(54) Title: DEVELOPMENT, MANAGEMENT OF DISTRIBUTED CLIENTS AND SERVERS

(57) Abstract: A lightweight application server for use on portable or embedded devices includes an application manager (5) and services containers (9, 10, 13, 14). Each of these is managed by an admin server (4) allowing for remote and rapid deployment and maintenance of applications, objects and features associated with the server-enabled portable or embedded devices (1-3). This permits portable devices like PDAs to provide server functionality to each other, in a fully portable network if desired. A system including such server-enabled portable or embedded devices may include, among other things, a decision flow server for facilitating distributed decision flow processing.
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : G06F 17/30
   US CL : 707/100, 4, 10,
   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)
   U.S. : 707/100, 4, 10,
   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)
EAST, WEST, CAS ONLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X, P</td>
<td>US 6,327,594 B1 (VAN HUBBIN et al.) 04 December 2001, See fig. 2.</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-9, 11-12, 19-20, 22-23</td>
</tr>
<tr>
<td>Y, P</td>
<td>US 6,523,027 B1 (UNDERWOOD) 18 February 2003 (18.02.2003)</td>
<td>4-23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24-64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24-64</td>
</tr>
</tbody>
</table>

☐ 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 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

*E* document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report
03 OCT 2003

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703)305-3230

Authorized officer
Joseph H Feild
Telephone No. (703)305-9600

Form PCT/ISA/210 (second sheet) (July 1998)
INTERNATIONAL SEARCH REPORT

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. □ Claim Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claim 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. □ Claim Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation 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 fee, this Authority did not invite payment of any additional fee.

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.
☒ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)
Continuation of Item 4 of the first sheet:
Title Too long.
Development Management of Distributed Clients and Servers.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-3, drawn to an application server on a portable device.

Group II, claim(s) 4-23, drawn to an application server with process manager, device manager and naming service.

Group III, claim(s) 24-34, 55-59, drawn to a method for providing processing service in a client/server network.

Group IV, claim(s) 35-46, drawn to a system of client/server with proxy server and admin server.

Group V, claim(s) 47-52, drawn to a system of distributed intelligent agents comprising a rules engine.

Group VI, claim(s) 53-54, drawn to a system for organizational decision flow.

Group VII, claim(s) 60-64, drawn to a method of information processing within a client/server network comprising a workflow processor.

The inventions listed as Groups I - VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I has a special technical feature of an application server with application manager.

Group II has a special technical feature of a process manager, a device manager and a naming service.

Group III has a special technical feature of processing services in a client/server environment with request receiving and name and role verification.

Group IV has a special technical feature of a proxy server and admin server.

Group V has a special technical feature of intelligent agents for processing distributed data comprising rules library and rules engine.

Group VI has a special technical feature of organizational decision flow in a client/server system.

Group VII has a special technical feature of workflow processor.