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- (71) Applicant: **GOOGLE INC.** [US/US]; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).
- (72) Inventor: **SEREBRIN, Benjamin C.**; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).
- (74) Agents: **COUENHOVEN, Joel D.** et al.; Fish & Richardson P.C., P.O. Box 1022, Minneapolis, Minnesota 55440-1022 (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, 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,

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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))

[Continued on next page]

(54) Title: VIRTUAL MACHINE SYSTEMS

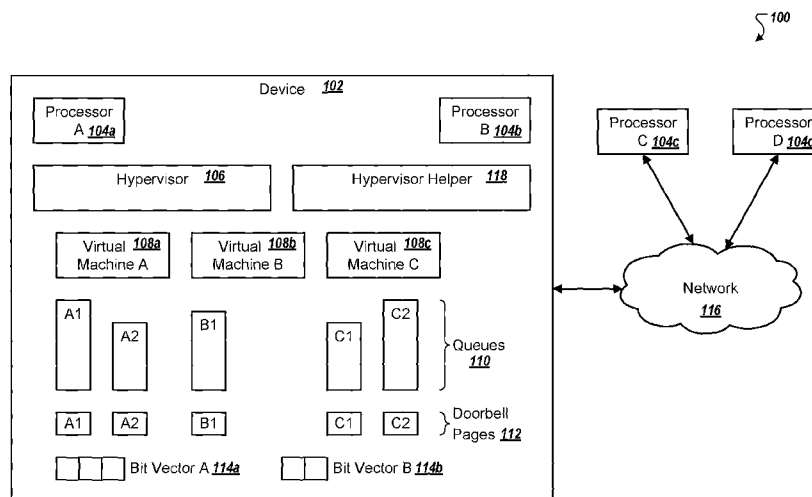


FIG. 1

(57) Abstract: Methods, systems, and apparatus, including computer programs encoded on computer storage media, for memory requests by a virtual machine. One of the methods includes generating a plurality of doorbell pages for a plurality of virtual machines executing on a device, providing, to each of the plurality of virtual machines, access to a respective one of the plurality of doorbell pages that identifies a queue that stores requests from the respective virtual machine, receiving, from a particular one of the plurality of doorbell pages, a notification that the respective queue has a request from the respective virtual machine, and in response to receiving the notification that the respective queue has a request from the respective virtual machine, causing a processor to process the respective queue for the respective virtual machine.

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G06F9/54
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)
G06F

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/161955 A1 (WOLLER THOMAS R [US] ET AL) 30 June 2011 (2011-06-30) figures 2-4, 6, 7 paragraph [0006] - paragraph [0008] paragraph [0020] - paragraph [0025] paragraph [0029] - paragraph [0036] paragraph [0039] - paragraph [0041] -----	1-15, 24-27
X	US 2014/181323 A1 (MANULA BRIAN EDWARD [NO] ET AL) 26 June 2014 (2014-06-26) figures 1-3 paragraph [0004] - paragraph [0006] paragraph [0022] - paragraph [0025] paragraph [0032] - paragraph [0033] paragraph [0048] - paragraph [0080] ----- -/--	1-4, 6-13,24, 25 14,15, 26,27

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 24 May 2016	Date of mailing of the international search report 05/10/2016
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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 Wirtz, Hanno
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/025303

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2013/007751 A1 (FARRELL ROBERT L [US] ET AL) 3 January 2013 (2013-01-03) figures 1, 2 paragraph [0015] - paragraph [0022] paragraph [0030] paragraph [0043] - paragraph [0044] -----	1-12,24, 25 13-15, 26,27
A	US 2013/198312 A1 (TAMIR ELIEZER [IL] ET AL) 1 August 2013 (2013-08-01) figures 1, 2 paragraph [0036] paragraph [0043] - paragraph [0047] paragraph [0051] - paragraph [0054] paragraph [0062] - paragraph [0068] -----	1-15, 24-27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/025303

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.:

1-15, 24-27

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: 1-15, 24-27

Method and system for doorbell pages to facilitate communication between virtual machine (task queues) and underlying processing system.

2. claims: 16-23, 28, 29

Medium and system for management in live migration of applications/virtual machines between two devices.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2016/025303

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011161955	A1	30-06-2011	CN 102713847 A
			EP 2519877 A2
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			US 2014325013 A1
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