The Oper Mart Application – Continuing the Story!

Claudia wishes to thank Joyce Norris-Montanari for her contributions to this column.

In the September 2001 issue of *DM Review*, we introduced a new component of the Corporate Information Factory (CIF) – oper marts. The column was entitled "Oper Marts – An Evolution in the Operational Data Store." This month, we continue that story with another use of oper marts, one that involves the analysis of enterprise data existing nowhere else in the organization.

You may be asking, "How can this happen? Has the operational data store (ODS) become a source system with the oper mart as the delivery mechanism for this new data?" This article will answer these questions for you.

The CIF is a well-known and proven conceptual architecture for strategic and tactical decision support. Its purpose is the dissemination of information to the right person at the right time in the right format. This could take many forms: a subset of data for data mining, an exploration warehouse, a star schema in a relational database management system or a multidimensional database management system for analysis. While the data warehouse and data marts are extremely important for strategic business intelligence, they do not fit the need for the tactical data and decision making. This is the role of the operational data store.

Tactical requirements usually mandate a current view of data. For example, we might get the current status of a customer relationship management (CRM) campaign, enterprise-wide indicators, current performance metrics on production-line processes or even hierarchical information found no other place in the enterprise.

We may create organizational information in our ODS that is simply not found in any other corporate source system. It may contain organizational data that is changed for a specific group in the enterprise and used in the oper mart for analyzing or reporting on current financial and human resource information. For instance, we might need a roll-up or hierarchy of costing or expense codes that cannot be maintained in the source systems because the source system is not sophisticated enough to handle user-defined roll-ups. A current view of the ongoing changes to the hierarchy must be maintained as well as history in the data warehouse.

The oper mart, then, serves as the delivery mechanism for tactical analysis of data required to run the day-to-day business. An oper mart has the following characteristics:

- It is a subset of ODS data used for tactical analysis (reporting).
- It is updated by current transactions in the ODS.
- It is created using multidimensional techniques (star schema).
- Most importantly, it is temporary in nature and torn down when no longer needed (no history).

Let's look at an example of an oper mart containing data found nowhere else in the enterprise which is used for tactical analysis. Figure 1 shows components of the Corporate Information Factory, starting with the ODS and including the oper mart and data warehouse. The figure also shows the steps involved in the creation of data in the oper mart.

Step 1 in Figure 1 is where data is captured from source systems such as financials, time and expenses and human resource databases, and then integrated into the ODS as quickly as is technologically feasible. New organizational information is included in the ODS as it becomes available from the source systems. In other words, the extract, transform and load (ETL) programs constantly monitor the data in the source systems for new, changed or deleted organizational data. These programs become very complex if the source system has no record of deletes or has no activity dates for insert or update.

Step 2 is where the creation and manipulation of new information starts. In this step, the organizational levels are customized by the business users within the ODS environment. Input is usually implemented through a form of transactional interface (i.e., a front-end or access mechanism written in Visual Basic, PowerBuilder, JAVA, Oracle Forms or any other programming language).

The transactional interface (TrI) is an easy-to-use and intuitive interface for the business user to access and manipulate this data in the ODS.
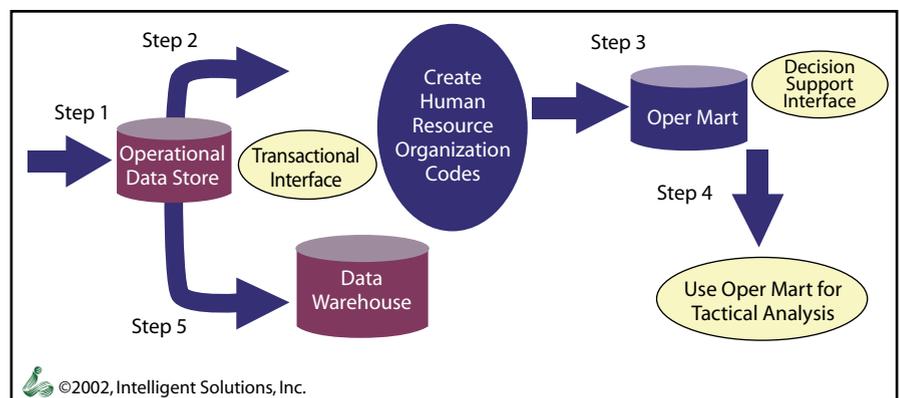

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Figure 1: Components of the Corporate Information Factory

The end user decides the hierarchical roll-up classifications of each organization code and inputs these changes into the database via the ODS application. By providing this real-time feature to the business user, we have created a need for archive logging to be turned on in the ODS database management system as well as daily incremental backups to be implemented. Additionally, the ODS must be included in the backups as we have now made it a business-critical application.

Step 3 requires an extraction and transfer of data from the ODS to the oper mart, again using an ETL product. Generally, the data is reformatted into a multidimensional design (star schema or cube) for quick analysis.

Step 4 provides for the use of this important, newly created organizational data for current analysis and reporting within the oper mart environment. This provides the corporation with the ability to analyze organizational data through a decision support interface (DSI). This could be almost any reporting or managed query product on the market.

The final step, **Step 5**, requires a snapshot of the organizational hierarchy taken from the new ODS data for usage in the data warehouse for strategic analysis. The snapshot may be taken once a month and will encompass the entire organizational hierarchy data. The corporation should consider storing each of the hierarchical organizational snapshots as a means to recreate historical organizational trending information.

Evolving Roles

The ODS and oper mart are evolving in their roles within the decision support environment of the Corporate Information Factory. The ODS and oper mart have uses other than just viewing integrated data. The ODS must have a backup-and-recovery strategy just like any operational system. Certainly, the ODS still serves as a suitable source of enterprise data to the data warehouse *and* other operational systems within the enterprise. However, now it also participates in the creation of new data not found anywhere else.

We also see that the oper mart now serves as the delivery mechanism by providing tactical analysis of this newly created enterprise data. With the ODS as its source, the oper mart assures that the enterprise has an easy-to-use environment containing high quality, integrated information for these important queries and analyses.

New uses mean that new strategies and processes must be developed to handle all of the requirements placed upon this environment. Maintaining a complete and thorough architecture will prevent erroneous usage of data or chaotic and undocumented creation of important data. DM

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