



- (51) **International Patent Classification:**
G06F 7/04 (2006.01) *H04L 9/32* (2006.01)
- (21) **International Application Number:**
PCT/IL2015/050669
- (22) **International Filing Date:**
30 June 2015 (30.06.2015)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/018,679 30 June 2014 (30.06.2014) US
- (71) **Applicant:** FIRMITAS CYBER SOLUTIONS (IS-RAEL) LTD. [IL/IL]; 5 Beit El St., 5248703 Ramat Gan (IL).
- (72) **Inventors:** KEINI, Gil; 160 HaTavor St., 4480500 Nirit (IL). SHAFT, Rami; 2 Shkolnik St., 7620967 Rehovot (IL).
- (74) **Agent:** JACOBSON, ZVI; Reinhold Cohn And Partners, P.O.B. 13239, 6113102 Tel-Aviv (IL).
- (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, BN, 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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

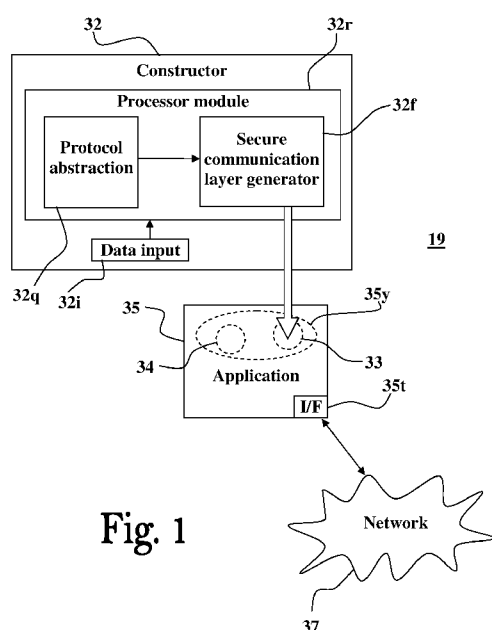
— *of inventorship* (Rule 4.17(iv))

Published:

— *with international search report* (Art. 21(3))

(88) Date of publication of the international search report:

31 March 2016

(54) Title: SYSTEM AND METHOD OF GENERATING A SECURED COMMUNICATION LAYER**Fig. 1**

(57) Abstract: Techniques for generating a secure communication layer for a certain software application in a computer system are disclosed. The certain application is configured and operable to exchange data via a communication interface using a specific protocol implementation. A communication protocol model is generated for the specific protocol implementation based on input data about the specific communication protocol and being associated at least in part with functioning of the certain application. The generated communication protocol model is used for generating a dedicated protection layer component corresponding to the specific communication protocol, wherein the dedicated protection layer component is capable of analyzing communication traffic data associated with the certain application and validating communication traffic data addressed to the certain application and complying with the generated protocol model.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL 15/50669

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 7/04, H04L 9/32 (2015.01)

CPC - H04L 63/06, H04L 63/062, H04L 9/3268

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)
IPC(8): G06F 7/04, H04L 9/32 (2015.01); CPC: H04L63/06, H04L63/062, H04L9/3268Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC(8): G06F*, H04L*; CPC: H04L63/0823; USPC: 713/168, 380/44, 380/281, 713/155, 713/176, 726/4, 380/278

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

PatBase (All); Google (Patents, Scholar, Web)

Search Terms: Software, Malicious w3 attack, Protect#, defend#, safeguard#, preserve#, Data w3 exchange#, Input w2 data, Protocol, structure w4 content, Communicate#, broadcast#, Interface, Abstract#, absorb#, Analyze#, investigate#, scrutinize#, Generate#,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2002/0156886 A1 (Krieski et al.) 24 October 2002 (24.10.2002), entire document, especially abstract, Fig 3 & 10 and para [0044]- [0188]	1, 3 an 14-16 ----- 2
Y	US 8,001,239 B2 (Sample) 16 August 2011 (16.08.2011), entire document, especially abstract and col 1, ln 43-59	2
A	US 8,136,149 B2 (Freund) 13 March 2012 (13.03.2012), entire document	1-3 and 14-16
A	US 7,243,371 B1 (Kasper et al.) 10 July 2007 (10.07.2007), entire document	1-3 and 14-16

☐ Further documents are listed in the continuation of Box C.

* 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 another 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

8 November 2015 (08.11.2015)

Date of mailing of the international search report

18 DEC 2015

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-8300

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL 15/50669

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that *no meaningful international search can be carried out, specifically:*
3. ☒ Claims Nos.: 4-13 and 17-23
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.