

METHODS AND SYSTEMS FOR MANAGING COMMUNITY INFORMATION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application Serial No. 61/885,884, filed October 2, 2013, entitled "Methods and Systems for Managing Community Information," which is incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] This invention relates generally to managing and disseminating community information in a cloud.

BACKGROUND

[0003] Some companies run, manage, and service their own enterprise systems, such as those from Oracle® or Infor Lawson® systems. Other companies outsource the services to a third party, who will host the hardware and software, and will manage these enterprise systems for the companies. In either configuration, however, the companies are not able to benefit from the experiences of other companies to benchmark their use of the enterprise systems.

SUMMARY

[0004] The present disclosure describes a system and method for managing and disseminating community information in a cloud. In an exemplary method for utilizing the community information, a client company performs transactions and/or software operations (e.g., actions) in an enterprise system hosted by a host entity, such as in a cloud environment. The host entity stores metadata (e.g., response time, delay, processing time, usage) about the transactions in a database for the client company's actions and the actions of other client companies. The host

entity uses the stored metadata to present information to the client company regarding the performance of the client company in comparison to one or more other client companies having metadata stored in the database. The host entity may present a webpage to the client company that shows the client company's performance based on the particular metadata along with metadata for one or more other client company's using the same or similar applications or performing the same or similar transactions.

[0005] In one embodiment, a computer-implemented method comprises receiving, by a server over a communication network from a computer of each of a plurality of client companies, a first transmission comprising metadata of a plurality of software operations in enterprise resource planning systems being operated by the plurality of client companies, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category; and presenting, by the server over the communication network to a computer of a selected client company of the plurality of client companies, a second transmission comprising comparative performance information regarding a plurality of the software operations for display of performance of the plurality of the software operations based on metadata of the software operations in enterprise resource planning systems of other client companies that are substantially similar to the enterprise resource planning system of the selected client company.

[0006] In another embodiment, a system comprises a communication server configured to receive a transmission comprising performance data of software operations performed by an enterprise resource planning system server of each client company and transmit comparative information to a client company communication server for display on a client company computer, wherein the comparative information represents performance data of software

operations of substantially similar enterprise resource planning systems compared to performance data of software operations of the client company's enterprise resource planning system; and a dashboard server configured to compare performance data of software operations performed by an enterprise resource planning system server of each client company and present the compared performance data to the communication server for transmission to a client company.

[0007] In yet another embodiment, a computer-implemented method comprises receiving, by a server, a first transmission comprising a first set of metadata from a first client company for software operations in a first enterprise system, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category; receiving, by the server, a second transmission comprising a second set of metadata from a second client company for software operations in a second enterprise system, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category; storing, by the server, the first set of metadata and the second set of metadata in a database; comparing, by the server, the first set of metadata to the second set of metadata; and sending, by the server, a third transmission of the comparison of performance of the software operations for presentation on a display of a computing device of the first client company.

[0008] Additional features and advantages of an embodiment will be set forth in the description which follows, and in part will be apparent from the description. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the exemplary embodiments in the written description and claims hereof as well as the appended drawings.

[0009] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The methods, systems and/or programming described herein are further described in terms of exemplary embodiments. These exemplary embodiments are described in detail with reference to the drawings. These embodiments are non-limiting exemplary embodiments, in which like reference numerals represent similar structures throughout the several views of the drawings, and wherein:

[0011] **FIG. 1** shows a system architecture according to an exemplary embodiment.

[0012] **FIG. 2** shows a method according to an exemplary embodiment.

[0013] **FIG. 3** shows a graphical user interface showing a dashboard according to an exemplary embodiment.

[0014] **FIG. 4** shows a graphical user interface showing a heat map according to an exemplary embodiment.

[0015] **FIG. 5** shows a graphical user interface for comparing community information according to an exemplary embodiment.

[0016] **FIG. 6** shows a graphical user interface for displaying performance over time according to an exemplary embodiment.

[0017] **FIG. 7** shows a graphical user interface displaying open requests according to an exemplary embodiment.

[0018] **FIG. 8** shows a graphical user interface for displaying outages according to an exemplary embodiment.

[0019] **FIG. 9** shows a graphical user interface displaying one or more product lines for a client company according to an exemplary embodiment.

DETAILED DESCRIPTION

[0020] Various embodiments and aspects of the invention will be described with reference to details discussed below, and the accompanying drawings will illustrate the various embodiments. The following description and drawings are illustrative of the invention and are not to be construed as limiting the invention. Numerous specific details are described to provide a thorough understanding of various embodiments of the present invention. However, in certain instances, well-known or conventional details are not described in order to provide a concise discussion of embodiments of the present invention.

[0021] The systems and methods described herein are able to present information to the client company from the host entity based upon the community of client companies hosted by the host entity. The client company can use the presented information to compare its performance against similar client companies.

[0022] Referring to **FIG. 1**, a system architecture **10** for managing and disseminating community information in a cloud is shown according to an exemplary embodiment. A host entity **12** can host an enterprise system **14** for various client companies, collectively referred to as a community. The host entity **12** can host the enterprise system **14** on a cloud platform. The host entity **12** may provide service level agreements (SLAs) that the client company **22, 30** cannot obtain themselves. The host entity **12** can provide real-time information on a dashboard

regarding the operation of the enterprise system **14**, including a number of tickets, response time, who is logging on, etc. The client company **22, 30** may use the enterprise system **14** to perform a plurality of transactions and/or software operations, where each transaction and/or software operation is performed by a client company **22, 30** representative using hardware and/or software hosted by the host entity **12**. Each transaction and/or software operation (e.g., adding an invoice, submitting a time record, submitting a batch job) is not intended to be limited to a financial transaction and/or software operation, but rather a measurable or discrete task, project, and/or action in the enterprise system **14**. Because the host entity **12** has so much data from different client companies **22, 30** using the same or similar enterprise systems, the host entity **12** can also provide information to the client company **22, 30** about the performance of the client company's enterprise system as compared to other client companies. For example, the host entity **12** may provide feedback to the client company that an accounts payable clerk processes an invoice for 2.1 seconds, but other client companies in the community may be performing the same task at a faster rate. In another example, a clerk may have a 75% success rate in processing an invoice, but clerks at other client companies in the community have an 85% success rate. The client company **22, 30** may then adjust their processes or their software based upon the comparison feedback provided by the host entity **12**.

[0023] A host entity **12** hosts an enterprise system **10** for a plurality of client companies **22, 30**. The enterprise system is shown as a single server, but it is intended that the enterprise system **14** may include one or more servers, databases, and/or cloud environments used to host the system on behalf of the client company **22, 30**.

[0024] The host entity **12** may have a dashboard server **18** communicatively coupled to the enterprise system for harvesting data and presenting the data to a communication server for

display to a client company **22, 30**. Although one server is shown for the dashboard server **18**, it is intended that the functionality may be performed by one or more servers and databases. The dashboard server **18** may include a plurality of monitoring tools or applications to assist in managing a client company's information. The dashboard server **18** may also be communicatively coupled to a database **20**. The database **20** can store records having metadata gathered by the dashboard server **18**.

[0025] The database **20** stores metadata, which is information about a client company's transactions and/or software operations, but does not include data about the underlying transaction and/or software operation. For example, a client company in the healthcare industry, such as a hospital, may order a suture tray with all of the tools and items needed to provide stitches to a patient. The database **20** may store information about how many suture trays are ordered for the sake of comparing the ordering trends with other hospitals. But the database **20** may not store information about a particular patient that needed stitches or the reason the stitches were applied. In the exemplary embodiment, the database **20** may not store any sensitive information or information which is not allowed to be shared or stored.

[0026] The host entity **12** also has a communication server **16** (e.g., a web server) to transmit data to and from the client companies. The host entity's communication server **16** may present a webpage to a communication server **26, 34** (e.g., web server) of the client company **22, 30**. The host entity's communication server **16** may populate the webpage with data obtained from a communicatively coupled dashboard server **18**, and the host entity's communication server **16** may transmit the webpage for display at the client company **22, 30**.

[0027] Although two client companies **22, 30** are shown, it is intended that the host entity **12** may host a community of any number of client companies **22, 30**. Also, although the

exemplary embodiment recites the use of an enterprise system **14**, it is intended that any platform or software that is consistent with the scope of this disclosure may be used. In this exemplary embodiment, each client company **22, 30** may have an enterprise resource planning (ERP) server **28, 36**. Although one ERP server **28, 36** is shown for each client company **22, 30**, it is intended that the functionality may be performed by one or more servers and databases. The ERP server **28, 36** may be communicatively coupled to the communication server **26, 34** of the client company **22, 30** to transmit data to and from the communication server **26, 34** of the host entity **12**, which is coupled to the host entity's enterprise system **14**. These servers may communicate over a network, such as the internet.

[0028] The client company **22, 30** has a workstation **24, 32** and/or other computing device (e.g., desktop computer, laptop computer, tablet computer, mobile device, cellular phone, smartphone, personal data assistant) that can communicate through the client company's communication server **26, 34** with the host entity **12**. The host entity **12** can generate a webpage using the dashboard server **18** and data from the database **20** to provide the community information to the workstation **24, 32** at the client entity. This information is generated by the host entity **12** and configured for display on a graphical user interface (e.g., web browser) of the workstation **24, 32** of the client company **22, 30**, as described below with respect to **FIGS. 3 to 9**.

[0029] In an alternative embodiment, the host entity **12** can obtain information from a client company **22, 30** to provide insight. The system can be configured so that the ERP server **28, 36** can extract information and provide it to the dashboard server **18** so that the host entity **12** can provide information about trends, efficiencies, and performance.

[0030] By gathering transactional metadata from a community of enterprise system **14** client companies **22, 30**, the system can provide comparative analysis of system and user efficiency. Furthermore, by gathering metadata about the community's systems themselves (e.g., versions, patches), it is possible to provide additional comparative analysis for system and user performance across different versions. Further, by adding additional metadata about system changes and system events (i.e., monitors), additional comparative analysis can be provided.

[0031] Examples of how a host entity **12** can use metadata to compare the client company **22, 30** with others in the community include, but are not limited to, an ability to: (1) analyze on-line transactional usage for patterns/comparisons by system/transaction/function; (2) analyze batch system usage for patterns/comparisons by system/transaction/function; (3) analyze system performance metrics for patterns/comparisons by system/transaction/function; (4) analyze system level (version/upgrade/cyclical/patch) for patterns/comparisons by system/transaction/function; (5) analyze ad-hoc query usage/efficiency (and impact on overall system performance); (6) analyze user logins for patterns/comparisons by system/transaction/function; (7) analyze user session duration/habits for patterns/comparisons by system/transaction/function; (8) analyze user efficiencies for patterns/comparisons by system/transaction/function; (9) identify anomalous user behavior (i.e., users logging in from home @ 2:30 am); and (10) identify anomalous transaction and/or software operation behavior (i.e., daemon process that updates Accounts Payable Vendor terms before scheduled check runs and changes back after check run).

[0032] In one embodiment, an internal control system can harvest metadata about the actual system itself, including all source code, objects, screens, configurations, database, etc. This system would allow for: (1) change control analysis; (2) configuration comparisons with

community; (3) all performance metrics above sliced by any changes to system; and (4) system delta(s) from delivered “gold code.”

[0033] Referring to **FIG. 2**, a method diagram **40** for managing and disseminating community information in a cloud is shown according to an exemplary embodiment.

[0034] In step **42**, a server may receive over a communication network from a computer of each of a plurality of client companies, transmittance of metadata of a plurality of transactions and/or software operations in enterprise resource planning systems being operated by the plurality of client companies. Each of the software operations may be linked to a specific metadata permitting the server to group data relating to each software operation to a specific category. In some implementations, the metadata does not include personal identifying information. In some implementations, receiving metadata comprises receiving a transmission of metadata generated by an enterprise resource planning system server of each client company. Non-limiting examples of the types of metadata in the plurality of transactions and/or software operations are further described in **FIGS. 3-9** below.

[0035] In step **44**, the server may present over the communication network to a computer of a selected client company of the plurality of client companies, transmittance of comparative performance information regarding a plurality of the software operations and/or transactions for display of performance of the plurality of the software operations based on metadata of transactions and/or software operations in enterprise resource planning systems of other client companies that are substantially similar to the enterprise resource planning system of the selected client company.

[0036] The enterprise resource planning system may implement a business management software that a company may use to collect, store, manage and interpret data from many business

activities. Some of these activities may include: product planning, cost and development, manufacturing or service delivery, marketing and sales, inventory management, shipping and/or payment. The system may provide an integrated view of core business processes, often in real-time, using common databases maintained by the database management system. The enterprise resource planning system may track business resources such as cash, raw materials, production capacity. In some implementations, the system may track the status of business commitments including one or more of: orders, purchase orders, and/or payroll. The applications which make up the system may share data across the various departments (manufacturing, purchasing, sales, accounting, etc.) that provide the data. The system may facilitate information flow between all business functions, and manages connections to outside stakeholders.

[0037] In some implementations, the performance information may comprise a success rate. The success rate may be determined based on any business and/or software implementation in the one or more companies. In other implementations, the performance information may comprise a processing time. Processing time may be determined based on any business and/or software implementation in one or more companies.

[0038] In some implementations, presenting comparative performance information further comprises comparing metadata of transactions and/or software operations of different versions of the same enterprise resource planning system. In some implementations, presenting comparative performance information is performed substantially in real-time. Real-time may be the actual time during which the process and/or event is occurring. Non-limiting examples of types of presenting comparative performance information are further described in **FIGS. 3-9** below.

[0039] Referring to **FIG. 3**, a graphical user interface **50** showing a dashboard according to an exemplary embodiment. Each of the panels **52** can be rearranged to a different position on the

graphical user interface, and the panels **52** can be added or removed as desired. By activating a button in the upper left corner, the user can expose additional options or panels. Each panel can present information about an aspect of the enterprise system to the client company. For example, one panel is entitled "Transactions" and includes community information. The Transactions panel **54** shows the slowest running transactions and/or software operations in the last three days, which may be the transactions and/or software operations that require the most attention. Some enterprise systems may be running thousands of applications at a time, so it is useful to see which types of transactions and/or software operations take the most amount of time to complete.

[0040] Referring to **FIG. 4**, a graphical user interface **60** showing a heat map of usage is shown for the enterprise system. This heat map may be generated by clicking on a link for "Transaction Analysis" in a panel on a dashboard. The heat map shows usage by transaction and/or software operation count and response time. The left axis **62** represents a time of day, the top axis **64** represents a time of month, the right axis represents total hours, and the bottom axis represents total days. The number on the heat map represents a number of transactions and/or software operations. In this exemplary embodiment, the filter is HR but not HR11.1, referring to an Infor Lawson ® human resources application. Although the exemplary embodiments may recite the use of an Oracle or Infor Lawson enterprise system, it is intended that any enterprise system may be used with the methods and systems described herein. As shown in this exemplary heat map, the 16th, 17th, and 30th days of the month are the most busy, and those days happen to coincide with payroll time. It may be useful for the client company to see how other similar businesses are performing during these periods, e.g., whether the number of transactions and/or software operations has been spread out or moved to a different part of the month.

[0041] Referring to **FIG. 5**, a graphical user interface **70** for comparing community information is shown according to an exemplary embodiment. This graphical user interface may be presented to the user upon selecting the "Transactions" panel, as shown in **FIG. 3**. As shown in the first row **72**, the name AP230 refers to a particular application. Each row listed under "Community Size" includes a version number and patch level, along with a corresponding volume. In some instances, different departments within a client company may use different versions or patch levels of the same application. In this example, the client company can observe that it is running the application 24.29 times slower than others using the same version. In another example, for GL291, there are five different versions running in the community, and version 174 is faster than version 153. This client company is running the application with an average response time of 4.03 seconds, which is slower than the slowest version of the application. So the client company may have inefficiencies in this version and may consider upgrading to a different version. This community comparison can provide data that allows the client company to evaluate their efficiencies and delays.

[0042] Referring to **FIG. 6**, a graphical user interface **80** for displaying performance over time is shown according to an exemplary embodiment. The chart shows response time of transactions and/or software operations, drills, and queries over time. If a modification or change was made to the system, this chart can show how the modification or change affected performance. A filter (e.g., limiting to a certain application) can be used to see which jobs were running. "Drills" can represent a feature of an application where a user drills down into the data to see more information about the a transaction and/or software operation. "Queries" can represent a number of queries by users, some of whom may write improper queries that overwhelm the system. In this example, point "A" represents a time when the client company

requested to recycle Lawson Business Intelligence (LBI). Point A is shown on the chart to see how performance was affected.

[0043] Referring to **FIG. 7**, a graphical user interface **90** displaying open requests is shown according to an exemplary embodiment. By selecting a panel for "Incidents & Requests," as shown in **FIG. 3**, a user can view a list of open incidents, open requests, and incidents and requests closed within the last 30 days.

[0044] Referring to **FIG. 8**, a graphical user interface **100** for displaying outages is shown according to an exemplary embodiment. In this exemplary embodiment, the number of outages is shown since the installment of the system along with the duration of the outage. In some embodiments, there may also be a description as to the cause of an outage.

[0045] Referring to **FIG. 9**, a graphical user interface **110** displaying one or more product lines for a client company is shown according to an exemplary embodiment. The graphical user interface may display information regarding development, testing, production, or training. This graphical user interface can give information to client company about the status of the system being hosted by the host entity.

[0046] An exemplary method for utilizing the community information is as follows. A client company performs transactions and/or software operations (e.g., actions) in an enterprise system hosted by a host entity, such as in a cloud environment. The host entity stores metadata (e.g., response time, delay, processing time, usage) about the transactions and/or software operations in a database for the client company's actions and the actions of other client companies. The host entity uses the stored metadata to present information to the client company regarding the performance of the client company in comparison to one or more other client companies having metadata stored in the database. The host entity may present a webpage

to the client company that shows the client company's performance based on the particular metadata along with metadata for one or more other client company's using the same or similar applications or performing the same or similar transactions and/or software operations.

[0047] The functionality described herein can be implemented by numerous modules or components that can perform one or multiple functions. Each module or component can be executed by a computer, such as a server, having a non-transitory computer-readable medium and processor. In one alternative, multiple computers may be necessary to implement the functionality of one module or component.

[0048] Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as “processing” or “computing” or “calculating” or “determining” or “measuring” or “selecting” or “displaying” or “identifying” or “detecting” or the like, can refer to the action and processes of a data processing system, or similar electronic device, that manipulates and transforms data represented as physical (electronic) quantities within the system’s registers and memories into other data similarly represented as physical quantities within the system’s memories or registers or other such information storage, transmission or display devices.

[0049] The exemplary embodiments can relate to an apparatus for performing one or more of the functions described herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a machine (e.g. computer) readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs and magnetic-optical disks, read only memories (ROMs), random access memories (RAMs) erasable programmable ROMs (EPROMs),

electrically erasable programmable ROMs (EEPROMs), magnetic or optical cards, or any type of media suitable for storing electronic instructions, and each coupled to a bus.

[0050] The exemplary embodiments described herein are described as software executed on at least one server, though it is understood that embodiments can be configured in other ways and retain functionality. The embodiments can be implemented on known devices such as a personal computer, a special purpose computer, cellular telephone, personal digital assistant (“PDA”), a digital camera, a digital tablet, an electronic gaming system, a programmed microprocessor or microcontroller and peripheral integrated circuit element(s), and ASIC or other integrated circuit, a digital signal processor, a hard-wired electronic or logic circuit such as a discrete element circuit, a programmable logic device such as a PLD, PLA, FPGA, PAL, or the like. In general, any device capable of implementing the processes described herein can be used to implement the systems and techniques according to this invention.

[0051] It is to be appreciated that the various components of the technology can be located at distant portions of a distributed network and/or the Internet, or within a dedicated secure, unsecured and/or encrypted system. Thus, it should be appreciated that the components of the system can be combined into one or more devices or co-located on a particular node of a distributed network, such as a telecommunications network. As will be appreciated from the description, and for reasons of computational efficiency, the components of the system can be arranged at any location within a distributed network without affecting the operation of the system. Moreover, the components could be embedded in a dedicated machine.

[0052] Furthermore, it should be appreciated that the various links connecting the elements can be wired or wireless links, or any combination thereof, or any other known or later developed element(s) that is capable of supplying and/or communicating data to and from the

connected elements. The term module as used herein can refer to any known or later developed hardware, software, firmware, or combination thereof that is capable of performing the functionality associated with that element. The terms determine, calculate and compute, and variations thereof, as used herein are used interchangeably and include any type of methodology, process, mathematical operation or technique.

[0053] The embodiments described above are intended to be exemplary. One skilled in the art recognizes that there are numerous alternative components and embodiments that may be substituted for or included in the particular examples described herein and such additions or substitutions still fall within the scope of the invention.

CLAIMS

What is claimed is:

1. A computer-implemented method comprising:

receiving, by a server over a communication network from a computer of each of a plurality of client companies, a first transmission comprising metadata of a plurality of software operations in enterprise resource planning systems being operated by the plurality of client companies, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category; and

presenting, by the server over the communication network to a computer of a selected client company of the plurality of client companies, a second transmission comprising comparative performance information regarding a plurality of the software operations for display of performance of the plurality of the software operations based on metadata of the software operations in enterprise resource planning systems of other client companies that are substantially similar to the enterprise resource planning system of the selected client company.

2. The method according to claim 1, wherein the performance information comprises a success rate.

3. The method according to claim 1, wherein the performance information comprises a processing time.

4. The method according to claim 1, wherein the metadata does not include personal identifying information.

5. The method according to claim 1, wherein receiving metadata comprises receiving a transmission of metadata generated by an enterprise resource planning system server of each client company.

6. The method according to claim 1, wherein presenting comparative performance information further comprises comparing metadata of software operations of different versions of the same enterprise resource planning system.

7. The method according to claim 1, wherein presenting comparative performance information is performed substantially in real-time.

8. A system comprising:

a communication server configured to receive a transmission comprising performance data of software operations performed by an enterprise resource planning system server of each client company and transmit comparative information to a client company communication server for display on a client company computer,

wherein the comparative information represents performance data of software operations of substantially similar enterprise resource planning systems compared to performance data of software operations of the client company's enterprise resource planning system; and

a dashboard server configured to compare performance data of software operations performed by an enterprise resource planning system server of each client company and

present the compared performance data to the communication server for transmission to a client company.

9. The system according to claim 8, further comprising an enterprise resource planning server coupled to the dashboard server and hosted on behalf of a client company.

10. The system according to claim 8, wherein the client company computer is configured to display a webpage comprising the compared performance data provided by the dashboard server.

11. The system according to claim 8, further comprising a database coupled to the dashboard server and configured to store metadata of software operations performed by the enterprise resource planning systems of the client companies.

12. A computer-implemented method comprising:

receiving, by a server, a first transmission comprising a first set of metadata from a first client company for software operations in a first enterprise system, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category;

receiving, by the server, a second transmission comprising a second set of metadata from a second client company for software operations in a second enterprise system, wherein each of the software operations is linked to a specific metadata permitting the server to group data relating to each software operation to a specific category;

storing, by the server, the first set of metadata and the second set of metadata in a database;

comparing, by the server, the first set of metadata to the second set of metadata; and

sending, by the server, a third transmission of the comparison of performance of the software operations for presentation on a display of a computing device of the first client company.

13. The method according to claim 12, wherein metadata is data selected from the group consisting of response time, delay time, processing time, and usage.

14. The method according to claim 12, wherein the first enterprise system is substantially the same as the second enterprise system.

15. The method according to claim 12, wherein the first enterprise system is a different version than the second enterprise system.

16. The method according to claim 12, wherein the comparison is presented for display on a webpage.

17. The method according to claim 12, wherein the software operations of the first client company are substantially similar to the software operations of the second client company.

18. The method according to claim 12, wherein the comparison represents a substantially real-time comparison of metadata.