Abstract Title: Data updating management apparatus and method

A number of computer nodes or elements are required to operate on a set of data which is the same for all nodes. This is achieved by updating the data in response to an update message or time event.

The method for updating comprises providing at each node a first, current set of data and a second set of data. When triggered by an update event, a new, second set of updated data is produced by utilising the first current set of data and the second set of data.
A DATA MANAGEMENT METHOD AND APPARATUS

This invention relates to a data management apparatus and method for enabling data management.

Computers in a network of interlinked nodes are often arranged to operate on a common set of data. Each node includes a copy of the data and thus it will be appreciated that for a network of say one hundred computer based nodes there will be one hundred copies of the data.

For some implementations, it will be important that all the copies of the data are the same. Thus, a problem occurs where the data requires updating. Since, all of the nodes are performing operations utilising the data a problem occurs with updating the data. The update will have to be carried out on all the copies before the data is used by that node. The invention arose in an effort to mitigate this problem.

According to the invention there is provided data management apparatus comprising a plurality of nodes each comprising at least a first current and a second set of data;

update means responsive to an update event to derive from at least the second set a second current set of data to be used by the node.
The derivation may take place at a set time or preferably in response to a received instruction.

The invention also provides a method.

A specific embodiment of the invention will now be described with reference to the specific embodiment as shown in the drawings.

As is shown in figure 1, a communications network 1 comprises a number of network nodes 2 to 5 interlinked by communication links 6 to 10.

The network nodes 2 to 5 are nominally identical formed by suitably programmed computers one node, node 2 will therefore be described. As is shown in figure 2, a network node comprises a block of core functionality 11 linked to a communications link application 12 and thus via the links 9, 10 to the rest of the network. The core 11 is linked to a soft switch software object 13. This in turn is connected to two databases 14 and 15 held in memory (not shown). The applications are provided by one or more microprocessors suitably programmed.

A schedule object 16 is linked to the core 11 and the software switch 13. These components govern which of the databases 14, 15 are used or updated at any given time.
In this particular network, node 4 also serves as a network manager. At initialisation of the network database 14 is in use. At initialisation all the nodes are furnished with the same data to be stored in this database and also database 15. Thus for a first period of time, database 14 is allocated for use by the nodes.

The network manager 4 determines that an update is required to the database being used. An update database message is sent via the communications links to all the nodes in the network. This message includes the new or revised data.

Each node receives the message and at the next available period updates the second database 15 via the softswitch 13. It should be noted that this is not the database currently in use.

A second time to switch message follows from the network manager giving a time to switch to using the updated database.

This message is passed from the core 11 to the schedule object 16. At the indicated time the schedule object 16 sends a message to the switch object 13 which changes state to change the database allocated for use from database 14 to database 15 which includes the revised information.
Alternatively, the database 15 may include only the updated set of data. Upon receipt of the update instruction this updated data may be used to revise that held in database 14. The revised database 14 is then the new current database and used.
CLAIMS

1. Data management apparatus comprising a plurality of nodes each comprising at least a first current and a second set of data; update means responsive to an update event to derive from at least the second set a second current set of data to be used by the node.

2. Apparatus as claimed in claim 1 wherein the update means derives the second current set of data from both the first current set and the second set of data.

3. Apparatus as claimed in claim 1 wherein the second set of data comprises substantially only updated data.

4. Apparatus as claimed in claim 1 wherein the derivation of the second current set of data comprises revising original data in the first current set by the updated data of the second set.

5. Apparatus as claimed in any preceding claim wherein the update event comprises at least one receipt of an instruction to update and a time event.

6. Apparatus substantially as hereinbefore described with reference to and as illustrated by the drawings.
7. A data management method for managing data being utilised by a plurality of computer nodes or elements which method comprising providing at each node a first current set of data and a second set of data; in response to an update event deriving from at least the second set of data a second current set of data and utilising the second current set of data at the node.

8. A method as claimed in claim 7 wherein the second current set of data is derived by updating that data in the first current set of data which corresponds to data in the second set of data.

9. A method as claimed in claims 7 or 8 wherein the update event comprises at least one of a receipt of an update instruction or a time event.

10. A method substantially as hereinbefore described with reference to the drawing.
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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<td>X</td>
<td>1-5, 7-9</td>
<td>WO 02/054236 A2 (Synchrologic) See page 20, lines 14-16 and the claims.</td>
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<td>US 4686620 A1 (Ng) See lines 19-56, column 2.</td>
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<td>US 5794254 A1 (McCain) see abstract and the claims.</td>
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<td>X</td>
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<td>US 6061686 A1 (Gauvin) See abstract.</td>
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<td>1-5, 7-9</td>
<td>US 6718350 B1 (Karbowski) See abstract and claim 1.</td>
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<tr>
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<td>US 6694335 B1 (Hoppmann) See claims 8 and 22.</td>
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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC\textsuperscript{W}:

G4A

Worldwide search of patent documents classified in the following areas of the IPC\textsuperscript{07}:

G06F
The following online and other databases have been used in the preparation of this search report

Online: EPODOC, WPI, JAPIO, OPTICS