PATROLL Claim Chart Submission

U.S. Patent 7,280,998

U.S. Patent 7,280,998 ("*Intellectual Ventures*" or the "patent-at-issue") was filed on July 22, 2004, and claims an earliest priority date on July 28, 2003. Claim 1 of the patent-at-issue is directed to a virtual data warehouse (the functional equivalent of a conventional data warehouse) that provides aggregated views of the complete data inventory. The virtual data warehouse contains metadata, which is used to form a logical enterprise data model that is part of the database of record (DBOR) infrastructure. Each legacy back-end database system is published on the infrastructure, with its metadata extracted and used as noted above. The infrastructure software uses standard J2EE, JMS and reusable EJBs, for transactional unit requests, and ETL (extract-transform-load) tools for real-time bulk loading of data.

The primary reference, U.S. Patent 2002/0038308 ("*MATAMATRIX*"), was filed on May 27, 1999, and claims priority on the same data. The patent is directed to a system and method of creating a virtual data warehouse. The system and method includes creating a global data dictionary from a plurality of databases such that users may conduct expansive searches or queries, and retrieve data therefrom, regardless of the database system from each respective database. The global data dictionary is created by semantically and syntactically integrating data elements from the plurality of databases. The plurality of data elements are stored in a dictionary system, wherein each of the data elements corresponds to at least one data element in the plurality of databases. Relationships are identified between two or more of the data elements in the dictionary system. In order to retrieve data, upon receiving from a user a request for data in the form of a query data element, the system identifies the data elements in the dictionary system that corresponds to the query data element and retrieves the data corresponding to the query data element from the databases.

The secondary reference, U.S. Patent 6,671,689 ("*Teradata*"), was filed on January 19, 2001, and claims priority on the same data. The patent is directed to a data warehouse portal for providing a client with an overall view of one or more data warehouses to aid in the analysis of data in the warehouse(s). The portal allows the client to gain an insight about the data to determine how the data is used, who uses the data, if additional data sources are required, and what impact a data change may have. The portal reads and/or searches metadata and/or XML schemas from the data warehouses and tool available for accessing data stored in the data warehouse, and display the data warehouse information through a browser in numerous ways, such as hierarchical, user and application views. Other views may include extraction, usage, historical, and comparison.

A sample claim chart comparing claim 1 of *Intellectual Ventures* to *MATAMATRIX* and *Teradata* is provided below.

US-7280998-B1 ("*Intellectual Ventures*")	**A. US-20020038308-A1** ("*MATAMATRIX*") **B. US-6671689-B2** ("*Teradata*")
[1.pre] **An arrangement for providing information to a plurality of different client views within an enterprise without creating an actual data warehouse**, the arrangement comprising	**A. US-20020038308-A1** "1. **A method for creating a virtual data warehouse employing a plurality of databases, said method comprising the steps of:** **storing in a dictionary system a plurality of data elements, each of said data elements corresponding to at least one data element in said plurality of databases;** **identifying relationships between two or more of said data elements in said dictionary system**;" *MATAMATRIX* at claim 1 **B. US-6671689-B2** "The usage view shows the usage of one or more data elements at a particular time. More specifically, **through the usage view, the client at the client station 210 will have the number of users who uses the data elements** at the particular time, such as hours, days of week, months, years etc." *Teradata* at col. 12:57-61 "1. **A method of presenting an implementation of a data warehouse** comprising the steps of…" *Teradata* at claim 1 "6. The method of claim 1, further including the step of **generating a user view of users gaining access to the data warehouse, said user view comprising at least one of organizations, groups, and individuals**." *Teradata* at claim 6 "26. **A data warehouse portal system for providing an insight of a data warehouse implementation of a plurality of data warehouses, said data warehouse portal system comprising…** **…tools and users accessing data elements of the data warehouses rather than actual data items stored in the data warehouses under the data elements**…" *Teradata* at claim 26

[1.a] **a virtual data warehouse** including	**A. US-20020038308-A1** "1. A method for creating **a virtual data warehouse**…" *MATAMATRIX* at claim 1 **B. US-6671689-B2** "It is, therefore, an object of the present invention to provide **a data warehouse portal for allowing a client, e.g. a database or report designer, an overall picture of the current warehouse implementation of one or more data warehouses to aid in the analysis of data in the data warehouses**." *Teradata* at col. 3:26-30
[1.a.i] **a plurality of disparate back-end database systems associated with a common enterprise**, **each back-end database system capable of having a different legacy architecture and organization**;	**A. US-20020038308-A1** "[0067] **Another dictionary component is the data element description database 208, which comprises the corresponding descriptions for each of the data elements in the system**… In this embodiment, **data element description database 208 comprises a plurality of rows, wherein each row corresponds to the name of a database. In each row, there are a plurality of fields. The first field of the row, designated as field 660, comprises the database name**…" *MATAMATRIX* at para. 67 "[0068] Another component of content integration manager server 104 is **data element hierarchy component 210 (a second data element hierarchy component 212 is also shown, and will be explained below)**… **Data element hierarchy 210 contributes to this task by storing all hierarchical information from the corresponding database.** Generally, a hierarchy is a graded or tiered system of relationships. Specifically, in the context of the present invention, **a hierarchical relationship exists between various data elements when a first data element at the top of the hierarchy represents an aggregation of other data elements below it in the hierarchy**." *MATAMATRIX* at para. 68 **B. US-6671689-B2** "**The foregoing and other objects of the present invention are achieved by a computer architecture for presenting an implementation of a data warehouse**." *Teradata* at col. 4:7-9 "For example, **two or more computer systems 100 may be networked together in a conventional manner with each using the communication interface 118 via network link 120. The network link 120, for example, may provide a connection through local network (not shown) to a host**

	computer (not shown) or to data equipment operated by an Internet Service Provider (not shown)." *Teradata* at col. 7:12-18 "3. The method of claim 1, further including a step of **generating a hierarchical view of a hierarchy of data stored in the data warehouse, said hierarchical view comprising at least one of databases, database sections, tables, and table columns**." *Teradata* at claim 3 "17. **A computer architecture for presenting an implementation of a data warehouse**…" *Teradata* at claim 17
[1.a.ii] **a database of record (DBOR) infrastructure for storing in a single physical location a plurality of metadata extracted from each back-end database system of the plurality of disparate back-end database systems so as to form a logical enterprise data module**, **the logical enterprise data module responsive to information requests from the plurality of different client views**.	**A. US-20020038308-A1** "[0036] **Server 104 is primarily configured** to **receive user instructions or other information from computer system 102 and process these requests via content integration manager 106. The output of the content integration manager is the global data dictionary**. **Server 104 and content integration manager 106 comprise various hardware and software components to facilitate this process**." *MATAMATRIX* at para. 36 "[0038] According to one embodiment, **the global data dictionary enables a computer user to simultaneously search, view, or analyze data from multiple databases each having the same or different database management system(s) without the need for ad hoc programming to link or join the dissimilar systems**. **The aforementioned dictionary components as well as other tools are utilized to establish relationships among the multiple databases to actually stimulate one logically integrated database system**. Thus, for example, even though two or more databases may have different database management systems, and would normally be incompatible, **server 104 acts as an integration component to identify relationships between data elements from different databases and to employ these relationships to permit the databases to be accessed simultaneously. This process enables users to utilize multiple databases as if they were actually joined, but without physically joining them**. It is understood that in an alternative embodiment one or more integrated database systems may optionally be physically joined as well." *MATAMATRIX* at para. 38

	"…There are also **several support dictionary components which provide needed infrastructure to help in the process of both integrating new databases** as well as searching out relationships and retrieving information during the operation stage two, as will be explained in greater detail below." *MATAMATRIX* at para. 45 "[0071] **By storing the hierarchical structure of the data stored in the various databases**, **content integration manager server 104**, in accordance with one embodiment, is **able to inform the user that a requested data element is part of a hierarchy and will be able to present the entire hierarchy to the user**…" *MATAMATRIX* at para. 71 "…In a preferred embodiment, **the system is configured to either "push" or "pull" data in response to a request from a user. Data is "pulled" when the user makes a specific request for data and physically retrieves it from the database in which it is stored, while data is "pushed" when the database in which the requested data is stored physically delivers the data to the user**." *MATAMATRIX* at para. 150 **B. US-6671689-B2** "**The data warehouse portal 240 includes a HTML generation and administration component 310 for receiving an information request from the client station 210. Upon receiving the information request, the HTML generation and administration component 310 forward it to a processing component 312. The processing component 312 collects required information by accessing a data warehouse 320 in a manner described below, and returns the collected information to the HTML generation and administration component 310. A response is generated by the HTML generation and administration component 310 based on the collected information, and sent back to the client station 210**." *Teradata* at col. 8:23-34 "As shown in FIG. 5, **the highest level in the data hierarchy of the data warehouse 320 is database or database section**. Lower levels include tables or group of tables, table columns or group of table columns etc. **The view arranged in this way provides the client of the client station 210 with an easy understanding of how data elements are structured either physically or logically in the data warehouse 320**. The view also highlights the relationship between data elements such as

	one-to-many, many-to-one, or many-to-many etc. In the example depicted in FIG. 5, the relationships is shown as one-to-many. That is, each data element at a higher level (e.g., Customers) has a plurality of data elements at a lower level (e.g., Names, Address etc.) each of which in turn has its own set of sub-data elements at a further lower level (e.g., Last Name, First Name etc.).” *Teradata* at col. 11:1-13 “20. **A data warehouse portal for providing an insight of a data warehouse implementation of a plurality of data warehouses, said data warehouse portal comprising**: **a parser for reading metadata schemas of each of the plurality of data warehouses, and metadata sets of each of a plurality of tools available for exploiting data stored in the plurality of data warehouses**; a tools administrator for obtaining user information about users who use at least one of the plurality of tools to gain access to the data; and **a page administrator and generator for receiving an information inquiry, and generating a view in response to the information inquiry, based on at least one of the metadata schemas, the metadata sets, and the user information**.” *Teradata* at claim 20