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(71) Applicant: CISCO TECHNOLOGY, INC. [US/US]; 170 West Tasman Drive, San Jose, CA 95134-1706 (US).

(72) Inventors: BEN AML, Alon; 1/2 Zarkon Street, 7050201 Gedera (IL). RAMAKRISHNAN, Sangeeta; 14490 Oak

Place, Saratoga, CA (US). YANOVER, Vladimir; 11/4 Nahshon Street, 4444734 Kfar Saba (IL). NUSS, Ziv; 17 Hayasmin Street, 4486200 Tsur Yigal (IL). ZAFRIR, Ron; 18 Derech Hasadot Street, P.O. Box 11579, 4993500 Kfar Sirkin (IL).

(74) Agent: KATZ, Samuel M. et al.; Cisco Legal (Patents), Cisco Technology, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 (US).

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(54) Title: CROSS-DOMAIN SERVICE OPTIMIZATION

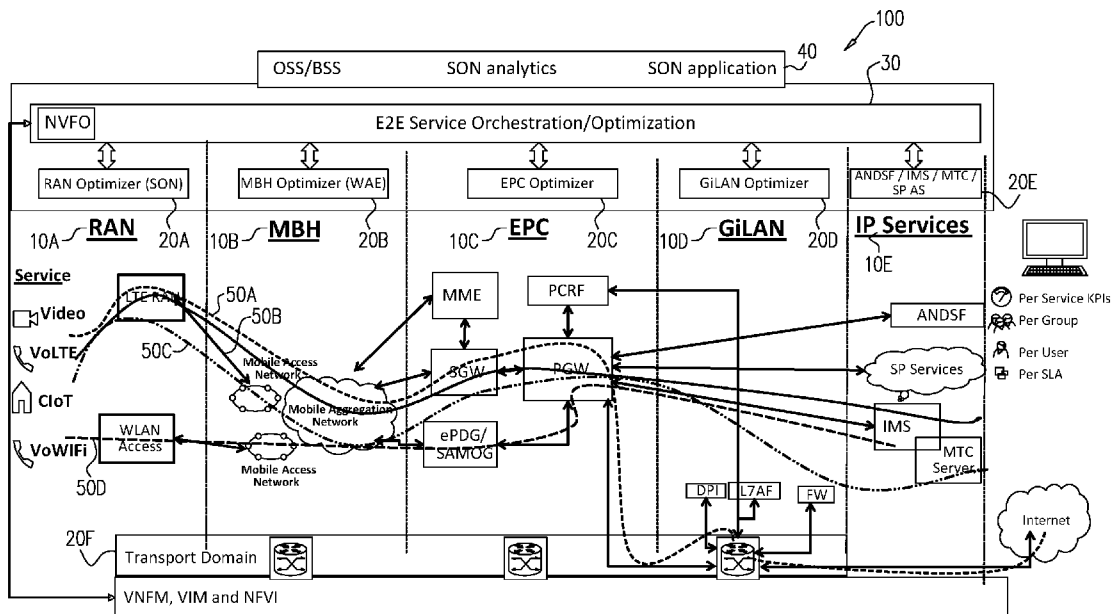


FIG. 1

(57) Abstract: A method for cross-domain service optimization is implemented on a computing device and includes defining at least one key quality indicator (KQI) target for at least one end-to-end (E2E) service, where the at least one E2E service crosses more than one domain of a communications network, receiving an indication of quality of experience (QoE) for the at least one E2E service, based on the indication of QoE, translating the at least one KQI target to at least one set of service optimization instructions for each domain from among the more than one domain, and for said each domain, applying the service optimization instructions.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
 INV. H04L12/24 H04W28/02 H04L12/26 H04W24/02 H04W28/08
 H04W84/18
 ADD.
 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 H04W

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012/278430 A1 (LEHANE BART [IE] ET AL) 1 November 2012 (2012-11-01) abstract paragraph [0060] - paragraph [0081]; figures 2-3,6,11 paragraph [0111] - paragraph [0112] paragraph [0158] - paragraph [0163] -----	1-4,9-15
X	WO 2016/026509 A1 (ERICSSON TELEFON AB L M [SE]) 25 February 2016 (2016-02-25)	1-4,9-15
Y	abstract page 3 - page 4 page 8 - page 35; figures 2,6 ----- -/--	5-8

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 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 31 August 2017	Date of mailing of the international search report 11/09/2017
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Svet, Victor
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2017/051124

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2014/031006 A1 (MOORE BRIAN [US] ET AL) 30 January 2014 (2014-01-30) abstract paragraph [0026] - paragraph [0028] paragraph [0057] - paragraph [0060] paragraph [0083] - paragraph [0094] paragraph [0124] -----	5-8, 16-20
Y	US 2014/269269 A1 (KOVVALI SURYA KUMAR [US] ET AL) 18 September 2014 (2014-09-18) abstract paragraph [0009] - paragraph [0032]; figures 1-6 paragraph [0139] - paragraph [0148] -----	16-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2017/051124

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.:
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:

see additional sheet

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 an 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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 9-15

A method for E2E service adjustment.

2. claims: 5-8, 16-20

A method for receiving feedback indicating non-compliance with service level agreement (SLA) for a video delivery.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2017/051124

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2012278430	A1	01-11-2012	EP	2518941 A1		31-10-2012
			US	2012278430 A1		01-11-2012

WO 2016026509	A1	25-02-2016	NONE			

US 2014031006	A1	30-01-2014	EP	2878147 A1		03-06-2015
			US	2014031006 A1		30-01-2014
			WO	2014016021 A1		30-01-2014

US 2014269269	A1	18-09-2014	NONE			
