when notified that the current key has been revoked before the originally-scheduled expiration of the compromised key (Traw, 6:18-21); and (3) having the client apply the replacement key for decryption when the replacement key is received, before the originally-scheduled expiration of the compromised key in order to minimize service interruptions (Peterka, [0105]). EX1041, ¶233.

This modified system—“Peterka-Traw”—would have maintained Peterka’s overall system while beneficially improving security by including a mechanism to handle successful security attacks—namely, revoking and requiring replacement of a compromised key before it is set to expire (as taught by Traw). EX1041, ¶233.

POSAs would have reasonably expected success with Peterka-Traw, because Traw teaches a straightforward way to address security breaches easily adaptable to Peterka. EX1041, ¶234; Peterka, [0105]-[0106], [0116]-[0121], [0135]-[0138].

**4. Peterka-Traw Renders Obvious Substitute Claims 21-24, 26-27.**

**a. Substitute Claim 21.**

Substitute claim 21 amends original independent claim 1. MTA, Claims App., 1-2. Unchanged claim limitations are obvious for the reasons set forth in Ground 1. Pet., 18-33; EX1041, ¶¶235-252. Amended limitations are obvious over Peterka-Traw.

[21.P] adds a non-limiting statement of use: “for over-the-top [(‘OTT’)] media delivery.” Peterka-Traw satisfies [21.P] for the same reasons Peterka satisfies [1Pre]. Pet., 18. To the extent “for [OTT] media delivery” is limiting, Peterka-Traw satisfies it based on Peterka’s teaching to rotate keys in OTT streaming. *See* Pet., 3, 52; Peterka, [0015], [0038], FIG. 1; Wechselberger, ¶165; EX1041, ¶236.

[21.1] and [21.3] are unchanged. Peterka-Traw satisfies [21.1] and [21.3] for the same reasons Peterka satisfies [1A] and [1C], respectively. Pet., 18-22 ([1A]), 26-31 ([1C]); EX1041, ¶¶237, 243.

[21.2] adds a requirement that the CEK identifiers “uniquely identify each [CEK] from every other [CEK] for the duration of the media playback.” While there is no intrinsic support for this interpretation (let alone written description support as discussed *supra* § II.B.2), Peterka-Traw satisfies this requirement.

Peterka-Traw includes Peterka’s sequence number or timestamp delivered to a client along with a CEK in an ECM/EMM, each of which POSAs understood constitutes a unique CEK identifier that can be used to identify the key in the ECM/EMM. Pet., 24-25; Peterka, [0121]; Wechselberger, ¶¶89-90; EX1041, ¶239. This understanding of CEK identifier is consistent with the ’313 Patent, which likewise describes key identifiers “selected based on” other data such as “a segment number of the prepared content.” EX-1001, 3:43-44, 4:15-17, 6:13-14, 6:27-30.<sup>2</sup>

Because Peterka’s “sequence number” or “timestamp” is specifically included

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<sup>2</sup> While PO tries to dismiss Peterka’s sequence numbers/timestamps as merely “message identifiers” because they are not “assigned” to a key (POR, 38), no “assignment” requirement is recited in the original or substitute claims. PO identifies no basis to depart from the plain meaning of CEK identifier.

*“to protect against replay attacks”* during media playback (Peterka, [0121]), POSAs also would have understood that each sequence number/timestamp “uniquely identif[ies] each” ECM/EMM (and “[CEK]” within) “from every other” ECM/EMM and corresponding “[CEK] for the duration of the media playback.” EX1041, ¶239.

Moreover, ensuring uniqueness of key identifiers “for the duration of the media playback” would have been obvious. EX1041, ¶240. POSAs would have been motivated (and reasonably expect success) to ensure a client could uniquely identify keys even in scenarios where the client ultimately acquired all the keys needed for the entire duration of media playback. *E.g.*, EX2011 (Wechselberger Tr.), 39:7-40:13 (the “need to identify” and “know which key to use when” is “fundamental” to “anybody who has worked with crypto-based content information distribution systems”); Pet., 24-25; Wechselberger, ¶¶91-94 (citing Suzuki, [0013], [0016], [0030]-[0031], [0043]-[0048], [0080]-[0084], FIG. 5; Pestoni, 12:16-35); EX1041, ¶240.

Peterka *itself* illustrates such a scenario in FIG. 7B by showing content key identifiers—CK<sub>0</sub>, CK<sub>1</sub>, CK<sub>2</sub>—that are unique for the entire program’s duration. Peterka, FIG. 7B; *id.*, FIG. 7A, [0092] (FIG. 7A “illustrate[s] an example where only two keys are required to decrypt the remainder of the program”); EX1041, ¶241. POSAs would have reasonably expected success using identifiers sufficiently unique to distinguish between CKs over the duration of media playback given Peterka’s

teachings (Peterka, [0092], FIGs. 7A-7B) and because it was common to use key IDs sufficiently unique to allow clients to keep track of keys required to playback a piece of content. EX1041, ¶242; Pestoni, 12:4-35, FIG. 4.

[21.4] adds the requirement of applying a first content encryption key to the encrypted live media content before a first content encryption key rotation boundary wherein “said first [CEK] rotation boundary was received as part of said received encrypted live media content.” Peterka-Traw satisfies [21.4] for the same reasons that Peterka satisfies [1D]. Pet., 32; EX1041, ¶244. Peterka teaches content—which may be “live content” (Peterka, [0058]) that constitutes *encrypted live media content* as claimed—divided into segments that are encrypted with a different key. *Id.*, [0080], [0099]-[0101], [0122]-[0125], FIGs, 7A-7B. POSAs understood that such segmented, *encrypted live media content*, comprises *one or more content encryption key rotation boundaries* because Peterka teaches using different keys to encrypt different content segments, and key rotation boundaries occur each time a new key is needed to decrypt content (e.g., when a current key taught in Peterka expires). Wechselberger, ¶109 (citing EX1001, 7:42-46); Peterka, [0105]-[0106], [0114]-[0117]; EX1041, ¶245.

[21.5] adds the requirement that “in response to receiving a notification to change said first [CEK] before said first key rotation boundary, requesting and obtaining a second [CEK], the second [CEK] to be used ~~after~~ before the first [CEK]

rotation boundary is reached.” By focusing on the compromised key scenario and an explicit key change notification that requires key rotation outside the period-based boundary (MTA, Claims App., 2), [21.5] attempts to change the meaning ascribed to limitation [1E], and, as discussed *supra* § II.B.1, improperly broadens the claim by changing when the second CEK is applied.

Regardless, Peterka-Traw satisfies this limitation. EX1041, ¶246. In Peterka-Traw, the client keeps track of its keys and issues requests for new keys in a manner that avoids “service interruptions.” Peterka, [0105]. POSAs would have been motivated to implement Peterka-Traw such that when the client detects an unscheduled key revocation taught by Traw (Traw, 3:17-19, 5:35-39, 6:12-21, 6:39-57; *see also id.*, 4:63-65, 5:63-65) using Peterka’s key change signaling methods (Peterka, [0116]-[0120]), Peterka-Traw’s client requests a new key immediately, before the current (compromised key) is set to expire. This would minimize the impact of service interruption, as Peterka teaches (Peterka, [0105]). EX1041, ¶¶247-250. Such a request would satisfy [21.5].

[21.6] changes the requirement from original claim 1 to apply the second key for content decryption from “after the key rotation boundary” to “after before the said first key rotation boundary is reached.”

Peterka-Traw satisfies this limitation. EX1041, ¶¶251-252. To minimize “service interruptions” (Peterka, [0105]), POSAs would have been motivated to

implement Peterka-Traw such that when the client receives the second (replacement) key due to Traw's unscheduled key revocation (Traw, 3:17-19, 4:63-65, 5:35-39, 5:63-65, 6:12-21, 6:39-57), the client promptly applies the second key for decryption, before the current key is set to expire, allowing the client to resume consuming content. EX1041, ¶252; Peterka, [0106], [0116]; Wechselberger, ¶114.

Thus, Peterka-Traw renders substitute claim 21 obvious. EX1041, ¶¶235-252.

**b. Substitute Claim 22.**

Substitute claim 22 mirrors the structure of original dependent claim 2. *See* MTA, Claims App., 2. Unchanged claim limitations are obvious for the same reasons set forth in Ground 1. Pet., 34; EX1041, ¶253. Claim 22 adds the requirement that the content key duration for the second CEK is “equal to the time remaining for the duration previously set for said first [CEK].” Peterka-Traw satisfies this limitation. EX1041, ¶254.

POSAs would have understood that there were three options for setting the expiration time of a replacement key: (1) ***before*** the expiration of the original key; (2) ***at the same time*** as the original key expiration; or (3) ***after*** the expiration of the original key. EX1041, ¶255. All three options would have been obvious to try. EX1041, ¶¶255-256; *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

POSAs had multiple reasons to try setting the second CEK's expiration time to be equal to the time remaining for the expiration set for the first CEK. ***First***, the

expiration time of the first (compromised) CEK was already known to both the client and server, and setting the CEK expiration time for the second CEK as equal to the time remaining for the first CEK would minimize the need to adjust any existing time variables associated with the upcoming key rotation. EX1041, ¶257.

*Second*, adjusting the second CEK’s expiration time such that it was not the same time as the first CEK would have required changing already-staged key rotation boundaries that are tied to future media segments, including interstitial segments like ads, previews, etc. that were common in multicast content distribution. Peterka, [0122], FIG. 7B; EX1041, ¶258 (citing Peterka308, [0024], [0029], [0032]; Chen [0034]-[0044], FIGs. 2A-2C). Using the expiration time of the original key would avoid the need to adjust these already-staged key rotation boundaries.

Further, given Traw’s disclosure that its revocation can target a single key (Traw, 3:35, 4:45), POSAs would have reasonably expected success revoking a single key and replacing it, leaving all other variables alone. EX1041, ¶259.

**c. Substitute Claim 23.**

Substitute claim 23 mirrors the structure of original dependent claim 3 but adds the requirement that the second CEK’s expiration time is “equal to the time remaining for the duration previously set for said first [CEK] *plus* the fixed duration originally assigned for said first [CEK].” See MTA, Claims App., 2. Unchanged claim limitations are obvious for the same reasons set forth in Ground 1. Pet., 34-38.

Claim 23's amendment falls within option #3 described above for substitute claim 22: expiration for the second (replacement) CEK *after* the expiration of the first (compromised) key. EX1041, ¶¶260-262. As noted above, setting the second CEK's expiration time for *after* the first (compromised) CEK's expiration was one of three obvious-to-try options. EX1041, ¶262; *KSR*, 550 U.S. at 421. POSAs would have understood that setting the second CEK to both be applied *before* the first (compromised) key expires<sup>3</sup> and then expire *after* the first CEK would have expired<sup>4</sup> would mean that the CEK originally staged to be applied to the next media segment—possibly already distributed to some clients—was no longer usable for the upcoming segment. EX1041, ¶263.

To address this, POSAs would have been motivated to set the second CEK's expiration time to be equal to the time remaining for the pre-existing expiration set for the first CEK plus the fixed expiration period duration originally assigned for the first CEK. This would provide Peterka-Traw's servers an additional key rotation period to better handle potential latency issues that would predictably arise from numerous clients attempting to replace the compromised key *and* the now-defunct key that was originally staged. EX1041, ¶263; Peterka, [0080] (noting the issue of

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<sup>3</sup> As discussed *supra* § III.A.4.a, this was obvious and would have satisfied [21.6].

<sup>4</sup> As discussed *supra*, this was obvious to try.

“a large load on the caching server on the segment boundaries”). This implementation also would avoid disrupting the encryption/decryption of future media segments by desirably allowing POSAs to avoid adjusting already-staged key rotation boundaries. Peterka, [0122], FIG. 7B; EX1041, ¶263 (citing Peterka308, [0024], [0029], [0032]; Chen [0034]-[0044], FIGs. 2A-2C).

POSAs also would have reasonably expected success with such an implementation because it involves using less than two key rotation periods to give servers the chance to resume regular key distribution processes. EX1041, ¶264.

**d. Substitute Claims 24 and 26.**

Claims 24 and 26 are unchanged. Peterka-Traw satisfies claims 24 and 26 for the same reasons that Peterka satisfies claims 4 and 6. Pet., 38-42 (discussing claims 4 and 6 as obvious over Peterka); EX1041, ¶265.

**e. Substitute Claim 27.**

Substitute claim 27 amends dependent claim 7 and mirrors its structure but adds the following limitations: “retrieved content is divided into content segments, and said second key is applied to decrypt the same content segment for which the first [CEK] was used” and “early rotation of the first [CEK] is for security reasons.” See MTA, Claims App., 3. Claim 27’s unchanged limitations are obvious for the same reasons set forth in Ground 1. Pet., 42-44. Peterka-Traw renders obvious the amended limitations. EX1041, ¶¶266-269.

Peterka discloses content divided into segments encrypted (and decrypted)

with a different key. Pet., 10, 36-37; Peterka, [0080]-[0082], [0091]-[0101], [0106], [0116], [0121]-[0125], FIGs. 7A-7B. Peterka's modified system in Peterka-Traw includes a mechanism to handle successful security attacks—namely, revoking and requiring replacement of a compromised key before it is set to expire. As shown above, the second CEK is used to decrypt content originally slated to be decrypted by the first (compromised) CEK, and the early expiration of the first (compromised) CEK is for security reasons. Traw, 1:65-2:2, 2:15-19, 3:65-66, 4:37-39, 5:5-39, FIG. 2; EX1041, ¶¶268-269.

**5. Peterka-Traw Renders Obvious Substitute Claims 29-32 and 35.**

Substitute claim 29 amends original claim 11 the same way substitute claim 21 amends claim 1. MTA, Claims App., 3-4. Peterka-Traw's computerized device satisfies substitute claims 29-32 and 35 for the same reasons described above for proposed substitute claims 21-24 and 37. EX1041, ¶270.

**B. Additional Traw Combinations (Grounds 6B-6E)**

POSAs would also have combined Traw with the original grounds set forth in the Petition (Grounds 2-5), for the same reasons discussed *supra* § III.A.3. EX1041, ¶271. The resulting combinations (Peterka-Suzuki-Traw, Peterka-Bocharov-Traw, Peterka-Suzuki-Bocharov-Traw, Peterka-Bocharov-Peterka308-Chen-Traw) meet substitute claims 21-24, 26-27, 29-32, and 35 for the same reasons discussed *supra*

§ III.4, **and also** meet substitute claims 25, 28, and 33 for the reasons discussed in Grounds 2-5, as summarized below:

| Ground and Reference(s) |                                           | Substitute Claims                         |
|-------------------------|-------------------------------------------|-------------------------------------------|
| 6B                      | Peterka, Suzuki, Traw                     | 21-24, 26-27, 29-32, 35                   |
| 6C                      | Peterka, Bocharov, Traw                   | 21-24, 26-27, <b><u>28</u></b> -32, 35-36 |
| 6D                      | Peterka, Suzuki, Bocharov, Traw           | 21-24, 26-27, <b><u>28</u></b> -32, 35-36 |
| 6E                      | Peterka, Bocharov, Peterka308, Chen, Traw | <b><u>25</u></b> , <b><u>33</u></b>       |

### C. Ground 7: Indefiniteness

The substitute claims are indefinite because they (1) include terms that lack antecedent basis and/or (2) introduce impermissible ambiguity. They thus “fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

#### 1. All claims: “for the duration of the media playback”

Substitute claims 21/29 recite “from every other [CEK] for the duration of the media playback.” This phrase lacks antecedent basis, rendering all claims indefinite, especially given that the claims cover playback of indefinite durations. EX1041, ¶¶272-275

#### 2. Claims 22/30: “the content key duration...previously set”

Substitute claims 22/30 recite “wherein the content key duration for said second [CEK] is equal to the time remaining for the duration previously set for said first [CEK].” This phrase lacks antecedent base because there is no prior introduction

of “duration” in any of these claims and there is no limitation reciting the “setting” of such a duration recited in the base independent claim. It is unclear to POSAs when “the” duration must have been “previously set,” rendering the claims indefinite. EX1041, ¶276.

### **3. Claims 23/31: “previously set” and “originally assigned”**

Substitute claims 23/31 recite “for *the duration previously set* for said first [CEK] plus the fixed duration *originally assigned* for said first [CEK].” The “previously set” phrase is indefinite as described *supra*, §III.C.2. The phrase “originally assigned” is indefinite because there is no clarity as to what this means, how it was assigned, or how this differs from what was “set.” EX1041, ¶277.

### **4. Claims 27/35: “said early rotation”**

Substitute claims 27/35 recite “*said early rotation* of the first [CEK] is for security reasons.” “Said early rotation” lacks antecedent basis (EX1041, ¶278), rendering the claims indefinite.

## **D. Ground 8: Unpatentable Subject Matter**

Under the latest USPTO Guidance, patentable subject matter requires consideration of two questions: (1) whether the claim recites any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) (“Step 2A, Prong One”); and (2) whether the claim recites additional elements that integrate the judicial exception into a practical application

(“Step 2A, Prong Two”). USPTO Aug. 4, 2025 Memo. Regarding Section 101; MPEP §2106.04(a)-(d). The substitute claims here fail both prongs. EX1041, ¶279.

At the outset, there is no substantive difference between the method claims (22-29) and computerized device claims (33-37), and all substitute claims should be considered together for patent eligibility purposes.

The substitute claims fail Step 2A, Prong One because they are directed to the abstract idea of using content encryption keys to encrypt and decrypt information (segments of media content) using a general-purpose computer as “merely... a tool” to carry out the encryption and decryption. *Int’l Bus. Machines Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371, 1377 (Fed. Cir. 2022). The claims recite purely functional claim elements not tied to any improvement in computer architecture or functionality. Such “result-based functional language” as to “abstract data manipulation” fails step one. *Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1357 (Fed. Cir. 2023).

The substitute claims also fail Step 2A, Prong Two as they do not recite any additional elements that integrate the judicial exception into a practical application. Instead, the substitute claims merely recite the use of generic, conventional computer technology. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217-218 (2014).

Respectfully submitted,  
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Date: September 5, 2025

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**CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (e)(4)**

I certify that on September 5, 2025, a copy of the foregoing document, including any exhibits filed therewith, is being served via electronic mail, as previously consented to by Patent Owner, upon the following:

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