

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference AKAM-360-PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2019/063598	International filing date (<i>day/month/year</i>) 27 November 2019 (27.11.2019)	(Earliest) Priority Date (<i>day/month/year</i>) 27 November 2018 (27.11.2018)
Applicant AKAMAI TECHNOLOGIES, INC.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 14

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER**H04L 9/06(2006.01)i, H04L 9/14(2006.01)i, H04L 9/32(2006.01)i, G06Q 20/06(2012.01)i, G06Q 20/36(2012.01)i, G06Q 20/38(2012.01)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 9/06; G06F 17/30; H04L 29/06; H04L 29/08; H04L 9/08; H04L 9/14; H04L 9/32; G06Q 20/06; G06Q 20/36; G06Q 20/38

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: blockchain, block segmentation, distributed, fork resolution, confidence, consensus, mining

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EMANUEL FERREIRA JESUS et al., `A Survey of How to Use Blockchain to Secure Internet of Things and the Stalker Attack`, Hindawi, Security and Communication Networks, Vol. 2018, Article ID 9675050, 08 April 2018 pages 5-6, 10, 12	1-14
A	US 2017-0344580 A1 (MASTERCARD INTERNATIONAL INCORPORATED) 30 November 2017 paragraphs [0017]-[0030]; and figure 1	1-14
A	US 2017-0323392 A1 (LANCE KASPER et al.) 09 November 2017 paragraphs [0084]-[0089]; and figure 8	1-14
A	WO 2017-162904 A1 (NOKIA TECHNOLOGIES OY) 28 September 2017 claims 1-9	1-14
A	WENTING LI et al., `Securing Proof-of-Stake Blockchain Protocols`, In: Data Privacy Management, Cryptocurrencies and Blockchain Technology; ESORICS 2017 International Workshops, DPM 2017 and CBT 2017, Oslo, Norway, September 14-15, 2017, pp. 297-315, September 2017 sections 2-3	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

"D" document cited by the applicant in the international application

"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

03 April 2020 (03.04.2020)

Date of mailing of the international search report

03 April 2020 (03.04.2020)

Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

BYUN, Sung Cheal

Telephone No. +82-42-481-8262



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2019/063598

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2017-0344580 A1	30/11/2017	US 10417188 B2 WO 2017-204900 A1	17/09/2019 30/11/2017
US 2017-0323392 A1	09/11/2017	US 10304143 B2	28/05/2019
WO 2017-162904 A1	28/09/2017	CN 109155731 A EP 3433973 A1 EP 3433973 A4 US 2019-0108364 A1	04/01/2019 30/01/2019 16/10/2019 11/04/2019