

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

OPTIMNET LLC,
Patent Owner.

Case IPR2026-00321
U.S. Patent No. 9,313,101

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

No.	Description
2006	The Correct File History for U.S. Patent No. 9,313,101
2007	Expert declaration of Dr. Mahdi Eslamimehr ("Eslamimehr Decl.")
2008	<i>Curriculum Vitae</i> of Dr. Mahdi Eslamimehr

I. INTRODUCTION

Institution of Cisco Systems, Inc.’s petition for *inter partes* review of U.S. Patent No. 9,313,101 should be denied. The ’101 patent claims a three-tier policy system, and its independent claims were allowed as novel based on two specific limitations that the asserted art does not show: a policy server that sets the policy from packet-tuple information **and** a separately-provided time condition, and a distinct three-tier PS→PMS→PEE workflow in which a policy server (PS), a policy management system (PMS), and policy execution equipment (PEE) each perform different functional work. The Petition shows neither of these features in Mo or Peng—the only two prior art references asserted in Petitioner’s single ground for invalidity. Recognizing these fatal shortcomings, the Petition attempts to paper over these gaps with bare and conclusory “POSITA knowledge” arguments and an inconsistent relabeling of Mo’s two nodes into the ’101 patent’s three-tier architecture. As a result, the Petition’s single invalidity ground fails as a matter of law and fact, and Petitioner’s request for institution should be denied for multiple, independent reasons, any one of which independently defeats institution:

First, neither Mo nor Peng discloses setting the time-based policy from tuple information **and** a separately provided time condition by a policy server — the very limitation on which allowance turned. That limitation appears in every challenged independent claim (1[e], 3[f], 6[d]), but the Petition does not show this feature in

any of the asserted art. Indeed, Petitioner’s own declarant concedes that Mo lacks disclosure of any tuple information and bridges the gap only with non-asserted standards (Ex. 1006, Ex. 1007) and “POSITA knowledge.” But conclusory assertions about the knowledge of a POSITA cannot satisfy Petitioner’s burden. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (P.T.A.B. Aug. 24, 2022) (precedential).

Second, Mo discloses only the conventional two-node 3GPP arrangement — a Policy and Charging Rules Function (PCRF) and a Policy and Charging Enforcement Function (PCEF). Conversely, the ’101 patent’s claims require *three* functionally distinct tiers, with each independent claim locating the execution-time-point determination at a ***different*** tier. The Petition manufactures the missing third tier by relabeling Mo’s two nodes and double-counting them, and moreover, the Petition’s mapping of Mo’s two nodes is internally inconsistent.

Third, the Petition’s entire motivation to combine Mo and Peng is a single, conclusory paragraph, reproduced verbatim from the supporting expert declaration and directed ***only*** to relocating a timing determination from one node to another — a rationale relevant, at most, to claim 6. It says nothing about why a POSITA would build the architecture or supply the limitations that claims 1–5 require.

Fourth, the Crovella Declaration on which the Petition leans is entitled to little weight. It recites the Petition verbatim, addresses the dispositive limitations in

conclusory brackets, and bears the marks of a recycled template. For example, while the declaration includes a statement that the declarant reviewed the '101 patent prosecution history, the exhibit he purportedly reviewed, Ex. 1002, is actually the file history of a *different* patent directed to a mechanical document feeder.

In short, the Petition fails to establish a reasonable likelihood that it would prevail as to any challenged claim, and thus institution should be denied.

II. OVERVIEW OF THE '101 PATENT

A. The '101 Patent's Technology and Three-Tier Architecture

The '101 patent is directed to controlling network traffic with a time-based policy — a traffic-control policy to which a time condition is added as a governing condition. Ex. 1001 ('101 Patent), 1:15–20. Conventional traffic policy was set using only the information carried within the traffic packets themselves. Ex. 1001, 1:40–44; *see also* Ex. 2006 ('101 Patent FH) at p. 130 (Sept. 9, 2014 Applicant's Response) (“Conventionally, traffic policy is set using only information included in a packet within the traffic.”).¹ The '101 patent departs from that approach. It sets a policy by combining packet information with a separately supplied time condition,

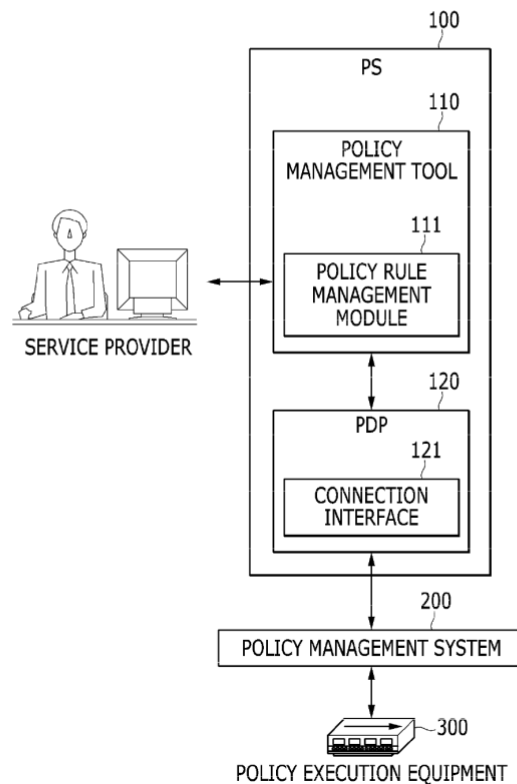
¹ Petitioner submitted as Exhibit 1002 a document it identifies as the prosecution history of the '101 patent. Exhibit 1002 is not the '101 file history; it is the file history of U.S. Patent No. 8,313,101, titled “FEEDER,” an unrelated patent. Patent Owner therefore submits the correct, certified prosecution history of the '101 patent as **Exhibit 2006**, to which all citations to the '101 file history in this Response refer.

and it distributes the work of setting, mediating, and executing that policy across three functionally distinct stages.

The specification describes those three stages and the flow of the policy through them: “Referring to FIG. 1, a time-based policy is set at a policy server (PS) 100 and is executed in policy execution equipment (PEE) 300 via a policy management system (PMS) 200.” Ex. 1001, 3:11–13; *see also* Figure 1, below:

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FIG. 1



The policy server (PS) sets the policy. Ex. 1001, 3:14–16. The PS then converts the policy into a distinct serialization format — “policy management system transfer syntax” — at a policy decision point (PDP), and transmits the converted policy to the PMS. Ex. 1001, 3:28–32. The PS is the tier at which the policy originates and is formatted for downstream delivery. Eslamimehr Decl. ¶ 16.

The policy management system (PMS) is a stage positioned at a higher level than the PEE. Ex. 1001, 4:36–39. It performs three distinct functions: 1) it “stores the received time-based policy at a database”; 2) it “synchronizes the time-based policy in real time”; and 3) it “parses the received time-based policy to a structure appropriate for the PEE 300, and transmits the parsed time-based policy to each PEE 300.” Ex. 1001, 3:37–42. The PMS thus operates as a one-to-many mediation layer between the policy source and the multiple execution points: it persists the policy, keeps its stored copy synchronized, and compiles a per-PEE structure for delivery to each execution point. Eslamimehr Decl. ¶ 17.

The policy execution equipment (PEE) is the network equipment that executes the policy on the traffic. Ex. 1001, 3:33–35, 3:43–47. It is the terminal tier of the three-stage workflow.

In short, these three tiers are functionally distinct. The PS sets and formats; the PMS stores, synchronizes, and parses per execution point; the PEE executes. As Dr. Eslamimehr explains, the distinction is functional — the PMS is a software-

based stage — and a two-node arrangement in which one node decides and another enforces does not, by itself, perform the PMS’s intermediate store-synchronize-parse mediation. Eslamimehr Decl. ¶¶ 16–18.

The specification teaches that the determination of when a time-based policy fires — its “execution time point” — need not occur at any single one of these tiers. Ex. 1001, 4:27–32. Where the PEE lacks the function, “an execution time point of the time-based policy should be determined in a higher level stage than that of the PEE 300.” Ex. 1001, 4:27–29. The specification likewise describes “a method of determining an execution time point of a time-based policy at a PS stage or a PMS stage.” Ex. 1001, 4:30–32. The execution-time-point determination can therefore occur at the PS, at the PMS, or at the PEE — and the three independent claims correspond, respectively, to those three placements.

Finally, the specification anchors the central concept that the policy is set from a combination of packet information *and* a time condition:

A policy that is set in this case is set by combining information (5-tuple, 7-tuple, etc.) that is included in a packet, a traffic flow form, and a time condition. That is, by combining a kind of tuple data that are included in the packet, a traffic pattern, and a time condition, a time-based policy may be set.

Ex. 1001, 3:17–21. The specification defines the “tuple” data expressly: “Such traffic includes a packet in which information such as a 5-tuple (source IP address,

destination IP address, source port, destination port, and protocol) and a 7-tuple ... is stored.” Ex. 1001, 1:31–35.

The combination of tuple data drawn from the packet with a separately provided time condition is the conceptual heart of the claimed invention, and — as the prosecution history confirms — the feature on which allowance turned. For example, the specification anchors the combination: “by combining a kind of tuple data that are included in the packet, a traffic pattern, and a time condition, a time-based policy may be set.” Ex. 1001, 3:17–21. And the prosecution history confirms that allowance turned on this feature: the tuple-plus-time-condition limitation was added in the April 2, 2015 after-final/RCE amendment and immediately preceded allowance. Ex. 2006 at pp. 155–156 (Apr. 2, 2015 Applicant’s Amendment and Request for Continued Examination); Ex. 2006 at pp. 167–168 (May 22, 2015 Office Action); Ex. 2006 at p. 185 (Dec. 7, 2015 Notice of Allowability).

B. The Challenged Independent Claims

The three independent claims share the same subject matter — determining or executing the execution time point of a time-based policy that controls traffic — but each locates the key work at a different tier of the architecture. Claim 1 places the execution-time-point determination at the policy server; claim 3 places it at the policy management system; and claim 6 places the execution-time-point

determination and execution at the policy execution equipment. The three independent claims are recited verbatim below:

Claim 1: A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and

transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy, and wherein the execution time point reflects a time condition that is provided independently from the traffic,

wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.

Claim 3: A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

downloading, by a policy management system (PMS) that is connected to a policy execution equipment (PEE) that executes the policy, the policy;

storing the policy at a database that is included in the PMS;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy,

wherein the execution time point reflects a time condition that is provided independently from the traffic,

wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.

Claim 6: A method of executing a time-based policy that controls traffic, the method comprising:

downloading, by a policy execution equipment (PEE) that executes the policy, the policy;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; and

executing, if an execution time point of the policy arrives, the policy, wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.

The node identity in each independent claim — PS in claim 1, PMS in claim 3, PEE in claim 6 —is a deliberate architectural choice that the specification supports expressly: the patent teaches that the execution-time-point determination can be performed “at a PS stage or a PMS stage,” or in a higher-level stage where the PEE lacks the function. Ex. 1001, 4:27–32. Each independent claim claims one of those placements, and must be evaluated in view of the functionally distinct roles the specification describes. Eslamimehr Decl. ¶ 30.

C. Prosecution History

The claims that issued were not the claims the applicant filed. The independent claims emerged in their allowed form only after two specific narrowing

amendments, each added in response to a specific rejection, and together they define the feature on which allowance turned.

First, in the May 9, 2014 non-final Office Action, the Examiner rejected all pending claims as anticipated under 35 U.S.C. § 102(b) by Riddle (U.S. 2008/0316922). Ex. 2006 at pp. 115–116 (May 9, 2014 Non-Final Office Action). In response, on September 9, 2014, the applicant amended the independent claims to add that “the execution time point reflects a time condition that is provided independently from the traffic.” Ex. 2006 at pp. 128–129 (Sept. 9, 2014 Applicant’s Amendment). The applicant distinguished Riddle on precisely that ground, explaining that Riddle’s timing parameter was carried within the traffic while the claimed time condition was not:

Riddle teaches a ‘triggerexpiration’ parameter that is within a packet that is transmitted with network traffic.

...

In contrast, the present invention provides a time condition independent from the traffic in a network. ... the time condition is a separate entity from the information provided.

Ex. 2006 at p. 132 (Sept. 9, 2014 Applicant’s Response).

Second, after the applicant added the “independently from the traffic” language, the Examiner issued a final Office Action on January 2, 2015 rejecting the claims under 35 U.S.C. § 103(a) over Riddle in view of Friedman (U.S. 2013/0117847). Ex. 2006 at pp. 143–146 (Jan. 2, 2015 Final Office Action). The

applicant overcame that rejection by an after-final amendment filed with a Request for Continued Examination on April 2, 2015, adding to each independent claim the limitation that the policy “is set based on tuple information that is included in a packet from the traffic and the time condition by [a/the] policy server.” Ex. 2006 at pp. 155–156 (Apr. 2, 2015 Applicant’s Amendment and Request for Continued Examination). The applicant distinguished the combination on the ground that neither reference taught setting a policy by combining tuple information with a separately set time condition:

Neither reference extracts tuple information, sets a time condition, and then sets a policy by combining the tuple information and the set time condition. ... Riddle and Friedman fail to teach or suggest this claim feature.

Ex. 2006 at p. 159 (Apr. 2, 2015 Applicant’s Remarks).

That April 2, 2015 amendment immediately preceded the indication of allowable subject matter. In the May 22, 2015 Office Action that followed, the Examiner allowed the claims (then numbered 2–7) and dropped the § 103 rejection, stating only “Claims 2-7 are allowed.” Ex. 2006 at pp. 167–168 (May 22, 2015 Office Action). The record therefore supports the inference that allowance followed from the April 2, 2015 amendment that added the tuple-plus-time-condition limitation, together with the applicant’s accompanying remarks.

D. The Petition and the Single Asserted Ground

The Petition advances a single ground. Ground 1 challenges claims 1–6 of the '101 patent as obvious under 35 U.S.C. § 103 over Mo (Ex. 1004) in view of Peng (Ex. 1005). Pet. 4; *see also* Pet. 25. Petitioner supports that ground with the declaration of Dr. Mark E. Crovella (the “Crovella Declaration,” Ex. 1003). Petitioner proposes no claim construction, asserting instead that every term should be given its “plain and ordinary meaning.” Pet. 7. There is no Ground 2, no alternative reference, and no fallback combination.

Patent Owner addresses the three independent claims — claims 1, 3, and 6. The challenged dependent claims (claims 2, 4, and 5) each depend from one of those independents and fail for at least the same reasons. Accordingly, if the asserted art fails to disclose the limitations of the independent claims, the Petition fails as to every challenged claim, and institution should be denied.

III. LEVEL OF ORDINARY SKILL IN THE ART

For purposes of this Preliminary Response only, Patent Owner applies Petitioner’s proposed level of ordinary skill in the art *arguendo*. Petitioner contends that a person of ordinary skill in the art (a “POSITA”) as of April 2012 “would have been someone knowledgeable and familiar with network traffic policies,” who “would have gained knowledge of these concepts through a mixture of training and work experience, such as by having at least a bachelor’s degree in electrical

engineering or computer sciences, or related field, and at least two to three years of training or additional work experience in the area of network traffic control,” with “[a]dditional hands-on and design experience” able to “compensate for less formal education, and vice versa.” Pet. 8; Crovella Decl. ¶ 42.

IV. CLAIM CONSTRUCTION

Claim terms are construed under the same standard applied in district court — the framework set out in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) — giving each term the ordinary and customary meaning it would have to a person of ordinary skill in the art in light of the specification and prosecution history. 37 C.F.R. § 42.100(b).

No term requires construction for the Board to deny institution. Petitioner proposed no constructions, instead applying the “plain and ordinary meaning” of the claim terms. Pet. 7. The Petition fails even under that plain and ordinary meaning because the asserted art does not disclose the claimed limitations and the Petition’s mapping is internally inconsistent, as shown below.²

² Patent Owner reserves the right to propose narrowing constructions in the Patent Owner Response if trial is instituted.

V. LEGAL STANDARDS

A. The Institution Standard

The Board may institute an inter partes review only where the Petition demonstrates “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). The burden of demonstrating that reasonable likelihood rests on Petitioner and never shifts; it remains with Petitioner throughout. *See* 35 U.S.C. § 316(e); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). It is not the Board’s role to supply the analysis the Petition omits, and the Board will not sift through the record to construct arguments or locate disclosures the Petition fails to identify. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380–81 (Fed. Cir. 2016) (reversing Board’s conclusions which “raise[d], address[ed], and decide[d] unpatentability theories never presented by the petitioner”).

B. Obviousness

A claim is unpatentable under 35 U.S.C. § 103 only if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art. Obviousness is determined against the factual inquiries of *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966): the scope and content of the prior art, the differences between the prior art and the claims, the level of ordinary skill, and any objective indicia of

nonobviousness. A petitioner asserting that a claim would have been obvious over a combination of references must show both that the combination discloses every limitation and that a person of ordinary skill would have been motivated to combine the references with a reasonable expectation of success. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The motivation to combine must be supported by “articulated reasoning with some rational underpinning.” *KSR*, 550 U.S. at 418. Furthermore, showing that a person of ordinary skill *could* have combined the references is not the same as making the requisite showing that a person of ordinary skill *would have been motivated to do so*. *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). The obviousness analysis must be grounded in the prior art and may not rely on hindsight or conclusory rationale. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016); *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 887 (Fed. Cir. 2024).

C. Inherency and Anticipation

A reference does not disclose a limitation merely because the limitation might be present; inherency requires that the missing feature be “necessarily present,” not merely probable or possible. *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1195–96 (Fed. Cir. 2014) (“in an obviousness analysis,” an inherent limitation

“necessarily must be present, or [be] the natural result of the combination of elements explicitly disclosed by the prior art”; inherency “may not be established by probabilities or possibilities”). That a reference *can* perform or include a feature is not proof that it *must*. *Id.* The same principle constrains an obviousness theory that depends on what the asserted art allegedly contains: a limitation supplied only by what a reference *could* do, rather than what it necessarily discloses, is not established. *Id.*

D. Petition Sufficiency

A petition must identify “[h]ow the construed claim is unpatentable” and specify “where each element of the claim is found in the prior art patents or printed publications relied upon,” 37 C.F.R. § 42.104(b)(2), and must set forth “a full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence,” 37 C.F.R. § 42.22(a)(2). Argument may not be incorporated by reference from a supporting declaration into the petition; “[a]rguments must not be incorporated by reference from one document into another document.” 37 C.F.R. § 42.6(a)(3). The Board accordingly will not credit a conclusory limitation mapping, nor will it import argument developed only in a declaration to cure a petition that does not itself make the showing. *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 7–10 (P.T.A.B. Aug. 29,

2014) (informative); *see also In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380–81 (Fed. Cir. 2016).

E. Expert Evidence

Expert testimony that states a conclusion without disclosing the underlying facts or data on which the opinion is based is entitled to little or no weight. 37 C.F.R. § 42.65(a). A declaration that merely repeats, verbatim or in substance, the conclusory assertions of the petition adds nothing and is entitled to little or no weight. *See* 37 C.F.R. § 42.65(a); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (P.T.A.B. Aug. 24, 2022) (precedential). A fact-finder is not required to credit an expert's unsupported assertions, and broad, conclusory expert statements unsupported by corroborating facts are entitled to little weight. *Rohm & Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997); *Velandier v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003).

VI. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF SUCCESS

For the reasons below, the Petition fails to demonstrate a reasonable likelihood that it would prevail as to any challenged claim. Each of the following deficiencies is independently sufficient to deny institution.

A. The Petition Fails to Show that Mo or Peng Discloses Setting the Policy Based on Tuple Information AND a Separately-Provided Time Condition by a Policy Server

As discussed above, the independent claims of the '101 patent were deemed novel over the prior art after the applicant added a specific requirement to each of them: that the time-based policy be “set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.” Ex. 1001, claims 1, 3, 6. The Petition does not show that either Mo or Peng discloses this. It cannot, because: 1) the Petition does not even cite Peng for this limitation; and 2) in any event, neither reference is shown to set the claimed time-based policy from packet-tuple information and the time condition by a policy server, and neither describes a single policy server combining tuple information with a separately provided time condition. Petitioner’s own declarant effectively acknowledges that Mo does not disclose the tuple information, and thus the Petition is forced to paper over the gap with non-asserted 3GPP standards and unadorned “POSITA knowledge.” Pet. 39–40; Crovella Decl. ¶¶ 84–85. That does not carry Petitioner’s burden.

1. Mo does not show that the claimed policy is set from packet-tuple information; bearer- and QCI-level QoS authorization is not 5-tuple-based policy setting

Mo does not set its QoS authorization from packet-tuple information at all. Mo’s subject is “QoS Control in PCRF Based on Usage and Time of Day” (Ex. 1004,

Title), and Mo authorizes QoS at the bearer and QCI levels — not by extracting a 5-tuple from a traffic packet. Mo describes 3GPP QoS at three levels: the IP-CAN bearer level, the QCI level, and the service-flow level. Ex. 1004 ¶¶ [0004], [0031]. Those levels are different from packet-tuple analysis. A 5-tuple identifies packet-header information for a particular packet or flow, including source IP address, destination IP address, source port, destination port, and protocol. By contrast, an IP-CAN bearer is a transport bearer, and a QCI is a QoS class identifier. An authorization at those levels applies to a bearer or QoS class, not necessarily to the unique 5-tuple of any particular packet or flow. As Dr. Eslamimehr explains, bearer- and QCI-level QoS authorization neither requires nor by itself indicates that the policy was set from a per-flow or per-packet 5-tuple. Eslamimehr Decl. ¶¶ 20–21. Mo’s own description makes clear that its authorization operates at the aggregate QCI level, applying “independently to all IP-CAN bearers with the same QCI.” Ex. 1004 ¶ [0005]. An authorization that applies to *all* bearers sharing a QCI is, by definition, not one that is set from the per-packet 5-tuple of any particular flow. Eslamimehr Decl. ¶ 21.

Indeed, Mo itself confirms that its authorization is not derived from a packet 5-tuple because Mo’s rule sets establish Authorized QoS from “Subscriber information, usage, time-of-day information.” Ex. 1004 ¶ [0035]; *see also id.* ¶¶ [0034]–[0035] (PCRF invokes “cascading Rule sets” keyed to subscriber identity

and scheduled time blocks). None of those inputs is packet-tuple information. In particular, *usage* is not tuple information: a measure of how much a subscriber has consumed is a quantity, not the source/destination addresses, ports, and protocol of a packet. Eslamimehr Decl. ¶ 22.

Moreover, the Petition cannot supply the missing tuple by pointing to what a 3GPP filter “can” match. A reference that *can* operate on a 5-tuple does not disclose a policy that *must be* set from a 5-tuple. *KSR*, 550 U.S. at 418 (The obviousness inquiry asks whether a POSITA “*would* have been motivated to combine the references, not merely that a POSITA *could* have done so.”). Here the “can ≠ must” gap is not even close. The standards on which the Petition relies are themselves permissive. Pet. 39–40. For example, ETSI TS 123.203 states that a service-data-flow filter “*may* ... be a pattern for matching the IP 5 tuple” — *may*, not *must*. Ex. 1007 (3GPP TS 23.203) § 6.2.2.2, p. 47 (emphasis added). And the standards list *additional* packet-filter fields beyond any 5-tuple — Type-of-Service/Traffic Class, Security Parameter Index, and Flow Label. Ex. 1006 (3GPP TS 29.212) §§ 5.3.14–5.3.15, 5.3.51–5.3.52. Because a filter “may” match other fields, or fewer, the most these disclosures show is that a 5-tuple is *one possibility among several* — which does not establish that Mo’s policy is, or must be, set from packet-tuple information. Eslamimehr Decl. ¶ 23. The Petition has not shown that Mo necessarily does what

the claim requires; it has shown, at most, that a 3GPP system could be configured to match a 5-tuple in some embodiments. That is not a disclosure of the limitation.

2. A configured service-data-flow filter does not establish “tuple information that is included in a packet from the traffic.”

The Petition’s tuple theory also fails for a second, independent reason: a *configured filter pattern* is not the claimed “tuple information that is included in a packet from the traffic.” The claim requires that the policy be set from tuple information *drawn from an actual traffic packet*. A service-data-flow filter, by contrast, is a pre-configured rule that may be defined in advance and may contain unspecified or wildcarded fields. Ex. 1007 § 6.2.2.2, p. 47 (filter “may” match the IP 5-tuple); Ex. 1006 §§ 5.3.14–5.3.15, 5.3.51–5.3.52 (enumerating filter fields). Eslamimehr Decl. ¶ 24. A rule that is *capable of matching* packet fields when traffic is later enforced is a different thing from a policy server *setting the policy based on tuple information included in a packet from the traffic*. The former describes downstream enforcement against arbitrary, possibly-wildcarded criteria; the latter is the claimed act of setting the policy from tuple information that is actually present in a traffic packet. The Petition never bridges that distance. It must explain how a configured filter pattern shows that the policy server set the policy *based on tuple information in a traffic packet*, rather than merely describing a rule capable of matching packet fields during enforcement — and it does not.

3. Mo’s “Authorized QoS” is not shown to be the same claimed policy that is set, transmitted, downloaded, stored, synchronized, parsed, and executed

The Petition’s tuple theory rests on a threshold mapping problem: the Petition does not consistently identify what Mo object is the claimed “policy.” Mo’s PCRF invokes its rule sets to establish an “Authorized QoS” and transmits an updated QoS result to the gateway. Ex. 1004 ¶¶ [0035], [0037], [0045]. But the ’101 patent claims do not recite a QoS *result*. They recite a *time-based policy* — the object that is, across the claims, set by the policy server (1[e]/3[f]/6[d]), transmitted (1[c]), downloaded (3[a]/6[a]), stored at a database (3[b]), synchronized (claim 5), parsed for the execution equipment (claim 4), and executed when the time point arrives (6[d]). As Dr. Eslamimehr explains, a POSITA would distinguish the claimed policy — the object that must be set, transmitted, downloaded, stored, synchronized, parsed, and executed — from a per-session Authorized QoS output produced by applying rules. Eslamimehr Decl. ¶ 25.

4. The Petition fills the gap only with non-asserted standards and “POSITA knowledge” — and the cited pages do not even support the Petition’s assertions

Tellingly, the Petition does not contend that Mo itself discloses setting a policy from packet-tuple information. The Petition instead supplies the tuple from “what a POSITA would understand.” The Petition asserts that “a POSITA understood that using PCC rules to control packet flow are based on tuple

information contained in the packet headers,” citing Ex. 1007 pp. 22, 27, and that the RAR’s IP-CAN-level QoS “a POSITA would understand includes a 5-tuple as described in the State of the Art,” citing Ex. 1006 p. 69. Pet. 39–40; Crovella Decl. ¶¶ 84–85. Petitioner’s declarant thus *admits* that Mo does **not** disclose the 5-tuple — he reaches it only by bridging from standards (Ex. 1006 and Ex. 1007) which are **not** part of the invalidity grounds and what “a POSITA would understand.” Crovella Decl. ¶¶ 84–85. By Petitioner’s own declarant’s account, the tuple half of the claimed conjunction is **not** in the allegedly invalidating art. *Id.* Petitioner’s expert adds nothing of its own here: Crovella’s tuple paragraphs (¶¶ 84–85) repeat the Petition’s assertion (Pet. 39–40) verbatim, without disclosing any additional facts or technical reasoning, and so are entitled to little weight. 37 C.F.R. § 42.65(a); *see infra* § VI.E.2.

That is improper twice over. **First**, Ground 1 is pleaded as Mo in view of Peng. The two standards the Petition relies on, Ex. 1006 and Ex. 1007, are **not** part of the asserted ground; they are State-of-the-Art exhibits used to supply a limitation the asserted references lack. A petitioner may not fill a hole in the asserted prior art with non-asserted references and bare POSITA assertion without articulating a proper obviousness theory in the Petition, and may not use common knowledge or unsupported POSITA assertion to supply a limitation that the asserted references lack. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361–62 (Fed. Cir. 2016)

(“common sense” is “typically invoked to provide a known motivation to combine, not to supply a missing claim limitation”); *K/S HIMPP v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365–66 (Fed. Cir. 2014); *see also In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (a petitioner “cannot employ mere conclusory statements” but “must instead articulate specific reasoning, based on evidence of record”). **Second**, this is a failure to provide “a detailed explanation of the significance of the evidence” under 37 C.F.R. § 42.22(a)(2). The Petition asserts the conclusion — that a POSITA “would understand” the IP-CAN-level QoS to “include” a 5-tuple — without explaining *how* a permissive standard establishes that *Mo*’s policy is *set from* packet-tuple information by the policy server. A bracketed assertion and a “would understand” are not a detailed explanation.

The defect is compounded by the fact that the Petition’s cited pages do not say what the Petition says they do. The express “may be a pattern for matching the IP 5 tuple” language appears at Ex. 1007 § 6.2.2.2, p. 47 — **not** at the pages the declaration cites. Likewise, Ex. 1007 pp. 22 and 27, cited in Crovella ¶ 84, do not expressly discuss a 5-tuple. And Ex. 1006 p. 69, cited for the proposition that the QoS “includes a 5-tuple,” contains only AVP definitions (the TFT-Packet-Filter-Information AVP, the ToS-Traffic-Class AVP, and the QoS-Information AVP), which does **not** establish a 5-tuple. Eslamimehr Decl. ¶ 26. The support for the dispositive tuple limitation thus comes **not** from the asserted references, but from

non-asserted standards that, on the pages the declaration actually cites, do not even discuss the 5-tuple. As Patent Owner explains below, this is also a reliability problem: a declarant whose cited support does not say what he says it does is entitled to little weight under 37 C.F.R. § 42.65(a).

5. Mo also fails to disclose the time condition “provided independently”

The other half of the claimed conjunction — the “time condition that is provided independently from the traffic” — is also missing from Mo. For example, Mo repeatedly combines *usage measured from the traffic* with time of day. Indeed, Mo is titled “QoS Control in PCRF Based on Usage and Time of Day.” Ex. 1004, Title. Mo’s claims 1 and 8 authorize QoS “based at least on the usage of the subscriber and the current time period.” Ex. 1004, claims 1, 8. And Mo’s processing flows are triggered by usage reports drawn from the traffic and identify usage as “a combined condition” with time of day. Ex. 1004 ¶¶ [0038]–[0041], [0048]. Eslamimehr Decl. ¶ 27. Because Mo’s design is built on usage measured from the traffic combined with time of day, the Petition cannot establish — for the *same* claimed policy — both a time condition provided *independently* from the traffic *and* tuple information drawn *from* the traffic.

Patent Owner does not contend that Mo lacks any clock-based trigger; Mo’s FIG. 4 scheduler “wakes up, triggered by a time-of-day clock.” Ex. 1004 ¶ [0045].

The point is narrower and is directed at the Petition’s reasoning: the Petition’s sole support for the “independently from the traffic” limitation is the assertion that the Next Re-Authorization time “is stored in the Next Re-Authorization Cache” and “is provided to the ... scheduler” — i.e., that the value is cached and internally delivered. Crovella Decl. ¶ 82; Pet. 38. But where a value is stored, and how it is internally delivered, do not establish its *source* or whether it was provided independently from the traffic. Eslamimehr Decl. ¶ 28. A re-authorization time that is computed during session processing and then cached is not shown to be “provided independently from the traffic” merely because it is later read from a cache. The Petition attacks the wrong question — *where the value lives* — and never answers the claimed one — *whether it was provided independently from the traffic*. The reasoning is incomplete, and it does not carry Petitioner’s burden. Here too, Petitioner’s sole expert support — Crovella’s single sentence at ¶ 82 — merely restates the Petition’s assertion (Pet. 38) without disclosing any supporting facts or reasoning, and warrants little weight. 37 C.F.R. § 42.65(a); *see infra* § VI.E.2.

6. Peng cannot cure the deficiency

Peng does not supply what Mo lacks. The Petition does not even cite Peng for this limitation: Peng is invoked for one point only — that within 3GPP PCC, a policy determination may be performed at the PCRF or the PCEF, a question of node placement. Pet. 45 (6[a]); Crovella Decl. ¶ 97. Peng is not relied upon to supply the

tuple, the time condition, or the conjunction. On the Petition’s own framing, then, Mo must independently supply the tuple/time conjunction — and, as shown above, it does not.

Even setting aside the Petition’s framing, Peng cannot bridge the gap. Peng’s “time condition” is a *cumulative-usage-duration threshold* — e.g., “Internet access with 2M bandwidth for 150 hours,” where “150 hours” is the time condition measured against accumulated service usage. Ex. 1005 at 5:12–14, 7:6–18. Eslamimehr Decl. ¶ 29. Peng decides based on the combination of a time condition *and a cumulative time of usage* — not based on packet-tuple information. Peng never recites a 5-tuple or any flow-descriptor tuple as a decision input; the word “tuple” does not appear in Peng. Peng therefore cannot supply the tuple half of the conjunction, and it cannot establish a policy server setting a policy from tuple information *and* a separately provided time condition. In short, Peng cannot cure the limitation.

7. The limitation is absent across all three independent claims, and Ground 1 fails

This limitation appears verbatim in each challenged independent claim — 1[e], 3[f], and 6[d]. Ex. 1001, claims 1, 3, 6. The Petition maps it identically in each, and supplies the tuple identically in each — from non-asserted standards and POSITA gloss, with Petitioner’s declarant effectively acknowledging that Mo lacks

the 5-tuple. Crovella Decl. ¶¶ 84–85, 93, 101. For the reasons above, the Petition has not shown that the asserted art discloses the claimed policy server setting a policy based on the conjunction of packet-tuple information drawn from a traffic packet and a separately provided time condition. Because this is a limitation of every challenged independent claim, the Petition’s failure on this limitation defeats Ground 1 as to claims 1, 3, and 6, and each of the respective dependent claims.

B. Mo Does Not Disclose the ’101’s Three-Tier PS→PMS→PEE Architecture, and the Petition’s Mapping Is Internally Inconsistent

The ’101 patent describes and claims a three-tier architecture in which a policy server (PS), a policy management system (PMS), and policy execution equipment (PEE) each perform distinct functional work, and the three independent claims deliberately locate the execution-time-point determination at a *different* tiers. Mo discloses only the conventional two-node 3GPP arrangement — a PCRF and a PCEF. The Petition papers over that gap by relabeling Mo’s two nodes to stand in for the patent’s three tiers, double-counting each node, and reusing a single Mo process step for the timing determination of all three independent claims. Pet. 35, 39; Crovella Decl. ¶¶ 77, 83. The result is a mapping that does not consistently identify the actor performing each claimed operation or the direction of each transfer — and that contradicts itself within its own analysis. The Petition has not shown that Mo discloses the claimed architecture, and its incoherent mapping cannot carry

Petitioner's burden under 37 C.F.R. §§ 42.22(a)(2) and 42.104(b)(2). This deficiency is dispositive of independent claims 1, 3, and 6.

1. The '101's Three Tiers Perform Distinct Functional Work, and the Claims Locate the Determination at Different Tiers

The '101 patent describes a three-stage traffic-policy system in which the policy is set at one stage, mediated at a second, and executed at a third. The specification states the model directly: “Referring to FIG. 1, a time-based policy is set at a policy server (PS) 100 and is executed in policy execution equipment (PEE) 300 via a policy management system (PMS) 200.” Ex. 1001, 3:11–13.

Each tier does different work. The PS *sets* the policy and *converts* it into a representation suitable for transmission — it “convert[s]” the policy “to policy management system transfer syntax at a policy decision point (PDP) 120” and transmits it to the PMS. Ex. 1001, 3:28–32. The PMS — a software-based stage — then *stores, synchronizes, and parses* the policy: it “stores the received time-based policy at a database and synchronizes the time-based policy in real time,” and “parses the received time-based policy to a structure appropriate for the PEE 300, and transmits the parsed time-based policy to each PEE 300.” Ex. 1001, 3:37–42. The PMS is thus a mediation layer that takes an upstream policy and converts it into a per-PEE structure for “each PEE.” The PEE — the terminal-tier network equipment positioned below the PMS — *executes* the policy on the traffic. Ex. 1001,

3:33–35, 4:36–39. These are three functionally distinct operations: set-and-convert, store-synchronize-parse, and execute. Eslamimehr Decl. ¶ 30.

The independent claims build on this division of labor by locating the execution-time-point determination at a *different* tier in each claim. The specification teaches that “an execution time point of the time-based policy should be determined in a higher level stage than that of the PEE 300” where the PEE lacks the function, and describes “a method of determining an execution time point of a time-based policy at a PS stage or a PMS stage.” Ex. 1001, 4:27–32. The claims track that teaching:

Claim 1 locates the determination at the PS: “determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives,” and then “transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy.” Ex. 1001, claim 1. Claim 1 thus requires a distinct PMS downstream of the PS and a distinct PEE downstream of the PMS.

Claim 3 locates the determination at the PMS: “downloading, by a policy management system (PMS) that is connected to a policy execution equipment (PEE) that executes the policy, the policy,” “storing the policy at a database that is included in the PMS,” and then “determining whether an execution time point of the policy

arrives.” Ex. 1001, claim 3. Claim 3 still requires a distinct upstream PS, because its policy must be “set based on tuple information ... and the time condition by a policy server.”

Claim 6 locates execution and determination at the PEE: “downloading, by a policy execution equipment (PEE) that executes the policy, the policy,” “determining whether an execution time point of the policy arrives,” and “executing, if an execution time point of the policy arrives, the policy.” Ex. 1001, claim 6. Claim 6 likewise requires a distinct PS that “set” the policy.

The node identity in each independent claim is therefore a deliberate, specification-supported architectural choice, not surplusage. The claims require the claimed functions to be performed by the claimed actors, and they require the arrival-determination to occur *at the claimed tier* in each claim. Eslamimehr Decl. ¶¶ 30, 35. To show obviousness, the Petition must map a reference that supplies those claimed functional roles and places the determination at the claimed node. It does not.

2. Mo Discloses Only the Conventional Two-Node 3GPP PCRF/PCEF Arrangement

Mo is a 3GPP Policy and Charging Control reference whose object is “authorizing a Quality of Service (QoS) for a wireless subscriber based on subscriber usage and time-of-day.” Ex. 1004, Abstract. Its architecture has two functional

nodes plus a profile store: the PCEF, which generates a Credit Control Request and forwards it; the PCRF, which “validates the message (its syntax, semantics),” “retrieves subscriber data from SPR 108,” and returns an authorization to the PCEF over the Gx interface; and the SPR, a subscription-profile repository. Ex. 1004 ¶¶ [0029]–[0030]. That is the conventional two-functional-node 3GPP PCC arrangement: PCRF for the decision, PCEF for the enforcement. Eslamimehr Decl. ¶ 31.

Mo discloses nothing answering to the ’101 patent’s intermediate PMS. There is no node or identified functionality that receives a policy from a distinct upstream policy server, stores it, synchronizes it in real time, and parses it into a per-PEE structure before pushing it downstream. The specific PMS operations are absent from Mo: it discloses no store-synchronize-parse or transfer-syntax conversion step — consistent with the terms “transfer syntax” and “synchroniz-“ not appearing in Mo at all. Mo’s PCRF performs both decision and scheduling; it is not split into a separate PS and PMS, and Mo’s PCEF is an enforcement node that receives a Re-Authorization Request and installs rules — it does not store, synchronize, or parse a policy for a downstream executor. Eslamimehr Decl. ¶¶ 32–33. Mo therefore supplies, at most, two of the three claimed functional tiers.

3. The Petition Manufactures a Third Tier by Relabeling and Double-Counting Mo's Two Nodes

Faced with a two-node reference and a three-tier claim, the Petition does not identify a third node or distinct PMS functionality in Mo. It instead relabels Mo's existing nodes so that a single node stands in for two distinct claimed tiers. The PCRf is mapped to the PS — the Petition brackets “the PCRf includes re-authorization scheduler [policy server]” (Pet. 35; Crovella Decl. ¶ 77) — and the *same* PCRf is mapped to the PMS, because “[t]he PCRf includes software functionality [PMS].” Pet. 39; Crovella Decl. ¶ 83. The Petition thus assigns the one PCRf to two different claimed entities — policy server *and* policy management system — that the '101 patent describes as performing different functional work. In its claim 2 analysis, the Petition brackets the same PCRf as “[PS]” and “[PMS]” within a single sentence. Crovella Decl. ¶ 86. Labeling one node as two tiers does not show that the reference discloses two distinct functional tiers.

The double-counting is compounded by the Petition's reuse of a single Mo process step for the timing determination of all three independent claims. Mo's only arrival-determination is step 409 of FIG. 4, where the re-authorization scheduler “determines if the Next Re-Authorization time of the session entry is now (or earlier).” Ex. 1004 ¶ [0045]. That step is performed only at the PCRf. The Petition nonetheless invokes it for the determination at the PS (claim 1), at the PMS (claim 3), and at the PEE (claim 6) alike, mapping the determination steps of claims 3 and

6 to Mo “for the same reason as” the claim 1 mapping. Crovella Decl. ¶¶ 77–79, 90, 99. The Petition never identifies a distinct PMS or a distinct PEE in Mo performing the arrival-determination; it re-uses the one PCRf scheduler for all three node-specific claims. Eslamimehr Decl. ¶ 35. Where a claim recites its elements separately, those elements are presumed to be distinct, and a petitioner must explain why one prior-art structure or function can satisfy separately recited claim elements. *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010); *see also Univ. of Mass. v. L’Oréal S.A.*, 36 F.4th 1374, 1380 (Fed. Cir. 2022) (the canon that “the” invokes antecedent basis and requires repetition of the same recited element). That the ’101 patent’s tiers are functionally rather than physically distinct does not aid the Petition: the claims recite the policy server and the policy management system as separate functional roles, and the Petition maps Mo’s single PCRf to both without showing that one node performs the management system’s distinct store-synchronize-parse mediation. The Petition has not shown that Mo’s two nodes supply the ’101 patent’s three distinct functional tiers.

4. The Petition’s Mapping Is Internally Inconsistent — It Does Not Consistently Identify the Actor or the Direction of Each Transfer

Even setting aside that Mo has two nodes and the claims require three, the functional roles, Petition’s mapping fails on its own terms: it changes the identity of the PMS within its own analysis and does not consistently identify which node

performs each claimed operation or the direction in which the policy moves. A petition must specify “where each element of the claim is found in the prior art” and provide “a detailed explanation of the significance of the evidence.” 37 C.F.R. §§ 42.104(b)(2), 42.22(a)(2). When the petition cannot keep its own node-to-tier mapping stable across adjacent limitations, it has not supplied that detailed explanation.

With respect to claim 1, the Petition identifies two different nodes as the PMS. For limitation 1[c] — “transmitting ... the policy to a policy management system (PMS)” — the Petition treats the PCEF as the PMS, mapping the claimed transmission to Mo’s “RAR message [that] is sent to the PCEF on interface Gx ... [transmitting ... the policy to a policy management system (PMS)].” Pet. 38; Crovella Decl. ¶ 81. But within the same limitation, the Petition identifies the software in the PCRF — *not the PCEF* — as the PMS, and instead identifies the PCEF as the PEE: “The PCRF includes software functionality [PMS],” and “a QoS rule can be installed on the gateway [PEE].” Crovella Decl. ¶ 83. The Petition thus changes the identity of the PMS from the PCEF (¶ 81) to the PCRF software (¶ 83) within a single claim. It cannot be both. If the PCRF software is the PMS, then the cited RAR-to-PCEF transmission is not a transmission “to a PMS” at all; if the PCEF is the PMS, then the Petition has simultaneously mapped the PCEF to the PEE and

read the distinct PMS role out of the claim. Crovella Decl. ¶ 81 (PCEF as PMS); *id.* ¶ 83 (PCRF software as PMS, PCEF as PEE); Pet. 38.

The inconsistency repeats, and sharpens, for claim 3’s “downloading, by a policy management system (PMS) ... the policy.” The Petition relies on Mo’s PCRF→PCEF provisioning to supply the claimed downloading — Mo’s PCRF *sends* the authorization and the PCEF *receives* it over Gx. Pet. 41–42; Crovella Decl. ¶ 88. Yet for the very next operation — “storing the policy at a database that is included in the PMS” — the Petition identifies the PCRF software functionality, not the PCEF, as the PMS that stores. Crovella Decl. ¶ 89. The two assignments cannot coexist. If the PCRF is the PMS (because it stores), then the cited inter-node transfer shows the PMS *sending* the authorization downstream — the opposite of the PMS *downloading* it, as limitation 3[a] requires. If instead the PCEF is the PMS (because it receives the transmission the Petition calls “downloading”), then the Petition must simultaneously map the PCEF to the PEE *and* relocate the PMS’s storage function back to the PCRF. Either way, there is no consistent PMS across the claim’s adjacent download-and-store limitations, and no coherent actor or data-flow that satisfies a PMS that *downloads* and then *stores* the policy. Crovella Decl. ¶ 88 (PCRF→PCEF provisioning relied on as the “downloading”); *id.* ¶ 89 (PCRF software functionality identified as the storing PMS); Pet. 42.

This is not a stray labeling slip. It is a failure to identify, consistently, the actor performing each claimed operation and the direction of each transfer — the core of what §§ 42.22(a)(2) and 42.104(b)(2) require. The Petition does not show that Mo discloses a single PMS that downloads a policy from upstream, stores it, and (per claim 3) determines the arrival of the execution time point; it shows only Mo's one PCRF→PCEF hop, relabeled differently from one limitation to the next. The Board should not be left to reconcile a mapping the Petition itself does not reconcile.

5. The Architecture Failure Is Dispositive of Claims 1, 3, and 6

The same architecture and actor-mapping failure defeats each independent claim, and the Petition's mapping fails for each. Claim 1 requires transmission from the PS to a distinct PMS connected to a distinct PEE; the Petition supplies only a single PCRF→PCEF hop relabeled twice, and cannot say which node is the PMS. Pet. 38; Crovella Decl. ¶¶ 81, 83. Claim 3 requires a PMS that downloads, stores, and determines; the Petition's ¶ 88/¶ 89 mapping shows the alleged PMS sending rather than downloading, or collapses the PMS and PEE into different nodes across adjacent limitations. Pet. 41–42; Crovella Decl. ¶¶ 88–89. Claim 6 requires downloading and execution by a PEE that performs the arrival-determination at the PEE; the Petition again re-uses the one PCRF scheduler step and never identifies a

PEE in Mo performing the determination. Crovella Decl. ¶¶ 90, 99. Because Peng is invoked for only one limitation (claim 6’s downloading) and adds only PCRF-or-PCEF node flexibility — still two nodes — Peng cannot supply the missing third functional tier. Eslamimehr Decl. ¶¶ 35, 42. The Petition has not shown that Mo, in view of Peng, discloses the ’101 patent’s three-tier PS→PMS→PEE architecture or the node-specific determination each independent claim requires. Institution should be denied as to claims 1, 3, and 6.

C. Independent Claims 3 and 6 Fail for Additional, Node-Specific Reasons

The Petition’s claim-3 and claim-6 theories fail for the reasons already given — the asserted art does not show the tuple-plus-time policy-setting limitation by a policy server, and the Petition manufactures the claimed three-tier architecture out of Mo’s two nodes by an internally inconsistent relabeling. But each of those independent claims fails for a further reason particular to its node. Claim 3 requires that the policy be *stored* “at a database that is included in the PMS,” and the Petition’s only candidate — Mo’s SPR — is a profile repository of decision *inputs*, not a database that stores the claimed policy. Pet. 42; Crovella Decl. ¶ 89. Eslamimehr Decl. ¶¶ 36–38. Claim 6 requires “*downloading, by a* policy execution equipment (PEE),” and the Petition never maps a PEE downloading the policy at all — it quotes claim 3’s PMS-downloading language under its claim-6 discussion and then describes operations that are *not* a download by the PEE. Pet. 45–46; Crovella

Decl. ¶ 98. Eslamimehr Decl. ¶¶ 39–41. Each defect is independent, record-specific, and dispositive of its claim.

1. Claim 3 — Mo’s SPR Is a Subscription Profile Repository of Decision Inputs, Not a Policy Database That Stores the Claimed Policy

Claim 3 recites, after the PMS downloads the policy, “storing the policy at a database that is included in the PMS.” The ’101 patent specification ties this database to the PMS’s own persistence function: the PMS “stores the received time-based policy at a database and synchronizes the time-based policy in real time.” Ex. 1001, 3:37–42. The object that must be stored is the *policy* itself — i.e., the same time-based policy that is downloaded, parsed, and ultimately executed.

The Petition does not identify any Mo structure that stores the policy as the claim requires. Instead, it asserts that “a POSITA would understand that the PCRF stores the authorized QoS in the SPR.” Pet. 42; Crovella Decl. ¶ 89. That assertion fails on the face of Mo, for two independent reasons.

First, Mo’s SPR is, by Mo’s own description, a Subscription Profile Repository of decision inputs — not a store of formulated policy. Mo describes the SPR as the place from which the PCRF “retrieves subscriber data,” and Mo’s SPR holds per-subscriber profile information — aggregate maximum bit rate, per-QCI bandwidth limits, per-application limits, identifiers, charging parameters, priority, and preferences — that the PCRF *consults as inputs* when it formulates an

authorization. Ex. 1004 ¶ [0029]. A repository that the policy engine reads *from* in order to decide is not the database in which the claim requires the *resulting policy* to be stored. The distinction is the policy-versus-decision distinction that pervades this Petition: the thing the claim requires to be downloaded, stored, and then executed is the *policy*, not the subscriber data that feeds an authorization decision or the QoS *result* that decision produces. Eslamimehr Decl. ¶¶ 36–37.

Second, and dispositively, Mo does not say that the Authorized QoS is stored in the SPR at all. Mo’s only statement about where the Authorized QoS is stored is that “the PCRF stores the Authorized QoS” — and Mo does not identify the location. Ex. 1004 ¶ [0037] (step 209). Mo’s text says *that* the PCRF stores the Authorized QoS (so it can be restored later if usage-throttled); it does not say the PCRF stores it *in the SPR*. The Petition supplies the SPR location not from Mo but from attorney-and-declarant inference — “a POSITA would understand that the PCRF stores the authorized QoS in the SPR.” Pet. 42; Crovella Decl. ¶ 89. That is precisely the kind of conclusory, unsupported assertion that cannot carry the Petition’s burden. Crovella ¶ 89 supplies no underlying facts or analysis tying Mo’s unspecified storage location to the SPR; it states the conclusion in a bracket and moves on. Such testimony “is entitled to little or no weight.” 37 C.F.R. § 42.65(a); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (P.T.A.B. Aug. 24, 2022) (precedential). With the inference discounted, the Petition is left with Mo’s bare “the PCRF stores

the Authorized QoS” — *silent on location* — which does not show storage “at a database that is included in the PMS.”

The Petition’s own remaining reference cuts the same way. Peng describes the SPR as containing subscriber information “used by the PCRF to formulate” policies — again, an *input* to policy formulation, not a store of the formulated policy. Ex. 1005 at 1:22–24. A profile repository consulted as an input to policy formulation does not establish a policy database that stores the claimed policy, and the Petition has not shown otherwise. Eslamimehr Decl. ¶ 38. Because the Petition’s sole candidate for claim 3’s “database that is included in the PMS” is a subscription-profile repository of decision inputs — and because Mo does not say the Authorized QoS is stored there in any event — the Petition has not shown limitation 3[b]. Independent claim 3 fails for this additional, node-specific reason.

2. Claim 6 — The Petition Never Maps a “Downloading, by a PEE” and Peng Cannot Supply What the Petition Does Not Coherently Map

Claim 6 recites “downloading, by a policy execution equipment (PEE) that executes the policy, the policy” (Ex. 1001, claim 6 [6[a]]). The actor is specified: the *PEE* must download the policy. The ’101 patent’s specification confirms the node-specific placement — “the PEE 300 downloads a time-based policy that is parsed from the PMS 200.” Ex. 1001, 3:60–61. This is the one limitation in the

entire Petition for which Petitioner invokes Peng. The Petition nonetheless never maps a PEE actually downloading the policy.

The Petition’s claim-6 mapping recites claim 3’s language, not claim 6’s. In its discussion of limitation 6[a], the Petition closes with claim 3’s bracketed element — “downloading, by a policy management system (PMS) that is connected to a policy execution equipment (PEE) ... the policy” — rather than claim 6’s required “downloading, by a PEE.” Pet. 45–46; Crovella Decl. ¶ 98. In short, the Petition’s mapping for the very limitation on which Peng is invoked *quotes the wrong claim element*. That is not a stray typographical matter: it reflects that the Petition never analyzed the operation claim 6 actually requires.

Moreover, what the Petition does describe is *not* a PEE downloading the policy. Paragraphs 97–98 of the Crovella declaration, on which the Petition relies, assert that the PCEF would perform the limitation. But the analysis these paragraphs offer does two things—neither of which is the PEE downloading the policy. *First*, it relocates Mo’s re-authorization scheduler from the PCRf to the PCEF — “this modification can be made by simply implementing the re-authorization scheduler in software at the PCEF.” Crovella Decl. ¶ 98. But relocating a timing-determination scheduler is *not* a downloading step, and it speaks to claim 6’s later *determination* limitation, not to limitation 6[a]. *Second*, it has the PCEF invoke a rule set to establish an Authorized QoS. Crovella Decl. ¶¶ 97–98. But invoking a rule set to

produce an authorization is, again, the production of a decision, not the *downloading of a policy* by the executing equipment. Eslamimehr Decl. ¶ 41. Neither operation is a PEE obtaining (“downloading”) the policy, which is what limitation 6[a] requires.

Peng cannot fill a gap the Petition never coherently maps. The Petition invokes Peng for 6[a] on a conclusory rationale — “whether downloading the PCC rules is performed in the PCRf or the PCEf is just a design choice.” Crovella Decl. ¶ 97; Pet. 45. That bare “design choice” assertion does not explain how Peng supplies the claimed PEE-downloading step. Peng’s design-choice teaching about *where* a determination is performed cannot supply a *PEE-downloading-the-policy* mapping that the Petition never makes. Peng addresses moving the *time-condition determination* and associated processing between the PCRf and PCEf to reduce Gx signaling. Ex. 1005 at 7:6–18. It does not supply — and the Petition does not contend it supplies — a step in which the PEE *downloads the policy*. A reference cited only for the flexibility of relocating a *determination* cannot rescue a *downloading* limitation the Petition addressed by quoting the *wrong* claim element and describing operations that are *not* a download. The Petition has not shown limitation 6[a], and Peng does not cure that failure. Independent claim 6 fails for this additional, node-specific reason.

3. Dependent Claims

Dependent claims 2, 4, and 5 are not separately briefed here; Patent Owner reserves its arguments as to those claims for the Patent Owner Response should trial be instituted.

D. The Petition’s Motivation to Combine Is a Single, Conclusory Paragraph Directed Only to Claim 6

The Petition asserts a single ground — obviousness over Mo in view of Peng. But the Petition’s motivation to combine those two references is limited to one substantive paragraph, and that paragraph is directed solely to moving a timing determination from one 3GPP node to another — a rationale relevant, at most, to claim 6. Pet. 33–34; Crovella Decl. ¶ 75. The motivation does not address claims 1 and 3 at all, and even as to claim 6 it offers conclusory “design choice” language in place of articulated reasoning with rational underpinning. The combination cannot carry the Petition’s burden as to any independent claim.

1. The combination is invoked for one limitation, and the motivation supports only that limitation

A petitioner asserting a § 103 combination must show that a person of ordinary skill in the art (“POSITA”) *would* have been motivated to combine the references, not merely that a POSITA *could* have done so, and must support that motivation with “articulated reasoning with some rational underpinning.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S.

398, 418 (2007). A showing that a POSITA *could* have combined the references is not enough. *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012). And the motivation must be tied to the specific combination the petition actually advances. *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

The Petition's own mapping confirms that Peng — the secondary reference — is invoked for one limitation in the challenged-claim analysis. Every limitation of claims 1 through 5 is mapped to “Mo discloses this limitation”; Peng appears nowhere in those mappings. Pet. 25–44 (§V claim 1–5 mappings). Peng enters only at limitation 6[a] — “downloading, by a policy execution equipment (PEE)” — where the Petition contends that “Mo in view of Peng discloses this limitation” and that “whether downloading the PCC rules is performed in the PCRf or the PCEF is *just a design choice*.” Crovella Decl. ¶ 97; Pet. 45–46 (emphasis added). The combination of Mo and Peng is therefore directed to a single question: whether a particular operation occurs at the PCRf or at the PCEF.

The Petition's sole motivation-to-combine analysis appears at pages 33–34 and is reproduced verbatim from the Crovella Declaration ¶ 75. Pet. 33–34. It is directed entirely to relocating the time-condition determination from Mo's PCRf to Peng's PCEF:

While Mo discloses that the PCRf makes a determination of whether the time condition is satisfied, Peng discloses that either the PCRf or

the PCEF determines the time condition. Thus, a POSITA would be motivated expressly by the teaching of Peng to make this modification of the teachings of Mo to perform the determination and associated processes at the PCEF rather than the PCRF for at least two reasons.

Crovella Decl. ¶ 75.

The two stated reasons — reduced control-plane signaling and “deployment flexibility” — are likewise reasons to relocate the determination to the PCEF. *Id.* That is a claim 6 rationale. The PCEF maps to the claimed PEE, and only claim 6 recites the determination and downloading occurring “by the PEE.” Pet. 45–46 (claim 6 6[a] mapping). The motivation paragraph says nothing about why a POSITA would build the three-tier, node-specific architecture of claims 1 and 3, nothing about the prosecution-critical “tuple information ... and the time condition ... by [the] policy server” limitation, and nothing about the “independently from the traffic” limitation. It addresses only node placement.

2. Because claims 1–5 rest on “Mo alone,” Peng cannot rescue them, and the failure of Mo is dispositive

The structural consequence is straightforward. The Petition maps claims 1 through 5 to Mo alone and invokes Peng — and the only motivation in the Petition — solely for claim 6’s node placement. Pet. 25–46 (§V). If Mo alone fails to disclose the two prosecution-narrowing limitations and the claimed three-tier architecture — as Patent Owner demonstrates above — then claims 1 and 3 fall, and Peng cannot rescue them, because Peng is never asserted against any limitation of

those claims. The lone motivation paragraph reaches only the PCRf-to-PCEF relocation; it does not supply the tuple-and-time-condition limitation, the architecture, or the traffic-independence limitation that the Petition fails to show in Mo. A motivation to relocate a determination between nodes is not a motivation to supply the limitations Mo lacks.

3. Even as to claim 6, the motivation is conclusory “design choice” boilerplate

For claim 6 — the one place the combination matters — the Petition’s rationale collapses into conclusory recitation. The Petition characterizes the move from the PCRf to the PCEF as “just a design choice” (Crovella Decl. ¶ 97) and asserts that the modification “would not result in rearrangement of the devices, topology, nor a deviation from their common and intended operation/uses,” because “[a]llocating tasks among the various devices/components was a well understood and predictable endeavor.” Crovella Decl. ¶ 98; Pet. 45–46. That is *KSR* boilerplate, **not** articulated reasoning. The Petition never analyzes **how** Mo’s re-authorization scheduler — the clock-based mechanism Mo locates at the PCRf (Mo ¶¶ [0034], [0045]) — would be re-hosted at the PCEF, what state would have to move or be replicated, or **why** the relocated mechanism would still satisfy the node-specific requirements of claim 6. As Dr. Eslamimehr explains, nothing in the Petition addresses what session, scheduling, cache, or rule-set state would have to be moved to or replicated at the PCEF, how the relocated scheduler would interoperate over

the Gx interface, or why the relocated mechanism would still satisfy claim 6’s node-specific requirements. Eslamimehr Decl. ¶¶ 43–44. The asserted reasonable expectation of success rests on the single observation that “both references operated on the same 3GPP PCC architecture and Gx interface” (Crovella Decl. ¶ 75) and that the change can be made “by simply implementing the re-authorization scheduler in software at the PCEF” (Crovella Decl. ¶ 98) — *ipse dixit*, with no engineering analysis.

A petition that “parrots” *KSR* without supplying the underlying facts does not establish obviousness. *KSR*, 550 U.S. at 418; *In re Kahn*, 441 F.3d at 988. Conclusory “design choice” and “predictable results” assertions, untethered to the references’ actual mechanics, show at most that a POSITA ***could*** have made the change — not that a POSITA ***would*** have. *ActiveVideo*, 694 F.3d at 1328.

The Petition’s motivation to combine is thus directed to a single limitation and does not supply the missing limitations discussed above. It is conclusory even there. It cannot support institution as to any independent claim.

E. The Crovella Declaration Is Unreliable and Entitled to Little Weight, and the Petition’s Evidentiary Record Is Materially Defective

The Petition leans heavily on the Crovella Declaration to supply the analysis its claim charts lack — including on the dispositive limitations. But the declaration is, in substance, the Petition with the citations removed, and on the limitations that

decide this case it offers conclusions rather than analysis. Compounding the problem, the declaration states that the declarant reviewed a prosecution history that is *not* the prosecution history of the challenged patent, refers to “the Patents” and a priority date that have nothing to do with the ’101 patent, and cites pages of the standards that do not say what the declarant says they say. Individually, any one of these might be characterized as clerical. Cumulatively, they show a declaration that was not independently grounded in the ’101 patent’s record. The declaration is entitled to little weight.

1. The declaration parrots the Petition and self-cites in a closed loop

Expert testimony “that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.” 37 C.F.R. § 42.65(a). Where a petition relies on its declaration to supply argument that is “not developed in the petition itself,” the Board will not import that argument from the declaration. *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 (P.T.A.B. Aug. 29, 2014) (informative). And a declaration that “merely repeats, verbatim, the conclusory assertion[s]” of the petition is entitled to little weight. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 14–15 (P.T.A.B. Aug. 24, 2022) (precedential) (according “little weight” to declaration testimony that “merely repeats, verbatim, the conclusory assertion for which it is offered to support” and

“does not cite to any additional supporting evidence or provide any technical reasoning,” as “conclusory and unsupported” under 37 C.F.R. § 42.65(a)).

That is this declaration. The Crovella Declaration’s motivation-to-combine paragraph (¶ 75) is reproduced word-for-word in the Petition at pages 33–34 — and the Petition cites back to “EX-1003 ¶ 75” as its support. Pet. 33–34. The “State of the Art” discussion at Crovella ¶¶ 44–61 is likewise reproduced in the Petition’s State-of-the-Art section, with the Petition tagging each paragraph to the corresponding declaration ¶. Pet. § V.E (Pet. 8–24). The result is a closed citational loop: the Petition cites the declaration, and the declaration tracks the Petition. That is not independent corroboration. A declaration that supplies no facts or reasoning of its own — and whose verbatim tracking of the Petition confirms as much — is “conclusory and unsupported” and entitled to little or no weight under § 42.65(a). *Xerox*, IPR2022-00624; *see also Velandier v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003) (PTAB may “accord little weight to broad conclusory statements that it determined were unsupported by corroborating references”); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (PTAB “is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions”).

2. The declaration is conclusory on the dispositive limitations and bridges the admitted gap with non-asserted art

The parroting matters most where the Petition leans on the declaration to carry the limitations that decide this case — and there the declaration supplies conclusions, not facts. The “independently from the traffic” limitation is addressed in a single sentence: the declaration asserts that Mo’s Next Re-Authorization time “is provided independently from the traffic” because it “is stored in the Next Re-Authorization Cache” and “provided to the session re-authorization scheduler.” Crovella Decl. ¶ 82; Pet. 38. But where a value is stored and how it is internally delivered do not establish its source, and the declaration never analyzes what “independently from the traffic” means or why a cached re-authorization time satisfies it. Eslamimehr Decl. ¶ 28. Because the declaration provides nothing more than the same conclusory analysis in the Petition, it is entitled to little weight. 37 C.F.R. § 42.65(a).

The tuple-and-time-condition limitation fares no better, and indeed the declaration admits the gap. Crovella concedes that Mo does not itself disclose setting a policy based on a 5-tuple; he bridges the gap by asserting that “a POSITA would understand” Mo’s IP-CAN-level disclosure “includes a 5-tuple as described in the State of the Art,” citing the 3GPP standards at Ex. 1006 p. 69 and Ex. 1007 pp. 22, 27. Crovella Decl. ¶¶ 84–85; Pet. 39–40. That is an admission that the asserted references do *not* supply the limitation, paired with a conclusory POSITA-

knowledge bridge to non-asserted art. The Board will not import argument developed only in the declaration to fill that gap. *C-Cation*, IPR2014-00454. Even uncontroverted, such intrinsically unpersuasive testimony may be rejected. *Granite Constr. Co. v. United States*, 962 F.2d 998, 1006 (Fed. Cir. 1992).

The cited pages compound the problem: they do not say what the declaration says they do. Ex. 1006 p. 69 contains AVP definitions and does not establish a 5-tuple, and the pages cited in Crovella ¶ 84 — Ex. 1007 pp. 22 and 27 — do not expressly discuss a 5-tuple; the “may ... be a pattern for matching the IP 5 tuple” language the Petition relies on appears much later, at Ex. 1007 § 6.2.2.2, p. 47. A declarant whose cited support does not say what he attributes to it has not disclosed reliable underlying facts. 37 C.F.R. § 42.65(a).

3. The declaration was not independently grounded in the ’101 patent’s record

The reliability concern is not confined to the merits paragraphs.

First, the declarant states that he reviewed the prosecution history of the ’101 patent as Ex. 1002. Crovella Decl. ¶ 7. The Petition likewise lists Ex. 1002 as the “Prosecution History of the ’101 Patent.” But Ex. 1002 is **not** the prosecution history of the ’101 patent. It is the file history of U.S. Patent No. 8,313,101 — a different patent, titled “FEEDER,” directed to a mechanical document-feeder and prosecuted in a different art unit. The declarant’s statement that he reviewed the ’101 patent prosecution history as Ex. 1002 therefore cannot be accurate as written, and Ex. 1002

contains none of the actual '101 patent's prosecution record — including the history of the very narrowing limitations the Petition must address.

Second, this is not the only sign of a recycled template. The declaration asks whether the claims of “the 'XXX Patent” would have been obvious — a placeholder that was never filled. Crovella Decl. ¶ 20. It then states that, “[s]olely for the purposes of this IPR,” the declarant was instructed to assume “the priority dates for the Patents are October 2, 2003” — a plural reference to “the Patents” and a date that contradict the April 18, 2012 priority date the declaration uses elsewhere. Crovella Decl. ¶ 40; *compare* Crovella Decl. ¶¶ 4, 6, 7, 42. An October 2, 2003 assumed priority date has no connection to the '101 patent and is left wholly unexplained.

Patent Owner does not contend that any one of these defects is, standing alone, dispositive — and Petitioner will no doubt call them clerical. The point is one of weight, not gotcha. Taken together — a declaration that recites the Petition verbatim, that disposes of the dispositive limitations in conclusory brackets, that bridges an admitted gap with non-asserted standards whose cited pages do not say what is attributed to them, and that reviews the wrong patent's file history while referring to the wrong patents and the wrong priority date — these features show that the declaration's key opinions were not independently grounded in the '101

patent's record. A declaration so assembled is entitled to little weight. 37 C.F.R. § 42.65(a); *Granite Constr.*, 962 F.2d at 1006.

So that the Board has the actual '101 patent prosecution record before it, Patent Owner submits the correct prosecution history of the '101 patent as Exhibit 2006. That record — not the unrelated file history in Ex. 1002 — confirms that the two narrowing limitations were added and argued to win allowance, and that the Petition's analysis of those limitations is unsupported by the prosecution record Petitioner claims to have reviewed.

VII. CONCLUSION

For the foregoing reasons, and because each of the failures above is independently sufficient, the Petition does not establish a reasonable likelihood of prevailing as to any challenged claim. Patent Owner respectfully requests that the Board deny institution of inter partes review of claims 1–6 of the '101 patent.

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 12679 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on July 2, 2026 by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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