Data Warehouse vs. Operational Data Store

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1 THE CORNERSTONE OF INFORMATION INTEGRATION

As companies aggressively pursue their new economy business strategies, they are quickly realising the importance of having ready access to information across their complete value chain. So whether it's implementing integrated electronic customer relationship management (e-CRM), business-to-business (B2B), employee portals or a balanced scorecard, the need for integrated, granular information is more important than ever. As a result, we are seeing a significant resurgence relative to the importance and value of the operational data store (ODS).

Most organisations today, both traditional brick and mortar and dot-coms, have a complex network of non-integrated databases that impact their ability to rapidly respond to market changes. When information about a company's products, services, customers, employees, etc., is spread across various computer systems with different file formats, update frequencies and data access availability, it impedes the ability to respond to changing market conditions.

We have found that an ODS can be utilised as an important enabler of change within an organisation, storing and organising data around common subjects organisation, product, geographic location, assets, customers across the enterprise.

1.1 OPERATIONAL DATA STORES DEFINED

The ODS usually evolves with the development of the enterprise data model.

> *An ODS is an environment that pulls together, validates, cleanses and integrates data from disparate source application systems. This becomes the foundation for providing the end-user community with an integrated view of enterprise data to enable users anywhere in the organisation to access information for strategic and/or tactical decision support, day-to-day operations and management reporting.*

As relevant legacy system data is extracted, it is transformed into quality business information. Inconsistencies are eradicated by applying standard definitions, a common structure and a defined set of extraction, transformation and cleansing rules to each of the data elements that reside in the ODS.

1.2 AN ODS VERSUS A DATA WAREHOUSE

The ODS, while subject oriented and integrated like a data warehouse, is actually quite different. The following table establishes the major differences between these two technology solutions.

ODS	Data Warehouse
Transactions similar to those of an Online Transaction Processing System	Queries process larger volumes of data
Contains current and near current data	Contains historical data
Typically detailed data only, often resulting in very large data volumes	Contains summarised and detailed data, generally smaller in size than on ODS
Real-time and near real-time data loads	Typically batch data loads

Generally modeled to support rapid data update	Generally dimensionally modeled and tunes to optimise query performance
Updated at the data field level	Data is appended, not updated
Used for detailed decision making and operational reporting	Used for ling-term decision making and management reporting
Knowledge workers (customer service representatives, line managers)	Strategic audience (executives, business unit management)

1.3 THE ODS'S VALUE PROPOSITION

The benefits associated with an ODS span all industries. Organisations that have created an ODS report the following results:

- Enhanced ability to perform what- if analyses of project costs and revenues associated with new service and product launches.
- Improved accessibility to critical operational data.
- Shortened time required to build a data warehouse (integrated data already resides in the ODS).
- Integrated customer and product data in the ODS helps organisations evolve into a customer-centric focus from an account-centric focus.
- Ability to analyse product and service usage data on a near real-time basis.

The key drivers for using the ODS as an integral part of an organisation's IT strategy include:

Developing an accurate understanding of the state of the enterprise. Many companies cannot determine how many customers they have, or their profits and losses on specific products or services at a corporate level. With an ODS, organisations can have a holistic view of their financial metrics and customer transactions, helping end users better understand the customer and make well-informed business decisions.

Improved performance associated with generating operational reports from the ODS as opposed to the transaction/legacy systems.

Providing a reference data repository. Reference data is an important part of the data architecture. The ODS enables the creation of a "single version of the truth" for key, cross- functional subject areas. One organisation reported a significant reduction in accounts receivable simply by having correct billing addresses on a reference database. The ODS is the ideal place to create central versions of reference data that are then shared among different application systems.

Serving as the data staging area. As the enterprise's data warehouse architecture evolves, the ODS becomes key to the integration and staging of data from disparate legacy systems. The data is then distributed to data marts or an enterprise data warehouse.

1.4 PLANNING AN ODS

A well- researched plan is essential to any successful information system implementation one that is aligned with the organisation's overall business strategy. Once a plan is in place, enterprise data and process models must be created,

establishing the relationships between data and process objects to create the enterprise information architecture. This process will ensure that the ODS implementation is aligned with the overall business strategy.

Organisations must carefully manage the development and implementation of the enterprise data architecture to avoid having silo data stores that support the tactical needs of a single business unit rather than the strategic needs of the enterprise.

1.5 GUIDING PRINCIPLES OF AN ODS

An incremental approach to the development of the ODS has proven to be the most effective path to success. The incremental approach ensures that organisations contain the scope and build components to deliver short-term value consistent with the logical ODS architecture that is crafted based on the ultimate enterprise-wide vision of the organisation. Additionally, the ODS should be implemented in stages relative to integrating the various source systems. As the ODS evolves, existing legacy systems should mi-grate to it in a planned fashion.

Before choosing a migration strategy, organisations must keep in mind two important factors:

- **Realising return on investment.** The strategy should provide tangible benefits to the organisation as quickly as possible.
- **Managing risks.** The migration strategy should minimise both business and technical risks to the extent possible.

1.6 ACHIEVING THE ULTIMATE GOAL

Sharing information across the enterprise has been the ultimate goal of data management theorists and practitioners for more than twenty-five years.

Most organisations are finding that corporate survival requires the flexibility to adapt to dynamic market demands. By creating an ODS as the centrepiece of your information architecture, you will provide a strong foundation upon which to rapidly respond to the changing demands placed on your business in the new millennium.