

Using Microsoft® SQL Server® 2008 as a Business Intelligence Platform

by Craig McQueen



You may have an opportunity to reduce costs and provide additional functionality to your end users by utilizing your existing investment in Microsoft® SQL Server®. The standard SQL Server® licence includes many Business Intelligence capabilities that are expensive add-ons with other database platforms.

SQL Server® has a diverse set of Business Intelligence capabilities. In fact, Gartner positioned Microsoft® SQL Server® 2005 in the Leaders quadrant of the Gartner Magic Quadrant for Data Warehouse Database Management Systems, 2008. The database and BI functionality is even stronger with the recent release of SQL Server® 2008. The services provided within SQL Server® and integration points to other Microsoft® technologies are depicted in the diagram left.

Let's review specific aspects of functionality required for a Business Intelligence platform and see how Microsoft® SQL Server® meets those requirements.



Data Profiling

Creating profiles of the data contained in your data sources is an important first step to a BI initiative. It provides you an understanding of what you will be faced with when integrating the data. The data profile will form a basis for the rules you need to implement for cleansing (the next step) and provides input into the dimensional modeling exercise.

For SQL Server®, data profiling previously required a developer to write code. Data profiling is now built in as a feature of SQL Server® 2008. The database itself does not need to reside within SQL Server® 2008; you run data profiling on any data source including text files. This makes a lot of sense because it is likely that the data, at this point in your initiative, resides in other systems.



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Data Cleansing

Data cleansing allows you to prepare data for integration into your data mart or data warehouse. You may need to remove unwanted data, align fields to a common description or conform a dimension to other data sources. Cleansing is often known as the 'Transform' portion of the Extract, Transform and Load (ETL) process.

SQL Server® allows you to implement data cleansing rules through integration services. It has convenient processing aids such as fuzzy lookup. Fuzzy lookup can take various field values that are similar and confirm them into a single field value. Any exceptions can be moved to another location for manual processing.

Data Integration

Data cleansing has the rules for transforming data but there is still work required to extract from source systems and load the data mart or data warehouse.

SQL Server® 2008 provides the framework through SQL Integration Services to perform the Extract and Load process. It has full job control and audit capabilities providing a flexible, robust environment for this portion of the process. Integration services scalability has improved with SQL Server® 2008 with thread pooling and enhanced lookup transformations.



OLAP

The heart of a Business Intelligence solution is the OLAP system. Organizing information into facts and dimensions and providing a fast query mechanism to this data is the responsibility of the OLAP system.

SQL Server® implemented a comprehensive OLAP system with SQL Analysis Services. SQL Server® 2008 drives broader analysis

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with enhanced analytical capabilities and with more complex computations and aggregations. New cube design tools help users streamline the development of the analysis infrastructure enabling them to build solutions for optimized performance.

New MOLAP enabled writeback capabilities in SQL Server® 2008 Analysis Services removes the need to query ROLAP partitions. This provides users with enhanced writeback scenarios from within analytical applications without sacrificing the traditional OLAP performance. Writeback capability lets the user change the information in an OLAP cube to perform forecasting or what-if scenarios.



Reporting

A flexible, robust reporting platform is key to providing end users the information they need. The platform should be able to support report distribution in a variety of methods, allow end user ad-hoc reports and have a rich report authoring environment.

SQL Reporting Services is the Microsoft® reporting platform that allows users to create and distribute reports. With SQL Server® 2008, richer reports can be created by the addition of new display components such as gauges and new charts. As well, the rendering engine has been improved for better performance and usability.

Data Mining

Once you have your data in place you derive additional value by utilizing data mining algorithms. Data mining allows you to do such things as automatically cluster the data, detect outliers and forecast future value.

SQL Server® has a number of data mining algorithms built into SQL Analysis Services. SQL Server® 2008 has improved time series support that extends the forecasting capabilities.

Enhanced Mining Structures deliver more flexibility to perform focused analysis through filtering as well as to deliver complete information in reports beyond the scope of the mining model. New cross-validation enables confirmation of both accuracy and stability for results that you can trust. Furthermore, the new features delivered with SQL Server® 2008 Data Mining Add-ins for Office 2007 empower every user in the organization with even more actionable insight at the desktop.

What is still missing from SQL Server® 2008?

Master Data Management (MDM) is not part of SQL Server®. MDM allows you to institutionalize your data definitions in an automated system. However, MDM is on the Microsoft roadmap. In 2007 Microsoft® purchased Stratature which has an MDM product. Technology previews have been available through 2008 so we should see it rolled into the SQL Server® platforms in the next year or so.

For more information, please visit our website at www.agorainc.com/business_intelligence

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