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Filed on behalf of HTC Corporation and HTC America, Inc.
By: Irfan A. Lateef
Brian C. Claassen
KNOBBE, MARTENS, OLSON & BEAR, LLP
2040 Main Street, 14th Floor
Irvine, CA 92614
Telephone: 949-760-0404
Facsimile: 949-760-9502
Email: BoxHTC57@knobbe.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HTC CORPORATION and HTC AMERICA, INC.,
Petitioners,

v.

ANCORA TECHNOLOGIES INC.,
Patent Owner.

Case No. CBM2017-00054
U.S. Patent No. 6,411,941

PETITION FOR COVERED BUSINESS METHOD REVIEW

IPR2021-01406
ANCORA EX2023

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I. INTRODUCTION

HTC Corporation and HTC America, Inc. (collectively, "HTC" or "Petitioners") request Covered Business Method ("CBM") review of U.S. Patent No. 6,411,941 (the "'941 patent," Ex. 1001) claims 1-19, purportedly owned by Ancora Technologies Inc. ("Patent Owner").

II. OVERVIEW

The '941 patent is a CBM patent that is financial in nature and does not claim a technological invention. Its claims are directed to patent ineligible subject matter under 35 U.S.C. § 101, indefinite under 35 U.S.C. § 112, ¶ 2, lack written description under § 112, ¶ 1, and are anticipated by and obvious in light of the prior art, as discussed below.

III. MANDATORY NOTICES PURSUANT TO C.F.R. § 42.8(A)(1)

A. Real Party-In-Interest (37 C.F.R. § 42.8(b)(1))

HTC Corporation and HTC America, Inc. are the real parties-in-interest for this CBM.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

HTC identifies the following matters related to the '941 patent:

- *Ancora Techs., Inc. v. HTC, Inc.*, No. 2:16-cv-1919 (W.D. Wash.) ("*HTC Litigation*"), filed December 15, 2016;
- *Petition for Covered Business Method Review* No. CBM2016-00023, filed by Apple Inc. on January 8, 2016;

- *Ancora Techs., Inc. v. Apple, Inc.*, 744 F.3d 732 (Fed. Cir. 2014);
- *Ancora Techs., Inc. v. Apple, Inc.*, No. 4:15-cv-3659 (N.D. Cal.) ("*Ancora II*"), filed August 11, 2015;
- *Ancora Techs., Inc. v. Apple, Inc.*, No. 4:11-cv-6357 (N.D. Cal.) ("*Ancora I*"), filed December 15, 2011;
- *Ancora Techs. Inc. v. Toshiba Am. Information Sys. Inc. et al.*, No. 2:09-cv-270 (W.D. Wash), filed February 27, 2009; and
- *Ex Parte* Reexamination No. 90/010,560, filed by Microsoft Corp. on May 28, 2009.

Petitioners are parties to *HTC Litigation*. Ancora served its Complaint on HTC America, Inc. on December 27, 2016. On January 13, 2017, Ancora and HTC Corporation agreed that HTC America, Inc. would accept service for HTC Corporation in exchange for an extension of time for both HTC Corporation and HTC America, Inc. to respond to the complaint. The case is in its early stages and no schedule or trial date has been set.

C. Lead and Backup Counsel (37 C.F.R. § 42.8(b)(3))

HTC identifies the following counsel and provides a power of attorney with this Petition.

Lead Counsel	Back-Up Counsel
Irfan A. Lateef (Reg. No. 51,922) 2ial@knobbe.com Postal and Hand-Delivery Address: Knobbe, Martens, Olson & Bear, LLP 2040 Main Street, 14th Floor Irvine, CA 92614 Telephone: (949) 760-0404 Facsimile: (949) 760-9502	Brian C. Claassen (Reg. No. 63,051) 2bcc@knobbe.com Postal and Hand-Delivery Address: Knobbe, Martens, Olson & Bear, LLP 2040 Main Street, 14th Floor Irvine, CA 92614 Telephone: (949) 760-0404 Facsimile: (949) 760-9502

Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this Petition. The above-identified Lead and Back-up Counsel are registered practitioners associated with Customer No. 20,995 listed in the Power of Attorney.

D. Service Information (37 C.F.R. § 42.8(b)(4))

Service information for lead and back-up counsel is provided in the designation of lead and back-up counsel above. Petitioners hereby consent to service by email at the following email address: BoxHTC57@knobbe.com.

IV. PAYMENT OF FEES

The fee set forth in 37 C.F.R. § 42.15(b) for this Petition has been paid: $32,200 ($12,000 request fee; $18,000 post-institution fee, and $2,200 post-institution fee for requesting review of 19 claims). The undersigned further authorizes payment for any additional fees that might be due in connection with this Petition to be charged to Deposit Account No. 11-1410.

V. SUMMARY OF THE ’941 PATENT

A. Specification

The ’941 patent relates to determining whether a software program is licensed. (’941 patent at Abstract.) Software license verification methods were not new when the ’941 patent was filed on October 1, 1998[1]; numerous prior art methods existed. (*Id.* at 1:12-14). Those prior art methods included “Software based products [] developed to validate authorized software usage by writing a license signature onto the computer’s volatile memory (e.g. hard disk).” (*Id.* at 1:19-21). This “license signature” was similar to a key for unlocking access to software. According to the patent, however, the prior art was “very vulnerable to attack at the hands of skilled system’s programmers (e.g. “hackers”).” (*Id.* at 1:22-24).

The ’941 patent proposes an alleged solution on a single page of detailed description supported with only two figures. (*See id.* at 5:1-6:57). Figure 2 shows four general claimed method steps:

[1] The ’941 patent claims May 21, 1998 foreign application priority, but that difference in date does not change status of any prior art in this Petition.

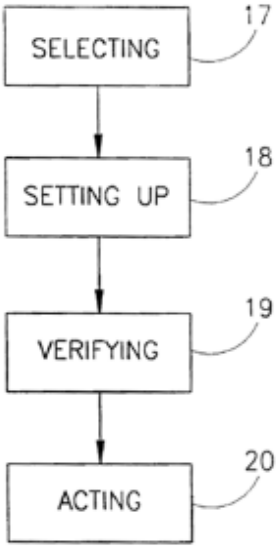


FIG.2

The supposed innovation is the setting up step (18). (*See* '941 patent at 1:39-2:9.) For this step, the specification describes storing license information in computer's BIOS (an acronym for "Basic Input/Output System") memory space, rather than volatile memory. (*See id.* at 1:39-42, 1:59-2:9, 2:36-46, 3:4-17.) The specification explains that the level of programming expertise to interact with that BIOS memory space is high and therefore harder and riskier for a hacker to tamper with than the storage areas used by earlier methods. (*Id.* at 3:4-17); *see also Ancora Techs. v. Apple, Inc.*, 744 F.3d 732, 733 (Fed. Cir. 2014). The specification does not provide any new or innovative algorithm to interact with the BIOS memory space—in fact, it provides no algorithm or guidance on how to accomplish this.

By storing license information in this BIOS memory space and later accessing it, the claimed method controls access to software. The ’941 patent therefore merely describes putting the license information in a well-known place that is more difficult to access.

B. Prosecution History of the ’941 patent

1. Original Application Prosecution

Claim 1, as originally filed recited:

> A method of restricting software operation within a license limitation comprising; for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the steps of:
>
> **[A]** selecting a program residing in the volatile memory,
>
> **[B]** setting up a verification structure in the non-volatile memories,
>
> **[C]** verifying the program using the structure, and
>
> **[D]** acting on the program according to the verification.

(Oct. 1, 1998 Application at 12, Ex. 1002.) After a series of amendments, the Examiner allowed the claims. Issued claim 1—with annotations showing deletions (strikethrough) and additions (underlines) compared to the originally filed claims—appears below:

A method of restricting software operation within a license ~~limitation comprising;~~ for use with a computer ~~having a first~~ including an erasable, non-volatile memory area of a BIOS of the computer, ~~a second non-volatile memory area,~~ and a volatile memory area; the method comprising the steps of:

[A] selecting a program residing in the volatile memory,

[B] using an agent to set ~~setting~~ up a verification structure in the erasable, non-volatile memory ~~memories~~ of the BIOS, the verification structure accommodating data that includes at least one license record,

[C] verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS, and

[D] acting on the program according to the verification.

In his reasons for allowance, the Examiner found that each individual limitation of claim 1 was present in the prior art. (Mar. 28, 2002 Notice of Allowance at 3-4, Ex. 1003.) But the Examiner nevertheless allowed the claims because they included "using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS." (*Id.*)

The "agent" was not present in the originally filed claims. The applicants never explained how the specification supports or describes this "agent." To the extent that an "agent" is supported in the specification and has a reasonably certain

meaning, the prior art in this Petition discloses it under the broadest reasonable interpretation standard. *Hulu, LLC v. Intertainer, Inc.*, No. CBM 2014-00052, Paper No. 10 at 6 (P.T.A.B. June 23, 2014) (explaining that broadest reasonable interpretation is appropriate).

2. *Ex Parte* Reexamination Prosecution

Microsoft petitioned for *ex parte* reexamination on May 28, 2009 based on two references—U.S. Patent Nos. 6,153,835 ("Schwartz") and 5,734,819 ("Lewis"). (May 28, 2009 Request for *Ex Parte* Reexamination at 3, Ex. 1004.) The Patent Office instituted reexamination based on Lewis, but not Schwartz. (Aug. 3, 2009 Reexamination Determination at 9-10, Ex. 1005.) The Examiner subsequently confirmed the claims over Lewis without issuing an office action, finding that Lewis was directed to verifying hardware and not a software program, as claimed. (Mar. 9, 2010 Notice of Intent to Issue Reexam Certificate at 4-5, Ex. 1006.) The prior art in this Petition discloses verifying software and does not suffer from this alleged deficiency.

VI. REQUIREMENTS FOR CBM REVIEW UNDER 37 C.F.R. § 42.304

A. Grounds for Standing (37 C.F.R. § 42.304(a))

The '941 patent is eligible for CBM Review because Petitioners meet the eligibility requirements of 37 C.F.R. § 42.302 and the '941 patent is a covered business method patent.

1. Eligibility Requirements of 37 C.F.R. § 42.302

Patent Owner has sued Petitioners in the U.S. District Court for the Western District of Washington, alleging that certain HTC accused devices perform an over-the-air update process that infringes the '941 patent. Thus, Petitioners meet the requirements of AIA § 18(a)(1)(B) and 37 C.F.R. § 42.302(a). Petitioners are not estopped from challenging the '941 patent on the grounds identified in 37 C.F.R. § 42.302(b).

2. Timing Requirements of 37 C.F.R. § 42.303

The '941 patent has a filing date before March 16, 2013 and is therefore not a "first-to-file" patent eligible for post-grant review. A petition requesting CBM Review of the '941 patent may be filed at any time, per 37 C.F.R. § 42.303.

B. The '941 Patent Is Directed to a Covered Business Method

A patent having one or more claims directed to a covered business method is a covered business method patent, even if the patent includes additional claims. Transitional Program for Covered Business Method Patents—Definitions of Covered Business Method Patent and Technological Invention; Final Rule, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012); *see also Liberty Mutual Ins. v. Progressive Casualty Ins.*, CBM2012-00002, Paper 66 at 6 (P.T.A.B. Jan. 23, 2014) (entire patent CBM eligible where "the subject matter of at least one claim is directed to a covered business method."). At least claims 1, 2, and 10 of the '941 patent are

CBM eligible because they are directed to financial products or services.

The phrase "'financial product or service' should be interpreted broadly." *Apple Inc. v. SightSound Techs., LLC*, CBM2013-00020, Paper 14 at 11 (P.T.A.B. Oct. 8, 2013). The definition of CBM patents "covers a wide range of finance-related activities" and "is not limited to products and services of only the financial industry, or to patents owned by or directly affecting the activities of financial institutions." *Versata Dev. Group v. SAP America, Inc.*, 793 F.3d 1306, 1325 (Fed. Cir. 2015).

The AIA defines a two-part test for CBM Review eligibility: (1) the patent must claim a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a "financial product or service;" and (2) the claimed invention must not be a "technological invention[]." AIA § 18(d)(1); 37 C.F.R. § 42.301(a). The alleged claimed inventions of the '941 patent, including at least claims 1, 2, and 10, satisfy both parts of the test.

1. Claims of the '941 Patent Are Financial in Nature

A CBM patent must be directed to a financial product or service and not merely incidental or complimentary to a financial activity. *Secure Axcess, LLC v. PNC Bank Nat'l Ass'n*, 848 F.3d 1370, 1377-81 (Fed. Cir. Feb. 21, 2017); *see also Unwired Planet, LLC v. Google Inc*, 841 F.3d 1376, 1379-82 (Fed. Cir. 2016).

However, the scope of "financial product or service should be interpreted broadly." *See Versata Dev. Grp.*, 793 F.3d at 1323-26. The Federal Circuit further explained in *Secure Axcess* that, "the claim need only require one of a 'wide range of finance-related activities,' examples of which can be found in the cases which we have held to be within the CBM provision." 848 F.3d at 1381.

The '941 patent claims are squarely directed to finance-related activities—*viz.*, licensing—because they claim methods "of restricting software operation within a license." The Board has previously held that licensing constitutes a financial activity. *See Google Inc. v. Content Guard Holdings, Inc.*, No. CBM2015-00040, Paper No. 34 at 11-14 (P.T.A.B. June 21, 2016) (holding "transfer of rights associated with an item from a supplier to a consumer" financial activity).

The '941 patent purportedly remedies "the grand proliferation of illegally copied software," which "represents *billions of dollars in lost profits* to *commercial* software developers." ('941 patent at 1:14-18 (emphasis added).) To avoid these lost profits, the claims "restrict[] software operation within a license limitation." (*Id. at* 1:38-39.) In particular, the claimed method seeks to require payment for the legal use of software by preventing illegal copying. Accordingly, the claims, all of which concern licensing activities for software, are directed toward financial activities.

Moreover, a claimed invention restricting access to software or data is financial in nature if the specification discloses a financial use for the restrictions.

See Informatica Corp. v. Protegrity Corp., No. CBM2015-00021, Paper No. 38 at 17-21 (P.T.A.B. May 31, 2016) (finding claim directed to "protection attributes" financial, because the specification disclosed "banking" as potential application of "protection attributes."). The '941 patent discloses and claims such financial uses.

Claims 1 and 10, for example, relate to operations that are expressly financial in nature. Claim 1 recites "restricting software operation within a license" in the preamble, as well as "acting on the program according to the verification." Claim 10 requires that claim 1's "acting" step includes "restricting the program's operation with predetermined limitations" if the license records do not match. The specification describes "acting" and "restricting" as financial in nature, stating, that the "acting" and "restricting" steps of claims 1 and 10, respectively, include "*placing a fine* on the applicant/user through the *billing service charges* collected at the license bureau." ('941 patent at 6:49-50 (emphasis added).). The Board has found certain claims directed solely to technology for restricting software use not to be financial in nature. *See Sega of Am., Inc. v. Uniloc USA, Inc.*, No. CBM2014-00183, Paper No. 11 at 13 (P.T.A.B. Mar. 10, 2015). However, the Board also provided categories and explained, "[c]laims falling into one of these categories, by way of example, are likely to meet the financial product or service requirement for a CBM." *Id.* Two categories are "processing of payments related to the licensing of software" and "facilitating payment of a software license." *Id.* The "placing a fine"

and "billing service charges" of the "acting" and "restricting" steps of claims 1 and 10 of the '941 patent describe processing payments related to software licensing. Thus, the claims are directed to financial activities.

Claim 2 similarly recites "establishing" a license authentication bureau[2] that handles fine and billing services. (*See* '941 Patent at 6:46-52 ("'Restricting the program's operation with predetermined limitations' may include . . . placing a fine on the applicant/user through the billing service charges collected at the license bureau.").) The Board has consistently treated charging fees as a financial activity. *See, e.g.*, *Apple Inc. v. SightSound Techs.*, No. CBM2013-00021, Paper No. 13 at 11 (P.T.A.B. Oct. 8, 2013) (specification describing how fee is charged makes invention financial in nature); *Indeed, Inc. v. Career Destination Dev., LLC*, No. CBM2014-00069, Paper No. 12 at 9 (P.T.A.B. Aug. 20, 2014). By specifically reciting licensing, the applicants consciously directed the claims to finance-related activities. The applicants further specifically described establishing a license authentication bureau that bills software users for fees confirming that the claimed inventions of the '941 patent, including at least claims 1, 2, and 10, relate to the

[2] The phrase "license authentication bureau" does not appear in the Detailed Description, but the Summary of the Invention refers to "license authentication bureau" and "the bureau" synonymously. '941 patent at 3:33-4:5.

"practice, administration, or management of a financial product or service."

2. The '941 Patent Does Not Include a Technological Invention

The definition of "covered business method patent" does not include patents for "technological inventions." The "'technological inventions' exception only excludes those patents [1] whose novelty turns on a technological innovation over the prior art ***and*** [2] are concerned with a technical problem which is solved with a technical solution." 77 Fed. Reg. at 48,735 (emphasis added). Both prongs must be satisfied. If even one claim is not directed to a "technological invention," the exception does not apply. *Id.* at 48,736.

The '941 patent claims do not meet either "technological innovation" prong.

a. The '941 Patent Does Not Solve a Technical Problem Using a Technical Solution

The '941 patent is not directed to a technical problem at all. Rather, it seeks to address the "the grand proliferation of illegally copied software." ('941 patent at 1:14-15.) It purportedly improves prior art techniques that were "vulnerable to attack at the hands of skilled system's [sic] programmers." (*Id.* at 1:23-24.)

The claimed method restricts the operation of software. However, piracy is a "business problem"—not a technical one. *Apple Inc. v. Smartflash LLC*, No. CBM2015-00033, Paper No. 11 at 10 (P.T.A.B. May 28, 2015) (characterizing "controlling access to one or more content data items" to ensure "legitimate

acquisition of data from a data supplier" as "a business problem—data piracy").

The '941 patent's solution to this business problem is fundamentally organizational, not technical. It describes and claims organizational choices for the locations where a key and license-record should be stored. For example, claim 10 recites setting up: (i) a "verification structure in the erasable, non-volatile memory of the BIOS," ('941 patent at 6:64-65), (ii) "a pseudo-unique key in a non-volatile memory area" (*id.* at 7:40-41), and (iii) a license-record location in "the first nonvolatile [sic] memory area or in the erasable, non-volatile memory area of the BIOS," (*id.* at 7:42- 44). The license record then is encrypted or decrypted using the key and compared with the contents in the volatile memory. Access is allowed if they match. (*Id.* at 7:51-66.)

This storage in specific locations is not a technical solution to a technical problem, but the mere rearrangement of which data is stored in which memory areas. *See Hewlett-Packard Co. v. YYZ LLC*, No. CBM2015-00049, Paper No. 9 at 18 (P.T.A.B. June 30, 2015) (organization problem is not technical).

Further, '941 patent Figure 1 illustrates a computer including three elements—a non-volatile memory 4, a second non-volatile memory 5, and a volatile memory 6. These elements are all conventional. The alleged invention is not directed to any new computer technology, but rather to storing particular information in a particular conventional memory to provide conventional benefits.

Finally, the background describes the claimed method as replacing the use of expensive and inconvenient prior art hardware. ('941 patent at 1:29-32.) But expense and inconvenience are not technical problems. *See Motorola Mobility, LLC v. Intellectual Ventures I, LLC*, No. CBM2015-00004, Paper No. 9 at 13 (P.T.A.B. Mar. 27, 2015) ("[T]he problem faced was to make distribution of electronic information quicker and less expensive. On its face this is not a technical problem."). For at least these reasons, the "technological invention" exception does not apply.

b. Claims 1, 2, and 10 Do Not Recite a Novel and Non-Obvious Technological Invention

Merely reciting, using, or combining known technologies to achieve predictable results will not give rise to a "technological invention" exception. The Patent Office's Rules and Regulations explain:

> The following claim drafting techniques would not typically render a patent a technological invention:
>
> > (a) *Mere recitation of known technologies*, such as computer hardware, communication or computer networks, software, memory, computer readable storage medium . . . .
> >
> > (b) Reciting the use of known prior art technology to accomplish a process or method, even if that process or method is novel and non-obvious.

> (c) Combining prior art structures to achieve the normal, expected, or predictable result of that combination.

Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012) (emphasis added).

The specification explains that claim 1, claim 2, and claim 10 (that depends from claims 6, 7, and 9) recite combinations of known technologies. For example, claim 1 recites "a computer including an erasable, non-volatile memory area of a BIOS of the computer, and a volatile memory area." This technology was undisputedly conventional. (*See, e.g.*, '941 patent at 1:46-48 (discussing a "conventional" computer having a "conventional BIOS module"), 3:21-32 (referring to computers "[t]oday" having "data linkage access to a volatile memory").) The specification further acknowledges that conventional, prior art computers included "a unique identification code." (*Id.* at 1:48-51.)

Miki Mullor, a named inventor, confirmed that claim 1 is the result of merely "[c]ombining prior art structures to achieve the normal, expected, [and] predictable result of [the] combination." 77 Fed. Reg. at 48,764. In deposition, he identified the only alleged new idea in claim 1 to be "verifying a program using a license or data that was stored in memory area . . . of the erasable nonvolatile memory of the BIOS." (October 15, 2015 Deposition of Miki Mullor ("Mullor Dep.") at 53:13-22,

Ex. 1007; *see also, generally, id*. at 50:14-57:9, 89:20-90:8.) But this is merely a predictable combination of what Mr. Mullor admitted were well-known, prior art technologies—specifically, a license record (*id*. at 54:18-22) and a BIOS with erasable nonvolatile memory (*id*. at 52:2-9). Thus, claim 1 merely presents a combination of known technologies to produce a predictable result.

Claim 2 adds "establishing a license authentication bureau." As the specification reveals, the bureau may be an "external entity" or "part of the [same conventional] computer"—neither of which was novel. ('941 patent at 6:1-3.) Thus, claim 2 is not directed to a technological invention.

Claim 6 recites that "selecting a program" includes "establishing a licensed-software-program in the volatile memory of the computer[,] wherein said [program] includes contents used to form the license-record." But the specification concedes that the prior art included "products . . . to validate authorized software usage by writing a license signature onto the computer's volatile memory." (*Id.* at 1:19-21.) Such products necessarily would have performed the claim 6 step, which therefore cannot be novel or non-obvious.

Claim 7 recites that "set[ting] up a verification structure" includes "establishing or certifying the existence of a pseudo-unique key in a first non-volatile memory area of the computer[,] and establishing at least one license-record location in the first nonvolatile [sic] memory area or in the erasable, non-volatile

memory area of the BIOS." The specification acknowledges that the use of "keys" and establishing memory locations were conventional and prior art. (*Id.* at 1:19-21, 1:46-51.)

Claim 9 recites that "verifying the program" includes "encrypting the . . . license-record contents from the volatile memory area or decrypting the license-record in the erasable, non-volatile memory area of the BIOS, using the pseudo-unique key," and then comparing the encrypted or decrypted result to the licensed-software-program's license-record contents. The specification states that encryption or decryption and comparison techniques were known. (*See, e.g., id.* at 5:50-54 ("The bureau . . . encrypts (utilizing *predetermined encryption algorithm*) . . . .") (emphasis added), 1:19-21 ("validate authorized software usage"), 1:27-29 (same).) The specification further concedes that volatile and nonvolatile memory were conventional. (*See, e.g., id.* at 1:19-21, 1:46-48.)

Claim 10 recites that "acting on the program" includes "restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency." This, too, was not new; "restricting honest software users" by "validat[ing] authorized software usage" was known in the art. (*Id.* at 1:19-24.) Thus, claim 10 is not directed to a technological invention.

In short, the alleged invention merely combines well-known organizational structures with conventional hardware components. Such a combination of "prior

art structures to achieve a normal, expected, or predictable result of that combination" does not give rise to a patent a technological invention that is exempt from CBM review. 77 Fed. Reg. at 48,764. The '941 patent therefore is eligible for CBM review under 35 U.S.C. § 315. Further examples of how each limitation of the claims are neither novel nor non-obvious[3] in light of the prior art are provided below in Sections VIII(D)-(H).

C. Supporting Evidence (37 C.F.R. § 42.304(b)(5))

The exhibit numbers of the supporting evidence relied upon, and the relevance of the evidence to the challenge, including specific portions of the evidence relied on to support the challenge, is provided below. An Exhibit List with exhibit numbers and brief description of each exhibit is included herewith.

Petitioners also submit the declaration of Professor Jon Weissman, Ph.D., in support of this petition in accordance with 37 C.F.R. § 1.68. (Ex. 1008.) Dr. Weissman is Professor of Computer Science at the University of Minnesota, Twin Cities. (*Id.* ¶ 6.) Dr. Weissman has extensive academic and industry experience in

[3] Even a novel or non-obvious use of prior art technology would be insufficient to render the claims directed to a technological invention. *See* 77 Fed. Reg. at 48,763-64. However, the '941 patent claims are neither novel nor non-obvious uses of prior art.

digital rights management technologies, the technical field of the '941 patent, (*id*. ¶¶ 4-9), and his declaration explains the basis for his conclusions that the '941 patent is unpatentable, (*id*. ¶¶ 48-79) or invalid (¶¶ 71-141).

D. Person Of Ordinary Skill In The Art

When the '941 patent application was filed, the person of ordinary skill in the art would have possessed at least: (i) a university degree related to electronics, electrical engineering, or computer science (or equivalent professional experience); and (ii) two to three years of experience working with computer security, such as digital rights management technologies. (*See* Declaration of Jon Weissman, Ph.D ("Weissman Decl.") ¶¶ 42-43, Ex. 1008.) Alternatively, such a person would have had an advanced degree in electronics, electrical engineering, or computer science and been exposed to computer security technologies. (*Id.*)

VII. CLAIM CONSTRUCTION

During CBM review, a claim is given its "broadest reasonable construction in light of the specification." *See* 37 C.F.R. § 42.300(b). This means that a claim limitation must be given:

> the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that

> may be afforded by the written description contained in applicant's specification.

Hulu, LLC v. Intertainer, Inc., No. CBM 2014-00052, Paper No. 10 at 6 (P.T.A.B. June 23, 2014) (quoting *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997)).

During the *Ancora I* litigation, the district court and the Federal Circuit construed select '941 patent terms. (*See* Claim Constr. Order, Case No. 11- CV-06357, Dkt No. 107, Ex. 1009; *Ancora Techs. v. Apple, Inc.*, 744 F.3d 732 (Fed. Cir. 2014), Ex. 1010.) For purposes of this Petition, those constructions either are consistent with the broadest reasonable interpretation applicable during CBM review or are not relevant to the proposed grounds of invalidity. The lone exception is "license record," for which the broadest reasonable construction applicable during CBM review should be Ancora's proposed construction during the *Ancora I* litigation.

A. "License Record"

During *Ancora I*, Ancora proposed that "license record" be construed as "information for verifying a licensed program." (Suppl. Joint Claim Constr. Statement, Case No. 11-CV-6357, Dkt No. 100 at Ex. A, p. 16, Ex. 1011.) Although

the district court construed this term to have a narrower meaning,[4] Ancora's proposed construction is the *broadest* reasonable interpretation. (Weissman Decl. ¶ 47; *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (construction must be reasonable).) The Board has previously declined to adopt a district court's construction where that construction is narrower than the broadest reasonable interpretation. *SAP Am., Inc. v. Versata Dev. Grp.*, No. CBM2012-00001, Paper 70 at 23 (P.T.A.B. June 11, 2013).

B. Indefinite Limitations

Several claim limitations—including "agent"—are indefinite. Should the Board disagree, the broadest reasonable interpretation of "agent" for purposes of this petition is a software and/or hardware computational entity that is used to "set up a verification structure," as claimed. (*See, e.g.*, Dictionary of Computer Science, Engineering, and Technology at 12 (2000), Ex. 1019 (defining "agent" as "a computational entity").)

For several dependent claims, a person of ordinary skill cannot immediately discern to what a limitation refers. The drafting issues include multiple antecedent

[4] The district court's construction for "license record" was a "record from a licensed program with information for verifying that licensed program." (Claim Constr. Order at 20, Ex. 1009.)

basis errors—sometimes in the same claim. When assessing the novelty or non-obviousness of these claims, Petitioner applies the broadest reasonable interpretation that would result if their various indefiniteness/antecedent basis issues were corrected. Petitioners address indefiniteness in detail in Section VIII(B) below.

VIII. THERE IS MORE THAN A REASONABLE LIKELIHOOD THAT THE CHALLENGED '941 PATENT CLAIMS ARE UNPATENTABLE

Pursuant to 37 C.F.R. § 42.304(b), Petitioner requests cancellation of claims 1-19 on the following eight statutory grounds (all citations are pre-AIA because the applicants filed for '941 patent on October 1, 1998):

	Claims	Statutory Ground	References
1	1-19	Patent ineligible subject matter (35 U.S.C. § 101)	n/a
2	1-19	Lack of written description (35 U.S.C. § 112, ¶ 1)	n/a
3	1-19	Indefiniteness (35 U.S.C. § 112, ¶ 2)	n/a
4	1-3, 5-14, and 16-17	Obviousness (35 U.S.C. § 103)	Hasebe[5] and DMI Specification[6]

[5] European Patent Application Publication No. EP 0 766 165 A2 ("Hasebe") ("Hasebe," Ex. 1012).

	Claims	Statutory Ground	References
5	1-3, 5-14, and 16-17	Obviousness (35 U.S.C. § 103)	Hasebe, DMI Specification, and Chang[7]
6	1-3, 5-14, and 16-17	Obviousness (35 U.S.C. § 103)	Hasebe, DMI Specification, and Arbaugh[8]
7	1-3, 5-14, and 16-17	Obviousness (35 U.S.C. § 103)	Hasebe, DMI Specification, and Isikoff[9]
8	1-3, 5-14, and 16-17	Obviousness (35 U.S.C. § 103)	Hasebe, DMI Specification, Shipman,[10] and Angelo[11]

[6] Desktop Management BIOS Specification Version 2.0, March 6, 1996 ("DMI Spec.," Ex. 1013).

[7] U.S. Patent No. 5,724,425 ("Chang," Ex. 1014).

[8] Arbaugh, W.A. et al., "A secure and reliable bootstrap architecture," 1997 IEEE Symposium on Security & Privacy, 4-7 May 1997, pp. 65-71 ("Arbaugh," Ex. 1015).

[9] U.S. Patent No. 5,748,084 ("Isikoff," Ex. 1016).

[10] PCT Publication No. WO 97/36241 ("Shipman," Ex. 1017).

[11] European Patent Application Publication No. EP 0 824 233 A2 ("Angelo," Ex. 1018).

None of the above references were previously considered during the original prosecution or reexamination.

Pursuant to 37 C.F.R. § 42.304(b)(4), Petitioner explains below why the challenged claims are unpatentable under the statutory grounds raised. These include, for the obviousness grounds, an explanation of how the prior art satisfies each limitation of each challenged claim. Petitioner also provides the declaration of Professor Jon Weissman (Ex. 1008) in support.

A. Ground 1: The '941 Patent Is Unpatentable Under 35 U.S.C. § 101

The '941 patent claims an abstract idea and merely invokes generic computer processes and components to achieve it. The claims fail *Alice* step one because they claim the abstract idea of controlling software access based on data stored in a particular location. The claims also fail step two because their limitations, taken individually and as an ordered combination, fail to transform the claims nature to patent-eligible subject matter. The limitations recite nothing more than using well-known, conventional, and routine computer components and processes to achieve the claimed result. The ordered combination of those limitations also does not supply an inventive concept that would make the claims patent eligible.

1. *Alice* Step One: The Claims Cover the Abstract Idea of Controlling Software Access Based On Data Stored in a Particular Location

Step one focuses on "the claimed advance over the prior art to determine if the claim's character as a whole is directed to excluded subject matter." *Intellectual Ventures I, LLC v. Erie Indemnity Co.*, No. 2016-1128, -1132, slip op. at 14 (Fed. Cir. Mar. 7, 2017) (Ex. 1031). That determination should consider whether the claims are directed to "a specific means or method that improves the relevant technology" or are "directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery." *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016) (internal quotations omitted).

Here, the '941 patent claims the abstract idea of controlling software access based on data stored in a particular location. Stripped of references to generic computer technology, independent Claims 1 and 18 recite four steps: (1) choosing a program, (2) creating a way to verify a user's access to that program, (3) verifying the user's access, and (4) allowing or denying access. But steps (1), (3), and (4) were not new, and thus not the alleged improvement. (*See* '941 patent at 1:19-32; Weissman Decl. ¶¶ 51-53.) The '941 patent emphasizes multiple times that its alleged inventiveness "strongly relies on the use of a key and of a record, *which have been written into the non-volatile memory of a computer*." ('941 patent at

1:39-42 (emphasis added); *see also, e.g., id.* at 1:49-51 ("It is important to note that the key is *stored in a non-volatile portion of the BIOS*, i.e. it cannot be removed or modified.") (emphasis added).) The patent alleges that, because a high level of programming expertise is needed to interact with data stored in non-volatile BIOS memory, hackers would be deterred from working around the claimed method. (*Id.* at 3:4-17.) The contribution to the art that the '941 patent claims, therefore, is the step of storing the verification structure in the non-volatile BIOS memory.

But this step is nothing more than the computer equivalent of hiding a key for a lock in a more secure, particular location. Since the invention of locks with keys, people have sought safer places to store their keys, lest they become a victim of theft. In some instances, hiding a key under a doormat may suffice. But such an obvious hiding spot leaves the key in a location where even an unskilled thief can easily gain access by finding the key and using it in the lock.

One well-known solution to hiding a key is to place it in a lockbox. With such lockboxes, a homeowner can give other people access to open the lockbox and retrieve the key, while making it considerably more difficult for thieves to find and use the key. Like the homeowner seeking to deter thieves in the hidden key example, the '941 patent describes storing information where it will be difficult for hackers to access.

The inventive concept claimed in the '941 patent adds no more than

relocating a key from under a doormat (a volatile memory) to a lockbox (the BIOS non-volatile memory). The remaining method steps do not change based upon that relocation. In the key example, obtaining the key, choosing the corresponding door, inserting the key and opening the lock (or failing to do so) remain the same. In the claimed methods, the computer also performs the same steps to achieve what it did in the prior art.

a. Data Storage and Manipulation Claims Have Been Found to Constitute Abstract Ideas

The Federal Circuit has found similar claims involving data storage and manipulation abstract and not patent eligible. For example, the Federal Circuit invalidated a claimed method of extracting data from documents. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1344 (Fed. Cir. 2014). In *Content Extraction*, the claims generally recited "a method of 1) *extracting data* from hard copy documents using an automated digitizing unit such as a scanner, 2) *recognizing specific information* from the extracted data, and 3) *storing that information in a memory.*" *Id.* (emphasis added). The Federal Circuit held that these claims were directed to an abstract idea because "[t]he concept of data collection, recognition, and storage is undisputedly well-known. Indeed, humans have always performed these functions." *Id.* at 1347. Similarly, the license verification and data storage steps claimed by the '941 patent

were well-known. (Weissman Decl. ¶¶ 51-53.) Claim 18 also includes the similar steps of "*extracting license information* from software program," "*storing the encrypting license information*," and "*verifying* the application software program based on the encrypted license information." Thus, applying the Federal Circuit's *Content Extraction* rationale, the '941 patent claims are invalid too.

The Federal Circuit also recently considered claims aimed at restricting software access to paid users. *See Smartflash LLC v. Apple, Inc.*, No. 2016-1059, slip op. at 2-3 (Fed. Cir. Mar. 1, 2017) (nonprecedential) (Ex. 1030). Like the '941 patent, *Smartflash* patent described the "'growing prevalence of so-called data pirates' who 'obtain[ed] data either by unauthorized or legitimate means and then ma[d]e this data available essentially world-wide over the internet without authorization.'" *Id.* at 3 (quoting U.S. Patent No. 7,334,720). The Federal Circuit found those claims were directed to the abstract idea of "conditioning and controlling access to data based on payment." *Id.* at 9. Instead of providing "an improvement of computer functionality," the Federal Circuit explained that the "claims here invoke computers merely as tools to execute fundamental economic practices." *Id.* at 9-10.

The '941 patent's abstract idea of controlling software access based on data stored in a particular location is very similar to the *Smartflash* abstract idea. The dependent claim limitations, similarly, merely invoke additional routine,

conventional computer steps, as described in the step two analysis. *See* Section VIII(A)(2), *infra*. Those claims provide no further contribution to the art for analysis under step one.

b. The Claims Do Not Provide A Specific Technical Solution To A Technical Problem

Claims that provide a specific technical solution to a technical problem have been found not to recite an abstract idea. *See DDR Holdings, LLC v. Hotels.com L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (reciting specific algorithmic steps, supported by disclosure in specification); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016) (claiming specific steps to implement the improvement); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016) (claiming specific rules or techniques that allow for something that previously could not have been accomplished). Claims 1 and 18 of the '941 patent, in contrast, do not describe transforming the typical function of BIOS memory. (Weissman Decl. ¶ 54.) The claims use BIOS memory as memory to store data. The relative ease or difficulty in accessing that memory does not transform its function. (*Id.* ¶ 57.) The '941 patent merely takes information that some prior art methods stored in one conventional location and moves them to another location that is more difficult to access. Therefore, the '941 patent claims an abstract idea.

c. Any Novelty In Implementing The Abstract Idea Is Considered Only In *Alice* Step Two

Ancora has argued that these claims were not abstract under step one because the claims set up a new verification structure in BIOS or recite a physical improvement. But this type of analysis is improper for step one. In *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014), the Federal Circuit found that "any novelty in implementation of the idea is a factor to be considered only in the second step of the Alice analysis." The claims in *Ultramerical* involved displaying an advertisement in exchange for access to copyrighted media. Ultramercial posited that its claims were "directed to a specific method of advertising and content distribution that was previously unknown and never employed on the Internet before." *Id.* at 714. Ultramercial argued its method was a novel use of technology and therefore not abstract. The Federal Circuit disagreed. *Id.* at 715 ("We do not agree with Ultramercial that the addition of merely novel or non-routine components to the claimed idea necessarily turns an abstraction into something concrete.").

The Federal Circuit relied on similar reasoning in two recent companion appeals involving allegedly novel software claims. In *Intellectual Ventures I LLC v. Capital One Financial Corp.*, No. 2016-1077, slip op. at 13 (Fed. Cir. Mar. 7, 2017) (Ex. 1032), the patentee contended that its patent, "provide[d] a concrete solution to

a problem in computer programming." The claims there involved the use of data manipulation steps for editing documents in a specific computer markup language called XML. The Federal Circuit explained that "at best, this limits the invention to a technological environment for which to apply the underlying abstract concept. But such limitations do not make an abstract concept any less abstract under step one." *Id.* at 13-14.

In another case, *Intellectual Ventures I LLC v. Erie Indemnity Co.*, the patentee argued that its claims were "drawn to a specific search architecture that improves how computer databases function." No. 2016-1128, -1132, slip op. at 19 (Ex. 1031). However, the claims were "not focused on *how* [the] usage . . . leads to an improvement in the technology of computer databases." *Id.*

Like the claims considered in *Ultramerical* and the companion *Intellectual Ventures* cases, the '941 patent merely calls for a specific component, BIOS memory, to implement its abstract idea. Recitation of BIOS does not make the limitations any less abstract under step one. Furthermore, the step "using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS" does not claim ***how*** to set up the verification structure. (Weissman Decl. ¶ 56.) Therefore, that step cannot save the claim from being directed to an abstract idea.

2. *Alice* Step Two: The Claims Do Not Provide An "Inventive Concept"

The second step focuses on whether the claims contain an inventive concept sufficient to transform the abstract idea into patent-eligible subject matter. *See Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2357 (2014). An inventive concept "may arise in one or more of the individual claim limitations or in the ordered combination of the limitations," but "must be significantly more than the abstract idea itself, and cannot simply be an instruction to implement or apply the abstract idea on a computer." *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349 (Fed. Cir. 2016). The step two analysis disregards "well-understood, routine, conventional" computer functions or "generic" computer technology. *Alice*, 134 S. Ct. at 2357-59. The claims must provide a "technology-based solution (not an abstract-idea-based solution implemented with generic technical components in a conventional way)." *Bascom*, 827 F.3d at 1351.

Taken separately, the '941 patent steps are purely conventional functions performed by a computer.

a. Setting Up a Verification Structure in BIOS Does Not Transform the Abstract Idea

The step of setting up a verification structure is not transformative. Neither the verification structure nor where it is stored transforms the abstract idea into

patent eligible subject matter.

The verification structure itself cannot be transformative because it is conventional data, without any specified implementation. Claim 1 requires the verification structure to include at least one license record. But this license record does not have any particular format. (’941 patent at 4:41-44.) It also is not new; the patent explains that prior art already stored such license data. (*Id.* at 1:19-21.) Thus, the verification structure and its license record is conventional data in any suitable format. (Weissman Decl. ¶ 58.) It therefore cannot transform the abstract idea.

The location of that data in BIOS is also not transformative. (*Id.* ¶ 59.) Merely storing data in conventional computer component memory is not transformative. The ’941 patent explains that computer BIOS was a well-known, conventional computer component. (*See* ’941 patent at 1:46-48.) The patent further explains that manipulating BIOS was also conventional. (*Id.* at 2:2-4.) Reciting “well-understood, routine, conventional” computer functions or “generic” computer technology is not sufficient. *Alice*, 134 S. Ct. at 2357-59 (quoting *Mayo Collaborative Servs. v. Prometheus Labs.*, 566 U.S. 66, 73, 77, 82 (2012)); *see also Content Extraction*, 776 F.3d at 1348 (limiting an abstract idea to a particular technological environment is insufficient).

The specific choice of BIOS as a memory location is also not transformative.

See Kinglite Holdings Inc. v. Micro-Star Int'l Co. Ltd., CV14-03009, 2016 WL 4205356, at *7 (C.D. Cal. May 26, 2016) ("Simply adding the element of a BIOS is not a sufficient inventive concept to survive Alice step two."). The Federal Circuit considered a similar issue in *Smartflash*. *See Smartflash*, No. 2016-1059, slip op. at 2-3 (Ex. 1030). There, the patentee argued that the recitation of "specific hardware components" which "reflect[ed] specific technical choices that provide distinct advantages over alternatives" transformed its claims into patent-eligible subject matter. *Id.* at 13. The Federal Circuit rejected that argument, explaining that the test is not whether the claims provide a distinct advantage over alternatives, but whether there is a transformative inventive concept. *Id.* The usage of ubiquitous computer components failed to transform the abstract idea of conditioning and controlling access to data based on payment into patent-eligible subject matter. *Id.* at 13-14. The Federal Circuit also explained,

> In *Alice*, the Supreme Court considered an argument similar to Smartflash's and found that "what petitioner characterized as specific hardware—'a data processing system' with a 'communications controller' and 'data storage unit'—did not confer eligibility because "[n]early every computer will include a 'communications controller' and 'data storage unit' capable of performing the basic calculation, storage, and transmission required by the . . . claims.

Id. (quoting *Alice*, 134 S. Ct. at 2360).

Similar to the unsuccessful "specific hardware components" *Alice* and *Smartflash* arguments, the '941 patent extolls the well-known virtues of the non-volatile BIOS memory—namely, that "the required level of system programming expertise . . . is substantially higher than those needed for tampering with data residing in volatile memory." ('941 Patent at 3:4-9; Weissman Decl. ¶ 60.) But this is true for any data stored in the non-volatile BIOS memory, not just the claimed verification structure. (*Id.*) The '941 patent merely claims using the non-volatile memory for its conventional and intended purpose of storing data. The advantages of this choice do not make it transformative.

b. The Other Claim Limitations Also Recite Well-Known, Conventional Computer Technology

The other claim limitations do not satisfy step two because they merely recite well-known and conventional computer technologies or token pre- and post-solution activity to implement the abstract idea. *See Intellectual Ventures I v. Erie*, No. 2016-1128, -1132, slip op. at 21 (Ex. 1031); (Weissman Decl. ¶¶ 61-68).

Claim 1 recites a number of hardware-based limitations including: "a computer including an erasable, non-volatile memory area of a BIOS of the computer," "a volatile memory area." The '941 patent explains that most computers at the time had all these components. (*See* '941 patent at 1:46-48; *id.* at 3:21-24.)

Merely reciting these ubiquitous components is not enough to transform the abstract idea into patent-eligible subject matter.

Claim 1's other limitations such as "selecting a program residing in the volatile memory," "verifying the program," and "acting on the program according to the verification" were well-known, as explained in the specification. (*See, e.g., id.* at 1:19-32; 6:8-9; and 6:29-45.) These steps add nothing to the underlying abstract idea that could satisfy step two. *See Ultramercial*, 772 F.3d at 715-16.

Selecting a program stored in the volatile memory (or loading a program residing in non-volatile memory, in Claim 18) is also a routine step that occurs before any program is used on a computer. (Weissman Decl. ¶ 63.) The patent's only explanation for this step is that a program is "establish[ed] . . . in the volatile memory of the computer." ('941 patent at 6:8-9.)

Verifying the program using the verification structure also provides nothing inventive. (Weissman Decl. ¶ 64.) Numerous methods for validating authorized software usage have been implemented in the prior art. (*See id.* at 1:11-32.) In fact, the '941 patent's preferred method merely compares two values to see if they match. (*Id.* at 6:29-45); *see CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1373 (Fed. Cir. 2011) ("a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101."). Similarly, acting on the program based on the verification is conventional post-solution

activity. A method for restricting access must eventually restrict access, after all. *See Parker v. Flook*, 437 U.S. 584, 590-92 (1978) (post-solution activity not patent eligible); *see also, e.g., Informatica Corp. v. Protegrity Corp.*, CBM2015-00021, Paper No. 38 at 33 (P.T.A.B. May 31, 2016) ("granting of access to a user is merely a conventional post-solution activity.").

Even the step of encrypting a license record recited in Claim 18 and various dependent claims consists of routine and conventional activity. (*See* '941 patent at Claims 3-5, 8-9, 13-17, 19; Weissman Decl. ¶ 65.) The '941 patent is not limited to any particular encryption algorithm. ('941 Patent at 4:29-31.) It merely references a "predetermined encryption algorithm" and the use of a "telephone number, user name, license number, etc." as the password. (*Id*. at 5:50-54, 4:6-10.) These are routine steps for encoding and decoding data. (Weissman Decl. ¶ 65.)

Claims 2-5 recite further limitations of "establishing a license authentication bureau," "establishing, between the computer and the bureau, a two-way data-communications linkage," transferring a "request-for-license," performing the encryption and/or verification at the bureau, and transferring back to the computer an "encrypted license-record" or the "result of the comparing." These limitations merely invoke the use of the Internet to connect the computer to a server and outsource the encryption and/or verification steps to the server. (Weissman Decl. ¶ 66.) Mere "use of the Internet is not sufficient to save otherwise abstract claims

from ineligibility under § 101. . . . and does not change the analysis." *Ultramercial*, 772 F.3d at 716-17.

The remaining dependent claims add further limitations that capture conventional, well-known computer parts and functions or are rehashes of other claims. (Weissman Decl. ¶ 67.) For example, Claims 6-8, 14, and 15 contain limitations found in Claims 18 and 19. Claim 10 adds a token post-solution step of restricting the program's access if the verification check fails. Claim 11 recites that the volatile memory is RAM, which is found in nearly all computers. Claims 12 and 13 recite that a pseudo-unique key is stored in the non-volatile BIOS memory. The specification states that key is conventionally embedded by the manufacturer. (*See* '941 patent at 1:45-49.)

None of the '941 patent claim limitations taken individually provide an inventive concept that would transform the claimed abstract idea of controlling software access based on data stored in a particular location into something patent eligible. (Weissman Decl. ¶ 68.)

c. The Ordered Combination of Limitations Provides No Inventive Concept

There also is nothing in the ordered combination of claim steps that supplies an inventive concept. (Weissman Decl. ¶ 69.) The Federal Circuit has found inventive concepts in the "non-conventional and non-generic arrangement of

known, conventional pieces" with respect to step two. *Bascom*, 827 F.3d at 1350. That case law is not applicable here. *Bascom* explained that the claims must provide a "technology-based solution (not an abstract-idea-based solution implemented with generic technical components in a conventional way)." *Id.* at 1351. But the '941 patent is implemented with BIOS memory used for its conventional purpose of storing data.

Merely identifying the difficulty in accessing BIOS memory in the ***specification*** is not enough to make the '941 patent ***claims*** transformative. The claims themselves must recite how the use of BIOS "leads to an improvement" through some "non-conventional and non-generic arrangement." *See Intellectual Ventures I v. Erie*, No. 2016-1128, -1132, slip op. at 21 (distinguishing *Bascom*, 827 F.3d at 1349-52) (Ex. 1031). They do not. They only require that an agent set up the verification structure in BIOS. Such "claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it. Our law demands more." *See Intellectual Ventures I v. Capital One*, No. 2016-1077, slip op. at 17 (Ex. 1032).

Because nothing in the limitations, taken individually, or as an ordered combination provide any inventive concept, the claims fail step two. The '941 patent therefore is invalid.

B. Ground 2: Claims 1-18 Are Indefinite Under 35 U.S.C. § 112, ¶ 2

Independent claims 1 and 18 both require an "agent," and claim 1 also requires a "verification structure." Both the "agent" and "verification structure" limitations recite functions without structure for performing their stated functions. They therefore require construction as means-plus-function limitations under 35 U.S.C. § 112, ¶ 6. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015) (*en banc*). Because the specification fails to disclose any corresponding structure for performing the required functions, however, all claims are invalid as indefinite under 35 U.S.C. § 112, ¶ 2.

Other limitations of claims 3, 5, 8, 16, and 17 fail to inform one of ordinary skill in the art as to their scope. For example, their lack of proper antecedent basis gives rise to potential conflicting interpretations and thus renders the claims indefinite for this additional reason.

1. "An Agent To Set Up a Verification Structure . . . " Renders Claims 1-19 Indefinite

Claim 1 recites "using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record." The claim further recites – separately from the agent – additional steps of "verifying" and "acting." Claim 18 also recites an "agent," but recites different functions: "an agent [that]

perform[s] the following steps: extracting …, encrypting …, storing …, and verifying…."

By itself, the term "agent" fails to convey a definite structure to a person of ordinary skill in the art. This limitation therefore should be construed as means-plus-function limitations. The Federal Circuit's *Williamson* and in *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366 (Fed. Cir. 2015) decisions are instructive.

In *Williamson*, the Federal Circuit abandoned the "strong" presumption that claim limitations lacking the word "means" are not governed by 35 U.S.C. § 112, ¶ 6. 792 F.3d at 1348-49. Although limitations that do not use the word "means" still are presumed not to be means-plus-function elements, this presumption can be rebutted if a "claim term fails to 'recite[ ] sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Id.* at 1349 (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)). A term that "is so broad that it does not convey any definite structure" is a means-plus-function limitation. *Toyota Motor Corp. v. Cellport Sys., Inc.*, No. IPR2015-00634, Paper No. 7 at 12 (P.T.A.B. Aug. 14, 2015) ("Toyota"); *Facebook, Inc., v. TLI Commc'ns, LLC*, No. IPR2015-00778, Paper No. 17 at 14 (P.T.A.B. Aug. 28, 2015).

In *Media Rights*, the Federal Circuit applied *Williamson* to the term

"compliance mechanism" which, like the "agent" term here, was recited as a structural limitation in a method claim. *Media Rights*, 800 F.3d at 1371-72. The court determined that the "compliance mechanism" in the method claim was a means- plus-function limitation because the term does not "connote a particular structure" and the specification failed to define the term in a structural manner. *Id.* at 1372. The court then concluded that the claims were indefinite because the recited functions were computer-implemented functions and the specification failed to disclose any algorithm for two recited functions. *Id.* at 1372-73.

a. "Agent" Is a Means-Plus-Function Limitation

Applying the above analysis to "agent" produces the same result as in *Williamson* and *Media Rights*. Although "agent" does not use the term "means," the presumption that it is not a means-plus-function limitation is overcome because the term does not convey any definite structure to a person of ordinary skill in art. *See Toyota* at 12 (holding "circuitry contained in a housing for receiving and transmitting signals carried through an air link" to be a means-plus-function element because the term "circuitry" "is so broad that it does not convey any definite structure."); (Weissman Decl. ¶¶ 71-72.)

The term "agent" does not connote definite structure and is broad enough to encompass software, hardware, or a combination of both. (*See, e.g.*, Dictionary of Computer Science, Engineering, and Technology at 12 (2000), Ex. 1019 (defining

"agent" as "a computational entity"); U.S. Patent No. 5,568,552 at 6:24-32, Fig. 5 (describing a "hardware agent" for software licensing), Ex. 1020; Weissman Decl. ¶ 48.) The term is broad enough to encompass virtually anything that performs a specific computational task. Indeed, based on the term's lack of reasonably clear scope, at least one court has found the term "agent" to be indefinite. *See, e.g.*, *Joao Control & Monitoring Sys., LLC v. Protect Am., Inc.*, No. 14-cv-134-LY, 2015 U.S. Dist. LEXIS 109187, at *22-23 (W.D. Tex. Aug. 18, 2015) (holding "intelligent agent," "software agent," and "mobile agent" to be indefinite, as "there was no single agreed-upon definition of the 'agent' terms which a skilled artisan would have understood-with reasonable certainty-based on the terms' use in the claim language alone.").

The plain language of the claim does not provide greater specificity, as it does not describe any structure that constitutes the agent or performs its claimed functions. The '941 specification—which does not use the word "agent" at all—also does not describe structure(s) that perform the agent's recited functions of "set[ting] up the verification structure" (claim 1) and "extracting," "encrypting," "storing," and "verifying" (claim 18). (Weissman Decl. ¶ 72.)

At most, the claims and specification describe functions that the claimed "agent" may perform. This does not suffice to avoid the application of Section 112, ¶ 6. *See Williamson*, 792 F.3d at 1349-51 (construing "module" that performs

functions in a method claim as a means-plus-function limitation). "Agent" therefore must be construed as a means-plus-function limitation and, as discussed below, deemed indefinite for lack of any disclosed corresponding structure.

b. "Agent" Lacks Corresponding Structure in the Specification and Thus Is Indefinite

Construing a means-plus-function limitation is a two-step process. The first step is to "identify the claimed function." *Williamson,* 792 F.3d at 1351. The second step is to determine "what structure, if any, disclosed in the specification corresponds to the claimed function." *Id.* In the case of computer-implemented inventions, the structure may be an algorithm. *See id.* at 1352. "Corresponding structure" in the specification requires that the disclosed structure in the specification be "clearly link[ed]" to the function recited in the claims. *Id*. If the specification fails to disclose structure for the claimed functions in the specification, the claim is indefinite. *See id*; s*ee also Media Rights,* 800 F.3d at 1373.

Claim 1 "agent." The recited function for the "agent" of claim 1 is "set[ting] up a verification structure in the erasable, non-volatile memory of the BIOS." But the specification fails to describe any corresponding structure for this function. At most, the specification describes two *functional steps* for setting up the verification structure (*i.e.,* "establishing or certifying the existence of a pseudo- unique key in the first non-volatile memory area[,] and establishing at least one license-record

location in the first or the second nonvolatile memory area"). ('941 patent at 6:18-22.) But it does not describe any *structure*—algorithm or otherwise—that performs these steps. (Weissman Decl. ¶ 73.)

Moreover, even these disclosed limited steps (which do not constitute an algorithm) are insufficient to set up the claimed verification structure. According to claim 1, the "verification structure" is "in the *erasable*, non-volatile memory of the BIOS." The specification's disclosure of the "set up" step, by contrast, describes only the processes of: (i) "establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area" ('941 patent at 6:18-20)—which is *non-erasable* (*id.* at 2:1-3); and (ii) and "establishing at least one license-record *location* in the first or the second nonvolatile memory area" (*id.* at 6:20-22 (emphasis added); Weissman Decl. ¶ 74). The second step, at most, establishes a "location," but does not actually perform a function of setting up a "verification structure in the erasable, non-volatile memory of the BIOS" or explain how to achieve this. (*Id.*)

Similarly, the '941 patent specification discloses encrypting a license record and storing the encrypted license record in the erasable, non-volatile memory of the BIOS as part of "an initial license establishment procedure." ('941 patent at 1:59-2:9.) But this portion of the '941 patent is describing establishing *the license record,* not setting up the verification structure. Establishing the license record is a different

step (see claim 8) than "using an agent to setup a verification structure." There is no disclosure in the '941 patent of the verification structure format or how to setup it up. (Weissman Decl. ¶¶ 73-74.) Further, the above functions do not disclose structure. A person of ordinary skill in the art would not understand generic functions, such as encrypting and storing, to be disclosure of any particular algorithm. Instead, these are high-level functions that are not described as being performed by any structure. Mere recitation of well-known functions without detail or explanation about how they are implemented cannot be an algorithm. (*Id*.)

Dependent claim 3 also does not describe an "algorithm" for "agent." Claim 3 states that "setting up a verification structure" comprises "establishing … communications," "transferring … a request," "forming an encrypted license-record," "transferring … the encrypted license-record," and "storing the encrypted license record." None of these steps describes any structure or discloses how an "agent" implemented in the *computer* actually "sets up a verification structure in the erasable, non-volatile memory of the BIOS." Claim 3 makes clear that these steps are occurring at different locations. Indeed, at least the "forming an encrypted license-record" step is performed *at the bureau*, not on the computer, and could not possibly be a part of any corresponding structure *of an agent* on the computer. Because the specification does not disclose either a physical structure or any algorithm corresponding to the "agent," independent claim 1 and its dependent

claims (2-17) are indefinite.

Claim 18 "agent." The "agent" of Claim 18 is indefinite for the same reasons. Per the claim language, the agent performs four functions: (1) "extract[s] license information from software program"; (2) "encrypt[s] license information using the pseudo-unique key stored in the first non-volatile memory area"; (3) "stor[es] the encrypting license information in a second erasable, writable, non-volatile memory area of the BIOS of the computer"; and (4) "verif[ies] the application software program based on the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS." But the specification does not clearly link any corresponding structure to these recited functions or disclose an algorithm for performing them. Indeed, the last recited function—"verifying"—is part of the agent in claim 18, but is set forth as a separate step distinct from the agent in claim 1. It is impossible to discern any algorithm that is clearly linked to the recited function, especially because the functions are set forth inconsistently in the two claims. (Weissman Decl. ¶ 73.) Independent claim 18 and its dependent claim 19 thus are indefinite.

2. Other Indefiniteness Issues with Respect to Dependent Claims 5, 8, 16, and 17

Section 112, ¶ 2 requires that "a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope

of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig, Instruments Inc.*, 134 S. Ct. 2120, 2129 (2014), *cert. denied*, 136 S. Ct. 569 (2015). The Federal Circuit has held that a claim may be indefinite "if a term does not have proper antecedent basis[,] where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable." *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) (citing *Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370–71 (Fed. Cir. 2006)). A claim term lacking an antecedent basis is indefinite if it "is amenable to two plausible claim interpretations." *Apple Inc. v. Smartflash LLC*, No. CBM2015-00016, Paper 23 at 21 (P.T.A.B. Apr. 10, 2015) (citing *Ex Parte Miyazaki*, 89 U.S.P.Q. 2d 1207, 1211 (B.P.A.I. 2008) (precedential)).

a. Claim 5—"The Unique Key" Is Indefinite

Claim 5 clarifies that the "identification of the computer" in claim 3 "includes *the* unique key." But "unique key" appears in none of the claims on which claim 5 depends—*viz.*, claims 1, 2, and 3. It is unclear whether "the unique key" refers to the "encryption key" in claim 3, some other specific unique key not related to claim 5 (*e.g.*, the "unique key . . . stored in a first non-volatile memory area of the computer" in claim 13), or something else entirely. (Weissman Decl. ¶ 75.) Absent reasonable clarity as to the meaning of this limitation, claim 5 is indefinite.

b. Claim 8 Is Indefinite

Claim 8 recites:

> A method according to claim 6 wherein *establishing a license- record* includes the steps of:
>
> [i] forming *a license-record* by encrypting of the *contents* used to form *a license-record* with other predetermined data contents, *using the key*; and
>
> [ii] establishing the encrypted license-record in one of *the at least one established license-record locations*.

Claim 8 has multiple issues highlighted in italics above. (Weissman Decl. ¶¶ 76-82.) First, neither of claims 1 and 6 (from which claim 8 depends) refers to "establishing a license-record" at all. Rather, claim 6 recites "establishing a *licensed-software program*." (Emphasis added.) Second, it is unclear whether the three distinct appearances of "*a license-record*" in claim 8 refer to (a) the same license-record, (b) different license-records, and (c) or the license-record of claim 1 (as claim 8 indirectly depends on claim 1). Third, none of the claims from which claim 8 depends refers to a "*key*." Fourth, none of the claims on which claim 8 depends refers to "at least one established license-record *location*." Finally, none of the claims from which claim 8 depends refers to "*contents*" to form the license record and the claims do not specify what contents are encrypted.

It is unclear: (a) whether "establishing a license-record" refers to the

"establishing a licensed-software program" of claim 6 (or something else); (b) to what each instance of "a license-record" refers; (c) whether "the key" refers the "unique key" of claim 5 (or something else); and (d) whether the "at least one established license-record location" refers to the "at least one license record" of claim 1 (or something else). *Id.* For all these reasons, a person of ordinary skill in the art would not be able to determine the scope of claim 8 with reasonable certainty, and claim 8 is indefinite. *Id.*

c. Claim 16—"Second Non-Volatile Memory" Is Indefinite

Claim 16 depends from claims 13 and 1, and states the "step of verifying the program" "includes a [*sic*] decrypting the license record data accommodated in *the erasable second non-volatile memory area of the BIOS* using at least the unique key." (Emphasis added.) A person of ordinary skill in the art cannot tell to what "the erasable *second* non-volatile memory area of the BIOS" refers. This phrase lacks antecedent basis in both claims 13 and 1. (Weissman Decl. ¶ 83.)The phrase could refer to the "erasable non-volatile memory area of the BIOS" of claim 1 or to a different, "second" area entirely. Due to this ambiguity, claim 16 is indefinite.

d. Claim 17—"The License Record" Is Indefinite

Claim 17 states that "the step of verifying the program includes encrypting *the license record that is accommodated in the program* using at least the unique

key." (Emphasis added.) This limitation, too, lacks antecedent bases in any claim on which it directly or indirectly depends.

Neither claim 1 nor 13 recites "a license record" that is "accommodated in the *program*." Instead, claim 1 requires that the license record be "accommodat[ed] in the *verification structure*"—which in turn is in "the erasable, non-volatile memory area of the BIOS." It is unclear whether "the license record" of claim 17 refers to the license record of claim 1 or some other license record. (Weissman Decl. ¶¶ 84-85.) Absent reasonable clarity as to its meaning, claim 17 is indefinite.

C. Ground 3: Claims 1-19 Are Unpatentable Under 35 U.S.C. § 112, ¶ 1 for Lack of Written Description

The written description requirement ensures that an inventor "reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). "The purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification." *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1319 (Fed. Cir. 2011). If a claim limitation is not expressly described, "the specification must contain an equivalent description of the claimed subject matter." *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed.

Cir. 1997). An invention that is merely obvious in view of the written description fails the written description requirement. *Id.*

Independent claims 1 and 18 recite "agent" that performs various tasks. These tasks include "set[ting] up a verification structure" (claim 1) and "verifying the application software program based on the encrypted license information" (claim 18). During prosecution, the Examiner allowed issued claims 1 and 18 expressly because an "agent" was performing these functions.

> [Issued claim 1] overcomes [the cited prior art] *by using an agent* to set up a verification structure in the erasable, non-volatile memory of the BIOS.
>
> …
>
> [Issued claim 18] overcomes the [the cited prior art] *by using an agent* to verify the application software program using the license information stored in the erasable, writable, non-volatile memory of the BIOS.

(Mar. 28, 2002 Notice of Allowance at 4, 5 (emphasis added), Ex. 1003.)

But the specification for the '941 patent does not contain any description of the claimed "agent." Indeed, as inventor Miki Mullor admitted, the term does not appear in the specification or originally filed claims at all. (Mullor Dep. at 42:24-43:3, Ex. 1007; October 1, 1998 Application at 12-14 (claims as originally filed), Ex. 1002.) The term was added to claims 1, 7, and 18 (as issued) only after the

Examiner's prior art rejections during prosecution, and with no discussion regarding how the specification actually discloses an agent.

While Mr. Mullor was involved with the prosecution of the'941 patent, he was not sure why the term "agent" appears in the claims or even whose idea it was to include the term. He could only confirm that the term is not in the specification and that including the term in the claims was not his idea. (Mullor Dep. at 42:24-43:14.) Mr. Mullor also confirmed that adding the term "agent" was not the other named inventor's idea. (*Id.* at 43:16-17.)

The '941 patent specification provides high-level functions that could be used in establishing a license record in a verification structure but never describes how the verification structure is setup using the functions or that an "agent" performs these functions. For example, the Summary of the Invention section describes that "an initial license establishment procedure" may include encrypting a license record and storing the encrypted record in BIOS memory. ('941 patent at 1:59-2:9.) But this portion of the '941 patent is describing establishing *a license record*, not how to set up a verification structure. (*Id.* ("Now, *there commences an initial license establishment procedure*, where a verification structure is set in the BIOS so as to indicate that the specified program is licensed to run on the specified computer.") (emphasis added).) The establishing a license record step is a different step than setting up the verification structure, as shown in Claim 8.

Further, there is no disclosure that the above functions are used to setup a verification structure or carried out by an agent. The specification is silent on how these functions are performed. For example, different hardware and/or software could perform each function. The functions are not even disclosed as being carried out by a single entity.

Accordingly, there is nothing in this section (*id*. at 1:59-2:9) that provides written description support for the "agent to setup a verification structure" in the '941 claims. (Weissman Decl. ¶ 88.)

The '941 patent also states that a verification structure may be setup at a licensing bureau. ('941 patent at 3:51-61.) Nothing in the '941 patent, however describes the licensing bureau as an agent. Instead, the licensing bureau is described as a location: "a telecommunications accessible processor where functions such as formatting, encrypting, and verifying may be performed" (*id*. at 3:42-44) or, alternatively, "part of the computer" (*id*. at 6:1-3). A person of ordinary skill in the art would not understand potential locations of the licensing bureau or its functions to disclose an agent for setting up the verification structure. (Weissman Decl. ¶ 89.)

Based on the utter lack of discussion of the "agent" in the specification and originally filed claims, a person of ordinary skill in the art would *not* recognize that the inventors possessed the claimed inventions of the '941 patent when the application was filed. (*Id*. ¶¶ 74-77.) Claims 1-19 therefore are unpatentable for lack

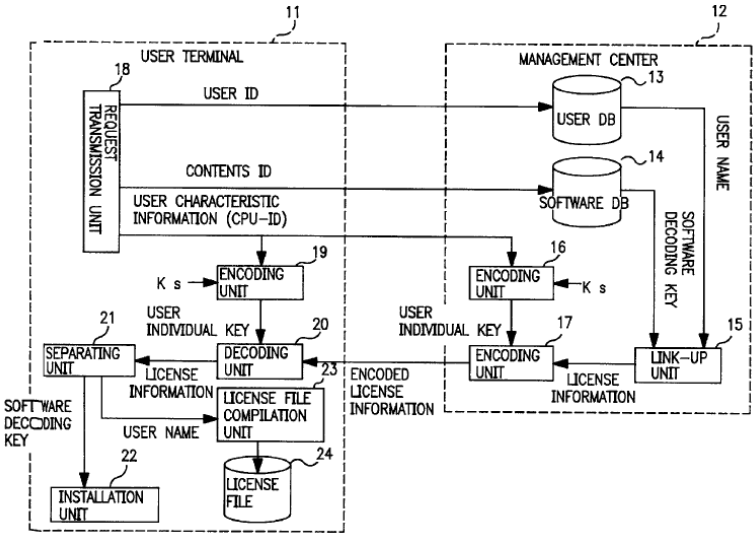
of written description under Section 112, ¶ 1. *See Lockwood*, 107 F.3d at 1572 ("one is 'in possession' of the invention by describing the invention, with all its claimed limitations, not that which makes it obvious").

D. Ground 4: Hasebe in View of DMI Specification Renders Obvious Claims 1-3, 5-14, and 16-17

Generally. European Patent Application Publication No. EP 0 766 165 A2 ("Hasebe," Ex. 1012) addresses the same problem as the '941 patent purportedly addresses: the "illicit copying" of software. (Hasebe at 3:8-10.) Hasebe discloses a software licensing system that relies upon unique keys stored in a user terminal to request, process, and enforce software licenses.

Hasebe does not disclose storing licenses in an erasable, non-volatile memory of the BIOS. Such a modification, however, would have been obvious in view of the DMI Specification. The DMI Specification ("DMI Spec.," Ex. 1013) explains that common BIOS implementations had a general purpose non-volatile ("GPNV") memory area. This memory area could be accessed by user applications and support non-BIOS services. (DMI Spec. at 4, 17.)

Hasebe License System. Fig. 1 depicts Hasebe's licensing system:



User terminal 11 first receives a user's request for a license for a particular piece of software. (Hasebe at 4:3-14.) The license request is transmitted from request transmission unit 18 of user terminal 11 to license management center 12. The request includes a user ID, a contents ID from the software, and user characteristic information that identifies the user terminal, such as a unique CPU-ID (*Id.* at 2:2-3, Fig. 1).

Management center 12 verifies the user ID and determines (i) the proper software decode key to decode the software and (ii) a signature key to authenticate a license. (*Id.* at 7:47-56, 10:23-26.) The management center also uses the user characteristic information and a shared secret key (Ks) to encrypt license information, including the decode key and signature key, before transmitting it back to the user terminal. (*Id.* at 7:56-8:6.)

After receiving the encrypted license information, decoding unit 20 in the user terminal 11 decrypts it using the user characteristic information and the shared key. (*Id.* at 8:45-49, Fig. 1.) License file compilation unit 23 then stores the license information, including the content ID, user name, and signature information, as a license-record in license file 24. (*Id.* at 9:3-10, Fig. 4.) The license record is used to verify that the user is licensed when the user tries to launch the software.

DMI Specification Non-volatile Memory. Hasebe does not disclose storing license records in an erasable, non-volatile memory of the BIOS. Such a modification, however, would have been obvious in light of the DMI Specification. The DMI Specification explains that, long before the ’941 patent’s priority date, BIOS implementations commonly had a general purpose non-volatile (GPNV) memory area. (DMI Spec. at 17.) The DMI Specification defines the functions that user applications could use to access the GPNV memory, as to enable non-BIOS services to use the GPNV memory. (*Id*.) Other references that describe the DMI Specification’s GPNV memory confirm that the GPNV memory was available to applications and useful to store a wide variety of data. (U.S. Patent No. 5,901,311 (Ex. 1029) at 3:3-8, 3:11-13.)

Hasebe Is Prior Art. Hasebe is a European patent application published on April 2, 1997. Accordingly, Hasebe is prior art to the ’941 patent at least under 35 U.S.C. §§ 102(a) and 102(b).

The DMI Specification Is Prior Art. The DMI Specification was published and made available to the public on March 6, 1996. (DMI Spec. at 1.) Archives from 1996 for the webpage of the Desktop Management Task Force, the group that published the DMI Specification, confirm that the DMI Specification was publicly available in 1996 and was still available in 1997. (Christopher Butler Affidavit, Exhibit A, Ex. 1021.) News articles from 1996 confirm that the DMI Specification (specifically, version 2.0) was released and publicly known in 1996. (Exs. 1022, 1023.) Version 2.00.1 of the DMI Specification, also released in 1996, confirms that version 2.00 was released on March 6, 1996. (Ex. 1024 at 2.) Similarly, version 3.0.0 (published February 2015 on the DMTF website[12]) of the System Management BIOS (SMBIOS) Reference Specification, which superseded the DMI Specification, also states that version 2.0 of the DMI Specification was released on March 6, 1996. (Ex. 1025 at 131.) Accordingly, the DMI Specification is prior art to the '941 patent at least under 35 U.S.C. §§ 102(a) and 102(b).

1. Claim 1

a. Claim 1, Preamble

A method of restricting software operation within a license for use with a computer including an erasable,

[12] http://www.dmtf.org/sites/default/files/standards/documents/DSP0134_3.0.0.pdf

non-volatile memory area of a BIOS of the computer, and a volatile memory area; the method comprising the steps of:

If the preamble is limiting, Hasebe combined with the DMI Specification discloses its limitations. Hasebe describes a licensing system for restricting the use of software programs. (Hasebe at Abstract.) Hasebe's licensing system makes use of a "CPU ID" residing in nonvolatile memory (*e.g.*, nonvolatile memory of the CPU). (Hasebe at 1:58-2:3; Weissman Decl. ¶ 133.) The '941 patent acknowledges that conventional processors at the time had non-volatile memory. ('941 patent at 3:18-28.)

Hasebe does not disclose storing a license record in an erasable, non-volatile memory area of a BIOS. The DMI Specification, however, explains that conventional BIOS implementations before the '941 patent had GPNV memory areas. These memory areas were erasable and accessible to user programs, and was secure. (DMI Spec. at 4, 19-21; Weissman Decl. ¶ 107.) As explained in detail below with respect to claim 1, step [B], a person of ordinary skill in the art would have found it obvious to store the license file and shared key in the GPNV memory of a BIOS in a conventional computer.

b. Claim 1, Step [A]

selecting a program residing in the volatile memory,

Under the broadest reasonable interpretation of "selecting," Hasebe teaches this step. Hasebe discloses initiating a licensing check when a software program is loaded. (Hasebe at 9:28-32.) A person of ordinary skill in the art would understand that an "actuated" program (*id.* at 9:28-32) requires copying it into a computer's RAM ("the volatile memory"). A person of ordinary skill in the art would also understand that Hasebe's reference to "memory" is volatile memory, such as RAM. (*Id.* at 4:39-44, 10:33-39.) Notably, Patent Owner previously asserted that loading a program into RAM is sufficient to meet this limitation.[13] (Ancora's First Supplemental Infringement Contentions, Exhibit A at 2, Ex. 1026.) Thus, under the broadest reasonable interpretation of this limitation, Hasebe discloses this limitation.

Additionally, the '941 patent states that a hard disk is a type of volatile memory. ('941 patent at 1:20-21.) Thus, under the broadest reasonable interpretation of "volatile memory," Hasebe also discloses this limitation by stating that the program is stored on a hard disk and selected for actuation from the hard disk by the user. (Hasebe at 2:24-30, 9:28-32, 10:40-44.) Also, after the software

[13] Petitioner does not agree with Patent Owner's position but for the purposes of this Petition, under the broadest reasonable interpretation, Petitioner applies the meaning Patent Owner proposed in district court.

program has been loaded, it is selected for verification, which includes checking whether the license has the appropriate license record. (*Id.* at 9:32-40.) Accordingly, Hasebe discloses selecting a program residing in volatile memory.

c. Claim 1, Step [B]

using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS the verification structure accommodating data that includes at least one license record,

Hasebe Fig. 1 discloses license file compilation unit 23 (*i.e.*, "an agent"). This unit sets up license file 24 (*i.e.*, "a verification structure"), which accommodates license information (*i.e.*, "license record") for each licensed program. (*Id.* at 9:3-5.) License file 24 is a table with a row for each program's license information. This information includes the "contents ID [for the software,] [the] user name, and signature information, which is information encoded using a signature key." (*Id.* at 9:6-10, Fig. 4.) The license information further may include the software decoding key that decodes the program. (*Id.* at 7:54-56, 10:33-39.) The license information may be in an encoded (*i.e.*, "encrypted") or decoded (*i.e.*, "decrypted") format. (*Id.* at 10:27-32.)

To the extent that the Board adopts the district court's construction of "license record" that requires the license record to be from the program, Hasebe still

discloses the "license record." Hasebe discloses that the "contents ID" (also called the software ID), is contained within the program. Specifically, Hasebe describes that when a program is executed, the contents ID of the software program is used to search the license file for a license record with a matching contents ID. (*Id.* at 9:28-52.) This necessarily requires that the contents ID is extracted from the software program. (Weissman Decl. ¶ 114.)

Hasebe does not disclose setting up the license file in an erasable, non-volatile memory of the BIOS. The DMI Specification, however, describes a BIOS with a "General-Purpose NonVolatile (GPNV) area" (*i.e.*, an "erasable, non-volatile memory of the BIOS"). (DMI Spec. at 17.) User applications can both read and write to the GPNV area using functions defined in the DMI Specification. (DMI Spec. at 5, 20-22.) In addition to BIOS functions, the DMI Specification discloses that the GPNV "can also be used by *other* services which require non-volatile storage." (DMI Spec. at 17 (emphasis added).) In fact, the DMI Specification's functionality to access the BIOS's GPNV area is precisely the prior art technology that the '941 patent's named inventors relied upon in implementing an alleged "proof of concept" of the '941 patent's technology. (Mullor Dep. at 78:18-79:8; 195:1-5.) Notably, although the '941 patent's named inventors knew of and used the DMI Specification, they never cited the DMI Specification to the Patent Office.

It would have been obvious to implement Hasebe's licensing system to store

the license file in the GPNV BIOS memory, as described in the DMI Specification. (Weissman Decl. ¶¶ 115-122.) Combining Hasebe's and the DMI Specification's known technologies would have produced predictable results. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). Further, this obvious combination merely involves substituting one known storage technology (*i.e.*, hard disk storage) with another known storage technology (*i.e.*, GPNV memory) to produce the exact, predictable results that the '941 patent claims. *See id.*; Weissman Decl. ¶ 118. Hasebe acknowledges that a skilled artisan would likely have a level of skill that included programming at the BIOS level. (Hasebe at 2:41-50.) Accordingly, combining the teachings of Hasebe with the GPNV area of the DMI Specification would have been well within the skill of a person of ordinary skill in the art and produced predictable results.

A person of ordinary skill in the art would have understood that GPNV memory could be used to store information such as licensing information. (Weissman Decl. ¶ 118.) The DMI Specification explains that GPNV memory could store data for *any* program that required it, whether BIOS-related or not. (DMI Spec. at 17.) Indeed, its very name (*i.e.*, "*General Purpose* NonVolatile" memory) reflects its general purpose nature. Storing Hasebe's license file in the DMI Specification's GPNV memory would have been entirely consistent with their respective purposes and functions (*i.e.*, to organize license data and store data,

respectively).

A person of ordinary skill in the art would have been motivated to make this combination, *e.g.*, to take advantage of the BIOS security features. The DMI Specification, for example, explains that "[a] BIOS might choose to 'hide' a GPNV area by defining a special lock value which is required to access the area." (*Id*.) The skilled artisan would have understood that storing Hasebe's license file in the locked GPNV area would improve the license file security. (Weissman Decl. ¶ 121.) It is common sense to store a license file in a secure location using already available security features. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1239-40 (Fed. Cir. 2010) ("*KSR* and our later cases establish that the legal determination of obviousness may include recourse to logic, judgment, and common sense, in lieu of expert testimony."). Additionally, other materials also show such a concept was well within the knowledge of a person of ordinary skill in the art. (*See*, *e.g.*, Shipman at 6; Angelo at 10:26-30; Weissman Decl. ¶¶ 121-122.)

The person of ordinary skill in the art also would have been motivated to make this combination, *e.g.*, to improve the license file security. The skilled artisan would have understood that BIOS or GPNV memory cannot be removed as easily as a hard disk drive and is more tamper resistant. As a result, storing the license file in the BIOS/GPNV memory would have made it more secure from tampering and physical theft. The obviousness of this benefit was well within the knowledge of a

person of ordinary skill in the art. (*See, e.g.*, Isikoff at 6:17-30; Weissman Decl. ¶ 120.)

The person of ordinary skill in the art further would have been motivated to make this combination so that the BIOS could use the license file to determine what software or boot-related components to enable or load. For example, if verifying the license record confirms that the operating system is licensed, the BIOS could allow that to load. Alternatively, the BIOS could verify and then read the license file and allow boot-related components such as expansion cards to load if licensed. (Weissman Decl. at ¶ 122.) Again, such technology was well within the knowledge of a person of ordinary skill in the art. (*See, e.g.*, Arbaugh at 68.)

Therefore, it would have been obvious to combine the teachings of Hasebe and the DMI Specification to store a verification structure accommodating a license record in an erasable, non-volatile memory area of a BIOS.

Petitioner notes that an express teaching, motivation, or suggestion to combine prior art references is not required under *KSR*. Nevertheless, to the extent that Patent Owner argues that an express teaching, motivation, or suggestion to combine or modify the references must be present in the obviousness combination, Petitioner includes Grounds 5-7 below. Each of these obviousness grounds includes a reference having an express teaching, motivation, or suggestion to combine or modify Hasebe to store the license record in the BIOS.

d. Claim 1, Step [C]

verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS, and

Hasebe discloses verifying the program using the license file (*i.e.*, "the verification structure"). Hasebe explains that, when a software program is started, the licensing system determines "whether or not [license] data corresponding to the software" program is present in the license file. (Hasebe at 9:28-32.) In particular, the licensing system verifies whether the license data matches the software program and its "signature key." (*Id.* at 9:32-40.) For the reasons provided for the preceding limitation, it would have been obvious to store Hasebe's license file in GPNV memory (*i.e.*, "the erasable non-volatile memory of the BIOS").

e. Claim 1, Step [D]

acting on the program according to the verification.

Hasebe discloses acting on the program based on the result of the verification process discussed above. Specifically, Hasebe explains that the program either is allowed to operate or is terminated (*i.e.*, "acting on the program") based on a determination of whether the license record in the license file is valid (*i.e.*, "the verification"). (*Id.* at 9:41-52.)

2. Claim 2

A method according to claim 1, further comprising the steps of: establishing a license authentication bureau.

Hasebe's licensing system includes a management center (*i.e.*, "a license authentication bureau") that generates and encrypts license information. (*Id.* at 7:40-8:6.) Although the specification for the '941 patent does not expressly define "license authentication bureau," it explains that its functions include forming a license record and encrypting the license record. ('941 patent at 3:42-44, 5:50-52.) Accordingly, applying the broadest reasonable interpretation of "license authentication bureau," Hasebe's management center that performs these same functions satisfies this limitation.

3. Claim 3

A method according to claim 2, wherein setting up a verification structure further comprising the steps of:

a. Claim 3, Step [A]

establishing, between the computer and the bureau, a two-way data-communications linkage;

Hasebe discloses that the user terminal (*i.e.*, "the computer") and the management center (*i.e.*, "the bureau") are connected via a communication circuit

(*i.e.*, "data-communications linkage"). (*Id.* at 7:31-34, Fig. 1.) The communication channel is two-way, as the user terminal sends the license request to the management center and the management center sends the license information to the user terminal. (*Id.* at 8:7-17, Fig. 1.)

b. Claim 3, Step [B]

transferring, from the computer to the bureau, a request-for- license including an identification of the computer and the license-record's contents from the selected program;

Hasebe's user terminal (*i.e.*, "the computer") transfers to the management center (*i.e.*, "the bureau") a request for license information (*i.e.*, "a request-for-license"). (*Id.* at 8:10-13.) The request for license information includes a user ID and user characteristic information, such as the CPU-ID (*i.e.*, "an identification of the computer") and the software identification (i.e., "the license-record's contents from the selected program"). (*Id.* at 8:22-25.) Although the user may input the software identification (also referred to as "content ID") directly, this information also is included as part of the software itself. In particular, Hasebe explains that, when the software is launched, the software identification is used to search for a matching license record in the license file. (*Id.* at 9:28-32.)

c. Claim 3, Step [C]

forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as an encryption key;

Hasebe discloses that the management center (*i.e.*, "the bureau") forms encoded license information (*i.e.*, "an encrypted license-record") by encoding parts of the request for license information (*i.e.*, "parts of the request-for-license") using user characteristic information from the request (*i.e.*, "part of the identification as an encryption key") and a key. (*Id.* at 7:56-8:6.) Specifically, the management center's encoding unit encodes the license information, including the user name and content ID from the request, using the user characteristic information (*e.g.*, the CPU identification) and a key. (*Id.* at 7:56-8:6, Fig. 1)

d. Claim 3, Step [D]

transferring, from the bureau to the computer, the encrypted license-record; and

The management center (*i.e.*, "the bureau") transfers the encoded license information (*i.e.*, "the encrypted license-record") to the user terminal (*i.e.*, "the computer"). (*Id.* at 8:36-42.)

e. Claim 3, Step [E]

storing the encrypted license record in the erasable non-volatile memory area of the BIOS.

Hasebe's user terminal stores the encoded license information (*i.e.*, "the encrypted license record") in the license file. (*Id.* at 9:3-10, 10:27-32.) As explained above for claim 1, step 1[B], it would have been obvious to store Hasebe's license file in the user terminals' GPNV memory (*i.e.*, "the erasable non-volatile memory area of the BIOS").

4. Claim 5

A method according to claim 3 wherein the identification of the computer includes the unique key.

Assuming that "the unique key" should be interpreted as "a unique key," Hasebe discloses this limitation. The user terminal includes the key K_s and user characteristic information, such as the user's CPU identification. Either can satisfy the unique key limitation. (*Id.* at 8:31-35, 8:45-49, Fig. 1.)

5. Claim 6

A method according to claim 1 wherein selecting a program includes the steps of: establishing a licensed-software- program in the volatile memory of the

computer wherein said licensed-software-program includes contents used to form the license-record.

Hasebe discloses establishing the software program in memory (*i.e.*, "volatile memory") of the user terminal (*i.e.*, "the computer"). (*Id.* at 4:39-44, 10:33-39.) The software program includes its software identification (*i.e.*, "contents"), and this is used to form the license information (*i.e.*, "the license record"). (*Id.* at 8:22-25, Fig. 4.)

Although the user may input the software identification (also referred to as the "content ID" in Hasebe) directly, this information also is included as part of the software itself. In particular, Hasebe explains that, when the software is launched, the software's identification (also called "contents ID") is used to search for a matching license record in the license file. (*Id.* at 9:28-32.) Hasebe further discloses that the license information may be included in the software program itself. (*Id.* at 11:16-19, 11:59-12:9, Fig. 8.)

6. Claim 7

A method according to claim 6 wherein using an agent to set up the verification structure includes the steps of:

a. Claim 7, Step [A]

establishing or certifying the existence of a pseudo-unique key in a first non-volatile memory area of the computer; and

Under the broadest reasonable interpretation of "establishing" and "certifying," Hasebe discloses this step. In particular, Hasebe discloses a CPU identification (*i.e.*, "a pseudo-unique key") that would be stored in non-volatile memory, such as the CPU's non-volatile memory, which the '941 patent acknowledges was conventional as of the '941 patent priority date. (Hasebe at 8:31-35, Fig. 1; Weissman Decl. ¶ 133; '941 patent at 3:18-24.) The CPU identification is used in encryption and decryption processes. (Hasebe at 7:54-8:6, 8:43-57, Fig. 1.)

Should the Patent Owner argue that Hasebe does not expressly or inherently disclose that the CPU identification is stored non-volatile memory, it still would have been obvious to do so. A person of ordinary skill in the art would have been motivated to include Hasebe's CPU identification in the CPU's non-volatile memory based on common sense. *Wyers*, 616 F.3d at 1239-40 ("*KSR* and our later cases establish that the legal determination of obviousness may include recourse to logic, judgment, and common sense, in lieu of expert testimony."). It was well-known that CPUs as of the '941 patent's filing date included non-volatile memory.

('941 patent at 3:21-28.) Storing an identification in the non-volatile memory of the thing that the identification is identifying would have been common sense to a person of ordinary skill in the art. (Weissman Decl. ¶ 133.) Additionally, this arrangement would allow the software license to be locked to a particular computer. Such CPU identifications were well-known (as Hasebe discloses) and extensively used before the '941 patent application was filed. (*Id*.)

b. Claim 7, Step [B]

establishing at least one license-record location in the first nonvolatile memory area or in the erasable, non-volatile memory area of the BIOS.

Hasebe establishes a row (*i.e.*, "at least one license-record location") in the license file for the license information received from the management center. (Hasebe at 9:3-10, Fig. 4.) As explained above for claim 1, step 1[B], it would have been obvious for the license record to be stored in the GPNV memory (*i.e.*, "the erasable, non-volatile memory area of the BIOS") of the user terminal.

7. Claim 8

A method according to claim 6 wherein establishing a license- record includes the steps of:

a. Claim 8, Step [A]

forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and

Assuming that (i) "the key" should be interpreted as "a key" and (ii) each "a license-record" in this limitation refers to claim 1's "license-record," Hasebe discloses this step. The management center generates license information (*i.e.*, "a license-record") by encoding (*i.e.*, "encrypting") a software identification and a user name (*i.e.*, "contents used to form a license-record") with a signature information and a software decode key (*i.e.*, "other predetermined data contents"). (*Id.* at 7:40-8:6.) It does so using an encoding key (*i.e.*, "a key") generated from the user characteristic information and a key, K_s. (*Id.* at 7:56-8:6, 10:23-26.)

b. Claim 8, Step [B]

establishing the encrypted license-record in one of the at least one established license-record locations.

Hasebe discloses storing the encoded license information (*i.e.*, "encrypted license-record") in the row (*i.e.*, "one of the at least one established license-record locations") of the license file. (*Id.* at 9:6-10, 10:27-32, Fig. 4.)

8. Claim 9

A method according to claim 7 wherein verifying the program includes the steps of:

a. Claim 9, Step [A]

encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the erasable, non-volatile memory area of the BIOS, using the pseudo-unique key; and

Hasebe discloses decoding (*i.e.*, "decrypting") the software identification (*i.e.*, "the licensed-software-program's license-record contents from the volatile memory area") and username from the license file using the user characteristic information, such as the CPU identification (*i.e.*, "the pseudo-unique key"), and key K_s. (*Id.* at 9:28-40, 10:27-32, Fig. 1.) As explained above for claim 1, step 1[B], it would have been obvious to store the license file in the GPNV memory (*i.e.*, "the erasable, non-volatile memory area of the BIOS").

b. Claim 9, Step [B]

comparing the encrypted licenses-software-program's license- record contents with the encrypted license-record in the erasable, non-volatile memory area of the

BIOS, or comparing the license-software-program's license-record contents with the decrypted license-record in erasable non-volatile memory area of the BIOS.

Hasebe discloses comparing signature information (*i.e.*, "the licenses-software-program's license-record contents") from the license information in the license file with the decoded software identification and username (*i.e.*, "decrypted license-record"). (*Id.* at 9:28-40, 10:23-32.) As explained above for claim 1, step 1[B], it would have been obvious to store the license file in the GPNV memory (*i.e.*, "the erasable non-volatile memory area of the BIOS").

9. Claim 10

A method according to claim 9 wherein acting on the program includes the step: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

Hasebe discloses terminating the software program (*i.e.*, "restricting the program's operation") if the signature information does not match. (*Id.* at 9:41-52.)

10. Claim 11

A method according to claim 1 wherein the volatile memory is a RAM.

Hasebe discloses a user terminal that includes memory. (*Id.* at 4:39-44, 10:33-39.) A person of ordinary skill in the art would understand Hasebe's memory to refer to RAM-based memory. (Weissman Decl. ¶ 140.)

11. Claim 12

The method of claim 1, wherein a pseudo-unique key is stored in the non-volatile memory of the BIOS.

Hasebe discloses a key K_s (*i.e.*, "a pseudo-unique key"). (Hasebe at 2:10-13; 8:45-47, Fig. 1.) Although Hasebe does not disclose that the key is stored in non-volatile memory of the BIOS, it would have been obvious to do so. (Weissman Decl. ¶¶ 141, 118-122.) As explained above for claim 1, step 1[B], the GPNV memory (*i.e.*, "the non-volatile memory of the BIOS") is a general purpose storage area that is designed to store data, such as the key K_s. It would have been obvious to store the key K_s in the GPNV memory for the reasons provided above for claim 1, step 1[B].

12. Claim 13

The method of claim 1, wherein a unique key is stored in a first non-volatile memory area of the computer.

Hasebe discloses a CPU identification (*i.e.*, "a unique key") that would be stored in non-volatile memory, such as the CPU's non-volatile memory, which the '941 patent acknowledges was conventional as of the'941 patent's priority date.

(Hasebe at 8:31-35, Fig. 1; Weissman Decl. ¶ 107; ’941 patent at 3:18-24.) The CPU identification is used in encryption and decryption processes. (Hasebe at 7:54-8:6, 8:43-57, Fig. 1.)

Should the Patent Owner argue that Hasebe does not expressly or inherently disclose that the CPU identification is stored non-volatile memory, it still would have been obvious to do so. A person of ordinary skill in the art would have been motivated to include Hasebe’s CPU identification in the CPU’s non-volatile memory based on common sense. *Wyers*, 616 F.3d at 1239-40 (“*KSR* and our later cases establish that the legal determination of obviousness may include recourse to logic, judgment, and common sense, in lieu of expert testimony.”). It was well-known that CPU as of the’941 patent filing date included non-volatile memory. (’941 patent at 3:21-28.) Storing an identification in the non-volatile memory of the thing that the identification is identifying would have been common sense to a person of ordinary skill in the art. (Weissman Decl. ¶ 132.) Additionally, this arrangement would allow the software license to be locked to a particular computer. Such CPU identifications were well-known (as Hasebe discloses) and extensively used before the ’941 patent application was filed. (*Id*.)

13. Claim 14

The method according claim 13, wherein the step of using the agent to set up the verification record,

including the license record, includes encrypting a license record data in the program using at least the unique key.

Hasebe discloses encoding (*i.e.*, "encrypting") the software identification from the software program (*i.e.*, "a license record data in the program") using the CPU identification (*i.e.*, "the unique key") and key K_s as the signature key. (Hasebe at 7:56-8:6, 10:23-32.)

14. Claim 16

The method according to claim 13, wherein the step of verifying the program includes a decrypting the license record data accommodated in the erasable second non-volatile memory area of the BIOS using at least the unique key.

If "the erasable second non-volatile memory area" is interpreted to refer to the erasable, non-volatile memory of claim 1, Hasebe discloses decoding (*i.e.*, "decrypting") the license information (*i.e.*, "the license record data") stored in the license file using the CPU identification (*i.e.*, "the unique key") and key K_s. (*Id.* at 10:27-32.) Specifically, Hasebe discloses that the license information may be stored in an encoded format and decoded when needed. (*Id.*)

15. Claim 17

The method according to claim 13, wherein the step of verifying the program includes encrypting the license record that is accommodated in the program using at least the unique key.

Assuming that "the license record" should be interpreted as "a license record," Hasebe discloses this step. Hasebe discloses encrypting the username and software identification (*i.e.*, "a license record") that are included in the software program using the CPU identification (*i.e.*, "the unique key") and the key K_s. (*Id.* at 7:40-53, 9:23-40, 11:16-19, Fig. 8.)

E. Ground 5: Hasebe in View of the DMI Specification and Chang Renders Obvious Claims 1-3, 5-14, and 16-17

Generally. U.S. Patent No. 5,724,425 ("Chang") describes a method for enhancing software security and software distribution. Chang discloses that verification information—called "a software passport" in Chang—used as a license record[14] may be stored within a program. For example, Fig. 3 of Chang, reproduced

[14] Chang addresses the software authentication problem. *See* Chang at 3:1-5. Patent Owner, in the district court, has asserted that the '941 patent, and specifically the recited "license records," cover software authentication technology.

below, teaches that the verification information (e.g., "PRODUCT INFO," "COMPANY INFO," "VALIDITY DATE," and "APP WRITER'S SIGNATURE") is included at the beginning of the software program before the rest of the "code body" that includes the executable application code. (Chang at 3:38-65, 4:50-54, 6:46-67, Fig. 3.) Notably, this is the same type of licensing information the '941 patent discloses as being included in the software program. ('941 patent at 5:25-33 (identifying "Application names" and "Vendor name" as explain license record fields in the program).)

Accordingly, while Petitioner does not agree with Patent Owner's broad reading of the '941 patent to cover software authentication, Petitioner applies license record in this section in a manner consistent with Patent Owner's district court litigation position.

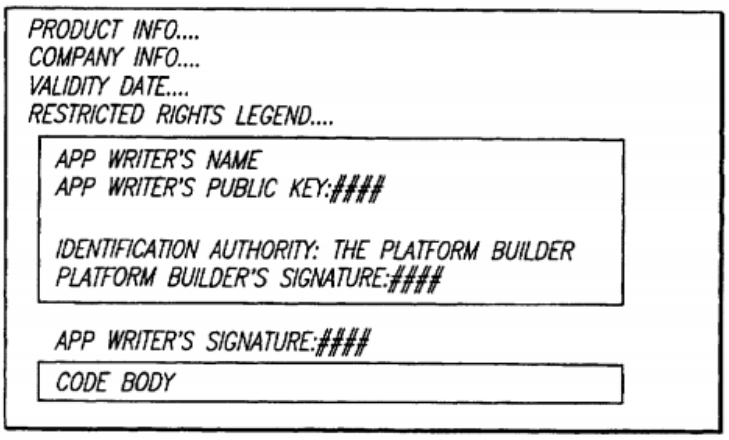


FIG. 3

By including the software passport within the software program, Chang's method allows for users to verify the software program by ensuring that the verification information is always present with the software program. Accordingly, in the event that the Board adopts the district court's construction of "license record," which requires the license record to be from the program, Chang discloses such a license record.

Chang is Prior Art. Chang is a U.S. patent issued on March 3, 1998 and filed on June 10, 1994. Accordingly, Chang is prior art to the '941 patent at least under 35 U.S.C. §§ 102(a) and 102(e).

Hasebe in view of the DMI Specification and Chang. Claims 1-3, 5-14, and 16-17 are obvious in view of the combination of Hasebe, the DMI Specification, and Chang. As set forth above in Ground 3, the combination of

Hasebe and the DMI Specification discloses all elements of claims 1-3, 5-14, and 16-17. To the extent that Patent Owner argues that Hasebe in view of the DMI Specification does not disclose that the license record is from the software program, and if such a limitation is required under the Board's construction, Chang discloses this limitation. Chang discloses that a license record is included at the beginning of a software program. (Chang at 3:38-65, 6:46-67, Fig. 3.) In other words, in Chang, the license record is from the software program.

It would have been obvious to modify the license system of Hasebe to use a license record that is from the software program, as disclosed in Chang. Combining Hasebe's and Chang's known technologies would have produced predictable and obvious results. *See KSR Int'l Co.*, 550 U.S. at 416. Modifying Hasebe to use a license record from the software program as disclosed in Chang would be the result of applying the teachings of these exactly as described in each of the references. (Weissman Decl. ¶ 146.)

Hasebe describes a licensing system with a server that ensures that a software program is licensed to a particular user and computer. Chang discloses a licensing system that ensures a software program is authentic and has not been modified with viruses or malware. A person of ordinary skill in the art would have been motivated to modify the system of Hasebe with the teachings of Chang to produce a licensing system that both ensures a software program is licensed to a particular user and that

the software program is authentic. (*Id.* ¶¶ 109-110.) A skilled artisan would have understood that such a system provides protection to both the software author from illegal copying of the software, as described in Hasebe, and to the software user from harmful modifications to the software, as described in Chang. (*Id.* ¶ 136) Accordingly, claims 1-3, 5-14, and 16-17 are obvious in view of the combination of Hasebe, the DMI Specification, and Chang.

F. Ground 6: Hasebe in View of the DMI Specification and Arbaugh Renders Obvious Claims 1-3, 5-14, and 16-17

Generally. "A Secure and Reliable Bootstrap Architecture" by William Arbaugh et al. ("Arbaugh," Ex. 1015) provides an express teaching for storing license records in an erasable non-volatile area of a BIOS, such as the DMI Specification's GPNV area. Arbaugh describes a secure bootstrap process with an automated recovery procedure for a computer. (Arbaugh at 66.) Although Arbaugh is directed to a secure boot and automated recovery process—a different problem (software integrity) than described in the '941 patent (software piracy)— Patent Owner has alleged in *Ancora I* and *Ancora II* that the '941 patent covers secure boot processes.

The system described in Arbaugh uses component signatures of software, such as an operating system kernel, to determine whether to: (i) load the operating system or (ii) load a trusted backup copy of the operating system. (*Id*. at 68.) The

component signatures are cryptographic hashes or digests of software components, such as an operating system kernel. (*Id.*) According to Patent Owner, these types of component signatures are license records.[15] In Arbaugh's system, license records are stored in the erasable non-volatile memory of the BIOS. (*Id.* at 68 ("The last two kilobytes of the 128kb AEGIS BIOS flash ROM contain the component signatures and public keys(s).".) By storing the license records in the BIOS, the operating system kernel can be verified against the license records before booting the operating system. (*Id.*)

Arbaugh is Prior Art. Arbaugh was published by March 7, 1997 at the 1997 IEEE Symposium on Security and Privacy. (Exs. 1027 (at v) and 1028.) Accordingly, Arbaugh is prior art to the '941 patent at least under 35 U.S.C. §§ 102(a) and (b).

Hasebe in view of the DMI Specification and Arbaugh. The challenged

[15] While Petitioner does not agree that a component signature for an operating system kernel is a license record in the '941 patent context, in *Ancora I*, Patent Owner has applied "license record" in a manner that covers these types of digital signatures. (*See* Ancora's First Suppl. Infringement Contentions, Ex. A at 3, Ex. 1026.) Accordingly, for the purposes of this Petition, Petitioner applies Patent Owner's district court position.

claims are obvious based upon Hasebe in view of the DMI Specification for the reasons set forth above in Ground 4. With respect to Claim 1, Step [B], Arbaugh further supports the obviousness of setting up a verification structure in the erasable, non-volatile memory of the BIOS. Arbaugh discloses that by setting up the license record in the erasable, non-volatile memory of the BIOS, the operating system kernel can be verified prior to booting the operating system. This same benefit can be applied to the system of Hasebe. By storing the license record information in the GPNV area in the BIOS, as described in the DMI specification, Hasebe's licensing system can be used to verify that the operating system kernel is licensed prior to booting the operating system. Therefore, it would have been obvious to one of ordinary skill in the art to store the license records of Hasebe in the GPNV memory area of BIOS in order to check whether the operating system is licensed, as it is simply combining prior art structures to achieve a normal, expected, and predictable result. (Weissman Decl. ¶¶ 140, 115-122.)

G. Ground 7: Hasebe in View of the DMI Specification and Isikoff Renders Obvious Claims 1-3, 5-14, an 16-17

Generally. U.S. Patent No. 5,748,084 ("Isikoff") discloses a computer security module that makes a backup of critical files, blocks access to files, or transmits tracking signals. (Isikoff at 2:20-25.) The security module is implemented using low-level security code stored in the BIOS of the computer. (*Id.* at 6:17-30.)

Isikoff states that storing the security code in the BIOS is beneficial because the BIOS makes the security code "secure against tampering; for example they are not impaired if a thief erases the hard disk, or changes an accessory board." (*Id.* at 6:27-30.) Thus, Isikoff provides an express motivation to securely store data in the BIOS.

Isikoff is Prior Art. Isikoff published May 5, 1998 and was filed November 18, 1996. Accordingly, Isikoff is prior art to the '941 patent at least under 35 U.S.C. §§ 102(a) and (e).

Hasebe in view of the DMI Specification and Isikoff. The challenged claims are obvious based upon Hasebe in view of the DMI Specification for the reasons set forth above in Ground 4. With respect to Claim 1, Step [B], Isikoff further supports the obviousness of setting up a verification structure in the erasable, non-volatile memory of the BIOS. Isikoff discloses that storing information, such as security code, makes the information more secure against "tampering." This same benefit can be applied to the system of Hasebe.

By storing the license record information in the GPNV area in the BIOS, as described in the DMI specification, Hasebe's licensing records are more resistant to tampering and physical theft. Therefore, it would have been obvious to one of ordinary skill in the art to store the license records of Hasebe in the GPNV memory area of BIOS in order to improve the security of the license records, as it is simply combining prior art structures to achieve a normal, expected, and predictable result.

(Weissman Decl. ¶¶ 124, 115-122.)

H. Ground 8: Hasebe in View of the DMI Specification, Shipman and Angelo Renders Obvious Claims 1-3, 5-14, and 16-17

Generally. PCT Publication No. WO 97/36241 ("Shipman") provides additional disclosure regarding uses of GPNV data areas, and in particular providing enhanced security for such areas. As discussed on pages 5-6, the BIOS controls access to the GPNV storage areas and "provides for locked access to the GPNV storage areas." As stated on page 6:

> The GPNV storage areas 140 can be used to store any of a wide variety of information. In one embodiment, the GPNV storage areas 140 are used to store data relating to the identification of hardware components in the system 100. For example, this identification can include the serial numbers and model numbers of each piece of hardware (e.g., display devices, mass storage devices, multimedia cards, etc.) in the system 100.

European Patent Application Publication No. EP 824,233 A2 ("Angelo") is directed to providing for secure execution of software by verifying software (referred to as "registered applications") before execution by generating a hash value and comparing it to a hash value in a hash table stored in a secure memory

area of a computer system. (*See, e.g.*, Angelo at 4:23-49, 9:50-10:33.) Angelo specifically discloses storage of detection values in a system management mode memory (SMM) as the secure memory. However, it more broadly discloses storage in a secure area.

> Of importance to the invention is that each piece of registered software has a corresponding and distinct value that represents the unaltered state of the software, and that this value is stored in a secure memory location.

(*Id*. at 10:26-30.) The abstract on the cover page also states that secure modification detection values are maintained in system management mode memory "or other secure memory space in the computer system."

Shipman and Angelo are Prior Art. Shipman published on October 2, 1997 and Angelo published on February 18, 1998. Accordingly, each publication is prior art to the '941 patent at least under 35 U.S.C. §§ 102(a).

Hasebe in view of the DMI Specification, Shipman, and Angelo. The challenged claims are obvious based upon Hasebe in view of the DMI Specification for the reasons set forth above in Ground 4. With respect to Claim 1, Step [B], Shipman and Angelo further support the obviousness of setting up a verification structure in the erasable, non-volatile memory of the BIOS. Shipman discloses that the GPNV memory area can be used to store a wide variety of information, and that

the GPNV memory area provides secure storage. Angelo discloses the desirability of storing verification data regarding software applications in a secure memory area. As disclosed by the DMI Specification and Shipman, the GPNV area is such a secure memory area.

Therefore, it would have been obvious to one of ordinary skill in the art to store the Hasebe license records in the GPNV memory area of BIOS to provide increased security for sensitive information, simply combining prior art structures to achieve a normal, expected, and predictable result. (Weissman Decl. ¶¶ 151-152, 115-122.)

IX. CONCLUSION

Petitioners submit that claims 1-19 of the ’941 patent are unpatentable under 35 U.S.C. §§ 101, 103, and/or § 112.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 26, 2017

By: /Irfan A. Lateef/
Irfan A. Lateef (Reg. No. 51,922)
Brian C. Claassen (Reg. No. 63,051)

Attorneys for Petitioners HTC Corporation and HTC America, Inc.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that foregoing **PETITION FOR COVERED BUSINESS METHOD REVIEW OF U.S. PATENT NO. 6,411,941**, exclusive of the parts exempted as provided in 37 C.F.R. § 42.24(a), contains 18,691 words and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24(a).

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 26, 2017

By: /Irfan A. Lateef/
Irfan A. Lateef (Reg. No. 51,922)
Brian C. Claassen (Reg. No. 63,051)
Attorneys for Petitioners HTC Corporation and HTC America, Inc.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **PETITION FOR COVERED BUSINESS METHOD REVIEW AND EXHIBITS 1001-1032** are being served on May 26, 2017, via Priority Mail Express on counsel of record for U.S. Patent No. 6,411,941 as addressed below:

VENABLE LLP
P.O. Box 34385
Washington DC 20043-9998

A courtesy copy is also being served via Federal Express Overnight Mail on counsel for the patent holder in the pending district court litigation, *Ancora Techs., Inc. v. HTC, Inc.*, No. 2:16-cv-1919 (W.D. Wash.):

Duncan E. Manville
Sarah Gohmann Bigelow
SAVITT BRUCE & WILLEY LLP
1425 Fourth Avenue, Suite 800
Seattle, WA 98101-2272

Mark A. Cantor
John S. LeRoy
Marc Lorelli
John P. Rondini
BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238

Dated: May 26, 2017

By: /Irfan A. Lateef/
Irfan A. Lateef (Reg. No. 34,362)
Brian C. Claassen (Reg. No. 63,051)
Attorneys for Petitioners HTC Corporation and HTC America, Inc.