

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MPH TECHNOLOGIES OY,
Patent Owner.

IPR2019-00820
Patent 7,937,581 B2

Before KAMRAN JIVANI, JOHN D. HAMANN, and
STACY B. MARGOLIES, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Apple Inc. (“Petitioner”) challenges the patentability of claims 1–9 (“the challenged claims”) of U.S. Patent No. 7,937,581 B2 (Ex. 1001, “the ’581 patent”), owned by MPH Technologies Oy (“Patent Owner”). We have jurisdiction under 35 U.S.C § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons discussed herein, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–3, 5, and 9 are unpatentable, but Petitioner has not shown by a preponderance of the evidence that claims 4 and 6–8 are unpatentable.

II. BACKGROUND

A. Procedural History

Petitioner filed a Petition requesting *inter partes* review of the challenged claims of the ’581 patent. Paper 2 (“Pet.”). The Petition is supported by the Declaration of David Goldschlag, Ph.D. (Ex. 1002). Patent Owner filed a Preliminary Response. Paper 8.

We instituted *inter partes* review of all of the challenged claims of the ’581 patent on all of the grounds raised in the Petition. Paper 10 (“Dec. on Inst.”), 7, 42. As to this Decision on Institution, Patent Owner filed a Request for Rehearing, and requested review by the Precedential Opinion Panel (“POP”). Paper 12; Ex. 3001. Patent Owner’s request for POP review was denied, and we subsequently denied Patent Owner’s Request for Rehearing. Papers 16, 24.

Patent Owner filed a replacement Response to the Petition. Paper 23 (“PO Resp.”). The Response is supported by the Declaration of Professor

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George N. Rouskas, Ph.D. (Ex. 2009). Petitioner filed a Reply to Patent Owner's Response. Paper 26 ("Pet. Reply"). The Reply is supported by an additional Declaration of David Goldschlag, Ph.D. (Ex. 1022). Patent Owner filed a Sur-Reply to Petitioner's Reply. Paper 29 ("PO Sur-Reply").

An oral hearing was held on June 25, 2020. A transcript of the oral hearing is included in the record. Paper 36 ("Tr.").

B. Related Matter

The parties identify *MPH Techs. Oy v. Apple Inc.*, No. 5:18-cv-05935-PJH (N.D. Cal.), as a matter that may affect or would be affected by a decision in this proceeding. Pet. 2–3; Paper 7, 1. The parties also identify, as a related matter, *Apple Inc. v. MPH Techs. Oy*, IPR2019-00819 (PTAB), involving U.S. Patent No. 7,620,810, which is the parent of the '581 patent. Pet. 2–3; Paper 7, 1.

C. The Challenged Patent (Ex. 1001)

The '581 patent relates to "secur[ing] mobile connections in telecommunication networks." Ex. 1001, 1:15–16. In particular, the '581 patent describes reducing the handover latency and computational overhead for secure connections, such as those employing Internet Protocol ("IP") Security ("IPSec") with mobile terminals¹ (i.e., terminals that can move from one network to another). *Id.* at 1:15–16, 1:59–66, 4:12–35, 6:42–44, 7:23–37, 10:31–39.

¹ The '581 patent discloses that "the term[s] mobility and mobile terminal do[] not only mean physical mobility, . . . [but also] mean[] moving from one network to another, which can be performed by a physically fixed terminal as well." Ex. 1001, 4:31–35.

IPSec comprises a set of rules defined by the Internet Engineering Task Force (“IETF”) to “provide[] the capability to secure communications between arbitrary hosts,” according to the ’581 patent. *Id.* at 1:59–66, 2:5, 2:8–12. The ’581 patent states that these rules describe, *inter alia*, providing “access control based on the distribution of cryptographic keys.” *Id.* at 2:13–22. The ’581 patent also describes the concept of a Security Association (“SA”), which according to the ’581 patent is “a one-way relationship between a sender and a receiver that offers [negotiated] security services to the traffic carried on it.” *Id.* at 2:24–26.

The ’581 patent discloses that IPSec supports two modes of operation (i.e., transport mode and tunnel mode). *Id.* at 3:6–7. “Typically, transport mode is used for end-to-end communication between two hosts.” *Id.* at 3:14–15. “Tunnel mode . . . is generally used for sending messages through more than two components,” such as “when one or both ends of a SA is a security gateway, such as a firewall or a router that implements IPSec.” *Id.* at 3:19–24.

“IPSec is intended to work with static network topolog[ies],” according to the ’581 patent. *Id.* at 4:14–15. For example, IPSec can secure communications between hosts across a local area network (“LAN”), as well as across a private or public wide area network (“WAN”). *Id.* at 1:59–61. Figure 1, shown below, “illustrates an example of a telecommunication network to be used in the invention” of the ’581 patent. *Id.* at 8:37–38.

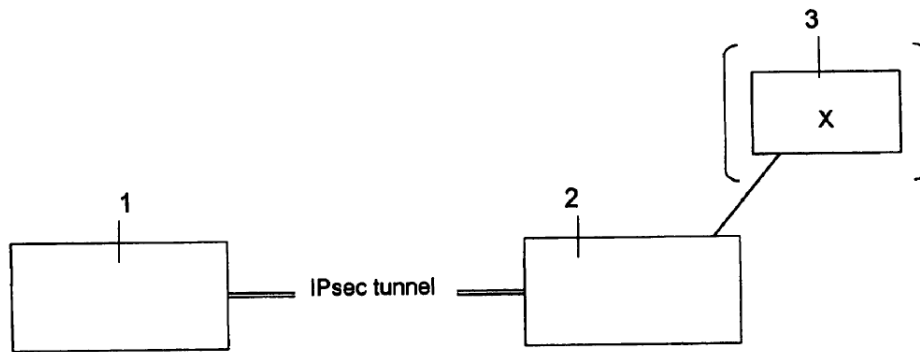


FIG. 1

Figure 1 depicts an example telecommunication network comprising “computer 1 . . . and computer 2[,] a destination computer, to which the secure messages are sent . . . by means of an IPsec tunnel established between computer 1 and computer 2.” *Id.* at 8:50–55. The ’581 patent adds: “Computer 2 [can] be a security gateway for a third computer 3. Then, the messages sent from computer 2 to computer 3 are sent in plaintext.” *Id.* at 8:55–57.

The ’581 patent discloses that in forming an IPsec tunnel under IPsec’s default automated key management protocol (i.e., the Internet Key Exchange (“IKE”) protocol), “the tunnel endpoints are fixed and remain constant.” *Id.* at 4:2–7, 4:15–20. The ’581 patent adds: “If IPsec is used with a mobile host, the IKE key exchange will have to be redone from every new[ly] visited network. This is problematic, because IKE key exchanges involve computationally expensive” calculations and require exchanging numerous messages between the endpoints, leading to higher latency. *Id.* at 4:18–29.

To address these problems, the ’581 patent discloses avoiding a full re-negotiation between the tunnel endpoints, when computer 1 moves

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