Metadata® Toolset Description

The Metadata® Toolset provides tools that manage data more like the way that users think and use data. Unlike other data management technology, users' data needs are not constrained by the limitations of the particular data management tool that they have available to them. The following describes key characteristics of the toolset along with a description of the components that comprise the Metadata® Toolset.

Data Integration

The toolset provides the capability to integrate disparate databases, transparent to the user. So, while a user may need data from three different databases, each having its own design, and maybe even using different storage structures (e.g., relational, network, hierarchical), the Metadata® Toolset offers a means to provide data from all these sources without the user needing to pull data from each source and then somehow integrate them before the data are useful to the user. The result is a fully integrated, unified database that:

- Contains all the data and data relationships contained across all the database sources;
- Ensures common meaning for each data element and relation in the database; and,
- Ensures data value integrity when using the data in different applications.

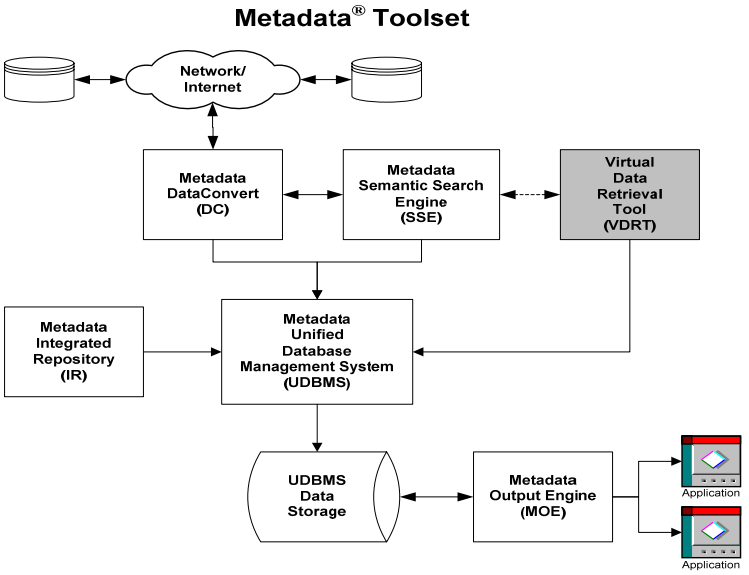
Self-Defining Database

The Metadata® Toolset provides a single database design that can be used by all applications. Therefore, when new data requirements are identified, the self-defining Metadata® Toolset database incorporates them into the existing design. The Metadata® Toolset automatically links the new data requirements to all the relations already in the existing database design. Reexamining different parts of the design to determine impacts is not necessary. The Platform accomplishes this automatically

Another difference between the Metadata® Toolset and other data management technologies is important to note. Most database technology manages data principally at the record level. As a result, the relations between data are aggregated from the level that users think and manipulate data which is at the attribute level. Metadata® manages data at the attribute level. This offers substantial improvement regarding the ways users can access, manipulate and analyze data.

This attribute-level data management is also key to why the Metadata® Toolset is self-defining as noted above. When new data requirements are added to the Metadata®

Toolset, the new requirements have relations to data already in the platform. As these are linked, all the relations to the existing data are automatically associated with the new data. Often these relations are not immediately thought of by the analyst or user. But, due to the platform's self-defining capability, they become immediately available to that user.



The modules that currently comprise the Metadata® Toolset include the following:

Semantic Search Engine (SSE)

The Semantic Search Engine and the Virtual Data Retrieval Tool are the primary user interfaces to the toolset. The SSE provides users with a simple tool for requesting data for reporting or analysis purposes. The user selects a view of the data that they need. The user then gets a list of the data (attributes) available to them. They select the specific data they want. During the course of this data selection, the user has the option to view the relations that the data they selected have with other data in the database. Often, this provides the user with a perspective of the data that might interest them, but might not have originally occurred to them. They can then add these data to their list to further enrich their analysis activities.

The SSE, armed with the specific data that the user wants, then calculates the different ways that it can navigate the database. If more than one path is available, it lists the various paths and provides a recommendation. The user is free to select the path and the data are then acquired and output for the user.

Unlike other tools, the user merely tells the SSE what data he wants. The user does not have to be concerned about where and how to get the data. The SSE performs those

tasks. So, there is no need to learn query languages such as SQL, or to wait for an analyst or programmer to write queries to pull the user's data.

The Semantic Search Engine (SSE) component of the platform provides the capability for users to directly create output to report writers without the need for learning to program or a query language such as SQL. They can also subset the data to export to other software applications, regardless of the database technology used by those tools. In addition, customized analytical tools can be built within the Metadata® Toolset.

Virtual Data Retrieval Tool

The Virtual Retrieval component of the toolset is accessed via the SSE. It allows a user to conduct a special type of query. The user can specify data requirements from known sources, regardless of their location (local, remote, internet, etc.). The data do not necessarily have to be locally stored at time of the query.

In addition, this component can satisfy any query without having all possible instances and routes of a solution pre-loaded or pre-defined. In other words, the entire set of potentially desired data does not have to be locally available to answer any question posed by a user. The VDRT first solves how the data are to be accessed. Then it determines the best source of the data, retrieves and integrates the data, and generates an output for the user. A key benefit of this functionality is that a huge warehouse of potentially desired data does not have be built and maintained. Rather, the data can be retrieved at the time the query is initiated, thereby providing the most current data, and minimizing the need to create large, local databases.

Integrated Repository (IR)

A tool used to document a comprehensive and interrelated definition of all data used by the application as well as an implementation of the Metadata® Data Model that describes and implements in a general way: any application model of data; its use, function and location. The definitional structures and relations are stored as instances in UDBMS.

Unified Database Management System (UDBMS)

Implements and stores the Metadata® Data Model, the described Application Data Model and the instances of data in both the application data model and the Metadata® Data Model. All other components of the Metadata® Toolset are applications using the UDBMS for their storage and retrieval functions.

DataConvert (DC)

Provides connection to, parses and converts or translates external (source) data described in the IR into a structure compatible with UDBMS and passes those structures to be stored as instances in UDBMS.

Metadata® Output Engine (MOE)

Extracts data from any UDMBS based upon a generalized solution of a query made against an application data model stored in the IR.

Benefits of the Metadata® Toolset

There are numerous benefits provided by the Metadata® Toolset. A few examples include:

- Unprecedented data interoperability
- Integration of content, data relations, and data meaning from disparate databases
- Virtual data retrieval
- Non-programming-based data migration and interoperability
- User-oriented non-programming-based data queries
- Non-destructive database design enhancements
- Data design reusability
- Data reusability
- Reduced data management costs

Further Information

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