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Business Intelligence 101

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Business intelligence (BI) and executive information systems (EIS) have become more critical over time as competition increases, costs rise and profits decrease. In order to improve business performance, organizations need to leverage information about customers, suppliers, associates, business processes and internal operations. Companies today have gathered a plethora of information; to the extent it would be impossible to mine that data looking for competitive, business or cost-cutting opportunities. This is where BI systems (BIS) come in to play.

What Does a BIS Do?

A BIS has three key phases. The first is to gather data from multiple sources, such as databases or applications. This phase is called the extract, transform and load (ETL) phase, and it involves the extraction of the data from the internal and external sources, then the transformation of that data into some sort of schema that allows for easy analysis later. Additional transformations may include EBCDIC to ASCII, numerical formatting, date formatting and so on. Finally, the data is loaded into the database. It may initially go into a series of staging tables that serve as intermediate tables between the operational environment and the data warehouse, or the data may go directly into the final database. The database (in IBM this is DB2) is referred to as a data warehouse or a data mart. There is a difference though: data marts tend to be application-specific whereas a data warehouse is meant for information from various sources.

The second phase is where the database is consolidated and organized. This may involve indexing or setting up different views of the data. The final phase is where tools are used to access the data, analyze it and then report the results. These tools can range from query and reporting tools to data-mining tools. The results provide answers to questions like, "Which store sold the most 42"-televisions between 10 a.m. and noon Dec. 4, 2007?" They also make it easier to figure out shelf-stocking and dynamic-pricing options.

Getting Started

The first step to getting started is to understand what the process entails: identifying, collecting, validating and rationalizing the data, setting up schemas, and storing and analyzing the data. These are not trivial steps and will require some education. At a minimum, it's important relational database skills are developed, as these are crucial to the BI environment.

BI is more than just a couple of ad-hoc queries. It's an ecosystem all its own. Each step uses hardware and has specific software tools associated with it. Good architects are needed, who understand the various phases and the associated toolsets. A lot of the work goes into selecting these tools, specifically those for the ETL, analysis and reporting steps. IBM has

tried to simplify this process by providing balanced configuration units (BCUs).

BCUs

Because of the increased interest in BI and the complexity of implementation, IBM introduced a BCU—a pre-tested combination of components to design and implement a robust BIS. BCUs are provided for both Linux and AIX systems.

The AIX BCU consists of hardware and software IBM has integrated and tested as a unit, that can be scaled for data warehousing systems. The BCU has predefined, balanced amounts of disk space, memory and processing power specific to the data warehouse to ensure both performance and cost efficiency. AIX BCUs are designed to be scalable, so they can grow over time as data and mining needs increase. As an example, the BCU for AIX systems includes a DB2 Data Warehouse as the database and tools to provide online analytical processing, as well as inline analytics and reporting. It also includes DB2 alphablox for custom analytic applications and a design studio application to profile and visualize data. Finally, it includes the pre-tested server hardware and operating systems as well as a balanced disk subsystem.

A BIS is a critical component of any dynamic, competitive business. Data mining is used to not only control costs, but also for fraud detection, identity theft prevention, as well as making both short- and long-term business decisions. The BCU provides a set of technologies that help businesses create an intelligent knowledge base from multiple sources of corporate information. This allows management to make better-informed decisions about how to run their businesses and how to better compete in the market. The BIS then feeds into business process management and helps provide insights into corporate intelligence about how the business is being run, what its customers like and dislike and what the competition is doing. A good BIS should be about more than creating reports no one reads, it should produce actionable BI that makes a difference to the corporation.