



- (51) **International Patent Classification:**
H04L 9/30 (2006.01) *G06F 21/00* (2006.01)
- (21) **International Application Number:**
PCT/US2010/037652
- (22) **International Filing Date:**
7 June 2010 (07.06.2010)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
12/483,052 11 June 2009 (11.06.2009) US
- (71) **Applicant (for all designated States except US):** MICROSOFT CORPORATION [US/US]; One Microsoft Way, Redmond, WA 98052-6399 (US).
- (72) **Inventors:** SIMON, Daniel, R.; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, WA 98052-6399 (US). SWANDER, Brian, D.; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, WA 98052-6399 (US). MENEZES, Pascal; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, WA 98052-6399 (US). MONTENEGRO, Gabriel, E.; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, WA 98052-6399 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

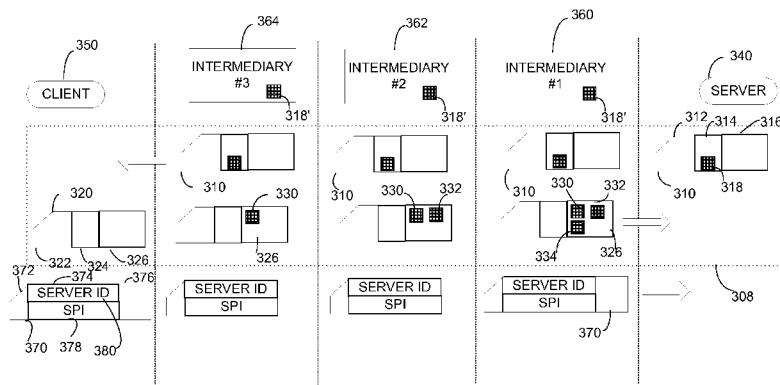
Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) **Date of publication of the international search report:**
10 March 2011

(54) **Title:** DISCOVERY OF SECURE NETWORK ENCLAVES

FIG. 3



(57) **Abstract:** A hierarchical key generation and distribution mechanism for a computer system in which devices are organized into secure enclaves. The mechanism enables network access to be tailored to approximate minimum needed privileges for each device. At the lowest level of the hierarchy, keys are used to form security associations between devices. Keys at each level of the hierarchy are generated from keys at a higher level of the hierarchy and key derivation information. Key derivation information is readily ascertainable, either from identifiers for devices or from within messages, supporting hardware offload of cryptographic functions. Because keys may be generated based on the enclaves in which the hosts participating in a security association are located, the system includes a mechanism by which devices can discover the enclave in which they are located.

WO 2010/144373 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/037652**A. CLASSIFICATION OF SUBJECT MATTER****H04L 9/30(2006.01)i, G06F 21/00(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04L 9/30; G06F 15/16; H04N 7/16; H04J 3/16; G06F 12/14; H04L 29/06; G06F 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: enclave, marker, identif*, enclave key, host, packet, address

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0737907 A2 (SECURE COMPUTING CORPORATION) 16 October 1996 See abstract; figure 4; column 14, line 45 - column 24, line 37	1-7 8-14
A	US 2008-0005798 A1 (ALAN D. ROSS) 03 January 2008 See abstract; figure 3; page 3, paragraph 30 - page 4, paragraph 34	1-14
A	US 2002-0029280 A1 (JAMES M. HOLDEN et al.) 07 March 2002 See abstract; figure 1; page 2, paragraph 15 - page 2, paragraph 16	1-14
A	US 2007-0263658 A1 (KEVIN Y. UNG, et al.) 15 November 2007 See abstract; figure 1; page 1, paragraph 11 - page 2, paragraph 16	1-14
A	EP 1162807 A2 (TRW INC.) 12 December 2001 See abstract; figure 2; column 3, paragraph 9 - column 4, paragraph 11	1-14

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

29 DECEMBER 2010 (29.12.2010)

Date of mailing of the international search report

29 DECEMBER 2010 (29.12.2010)

Name and mailing address of the ISA/KR

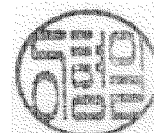
Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Lee Hyoung Il

Telephone No. 82-42-481-8199



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/037652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0737907 A2	16. 10. 1996	EP 0636259 A1	01. 02. 1995
		EP 0636259 B1	04. 06. 1997
		EP 0737907 A3	26. 03. 1997
		US 5276735 A1	04. 01. 1994
		US 5499297 A1	12. 03. 1996
		US 5502766 A1	26. 03. 1996
		WO 93-21581 A3	28. 10. 1993
		US 2008-0005798 A1	03. 01. 2008
US 2002-0029280 A1	07. 03. 2002	US 2002-0035635 A1	21. 03. 2002
		US 2002-029280 A1	07. 03. 2002
		US 2004-0083286 A1	29. 04. 2004
		US 2005-0010766 A1	13. 01. 2005
		US 2006-0020800 A1	26. 01. 2006
		US 2007-0250708 A2	25. 10. 2007
		US 2008-0010454 A1	10. 01. 2008
		US 2008-0010461 A1	10. 01. 2008
		US 2008-0016226 A1	17. 01. 2008
		US 2008-0016227 A1	17. 01. 2008
		US 2008-0016332 A1	17. 01. 2008
		US 2008-0016340 A1	17. 01. 2008
		US 2008-0016343 A1	17. 01. 2008
		US 2008-0016344 A1	17. 01. 2008
		US 2008-0016345 A1	17. 01. 2008
		US 2008-0028212 A1	31. 01. 2008
		US 5828832 A1	27. 10. 1998
		US 5832228 A1	03. 11. 1998
		US 6272538 B1	07. 08. 2001
		US 6272639 B1	07. 08. 2001
		US 6643698 B2	04. 11. 2003
		US 6760768 B2	06. 07. 2004
		US 6993582 B2	31. 01. 2006
US 7475137 B2	06. 01. 2009		
US 7624180 B2	24. 11. 2009		
US 7797423 B2	14. 09. 2010		
US 7827291 B2	02. 11. 2010		
US 7831722 B2	09. 11. 2010		
US 7844706 B2	30. 11. 2010		
US 2007-0263658 A1	15. 11. 2007	US 2007-263658 A1	15. 11. 2007
		WO 2007-136489 A2	29. 11. 2007
		WO 2007-136489 A3	21. 02. 2008
EP 1162807 A2	12. 12. 2001	DE 60119834 D1	29. 06. 2006
		DE 60119834 T2	19. 10. 2006
		EP 1162781 A2	12. 12. 2001
		EP 1162781 A3	28. 05. 2003
		EP 1162781 B1	06. 09. 2006

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/037652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		EP 1162782 A2	12.12.2001
		EP 1162782 A3	09.04.2003
		EP 1162807 A3	07.01.2004
		EP 1162807 B1	24.05.2006
		JP 2002-057661 A	22.02.2002
		JP 2002-064485 A	28.02.2002
		JP 2002-082913 A	22.03.2002
		US 2003-0208690 A1	06.11.2003
		US 6898710 B1	24.05.2005
		US 6934859 B2	23.08.2005