UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TREND MICRO, INC.

v.

TAASERA LICENSING LLC.

Petition for *Inter Partes* Review of

U.S. Patent No. 8,327,441

DECLARATION OF INGRID HSIEH-YEE, PH.D.

TABLE OF CONTENTS

I. Introduction 3

A. Qualifications and Professional Experience 3

B. Scope of This Declaration 11

C. Person of Ordinary Skills in the Art 12

D. Evidence Considered in Forming My Opinions 13

II. Authenticity and Public Availability of *Munetoh* (EX1005) 15

A. Authentication 15

B. Linda Hall Library Copy 16

C. Linda Hall Library Records 18

D. Usage Record 20

E. Summary of My Opinion on *Munetoh* 20

III. Authenticity and Public Availability of *Rajan* (EX1006) 21

A. Authentication 21

B. University of Texas at Austin Library Copy 22

C. University of Texas at Austin Library Records 24

D. Usage Record 28

E. Summary of My Opinion on *Rajan* 28

IV. Conclusion 29

I. Introduction

I, Ingrid Hsieh-Yee, Ph.D., do hereby declare as follows:

1. I have personal knowledge of all of the matters about which I testify in this declaration.

2. I have been retained as an independent expert witness on behalf of Trend Micro, Inc. ("TREND") for proceedings before the United States Patent and Trademark Office ("PTO") regarding the authenticity and public availability of certain prior art references in relation to US Patent No. 8,327,441 ("the '441 patent").

3. I am being compensated for my work in this matter at my customary hourly rate. I am also being reimbursed for any reasonable expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

A. Qualifications and Professional Experience

4. My complete qualifications and professional experience are described in my academic curriculum vitae (**Appendix A**). The following is a brief summary of my relevant qualifications and professional experience.

5. In 2022 I was conferred the title of Professor Emerita after 32 years as a professor in the Department of Library and Information Science of the Catholic University of America. I have experience working in an academic library, a medical library, and a legislative library. I hold a Ph.D. in Library and Information Studies

from the University of Wisconsin-Madison and a Masters in Library and Information Studies from the University of Wisconsin-Madison.

6. I am an expert on library cataloging and classification and have published two editions on this subject, *Organizing Audiovisual and Electronic Resources for Access*: *A Cataloging Guide* (2000 and 2006). I taught a variety of courses, including Cataloging and Classification, Advanced Cataloging and Classification, Organization of Internet Resources, Organization of Information, Digital Content Creation and Management, Metadata, Internet Searches and Web Design, Information Literacy Instruction, Advanced Information Retrieval and Analysis Strategies, and The Information Professions in Society. I am familiar with metadata schema design and implementation. In my teaching I covered the design and implementation of metadata in libraries, databases, search engines, digital repositories, digital libraries, and digital archives. I also covered how information organization affects the discovery and access to digital resources on the Internet. My research interests cover cataloging and classification, information organization, metadata, information retrieval, information architecture, digital collections, scholarly communication, social media, user interaction with information systems, and others.

7. I am very familiar with a library cataloging encoding standard known as the "Machine-Readable Cataloging" standard, also known as "MARC," which

became the national standard for sharing bibliographic data in the United States by 1971 and the international standard by 1973. MARC is the primary communications protocol for the transfer and storage of bibliographic metadata in libraries. Experts in my field reasonably rely upon MARC records when forming their opinions.

8. A MARC record consists of several fields, each of which contains specific data about the work. Each field is identified by a standardized, unique, three-digit code corresponding to the type of data that follows. **Appendix B** is a true and correct copy of Parts VII to X of "Understanding MARC Bibliographic: Machine-Readable Cataloging" (http://www.loc.gov/marc/umb/um07to10.html) from Library of Congress. *Understanding MARC Bibliographic* was originally published by the Follett Software Co. and copyrighted in 1988. Editions in 1989, 1990, 1994, 1998, 2000, 2003 and 2009 include changes. The latest edition was copyrighted in 2009. This document explains commonly-used MARC fields. For example, the personal author of the work is recorded in Field 100, the title is recorded in Field 245, publisher information is recorded in Field 260, the physical volume and characteristics of a publication are recorded in Field 300, and topical subjects are recorded in Fields 650.

9. The Online Computer Library Center (OCLC) is the largest bibliographic network of the world, with more than 554 million records and thousands of member institutions (many of which are libraries of some type) in more

than 100 countries. OCLC was founded in 1967 to promote and support library cooperation. According to the "Third Article, Amended Articles of Incorporation of OCLC Online Computer Library Center, Inc.," OCLC was created "to establish, maintain and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries, including such objectives as increasing availability of library resources to individual library patrons and reducing the rate of rise of library per-unit costs, all for the fundamental public purpose of furthering ease of access to and use of the ever-expanding body of worldwide scientific, literary and educational knowledge and information" (source: https://www.oclc.org/content/dam/oclc/membership/articles-of-incorporation.pdf).

10. OCLC members can contribute original cataloging records in MARC to the system or derive cataloging records from existing records, an activity referred to as "copy cataloging." When an OCLC participating institution acquires a work, it can create an original MARC record for the work in OCLC's Connexion system (a system for catalogers to create and share MARC records), and the system will automatically generate a code for the date of record creation in the yymmdd format, and the creating library's OCLC symbol is recorded in subfield "a" of Field 040. Once the MARC record is in Connexion, it becomes available to other OCLC members for adoption to their local online catalogs (*i.e.*, copy cataloging).

11. After a MARC record is created in Connexion, it also becomes searchable and viewable on WorldCat, which is a free web portal for users to explore more than 10,000 libraries worldwide. The record in WorldCat, however, is not presented in MARC fields. Instead, the data elements are labeled to help users interpret the record. Thus, the information stored in MARC records in Connexion is available to the interested public through the user-friendly WorldCat web portal.

12. WorldCat (http://www.worldcat.org) is "the world's largest network of library content and services" and its features are summarized in "About WorldCat" (https://www.worldcat.org/about). WorldCat began operation in January 1998 as a free web portal to more than 10,000 library collections worldwide. Through WorldCat, users can search for information resources in their local libraries and libraries around the world. WorldCat allows users to search for books, CDs, videos, and many new types of digital content, such as audiobooks, in many languages. Users can also retrieve research materials and article citations with links to their full text. After an item is retrieved, WorldCat helps users identify a library nearby that holds the item or all the libraries that hold the item. WorldCat is an efficient way to explore the content held by more than 10,000 libraries around the world. WorldCat is publicly accessible, and there is no fee to conduct searches on WorldCat.

13. Library online catalogs gained acceptance in the early 1980s and many libraries migrated their systems to the World Wide Web in the mid-1990s. Library

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EX1007-7

online catalogs are based on MARC records that represent their collections in order to help the public understand what materials are publicly accessible in those libraries. Most libraries with online catalogs have made their catalogs freely available on the Web. These online catalogs offer user-friendly search interfaces. Strong user interest in keyword searches and the popularity of Google have led to the "googlization" of library search systems. As a result, many library catalogs now provide a single search box for users to conduct keyword searches, with additional support for searches by author, title, subject terms, and other data elements such as ISBN (International Standard Book Number). Library catalogs these days also offer features for users to narrow their search results by language, year, format, and other elements. Many libraries display MARC records on their online catalogs with labels for the data elements to help the public interpret MARC records. Many libraries also offer the option to display MARC records in MARC fields.

14. Libraries create MARC records for works they acquire, including books, serials, motion pictures, and publications in other formats. Monograph cataloging is fairly common in libraries, and most libraries make a newly cataloged monograph available to the public soon after the cataloging work is completed, usually within a week. Libraries can create original cataloging records or use an existing record in OCLC to create a copy cataloging record. As soon as the cataloging record is completed, it is added to the library's online catalog for users.

Trend Micro, Inc.
EX1007-8

If the record is an original record, it is also entered into the OCLC system. If it is a copy cataloging record, the library's holding symbol is attached to the existing original record in the OCLC system to facilitate searching and interlibrary loan.

15. The cataloging of serials and the serial check-in process are discussed here to show how libraries usually provide access to newly received serial issues. According to the glossary of the *RDA: Resource Description and Access* cataloging standard, a serial is "a mode of issuance of a manifestation issued in successive parts, usually bearing numbering, that has no predetermined conclusion. A serial includes a periodical, monographic series, newspaper, etc." Because the publisher of a serial makes new issues of the serial available successively, a customary cataloging practice is to create one bibliographic record for the serial, and the serial record (encoded in MARC) typically provides information on the beginning date and frequency of the serial, not the dates of individual issues. In other words, libraries typically do not create MARC records for individual issues of a serial. Instead, they rely on a serial check-in system to track the receipt of new issues. A common check-in practice is to date stamp a new issue when it arrives. This practice has become automated since the late 1990s, and libraries now vary in how they share the receipt date of a new serial issue with the public. Some libraries use a date stamp, some affix a label to indicate the receipt date, some pencil in the receipt date, and some do not provide the information to the public.

Trend Micro, Inc.
EX1007-9

16. The serial check-in process usually takes less than an hour, and one of the steps involves placing a date stamp on the new issue to document the date the issue is checked in. After that, the holdings information of the serial is updated in the library's catalog so that users know which issues are available for request or access. After serial check-in is completed, the new issue is placed on the shelf with the previous issues of the serial. Libraries with a public periodical room typically place new issues in the periodical room for easy user access. Because information presented in serials often reflects latest discovery, a general practice of libraries is to make new issues of serials available for user access soon after they are checked in, usually within a week.

17. I am personally familiar with many online catalogs, databases, and search engines. In preparing for this declaration, I used the following authoritative information systems to search for records:

- Google Scholar (https://scholar.google.com)
- IEEE Xplore Digital Library (https://ieeexplore.ieee.org/Xplore/home.jsp)
- Online catalog of the library of the University of Texas at Austin (https://search.lib.utexas.edu)
- Online catalog of the Linda Hall Library (https://catalog.lindahall.org/discovery/search?vid=01LINDAHALL_INST:LHL)

- WorldCat (https://www.worldcat.org)

B. Scope of This Declaration

18. I have been asked to offer opinions on the authenticity and public availability date of the following documents:

> Munetoh, S., Nakamura, M., Yoshihama, S., & Kudo, M., (2008, May), "Integrity management infrastructure for trusted computing," *IEICE Transactions on Information and Systems*, vol. 91, no. 5, pp. 1242-1251, **EX1005** ("*Munetoh*");
>
> Rajan, H., & Hosamani, M., (2008), "Tisa: Toward trustworthy services in a service-oriented architecture," *IEEE Transactions on Services Computing*, vol. 1, no. 4, pp. 201-213, **EX1006** ("*Rajan*").

19. I am rendering my expert opinion on the authenticity of the documents referenced herein and on whether they were published. I will provide my opinion on when and how these documents were publicly disseminated or otherwise made publicly available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, could have located and retrieved these documents.

20. I am informed by counsel that an item is considered authentic if there is sufficient evidence to support a finding that the item is what it is claimed to be. I

am also informed that authenticity can be established based on the contents of the documents themselves, such as the appearance, content, substance, internal patterns, protocols followed or other distinctive characteristics of the item.

21. I am informed by counsel that a given reference is "published" if it is publicly accessible upon a satisfactory showing that such a document has been disseminated or otherwise made publicly available to the extent that persons interested and ordinarily skilled in the subject matter or art could locate it exercising reasonable diligence and obtain the document. I have also been informed by counsel that materials available in a library constitute "printed publications" if they are cataloged and indexed according to general library practices and protocols that make the references available and accessible to members of the interested public.

22. I have been informed by counsel that the '441 patent was filed in the United States on February 17, 2012, and that it claims priority to the provisional application filed on February 17, 2011. I have assessed public accessibility of the documents referenced below as of this claimed priority date.

C. Person of Ordinary Skills in the Art

23. I am told by counsel that the subject matter of this article relates to a system and method to provide attestation of applications at runtime.

24. I have been informed by counsel that a "person having ordinary skill in the art at the time of the inventions" (PHOSITA) is a hypothetical person who is

presumed to be familiar with the relevant field and its literature at the time of the inventions. This hypothetical person is also a person of ordinary creativity, capable of understanding the scientific principles and literature applicable to the pertinent field.

25. I am told by counsel that persons of ordinary skill in this subject matter or art would have had a bachelor's degree in computer science, or a related field, or an equivalent technical degree or equivalent work experience, and an additional one to two years of education or experience in the field of computer security topics such as malware/exploit detection and/or network forensics. More education can supplement practical experience and vice versa.

26. It is my opinion that such a person would have been actively engaged in learning about the field, possibly through formal instruction through the bibliographic resources. By at least February 17, 2011, such a person would have had access to a vast array of print and electronic resources, including at least the documents referenced below.

D. Evidence Considered in Forming My Opinions

27. In the preparation of this declaration, I have reviewed the documents referenced below and any other documents I reference herein, and each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions:

(1) The document referenced above in Section I.B;

(2) Library copy of *Munetoh*, obtained from Linda Hall Library, **Appendix 1005A**;

(3) Bibliographic and MARC records for *IEICE Transactions on Information and Systems* that contains *Munetoh*, available at https://catalog.lindahall.org/permalink/01LINDAHALL_INST/19lda7s/alma992684223405961 from the online catalog of the Linda Hall Library, accessed and obtained on March 24, 2023, **Appendix 1005B**;

(4) Citations to *Munetoh*, obtained from Google Scholar, **Appendix 1005C**;

(5) Library copy of *Rajan*, obtained from the library of the University of Texas at Austin, **Appendix 1006A**;

(6) Bibliographic and MARC records for *IEEE Transactions on Services Computing* that contains *Rajan*, available at https://search.lib.utexas.edu/permalink/01UTAU_INST/19i7hhk/alma991024341559706011 from the online catalog of the library of the University of Texas, Austin, accessed and obtained on March 24, 2023, **Appendix 1006B**.

These records are identified and discussed in this declaration. Experts in the field would reasonably rely on the data described herein to form their opinions.

II. Authenticity and Public Availability of *Munetoh* (EX1005)

A. Authentication

28. **EX1005** is a true and correct copy of "Integrity management infrastructure for trusted computing," ("*Munetoh*"), by Munetoh et al., *IEICE Transactions on Information and Systems*, vol. 91, no. 5 (2008, May), pp. 1242-1251, that I obtained from the Institute of Electronics, Information and Communication Engineers (IEICE) of Japan. When I began preparing this declaration, I searched Google Scholar for *Munetoh* for records, and a record link led me to an IEICE metadata record for this article at https://search.ieice.org/bin/summary.php?id=e91-d_5_1242. I then followed the PDF link in the record to purchase this article from the publisher. This IEICE copy is presented as **EX1005** in this declaration.

29. **EX1005** is a true and correct copy of *Munetoh* obtained from IEICE. Page 1 (internal page 1242) shows the title, authors, summary and key words ("trusted computing, integrity management, vulnerability management") of this article. The top of this page indicates *Munetoh* is an invited paper for the "Special Section on Information and Communication System Security" and appears in "IEICE TRANS. INF. & SYST., VOL.E91-D, NO.5 May 2008." The bottom of this

page shows the manuscript was received on November 27, 2007, the article DOI (Digital Object Identifier) is "10.1093/ietisy/e91-d.5.1242," the article carries a "2008" copyright date, and The Institute of Electronics, Information and Communication Engineers is the copyright holder. **EX1005** shows *Munetoh* has a total of 10 pages, including six figures, two tables and 27 references.

30. **EX1005** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, the text on each page appears to flow seamlessly from one page to the next, and there are no visible alterations to the document. Moreover, **EX1005** was found in the custody of the publisher, a place where, if authentic, it would likely be found. Accordingly, I see no reason to question the authenticity of the IEICE copy of *Munetoh* (**EX1005**).

B. Linda Hall Library Copy

31. To determine if *Munetoh* was available in libraries, I searched WorldCat for records for *IEICE Transactions on Information and Systems* that contains *Munetoh*, and found a record for this journal at https://www.worldcat.org/title/25533102 that identifies Linda Hall Library as one of the holding libraries. After I verified the holdings information in the library's online catalog, I requested a copy of *Munetoh* from their Document Delivery Service. This library copy is presented as **Appendix 1005A** in this declaration.

32. **Appendix 1005A** is a true and correct copy of *Munetoh* obtained from

Linda Hall Library. Pages 1 to 10 (internal pages 1242 to 1251) are the full text of this article. I have closely compared this copy with the publisher copy (**EX1005**) and found them to have the same content.

33. Page 11 is the issue cover that shows the journal title, ISSN, and the issue number. It also shows this journal is a publication of the Information and Systems Society of the Institute of Electronics, Information and Communication Engineers of Japan. The issue cover carries a date stamp of "Linda Hall Library JUN 09 2008" that indicates this issue was received by the library on June 9, 2008. This cover also shows the issue is a "Special Section on Information and Communication System Security" and *Munetoh* is an invited paper that runs from internal pages 1242 to 1251. Pages 11 to 13 show the table of contents of this issue and page 13 shows this issue has a "2008" copyright with the IEICE as the copyright holder.

34. The date stamp on the issue cover (page 11 of **Appendix 1005A**) shows Linda Hall Library received this issue on June 9, 2008. As discussed earlier, a customary library practice in managing journal issues is to create a record for the entire journal, and use a serial check-in system to document the receipt of a new journal issue. After a newly received issue goes through the serial check-in process, it is processed promptly to make it available for user access, usually within a week after serial check-in. It is therefore my opinion that after the issue containing *Munetoh* was received by the library on June 9, 2008, the copy would have become

publicly accessible no later than June 16, 2008.

C. Linda Hall Library Records

35. **Appendix 1005B** is a true and correct copy of the bibliographic and MARC records for *IEICE Transactions on Information and Systems* that contains *Munetoh*. I personally located, identified and obtained these records from the online catalog of the Linda Hall Library. These are the type of records experts in my field would reasonably rely upon when forming their opinions.

36. Pages 1 to 3 of **Appendix 1005B** are the bibliographic record that shows this publication is a journal that is available at "Linda Hall Library Closed Stacks – Serials (I.E.I.C.E. transactions on information and systems)." The record also shows the title, other titles, creator, subject, identifiers, related title, publisher, creation date, format, publication frequency, and general notes.

37. Page 4 is the MARC record for this journal. The first six digits of Field 008 show the record was created on "920326" (*i.e.*, March 26, 1992), and the "c19929999" code following the record creation date indicates this journal is a continuing resource that began publication in 1992 and has no end date of publication yet. Subfields "a" and "c" of Field 040 show that this MARC record was first created by "COD" and subfield "d" shows "LHL" modified the record later. According to the *Directory of OCLC Members* (https://www.oclc.org/en/contacts/libraries.html), COD is the OCLC library symbol

for the University of Colorado at Boulder, and LHL is the OCLC library symbol for the Linda Hall Library. Data in Fields 008 and 040 inform my opinion that the library of the University of Colorado at Boulder cataloged this journal and created the original MARC record on March 26, 1992, and Linda Hall Library used that record to create their copy cataloging record later.

38. Field 022 of the MARC record shows the ISSN of this journal, Field 245 shows the title, Fields 246 show three variant titles are included to help users discover this journal, Field 260 shows the Institute of Electronics, Information and Communication Engineers of Tokyo, Japan has been the publisher since 1992, Field 362 shows the journal began with "Vol. E75-D, no. 1" in January 1992, and Field 310 shows the current publication frequency is "Bimonthly." Field 710 shows the Japanese name of IEICE is included in the MARC record to help users discover this journal. The original MARC record includes a Library of Congress Classification number in Field 050, but Linda Hall Library does not use this number because they shelve journal by title. Subject of this journal is represented in Field 650 by a Library of Congress subject heading, with "Information technology" as the main heading, followed by a form subheading "Periodicals" encoded in subfield "v" ("$v") to indicate the main topic is treated in a journal.

39. This MARC record (**Appendix 1005B**) shows the journal containing *Munetoh* is a long-running journal, and the MARC record has made it discoverable

in the library catalog of the Linda Hall Library. Because the date stamp on the Linda Hall Library copy of *Munetoh* (**Appendix 1005A**) shows the issue containing this article was received by the library on June 9, 2008, interested users would have been able to search for this journal in the library catalog by at least June 9, 2008. Interested users would have been able to discover this journal by the ISSN, title, variant titles, publisher, and the subject heading in the MARC record. The physical copy would have become publicly accessible by June 16, 2008, at Linda Hall Library.

D. Usage Record

40. Actual usage of a publication is reflected by the papers that make reference to it. The citation history on Google Scholar shows *Munetoh* has been cited 12 times. **Appendix 1005C** is a citation list I compiled from Google Scholar to demonstrate early usage. The earliest citation appeared in October 2008.

E. Summary of My Opinion on *Munetoh*

41. The date stamp on the Linda Hall Library copy of *Munetoh* (**Appendix 1005A**) shows the library received the journal issue containing this article on June 9, 2008. It is therefore my opinion that vol. 91, no. 5 (2008, May) of *IEICE Transactions on Information and Systems* (and *Munetoh* contained therein) would have been publicly accessible by June 16, 2008. Citation history shows the earliest citation was published by IEEE in October 2008.

III. Authenticity and Public Availability of *Rajan* (EX1006)

A. Authentication

42. **EX1006** is a true and correct copy of "Tisa: Toward trustworthy services in a service-oriented architecture," ("*Rajan*"), by H. Rajan and M. Hosamani, *IEEE Transactions on Services Computing*, vol. 1, no. 4, (October-December 2008), pp. 201-213, that I obtained from IEEE Explore of the Electrical and Electronics Engineers, Inc. (IEEE). When I began preparing this declaration, I searched Google Scholar by the title of *Rajan* for records, and a link led me to an IEEE metadata record for this article at https://ieeexplore.ieee.org/abstract/document/4731232 that shows this article was published in vol. 1, issue 4 (Oct.-Dec. 2008) of *IEEE Transactions on Services Computing*, and its DOI (digital object identifier) is "10.1109/TSC.2008.18." I then followed the PDF link in this record to purchase this article. This IEEE copy is presented as **EX1006** in this declaration.

43. **EX1006** is a true and correct copy of *Rajan* obtained from IEEE. Page 1 (internal page 201) shows the title, authors, abstract, and index terms ("Service-Oriented Architecture (SOA), Web services, verification, trust, client-side data privacy") of this article. The page also shows the publication history of this work, indicating the manuscript was "received 29 Feb. 2008; revised 28 July 2008; accepted 10 Dec. 2008;" and "published online 18 Dec. 2008." The bottom of this

page shows this article's Digital Object Identifier as "10.1109/TSC.2008.18." It also shows *Rajan* appears in a journal whose ISSN (International Standard Serial Number) is "1939-1374" and is published by the IEEE Computer Society. Page 1 also shows *Rajan* carries a "2008" copyright date, and IEEE is the copyright holder. **EX1006** shows *Rajan* has a total of 13 pages, including five figures, three tables, and 51 references.

44. **EX1006** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, the text on each page appears to flow seamlessly from one page to the next, and there are no visible alterations to the document. Moreover, **EX1006** was found in the custody of a digital library owned and managed by the publisher, a place where, if authentic, it would likely be found. Accordingly, I see no reason to question the authenticity of the IEEE copy of *Rajan* (**EX1006**).

B. University of Texas at Austin Library Copy

45. To determine the public availability of *Rajan* in libraries, I searched WorldCat by *IEEE Transactions on Services Computing* that contains *Rajan* for records and located a record at https://www.worldcat.org/title/155852903 that shows this journal has been published as an electronic journal and also has a CD-ROM version. I then used the WorldCat record to identify the library of the University of Texas at Austin as one of the holding libraries. After verifying the holdings

information in their online catalog at https://search.lib.utexas.edu/, I obtained a scanned copy of *Rajan* from this library through Wisconsin TechSearch (WTS), a document delivery service based at the University of Wisconsin-Madison. This University of Texas library copy is presented as **Appendix 1006A** in this declaration.

46. Page 1 of **Appendix 1006A** is the case of the CD-ROM that shows two University of Texas at Austin library barcodes, and a label indicating the call number of this work is "TK 5105.88813 I444 v.1, No.4, 2008 CDROM." Page 2 is the CD that shows it contains vol. 1, no. 4 (October/December 2008) of *IEEE Transactions on Services Computing* whose ISSN is "1939-1374" and this issue has a "2008" copyright date with The Institute of Electrical and Electronics Engineers, Inc. as the copyright holder. The CD also shows the IEEE Computer Society as the publisher. Page 3 is the opening screen of the CD, page 4 is the Welcome page that shows this journal is "a quarterly, online-only journal." This page also indicates that subscribers to the IEEE's All-Society Periodicals Package "will received a collection of IEEE Transactions on Services Computing's peer-reviewed articles on CD-ROM each quarter." This page further explains that members of the IEEE Computer Society "will receive access to this Transactions online upon payment of the annual Society membership fee." It also shows that "[c]ontent can also be purchased on a per-article basis, and all content older then 12 months is available online free of charge." Page

6 is the table of contents of vol. 1, no. 4, and it shows *Rajan* is the second paper in this issue. Page 8 is the copyright and trademarks page that shows the journal title, ISSN, publisher, the "2008" copyright date, and the copyright holder. Pages 9 to 21 are the full text of *Rajan*, showing this article runs from pages 201 to 213 and includes five figures, three tables, and 51 references. I have closely compared this CD-ROM copy of *Rajan* (**Appendix 1006A**) with the IEEE copy (**EX1006**) and found them to be identical.

C. University of Texas at Austin Library Records

47. **Appendix 1006B** is a true and correct copy of the bibliographic and MARC records for the journal containing *Rajan* that I obtained from the library of the University of Texas at Austin. I personally located, identified, and obtained these records. These are the type of records experts in my field would reasonably rely upon when forming their opinions. I used screen captures of the records to produce **Appendix 1006B**.

48. Pages 1 to 3 are the bibliographic record, and page 1 shows this journal is available "at Library Storage Facility Closed Stacks – Request via Pick It Up (TK5105.88813 I444)" and also online with the coverage from 2008 on. Page 2 shows users can access full text of this journal online through the IEEE Electronic Library, which is a subscription option of the IEEE Xplore Digital Library (source: https://innovate.ieee.org/wp-content/uploads/2022/11/IEL-2023-22-PIM-

1011m.pdf). The "Location Items" on page 2 of **Appendix 1006B** shows the library holds the CD-ROM version of v.1, nos. 1 to 4, and v. 2, nos. 1 to 3. Page 3 shows details of this bibliographic record, including title, related title, publisher, format, notes, contributor, genre, subjects, other titles, type, creation date, frequency, identifiers and source of record.

49. Page 4 is the MARC record and page 5 is a screen capture of journal issue receipt dates. The first six digits of Field 008 show the record was created on "070716" (*i.e.*, July 16, 2007" and the "c20089999" code following the record creation date indicates this publication is a continuing resource that began publication in 2008 and has no end date of publication yet. Subfields "a" and "c" of Field 040 shows "NSD" (*i.e.*, the National Serial Data Program of the Library of Congress) created the original record, and subfield "d" shows "IXA" modified the original record. According to the *Directory of OCLC Members* (https://www.oclc.org/en/contacts/libraries.html), "IXA" is the OCLC library symbol for the University of Texas at Austin. Field 005 is a machine-generated field that automatically captures the last time this library modified their MARC record, and it shows the last record modification time is "20090227111659" (*i.e.*, February 27, 2009, 11 a.m., 16 minutes, 59 seconds). Fields 945 are local note fields that show the receipt dates and other information on issues of this journal held by the library, and the note for vol. 1, no. 4 of 2008 shows that it was received on March 17, 2009,

by this library. Based on data from Fields 008, 040, and 005, it is my opinion that the library of the University of Texas at Austin used the original MARC record created by NSD to create their copy cataloging record and the last date they modified this record was February 27, 2009. Field 945 informs me that the library received vol. 1, no. 4 of *IEEE Transactions on Services Computing* that contains *Rajan* on March 17, 2009. As discussed earlier, a customary library practice in managing journal issues is to create a record for the entire journal, and use a serial check-in system to document the receipt of a new journal issue. After a newly received issue goes through the serial check-in process, it is processed promptly to make it available for user access, usually within a week after serial check-in. It is therefore my opinion that after the library received the issue containing *Rajan*, the copy would have become publicly accessible no later than March 24, 2009.

50. Field 022 shows the ISSN of the journal, Field 245 shows the journal title and indicates it is an "electronic resource" and Fields 246 show that two variant titles are included to help users discover this journal. Field 260 shows IEEE of Piscataway, N.J., has been publishing this journal since 2008, Field 300 shows the publication is on CD-ROMS, Field 362 shows the journal began publication with vol. 1, no. 1 that shows an issue date of "Jan.-Mar. 2008" and Field 310 shows the current publication frequency is "Quarterly." Field 500 explains the record details are based on the first issue and the title is taken from the disc label. Field 710 shows

IEEE is included in the MARC record to help users discover this journal.

51. Subjects of this journal are represented in Field 050 by a Library of Congress Classification number (LCC) of "TK5101.88813" that represents journals on telecommunication, and in Fields 650 by three Library of Congress subject headings, with "Web services," "Business enterprises $x Computer networks $x Management" ("$x" indicates topic subdivision), and "Service-oriented architecture (Computer science), as the main headings, each followed by a form subheading "Periodicals" encoded in subfield "v" ("$v") to indicate these topics are treated in a journal. These subject representations enable users to conduct subject searches to discover this journal.

52. The MARC record (**Appendix 1006B**) shows that *IEEE Transactions on Services Computing* is a long-running electronic journal that is also available on CD-ROM. The record shows that the library of the University of Texas at Austin used the MARC record originally created by NSD for copy cataloging and modified their record last on February 27, 2009. This means that by that date, interested users would have been able to use this MARC record to discover the journal containing *Rajan*. Interested users would have been able to conduct subject searches by the Library of Congress subject headings and the LCC number to discover this journal. They would also have been able to locate this journal by the ISSN, title, variant titles, and the publisher. The copy of vol. 1, no. 4 containing *Rajan* would have become

publicly accessible no later than March 24, 2009.

D. Usage Record

53. Actual usage of a publication is reflected by the papers that make reference to it. The citation history on Google Scholar shows *Rajan* has been cited 54 times. The earliest citations are two IEEE articles published in November and December of 2009:

- Lam, T., & Minsky, N. (2009, November). A collaborative framework for enforcing server commitments, and for regulating server interactive behavior in soa-based systems. In *2009 5th International Conference on Collaborative Computing: Networking, Applications and Worksharing* (pp. 1-10). IEEE.
- Lam, T., & Minsky, N. (2009, December). Enforcement of server commitments and system global constraints in SOA-based systems. In *2009 IEEE Asia-Pacific Services Computing Conference (APSCC)* (pp. 126-133). IEEE.

E. Summary of My Opinion on *Rajan*

54. The IEEE copy of *Rajan* **(EX1006)** shows that this article was published online on December 18, 2008, meaning subscribers to this electronic journal would have been able to access *Rajan* from that date on. The CD-ROM copy of *Rajan* from the library of the University of Texas at Austin (**Appendix 1006A**)

shows that this journal is an online-only journal, and subscribers to IEEE's All-Society Periodicals Package would receive a collection of this journal's articles on CD-ROM each quarter. This means that users of the library of the University of Texas at Austin would have been able to access the journal online as well as via CD-ROM. The CD-ROM copy also states that members of the IEEE Computer Society would have online access to the content of this journal, and "all content older than 12 months is available online free of charge." The library MARC record (**Appendix 1006B**) shows that their record for this journal is a copy cataloging record, which they last modified on February 27, 2009. The MARC record also shows the library received vol. 1, no. 4 of *IEEE Transactions on Services Computing* that contains *Rajan* on March 17, 2009. Based on these dates and my knowledge of library cataloging and processing practices, it is my opinion that *IEEE Transactions on Services Computing* became discoverable at the online catalog of the library of the University of Texas at Austin no later than February 27, 2009, and the issue containing *Rajan* would have become publicly accessible no later than March 24, 2009. Citation records show the earliest citations were published by IEEE in November and December of 2009.

IV. Conclusion

55. In signing this declaration I recognize that the declaration will be filed as evidence in a Petition for *Inter Partes* Review before the Patent Trial and Appeal

Board of the United States Patent and Trade Mark Office. I also recognize that I may be subject to deposition in the case. If deposition is required of me, I will appear at a reasonable time and place to be agreed upon.

56. I hereby declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: 4-6-2023 Executed: Ingrid Hsieh-Yee

Ingrid Hsieh-Yee, Ph.D.

Trend Micro, Inc.
EX1007-30