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(54) Title: POLYMORPHIC COMPUTING ARCHITECTURES

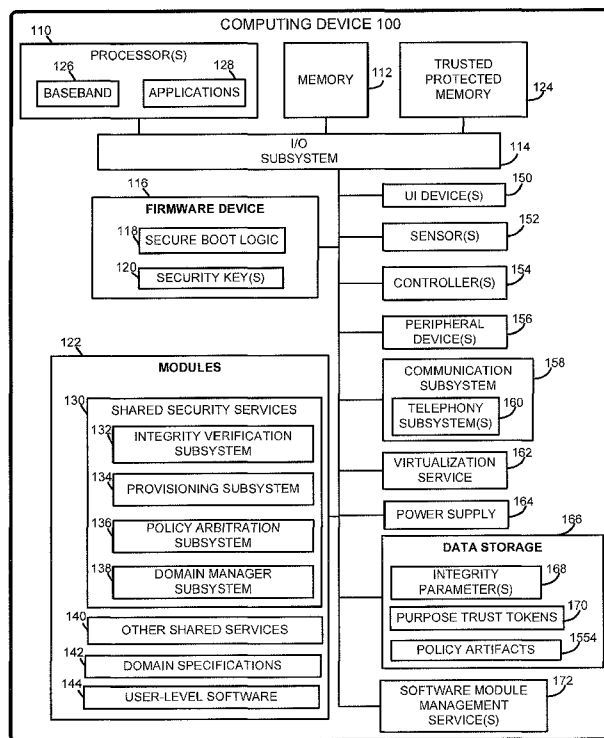


FIG. 1

(57) Abstract: Polymorphic computing architectures can support and control separate, independently executable domains and other components on a computing platform. In some embodiments, the architectures may control the different domains and/or components according to different purposes. In some embodiments, the architectures can control domains and/or components to enforce a desired "purpose" of a domain/component while simultaneously denying a corresponding "anti-purpose."



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).

— *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))*

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER				
G06F 9/54 (2006.01)				
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 9/00-9/54, 17/00-17/28, H04L 9/00-9/32, 29/00-29/06, H04W 88/00-88/02				
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)				
PatSearch (RUPTO internal), USPTO, PAJ, K-PION, Esp@cenet, Information Retrieval System of FIPS				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2009/0125880 A1 (MICROSOFT CORPORATION) 14.05.2009, abstract, paragraphs [0004]-[0005], [0022]-[0028], [0037]-[0041], [0050], [0052]-[0056], claim 6	1-6		
Y		7-20		
Y	US 2009/0089860 A1 (SIGNACERT INC) 02.04.2009, abstract	7-20		
Y	US 2004/0122655 A1 (FUJI XEROX CO LTD) 24.06.2004, paragraph [0013]	8		
Y	US 7779254 B1 (ROCKWELL COLLINS INC) 17.08.2010, abstract, col.2, lines 22-37	19		
Y	WO 2008/002361 A1 (MICROSOFT CORPORATION) 03.01.2008, abstract	20		
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.				
* Special categories of cited documents: <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier document 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 </td> <td style="vertical-align: top; width: 50%;"> “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 </td> </tr> </table>			“A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier document 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
“A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier document 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		Date of mailing of the international search report		
01 July 2015 (01.07.2015)		02 July 2015 (02.07.2015)		
Name and mailing address of the ISA/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, Russia, 125993 Facsimile No: (8-495) 531-63-18, (8-499) 243-33-37		Authorized officer A. Tokarev Telephone No. (499) 240-25-91		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 2014/059862

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 extra 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 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.

According to the Rule 13.2., if in the international application the group of inventions is declared, the requirement of the invention is considered adhered when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features.

Claims of invention contain 2 groups of the inventions which have been not united by means of single inventive concept, but namely:

The inventions according to the independent claims 1, 13 relate to the first group;
the invention according to the independent claim 7 relates to the second group.

For group 1 of inventions the special technical features are the features related to domain's use of one or more of the shared system resources based on current operating context, namely: "a processing unit comprising one or more hardware processors; a context detector in communication with the processing unit to receive data indicating a current operating context of the computing device; shared system resources in communication with the processing unit, the shared system resources comprising one or more of a telephony subsystem, a camera subsystem, and a network subsystem; machine accessible storage media; and a plurality of well-defined communication channels operably coupling the processing unit with the context detector, the shared system resources, and the machine accessible storage media, wherein the machine accessible storage media has embodied therein: a plurality of isolated independently executable domains, each domain having a domain-specific purpose governing use by the domain of the shared system resources, the domain-specific purpose being different for each of the domains; and wherein the processing unit monitors the current operating context of the computing device and, for each of the domains: enables the domain to use the shared system resources if the current operating context of the computing device does not conflict with the domain's domain-specific purpose; and disables the domain's use of one or more of the shared system resources if the current operating context conflicts with the domain-specific purpose".

In the independent claim 7 the corresponding features are absent.

For group 2 of inventions the special technical features are the features related to activating an executable component on a polymorphic computing device, namely: "receiving data indicating a current operating context of the polymorphic computing device; and, in response to the data: independently of any operating system running on the polymorphic computing device, verifying the integrity of the component; determining a defined purpose of the component; determining an anti-purpose corresponding to the defined purpose of the component; determining if a use of the component in the current operating context is permitted by the purpose; determining if the current operating context enables the use of the component for the anti-purpose; and activating the component on the polymorphic computing device only if the use of the component in the current operating context is permitted by the purpose and the current operating context does not enable the use of the component for the anti-purpose".

In the independent claims 1, 13 the corresponding features are absent.