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(54) Title: EXECUTING MULTIPLE APPLICATIONS AND THEIR VARIATIONS IN COMPUTING ENVIRONMENTS

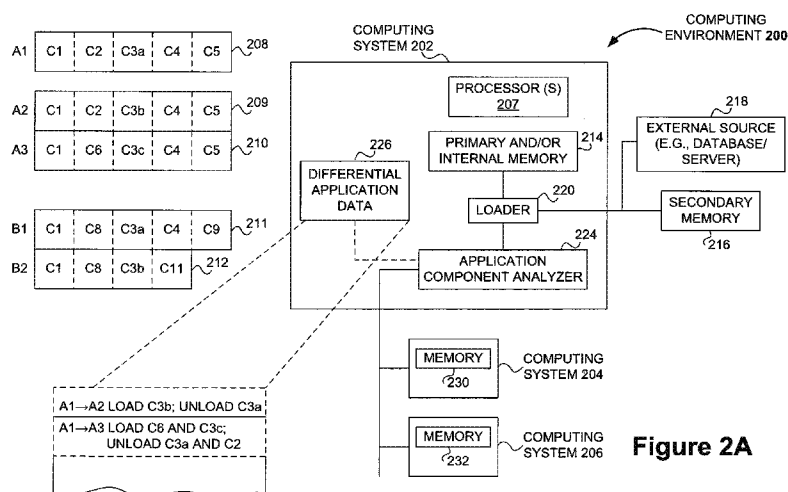


Figure 2A

(57) Abstract: Techniques for execution of multiple application programs and their variations are disclosed. One or more individual application program components that are determined to be already stored and/or loaded into memory are not loaded into memory again, thereby allowing the associated application program to be executed without unnecessarily reloading the one or more individual application program components into memory. Generally, by keeping track and/or predicting of the application components loaded into memory, it can be determined whether to load or unload a particular application program component. In addition, data that can readily identify the application components that are not already into memory can be provided as differential application data for loading various application programs and their variations to facilitate switching between and/or concurrently running multiple application programs and their variations.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/071830

A. CLASSIFICATION OF SUBJECT MATTER INV. G06F9/445		
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 practical, 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	EP 0 491 585 A (IBM [US]) 24 June 1992 (1992-06-24) column 3, lines 9-21 column 3, line 35 - column 4, line 42 -----	1-26
☐ 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 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. *Z* document member of the same patent family		
Date of the actual completion of the international search 29 October 2008		Date of mailing of the international search report 20/04/2009
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 Dieben, Marc

INTERNATIONAL SEARCH REPORT

International application No.
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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 allsearchable 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 reportcovers 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.:

1-26

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: 1-26

1-st: Method and apparatus for loading application programs into memory for execution comprising:
receiving, identifying and/or determining an application program that includes one or more application program components required to be stored in said memory for execution of said application program;
determining whether each one of said one or more application program components of said application program are stored in said memory so that said application program can be executed by said computing system after said receiving, identifying and/or determining of said application program; and
causing at least one application program component of said one or more application program components of said application program not to be loaded into said memory when said determining determines that said at least one application program component is stored into said memory and consequently available for execution of said application program.

2. claims: 27-50

2-nd invention: Method for generating differential application data comprising:
receiving, identifying and/or determining first and second application programs, wherein said first and second application programs respectively include first and second individual application program components required for execution of said application programs in said computing environment;
determining whether said first and second individual application program components have at least one common individual application program in common after said receiving, identifying and/or determining of said first and second application programs;
generating application differential data for said first and/or second applications programs, wherein said application differential data effectively indicates that said first and second application programs have least one common individual application program components in common when said determining determines that said first and second individual application program components have at least one common individual application program in common; and
store the application differential data for execution of said first and/or second applications programs.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/071830

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0491585	A	24-06-1992	JP	4268927 A	24-09-1992
			US	5247681 A	21-09-1993
