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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VISA INC.,
Petitioner,

v.

CORTEX MCP, INC.,
Patent Owner.

Case No. IPR2024-00486
U.S. Patent No. 9,251,531

PATENT OWNER'S SUR-REPLY

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2003	U.S. Patent No. 8,540,149 to Chu (“Chu”)
2004	Defendant Visa Inc.’s Invalidity Contentions, <i>Cortex MCP, Inc. v. Visa Inc.</i> , Case No. 5:23-CV-05720 (N.D. Cal. Mar. 15, 2024)
2005	U.S. Patent Publication No. 2009/0307756 to Kang (“Kang”)
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2007	Cortex’s Preliminary Claim Constructions and Extrinsic Evidence (Patent L.R. 4-2), <i>Cortex MCP, Inc. v. Visa Inc.</i> , Case No. 5:23-CV-05720 (N.D. Cal. Apr. 19, 2024)
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2009	Declaration of Dr. Sam Malek
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2012	Visa’s Responsive Claim Construction Brief, <i>Cortex MCP, Inc. v. Visa Inc.</i> , Case No. 5:23-CV-05720, Dkt. No. 104 (N.D. Cal. July 12, 2024) (redacted in district court)
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2014	Parties Joint Claim Construction And Prehearing Statement, <i>Cortex MCP, Inc. v. Visa Inc.</i> , Case No. 5:23-CV-05720, Dkt. No. 89 (N.D. Cal. May 7, 2024) (excerpted)
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I. INTRODUCTION

All challenged claims should be confirmed for one simple reason: Visa has failed to meet its burden to show *any* prior art taught “verification by an issuing agency.”

Visa knew this was a critical gap: acknowledging during prosecution the Examiner agreed the “closest prior art of record” did not teach issuing agency verification. EX1007 at 20 (cited by 486-Pet. at 5). Cortex pointed out that Visa’s Petition offered no prior art showing this limitation. Visa’s only response is renouncing its own undisputed construction of issuing agency verification to assert that merely verifying underlying credential data is sufficient for both the Osborne and Stafford grounds. Visa’s improper flip-flop not only contradicts the plain claim language, but effectively concedes that it cannot show this limitation in any prior art.

For at least this reason, Cortex respectfully requests the Board confirm all claims over all grounds.

II. CLAIM CONSTRUCTION

Cortex maintains its claim construction positions, including that no construction is needed to confirm patentability. POR at 8-10.

On reply, Visa abandons the Petition’s construction of “verified by an issuing agency” and now asserts a new, contradictory definition that the verification requires only “checking credential data,” not verifying “a virtual representation”:

Petition	Reply
“[T]his petition construes this phrase to require that an issuing agency have <i>verified a virtual representation in an OVER file as being an official representation of a credential.</i>” 486-Pet./487-Pet. at 14	“PO thus admits that a virtual representation of the credential may be ‘verified by an issuing agency’ by <i>checking credential data</i> against an issuing-agency database.” Reply at 2

Visa’s reply theories based on a new construction should be disregarded. *See, e.g., GCE Gas v. VBOX*, IPR2023-00326, 2024 WL 3048454, at *4 (P.T.A.B. June 18, 2024).

Visa’s pretext that Cortex concedes this construction is unsupported. Reply at 2. Rather than “checking credential data” in a database, the cited example explains that the *credential* is verified: “The application gateway may request 126 generation of an OVER File and ***verification of the generated OVER File credential.***” EX1001, 6:18-20; *see also* POR at 12 (quoting from embodiment described in EX1001, 6:12-61); EX2027, 28:14-29:8. Visa acknowledges the database response in this same example “***indicates ‘the validity of the requested credential.’***” Reply at 2 (quoting EX1001, 6:47-54). Here, the requested credential is the OVER File. EX1001, 6:18-20 (“***request*** 126 generation of an OVER File”). The example concludes: “The issuing agency may also provide a ***status indicator*** for the generated OVER File credential,” further indicating verification of the OVER File credential

itself. EX1001, 6:59-61; EX2027, 29:9-21 (Dr. Shamos agreeing). Dr. Malek’s cited testimony does not discuss checking the underlying credential data, let alone provide “similar admissions.” Reply at 2 (citing EX1047, 37:24-41:22).

Visa’s muddled effort to wrench a citation into an alleged claim construction admission misrepresents the ’531 Patent’s actual teachings and cannot be sustained.

III. VISA ABANDONS OBORE GROUND 1-4

A. Visa Cannot Show Osborne Discloses “verified by an issuing agency” And Asks The Board To Ignore It

Cortex exposed that the Petition cites to nothing in Osborne teaching that its token was “verified by an issuing agency,” and Visa’s citation to Osborne’s Figure 5 confirms it performs no verification step. POR at 12-16. Visa offers no response. *See* Reply at 3-4. Instead, its cryptic Reply reruns the argument that Osborne’s issuer “may operate the token server,” Reply at 3, but again provides nothing on how this embodiment would operate any differently than Osborne’s Figure 5 or why merely issuing a token satisfied the verification limitation, *id.*; POR at 14-15. Devoid of disclosure, Visa cannot sustain its argument that “Osborne teaches” issuing agency verification. 486-Pet. at 22; 487-Pet. at 23; Reply at 3-4.

Visa falls back to unhelpfully implying that “verified by an issuing agency” should be ignored because “the limitation is a characteristic, not a separately recited ‘step.’” Reply at 3. Reading out claim limitations violates black-letter claim

construction principles. *E.g.*, *Bicon v. Straumann*, 441 F.3d 945, 950-52 (Fed. Cir. 2006).

The Reply then invokes its improper new construction that verification simply requires checking “credential data.” Reply at 3-4; *supra* §II. Visa’s new theory should not be considered. 37 C.F.R. §42.23(b); *Wasica Fin. v. Cont’l Auto.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017); *see also GCE Gas*, 2024 WL 3048454, at *4. And Cortex certainly did not agree to it. *Supra* §II. Even if it had, Visa cannot avoid the plain language of the claims or its prior construction, requiring verification of the “virtual representation.” *See* 486-Pet./487-Pet. at 14. Visa’s swap only concedes that it cannot show Osborne discloses the limitation, and its failure to provide any supporting evidence or expert testimony shows it cannot satisfy its burden of proof. *See* Reply at 3-4; *Icon Health v. Strava*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“Attorney argument is not evidence.”); EX2027, 27:18-28:2 (Dr. Shamos: admitting verifying credential data does not meet Visa’s Petition construction).

B. Visa Does Not Defend Its Common-Sense Obviousness Rationale

Visa has even less to say about the Petition’s lack of a basis for invoking common sense to supply a missing limitation and failure to muster *any* prior art showing what it maintained was allegedly common sense. Reply at 4-5; POR at 16-30. The Reply abandons the Petition’s common-sense argument that “verifying the token would be a routine step,” stating that its “petition does *not* rely on

‘common sense’ to supply a missing limitation.” Reply at 4; *see also* 486-Pet. at 23; 487-Pet. at 24. Yet Visa admits that its “obviousness case” is “grounded in... logical reasons for issuer verification.” Reply at 4. Visa shows no daylight between its Petition invoking “routine” steps, “logic[],” or common sense. *See Apple v. ContentGuard Holdings*, IPR2015-00453, 2015 WL 4467403, at *8 (P.T.A.B. July 13, 2015) (no distinction between saying an alleged obvious modification is “routine,” a “logical extension,” or “common sense”). Visa’s effort to distinguish *ContentGuard* and *Vermeer* only emphasizes that common sense was the Petition’s obviousness rationale, and Visa’s unwillingness to defend it shows the Petition did not meet its burden. Reply at 5 (addressing *ContentGuard*, 2015 WL 4467403; *Vermeer Mfg. v. Toro*, PGR2020-00081, 2021 WL 972419, at *13 (P.T.A.B. Mar. 15, 2021)).

Visa’s remaining arguments fare no better. Reply at 5-6. Visa argues Cortex’s evidence about the complexity of verification was “unconvincing” and does not “address the characteristic at issue.” Reply at 5. It also asserts that providing tokens without issuing agency verification “defies credulity.” Reply at 5. But Visa bears the burden of proof, not Cortex, *In re Magnum Oil Tools*, 829 F.3d 1364, 1375-76 (Fed. Cir. 2016), and “[a]ttorney argument is not evidence,” *Icon Health*, 849 F.3d at 1043. Dr. Malek confirmed that “there is no disclosure of any verification of the token that is generated and I said that Dr. Shamos has pointed to nothing for that.”

EX1047, 46:16-18; *see also id.*, 47:5-7, 47:18-19, 48:4-7, 48:15-18, 48:24-49:1 (same answer).

Visa is unable to rebut Cortex’s extensive expert testimony explaining the “complex choreography” needed for a “secure system resilient to unceasing attacks by bad actors,” POR at 19-21 (citing EX2009 ¶¶63-87), which addressed the characteristic at issue using Visa’s own exhibits, showing the technological demands were *not* “particularly straightforward,” *DSS Tech. v. Apple*, 885 F.3d 1367, 1374 (Fed. Cir. 2018); EX2009 ¶¶63-87 (citing EX1019-EX1025, EX1027, EX1031, EX1034, EX1042).

C. Dr. Shamos Confirms Nonobviousness

Cortex established that Dr. Shamos’ testimony about the already-solved problem of “copied, forged, or altered” tokens refuted the Petition’s motivation to combine. POR at 22-24 (citing EX1005 ¶¶118, 120). Visa has no answer. Its response that Dr. Shamos’ testimony “discusses user authentication, not token verification” concedes the point. Reply at 7. Osborne *already* taught user authentication to address copied, forged, or altered tokens. POR at 24-27. The Petition provides no reason to modify Osborne to solve a problem that Osborne’s user authentication already solved. 486-Pet. at 23; 487-Pet. at 24; *DSS Tech.*, 885 F.3d at 1376-77.

Falling short on proving obviousness, Visa next reverses the burdens and applies the wrong legal standard to assert that “Oborne refutes PO’s assumption that only one security technique *can be used*.” Reply at 7. Visa had to show that a skilled artisan not only “can,” but *would have used*, more than one security technique to address the identical problem. *Personal Web Techs. v. Apple*, 848 F.3d 987, 993-94 (Fed. Cir. 2017) (“not enough” to say that references “*could be combined*” (emphasis in original)). It failed.

Visa does not seriously defend the rest of Dr. Shamos’ testimony, which largely parrots the Petition. Reply at 6-7; POR at 22-24. It pitches his testimony as a “multifaceted explanation” about problematic “unverified tokens,” Reply at 6 (citing EX1005 ¶¶238-42), but Dr. Shamos’ two-sentence discussion of unverified tokens is both conclusory and cites nothing, EX1005 ¶241; *Xerox v. Bytemark*, IPR2022-00624, 2022 WL 3648989, at *6 (P.T.A.B. Aug. 24, 2022) (“[V]erbatim” testimony “is entitled to little weight.”). Limply noting that “Oborne supplies tokens in the marketplace,” Reply at 6, does not supply the missing evidence or rationale for modifying Oborne to include issuing agency verification and only shows Visa has not carried its burden.

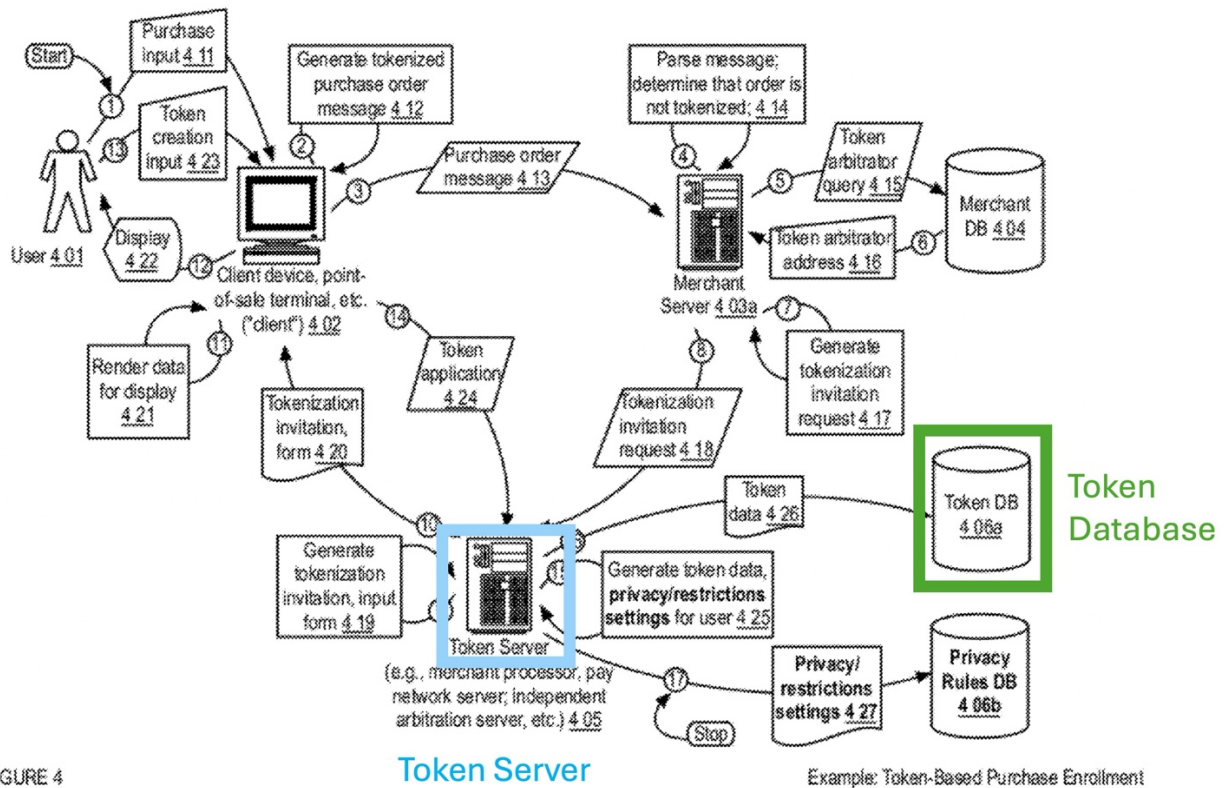
Finally, Visa represents that “Dr. Shamos addressed concerns ‘for both issuers and users.’” Reply at 6 (citing EX1005 ¶241). But Visa stops short of stating that

Dr. Shamos in fact opined that verification would “increase confidence” for both issuers and users, because he plainly did not. EX1005 ¶241.

D. Neither The Reply Nor Dr. Shamos Can Identify The Petition’s Alleged “OVER engine”

Cortex pointed out that the Petition did not meet its burden by vaguely identifying Osborne’s entire PPT apparatus as the claimed “OVER engine.” POR at 30-34; 486-Pet. at 16-18 (identifying Osborne’s “PPT apparatus” in “Fig. 4” that “generates and verifies OVER files”); 487-Pet. at 16-17 (same). Visa’s only response is to abandon the Petition, improperly asserting on reply “the PPT’s *token server* satisfies all requirements of the OVER engine.” Reply at 7; *Wasica*, 853 F.3d at 1286 (confirming claims because Petitioner “effectively abandoned its petition in favor of a new argument” on reply).

Even if considered, Visa’s new theory that Osborne’s token server is the “OVER engine” fails. For instance, the Petition relies on the **token database 406a** for some of the OVER engine’s requirements, not the **token server 405**:



EX1011, Fig. 4 (annotated). The Reply asserts that the Petition’s discussion of “element 1.6” shows that the “PPT’s token server satisfies these elements.” Reply at 7-8 (emphasis in original). But element 1.6 requires that “the credential of the user [be] stored in the OVER engine.” 486-Pet. at 27; 487-Pet. at 29-30 (element 21.7); EX1001, 21:38-40. The Petition says that Osborne satisfies this limitation “by looking up the account number in a token database.” 486-Pet. at 27; *id.* at 28-29 (“the credential of the user stored in the OVER engine (whether the database query for the token returns the user’s account details or not)” (emphasis in original)); 487-Pet. at 29-31 (similar). As shown in Figure 4 above, Osborne’s token database

406 is distinct from token server 405, the new alleged “OVER engine.” EX1011, Fig. 4. Osborne does not satisfy the claims under this new theory either.

Moreover, Dr. Shamos refused to limit Osborne’s OVER engine to the token server. EX2016, 68:4-12, 69:1-6, 71:8-72:11. Visa’s divergence from its Petition and its own expert only confirms its failure to identify its grounds of invalidity “with particularity.” 35 U.S.C. §312(a)(3); 37 C.F.R. §42.104(b)(4); *Intelligent Bio-Sys. v. Illumina Cambridge*, 821 F.3d 1359, 1369 (Fed. Cir. 2016); *Netflix v. DivX*, 84 F.4th 1371, 1377 (Fed. Cir. 2023) (“A petitioner may not rely on a vague, generic, and/or meandering petition and later fault the Board for failing to understand what the petition really meant.”).

IV. THE DEPENDENT CLAIMS SHOULD BE CONFIRMED OVER OBOBNE

Visa’s Petition did no better showing unpatentability of the dependent claims.

A. Claim 2

Claim 2 should be confirmed because Osborne fails to satisfy either limitation.

“generating... a second OVER file.” As Cortex pointed out, Claim 2 should be confirmed because Osborne does not teach two devices with distinct OVER files representing the same credential. POR at 35-37. Dr. Malek explained that Osborne taught assigning a user only a single token_ID, even with multiple devices. EX1047, 9:13-10:24 (quoting EX1011 ¶148). Dr. Shamos originally agreed that using a single token was both “conventional” and “logical,” and Osborne confirms it. EX1005 ¶55;

POR at 37-38. Visa spins Dr. Shamos’ original testimony as “address[ing] providing the first token for the first device, not providing a token for the second device,” Reply at 9, but that conflicts with his actual testimony: “It was conventional to not to [sic] *repeat generating* a representation of a credential if the representation had previously been generated and stored.” EX1005 ¶55.

On reply, Visa asserts Osborne contains “disclosure of device-specific tokens.” Reply at 9-10 (citing EX1011 ¶47). But its Petition cited Dr. Shamos to allege obviousness, not “disclosure.” 486-Pet. at 32 (“[A] POSA would be motivated to employ Osborne’s device fingerprinting *to tie a given token to a given device...*” (citing EX1005 ¶¶254-55)); 487-Pet. at 33-34 (same). Visa cannot raise a new argument on reply. 37 C.F.R. §42.23(b). Even if it could, Osborne’s paragraph 47 mentioning a single client does not mean there cannot be more than one or explain what would happen if there were. EX1011 ¶47; *see also* EX2009 ¶¶106-08. Instead, Osborne discloses multiple devices using the single token that Visa alleges is the “OVER file.” EX1047, 9:13-10:24 (quoting EX1011 ¶148). Neither Visa nor Dr. Shamos has any response. *See* Reply at 9; EX1048.

“invalid for use.” Even if the Board believes the first limitation was met, Cortex pointed out Visa further did not show a second requirement for this claim: a “second OVER file” that was “invalid for use” in the first device in Osborne. POR at 38-39. The Reply again resorts to Osborne’s device fingerprinting to satisfy this

claim requirement, Reply at 10, which is unsupported by either Osborne’s teaching of using the same token with multiple clients or Visa’s own expert, EX1047, 9:13-10:24 (quoting EX1011 ¶148); EX1005 ¶¶55, 254 (Dr. Shamos: “There would be no purpose to device fingerprinting if a token could be used on any device.”). Visa’s only response to Cortex’s identification of the many flaws in Dr. Shamos’ testimony, POR at 38-41, is baselessly asserting that a “mismatched token” would still be “invalid for use” in the first device. Reply at 11. But that assumes Osborne’s device fingerprinting works as Dr. Shamos asserts, which Osborne does not disclose.

B. Claims 7 and 20

Cortex pointed out that Visa did not meet its burden to show a “status indicator indicat[ing] an invalid credential” and “credential information indicat[ing] a reason for the invalid credential.” POR at 42-44. Visa still has not carried its burden. Reply at 11-12. Visa cites Osborne’s paragraph 72, which only teaches “authorization fail message 644” for insufficient funds, or a ““transaction terminated’ message” indicating too many “failed authorization attempts.” EX1011 ¶72. Visa does not establish how either message discloses both an invalid credential and the reason the credential is invalid, why this is obvious when transactions are conventionally declined without explanation, or why this would be desirable in Osborne. Reply at 11-12; EX2009 ¶¶119-22.

C. Claims 8 and 29

The Petition alleged that “Oborne teaches” “a reference to a remotely stored credential.” 486-Pet. at 37 (“Oborne teaches”; “Oborne teaches”; “Oborne’s teaching”); 487-Pet. at 42 (same). Cortex pointed out that Oborne does not. POR at 44-45. Now the Reply switches theories, asserting Cortex misreads “Visa’s argument as anticipation rather than obviousness,” and pointing to Oborne’s paragraph 150 for the first time. *Compare* Reply at 13 (citing EX1011 ¶150), *with* 486-Pet. at 37 (citing EX1011 ¶¶47, 133, 148); 487-Pet. at 42. Visa cannot change theories now, 37 C.F.R. §42.23(b); *Wasica*, 853 F.3d at 1286, and doing so only underscores the Petition’s failure to meet its burden. Even if considered, Oborne’s paragraph 150 simply describes storing data over “several computer systemizations and/or storage devices,” and does not describe where they are located or that any are “remote.” EX1011 ¶150. Visa also resorts to Dr. Shamos, but Cortex already explained that his conclusory opinion that remote credential storage is “conventional” was unsupported and not argued in the Petition, Reply at 13 (citing EX1005 ¶266); POR at 45, and the Petition never relied on the Reply’s new citations to Dr. Shamos’ testimony, *see* 486-Pet. at 37; 487-Pet. at 42; Reply at 13 (citing EX1005 ¶¶61, 121-22 for first time).

D. Claims 12-13

Cortex pointed out that Visa cannot meet its burden by switching its mapping of the “credential identifier” across Claims 11-13, identifying Osborne’s “account_num field” for Claim 11 before switching to a “token identifier” in Claims 12-13. POR at 46-47. On Reply, Visa portrays the “account number” and “token identifier” as the same. Reply at 14 (“[C]redentials in the requested token may be tokens themselves, in which case the ‘account’ is referenced by a token identifier.”). However, Visa named Osborne’s specific “account_num field” as the token identifier. 486-Pet. at 38. Visa points to nothing in Osborne teaching a token with an “account_num” field, and as shown below for prefunded token <2>, Osborne’s tokens have none:

```
<accounts>
  <1>
    <issuer_name>BankA</issuer_name>
    <account_num>123456789012345</account_num>
    <account_type>checking</account_type>
    <confirm_type>email</confirm_type>
    <!-- fields below optional in some embodiments-->
    <account_name>John Q. Public</account_name>
    <billing_address>123 Green Street Apt 1</billing_address>
    <phone>909-333-2345</phone>
    <sign>/jqp</sign>
    <contact_info>jqp@gmail.com</contact_info>
    <default_cost_share>65%</default_cost_share>
  </1>
  <2>
    <issuer_name>TokenArbit</issuer_name>
    <account_type>prefunded</account_type>
    <unique_id>2325678654322345</unique_id>
    <individual_decay>1.5%</individual_decay>
    <default_cost_share>10%</default_cost_share>
  </2>
  <3>
    <issuer_name>BankC</issuer_name>
    <account_type>stored value account</account_type>
    <account_num>123456789012345</account_num>
    <max_value>$500</max_value>
```

EX1011 ¶47 (token <2> with a “unique_id” but no “account_num” field) (annotated).

E. Claim 19

Cortex explained why the Petition did not carry its burden to show a “credential image.” POR at 47-48. The Reply asserts that Cortex’s security and storage arguments are “vague,” Reply at 14, but Cortex explained that the same concerns with Visa’s “Stafford-Purves combination” applied to the Osborne-Purves-Neafsy combination. POR at 48.

F. Claims 23-26 and 28-33

As Cortex pointed out, Visa needed to provide a motivation to combine Purves’ “request” with Osborne’s system. The Petition provides a specific reason to add each of Purves’ features to Osborne other than the “request.” 487-Pet. at 38-39. Dr. Shamos provides nothing further. EX1005 ¶¶303-05. Visa’s inability to identify a reason one of skill would combine Osborne and Purves defeats its combination. *Shire v. Amneal Pharms.*, 802 F.3d 1301, 1308-09 (Fed. Cir. 2015).

V. VISA’S DEFICIENT BACKUP GROUNDS 5-6

A. Visa Has Not Shown Stafford’s Key Signatures Are “based on the information associated with the credential of the user”

The Institution Decision rejected the Petition’s reliance on Stafford’s key signatures (or “hash values”) because they “do not appear to include any information related to the credential or its contents.” 486-DI at 37-38; 487-DI at 37-39. The Reply first changes its ground, asserting instead that *Purves*’ credential image is “based on the information associated with the credential of the user.” Reply at 18 (citing 486-Pet. at 61-63). That is not what the Petition alleged. It relied solely on Stafford’s “hash value” to satisfy the “based on” limitation and only referenced Purves as a backup for satisfying a different limitation—“verified by the issuing agency.” 486-Pet. at 61-62; 487-Pet. 56-57. Visa’s pivot to a different ground on reply is not only improper, 37 C.F.R. §42.23(b); *Intelligent Bio-Sys.*, 821 F.3d at 1369, but shows the Board correctly found that the Petition failed to meet its burden,

486-DI at 37-38; 487-DI at 37-39. Even if considered, the new theory still collapses because Visa fails to show a motivation to modify Stafford to include Purves' credential images. *Infra* §V.E.

The Reply then reverts to arguing Stafford meets the “based on” limitation. Reply at 18-19. But the Board already recognized that Stafford's IdSig1/IdSig2 hash signatures are derived values from one-time pads, which may be used to encrypt the credential, but the pads do not appear to include any information related to the credential or its contents.

486-DI at 38; 487-DI at 39. The Reply concedes this, which ends this frivolity. Reply at 18 (“IdSig1/IdSig2 are computed from IdPad/IdSecPad (IdPad being the one-time pad (“OTP”) encrypted with the user's private key).”). Visa's effort to show “in multiple ways” that Stafford's key signatures are instead “based on” information associated with the user's credential falls short. Reply at 18.

Visa first asserts Stafford's key signatures are "derived as a result of a request to release the credential information." Reply at 18. Generating a pre-paid one-time pad for a single release of credential(s) does not make the one-time pad based on information in any specific credential

within the release, no more than affixing a stamp to an envelope means that the stamp is generated based on anything

inside the envelope (at right). Indeed,

Dr. Shamos agrees that Stafford discloses that "a single release of

information can contain any number of credentials." EX2027, 18:4-7, 34:6-9;

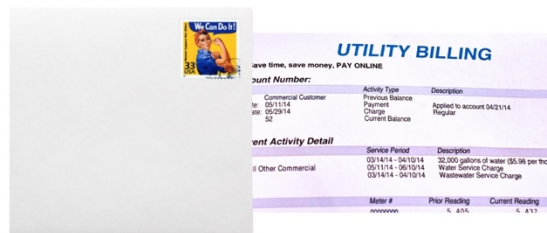
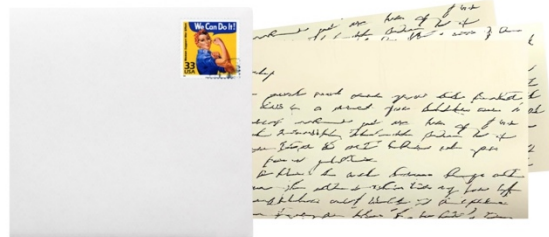
EX1012 ¶¶84 ("release process 200"

begins with "IdMember selecting files" for release), 94 (release of "IdFiles").

Because Stafford's one-time pad is not reused, like a stamp, it can hardly have any association with any specific credential or collection of credentials in the release.

EX2027, 14:9-13 (Dr. Shamos: Each one-time pad key "is only used once.");

EX2009 ¶130.



Even less helpful for Visa, the private key on which Stafford's key signatures are based is not even associated with any specific release of information, much less

any specific credential. This is because in Stafford, the “user’s private key is persistent regardless of how many credentials the user uploads or how many releases of credential information the user purchases.” EX2027, 9:12-22 (Dr. Shamos: “I think that’s generally true.”); EX1012 ¶¶68-69 (user’s private key used to “access their verified information via the Internet”), 71.

Visa’s effort to show Stafford’s key signatures “are computed from information associated with the credential,” Reply at 18, withstands no scrutiny because its purported support originates from Stafford’s one-time pad and the user’s private key and thus can be no more associated with any specific credential than the one-time pad or private key. *See* Reply at 18; EX1012 ¶¶95, 99. The Board correctly found that any alleged association is “extremely attenuated, at best,” 486-DI at 38-39; 487-DI at 39, and Visa has not shown otherwise, Reply at 18-19.

B. Stafford’s Key Signatures Also Are Not “verified by an issuing agency”

Even if the Board departs from its Institution Decision for the “based on” limitation, all claims may still be confirmed over Grounds 5-6 because the Petition failed to show that Stafford’s key signatures are “verified by an issuing agency.” POR at 54-55 (citing 486-Pet. at 61; 487-Pet. at 56). Visa does not dispute this on reply, Reply at 19, and its failure to defend the Petition only shows Visa did not meet its burden.

Instead, Visa again resorts to its problematic new claim construction. Reply at 19. Visa cannot swap claim constructions to present a new unpatentability theory on reply. *See* 37 C.F.R. §42.23(b); *Wasica*, 853 F.3d at 1286. And Cortex certainly did not agree to it. *Supra* §II. Nor does it override Visa’s prior construction or the plain claim language. *See* 486-Pet./487-Pet. at 14. Even if entertained, it is undisputed that Visa’s new reply argument does not satisfy its own construction. EX2027, 27:18-28:8 (Dr. Shamos: admitting Stafford’s “virtual representation has not been verified”). Finally, even if Visa could swap theories on reply, its single-sentence analysis offers nothing establishing how Stafford (or Purves), discloses this new theory. Reply at 19 (“Stafford thus teaches... this limitation.”).

C. Purves’ Card Images Do Not Satisfy The Requirements Of The “OVER File”

Next, Visa switches to Purves to fill in the gap. First, it feigns confusion over “what limitation PO disputes.” Reply at 19-20. Cortex explained that the transmitted OVER file must be stored on the client device so it may later be scanned. POR at 57 (“Purves’ user device cannot be an ***OVER file storage*** client device of the user at all if it does not ***store*** the alleged OVER file...” (emphasis in original)). Visa does not dispute, or even address, this point.

Visa inaccurately states that “both experts agree that Purves teaches image-storage on the client.” Reply at 20. Visa has no answer to Dr. Shamos’

admissions that Purves does not teach local storage of the image on the user’s device, which he testified to at his first deposition, EX2016, 114:5-11, and acknowledged again in his reply declaration, EX1048 ¶25 (“Purves does not expressly state that the transmitted credential image is ‘stored’ on the user’s device...”). Whatever might be temporarily stored in Purves, there is no expert testimony showing it was a card image. EX1047, 69:16-70:5 (Malek: transient storage of a webpage); EX1048 ¶24; EX1049 ¶15 (Visa’s exhibit: “*operating system, specific device applications, or parts thereof*, may be temporarily loaded” in a virtual wallet).

Then declaring the dispute about Purves’ disclosure is “irrelevant,” the Reply quickly switches back to Stafford and its “undisputed teaching of client storage.” Reply at 20 (citing 486-Pet. at 62-63). But the Petition’s reliance on Stafford’s paragraphs 62, 65, and 67 to allege Stafford “stor[ed] an image of the credential,” 486-Pet. at 61-62/487-Pet. at 56-57, only discuss storage on the server system, not the client, *see* EX1012 ¶¶62, 65, 67. Neither the Petition nor Visa’s single-sentence argument explains how or why a skilled artisan would combine Purves’ card images with Stafford’s key signatures for storage on a client when Purves only discloses using card images for enrollment. *See* POR at 57-58; *see also, e.g.*, EX1013 ¶¶39, 102, 114; EX2009 ¶162.

D. Purves Does Not Teach Using Card Images For Verification

Cortex pointed out that neither Stafford’s key signatures nor Purves’ card images were “verified by an issuing agency” as required by all Challenged Claims. POR at 54-55. On reply, Visa makes no effort to show that Purves’ card images are verified by an issuing agency. *See* Reply at 19, 20-21. It again resorts to its new improper claim construction, arguing that the limitation “encompasses checking the credential’s information,” which is “the same type of check” Stafford teaches. Reply at 19. As explained in Section V.B, this is both untrue and contradicts the Petition’s construction. Its Petition argument that “an actual credential naturally represents itself,” 486-Pet. at 62; 487-Pet. at 57, improperly reads the limitation out of the claim, *Bicon*, 441 F.3d at 950-52.

Visa has no response to Cortex’s point that Purves fails to disclose using card images for verification under the Board’s construction of “verified by an issuing agency.” Reply at 20-21; POR at 57-60. Instead, the Reply asserts that under the Board’s construction, the “OVER file” must be used to verify the credential but not necessarily the virtual representation of the credential within the OVER file. Reply at 20-21; EX1048 ¶27. Even if Visa’s construction is correct, as discussed above, neither Stafford’s key signatures nor Purves’ card images are verified by an issuing agency. *Supra* §§V.B, V.D.

E. Visa Provides No Motivation To Combine Stafford And Purves

The Board correctly found that the Petition’s one-sentence motivation to combine did not “set forth a sufficiently persuasive rationale to combine Stafford and Purves.” 486-DI/487-DI at 40.

1. The Petition Offered Nothing To Show Motivation

The POR pointed out the impracticality of the Petition’s proposed combination. Stafford’s key signatures are created only *after* selecting files for release, and the Petition never demonstrates how Purves’ virtual wallet images would assist in selecting key signatures that are never reused. POR at 61.

On reply, Visa does not defend its actual Petition. Reply at 22. Instead, it proclaims that Cortex “misunderstands” and “misreads the references,” Reply at 21-22, before swiftly swapping its motivation to combine to rely on Purves’ “tickets,” *compare* 486-Pet. at 62, 487-Pet. at 57 (citing EX1013 ¶¶85, 122), *with* Reply at 22 (citing EX1013 ¶¶54, 102). But the Petition never pointed to Purves’ single-use “tickets” in paragraph 54 to support its motivation to combine; in fact, the Petition never cited to paragraph 54 at all, and it is too late to substitute motivations to combine on reply. *See id.*; 37 CFR §42.23(b); *Intelligent Bio-Sys.*, 821 F.3d at 1369-70 (rejecting new motivation to combine as impermissible reply theory).

Even if Visa’s swap were considered, the mere fact that Stafford and Purves contain overlapping subject matter, by itself, does not provide a motivation to modify

Stafford's system with Purves' virtual wallet. *Virtek Vision v. Assembly Guidance*, 97 F.4th 882, 887 (Fed. Cir. 2024) ("The mere fact that these possible arrangements existed in the prior art does not provide a reason" to combine them.). Purves' virtual wallet facilitated consumer transactions and purchases. EX1013, Abstract, Fig. 1. Stafford taught a "highly secure" document transmission system, EX1012 ¶¶2, 88, with thirteen steps, plus a fee, to release sensitive files. EX1012, Fig. 2 (showing 13 steps); EX2027, 31:14-22. A passing reference to "ecommerce" activities and sending "credit card numbers," EX1012 ¶¶81, 106-09, falls short of Stafford teaching how to implement its specific document system, *e.g.*, EX1012 ¶¶2, 107-135, for point-of-sale transactions. It was Visa's exclusive burden to demonstrate reasons, in its Petition and supported by evidence, that one of skill would have been motivated to use Stafford's thirteen-step secured system, plus a single-use fee, every time a consumer used their mobile wallet at a movie theater, an airline gate, or the mall. *See* EX1048 ¶32 (hypothetical for pre-paying for release of airline tickets); *Magnum Oil*, 829 F.3d at 1380.

A reply citing to new teachings in Purves and Stafford, Reply at 22-23 (citing EX1013 ¶¶54, 102), accompanied by a 38-page reply declaration hypothesizing Stafford's release of multiple single-use items, *e.g.* EX1048 ¶33, only shows that the Petition failed to meet its burden. Indeed, Dr. Shamos could not maintain his conclusory theories under cross-examination, admitting that Stafford discloses its

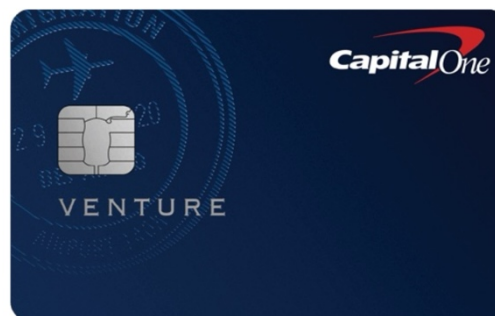
key signatures release a “collection of files,” EX2027, 34:19-22, not “multiple items” separately, EX1048 ¶33; *see also* EX1012 ¶¶74, 118 (IdSecPads can release “different *parcels of information*,” not multiple items separately.).

2. Purves’ Card Images Would Introduce Security Risks In Stafford’s Secure System

The Board correctly questioned Visa’s rationale to add Purves’ “image of the user’s credential” because it “could compromise the security of the key signature” in Stafford. 486-DI/487-DI at 40.

Visa abandons the Petition’s stated motivation to combine. It claimed that one of skill would be motivated to modify Stafford to send “an image of a credential such as a credit card,” which Dr. Shamos confirmed meant a “*real* image of the credential,” and only “optionally” obscuring the confidential information. 486-Pet. at 62-63 (citing EX1005 ¶367); 487-Pet. at 57-58 (same). On reply, Visa silently backs away from this idea. *See* Reply at 23-25.

Instead, it inaccurately states that Cortex and Dr. Malek never addressed using “representative” images. Reply at 23-25. It did, POR at 62-65; EX2009 ¶¶165-70. In fact, Visa acknowledges in the next paragraph that Cortex addressed both “obscured” and “blurred” credential images (as shown at right). Reply at 24. Visa’s grouse that Cortex’s response is “unconvincing” incorrectly assigns its burden of proof to Cortex. Reply at 24; *Magnum Oil*, 829 F.3d at 1380. Visa has not met its burden with no answer to Dr. Malek’s testimony that even omitting or irrecoverably obscuring account information still provides vulnerabilities (e.g., the existence of an active account and its first six digits) and defeats any motivation to use them in Stafford’s 13-step secure system.



POR at 65; EX2009 ¶¶165-70; *supra* §V.E.1. Dr. Shamos’ new testimony endorsing partially obscured account information in virtual wallets like Purves, Reply at 24-25 (citing EX1048 ¶¶35-36), does not fill the gap because it still does not explain why

one of skill would integrate these features in “highly secure” systems like Stafford.
See EX1048 ¶¶35-36.

Finally, Visa invents and responds to a purported “argument regarding unencrypted image transmission.” Reply at 25 (citing POR at 63). Rebutting strawmen also does not meet Visa’s burden.

3. QR Codes Also Introduce Security Risks

If the Board finds that the Petition failed to show a motivation to combine Purves’ credential images with Stafford, it can stop right there and need not address the second prong of Ground 5-6’s motivation: using Purves’ QR codes in Stafford. *See* 486-Pet. at 55; 487-Pet. 49-50. Even if considered, the second-prong motivation is insufficient. The Petition offered neither details nor anything besides hindsight to show “QR codes could be used as a virtual stand-in for a credential” in Stafford. 486-Pet. at 63; 487-Pet. at 58.

On reply, Visa and its expert now present a new combination: not “transmitting” but “conveying the key signatures to the third-party recipient via a QR-code” with new scenarios on how one might “decrypt” an “asymmetrically encrypted QR code” based on when it was encrypted. Reply at 26-27 (citing EX1048 ¶¶42-49). Visa cites to nothing in its Petition or first expert declaration explaining this decryption, Reply at 26-27, because there is nothing about decryption supporting motivation in either, 486-Pet. at 55-56, 63; 487-Pet. at 49-50, 58; EX1005 ¶¶353-56.

Visa presenting new combinations on reply is not only improper, 37 C.F.R. §42.23(b); *Intelligent Bio-Sys.*, 821 F.3d at 1369, but it also confirms the Board’s finding that the Petition offered no “persuasive rationale” to motivate combining Purves’ QR codes with Stafford. 486-DI/487-DI at 40.

4. Visa Presents No Benefits For Its Combination

Finally, Visa faults Cortex for never weighing “meaningful security concerns” against the combination’s “benefits.” Reply at 27. But Visa, not Cortex, bears the burden to demonstrate a motivation to combine, including showing any benefits. *See Redline Detection v. Star Envirotech*, 811 F.3d 435, 449 (Fed. Cir. 2015). Even on reply, neither Visa nor Dr. Shamos presents a shred of evidence showing a skilled artisan would nix any aspect of Stafford’s security protocols in the name of convenience. *See* Reply at 27; EX1048 ¶¶56-60. Indeed, Dr. Shamos admitted that Stafford’s alternative passcode system for transferring less-sensitive documents provided insufficient protection. EX2027, 44:2-20; EX1012 ¶¶89, 93.

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Dated: April 4, 2025

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that foregoing **PATENT OWNER’S SUR-REPLY** exclusive of the parts exempted as provided in 37 C.F.R. § 42.24, contains 5,560 words and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24.

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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a true copy of the foregoing **PATENT OWNER’S SUR-REPLY** and **EXHIBIT 2027** are being served electronically on April 4, 2025 to the following lead and backup counsel for Petitioner to the following email addresses:

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