

Delivering information you can trust

September 2008



Information Management software

Enabling right-time insight for performance management

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Performance management has evolved from the traditional areas of business intelligence (BI) and planning—assessing trends, patterns and comparisons—to delivering insights that align goals and strategic metrics and supporting intra-day, operational activities. Today, performance management supports all functional areas of an organization, from the front-line worker to the mid-level manager to the executive officer, and each one wants information appropriate for the decision at hand.

To meet these demands, BI applications require data that can:

- *Deliver information in the “right” decision window for the targeted decision maker*
- *Support a continuous line of sight across the organization, so information about a single event can be consistently viewed by any employee or system*

For example, Costco monitors customer purchases to promote its Executive Membership program. If a customer exceeds a year-to-date purchase threshold, a supervisor is alerted and, while the customer is still at the register, can inform the customer that a membership upgrade offer and special gift are available at the service desk. The service desk clerk has access to the same customer purchase history and can immediately communicate the benefits associated with Executive Membership.

This example shows how critical it is to identify key business events and use that information to activate appropriate business processes as quickly as possible. Organizations need to detect transactions of particular interest and update the supporting data sources in real time, potentially inside the normal update window, so they can be used to drive business decisions at a moment’s notice.

Detecting and delivering the right transactions

A mature BI environment often utilizes different kinds of data stores to support the information windows required by the enterprise. These data stores can include:

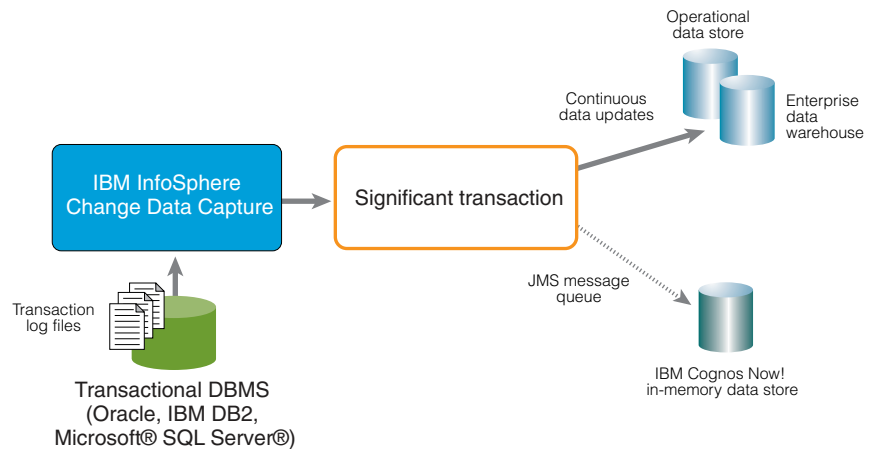
- ***In-memory data stores** for continuous, real-time monitoring and intra-day reporting*
- ***Operational data stores** for departmental or functional reporting or analysis*
- ***An enterprise data warehouse** for corporate performance management activities such as company-wide planning, metrics, reporting and analysis*

A key challenge involves getting transactional data into these data stores without impacting the transactional application where the data resides. IBM® InfoSphere™ Change Data Capture (CDC) is able to monitor transaction data and detect the “right” information to pass to the business intelligence data sources without impacting the performance of the transaction application because it monitors only the transaction log files, not the database tables.

Native database log-file reading is one of the least intrusive and most scalable monitoring options. Databases write to their database logs by default, so no changes to existing systems are required to recognize and propagate business events. Any data changes—whether an insert, update or delete—are detected as they occur and delivered in the correct sequence and order to ensure data integrity.

Often, the source systems where the data resides are already overburdened with heavy processing activity from other applications. Any solution added to capture data changes cannot introduce risk to critical business systems, including impacting database performance and CPU utilization or altering existing IT infrastructure. IBM InfoSphere CDC does not require large amounts of system resources for capturing and processing changes, nor does it require the purchase of new hardware or software components. This approach means that IBM InfoSphere CDC can fit into existing environments with no additional risk or systems impact (see Figure 1). The real-time transaction stream provided by IBM InfoSphere CDC helps improve the timeliness of the information available to BI tools like IBM Cognos 8 solutions, enhancing the ability of decision makers at every level to see and react to business events.

Figure 1: IBM InfoSphere CDC enables right-time transactions by monitoring transaction log files and delivering data changes as they occur.



Continuous business monitoring with IBM Cognos Now!

IBM Cognos Now! delivers continuous monitoring in real time for effective, timely decision making. It employs continuously updated, operational dashboards to deliver insight and visibility into processes and customer activity as changes occur. Information from multiple data sources can be combined in Cognos Now!, giving front-line workers, line management and executives up-to-date and consistent views of enterprise operations and enabling a host of benefits:

- *Helps decrease “time to decision” through real-time monitoring of the business*
- *Enhances business efficiency by compressing decision-making timelines*
- *Helps increase customer satisfaction by monitoring customer-related key performance indicators (KPIs)*
- *Provides an opportunity to optimize an organization’s operations, potentially increasing revenue and net operating margin*
- *Drives higher productivity and strategic value by consistently meeting operational objectives*

Nearly 80 percent of research participants said that intra-day updating of data is necessary; a substantial 32 percent indicated that they need data refreshed more than once an hour.

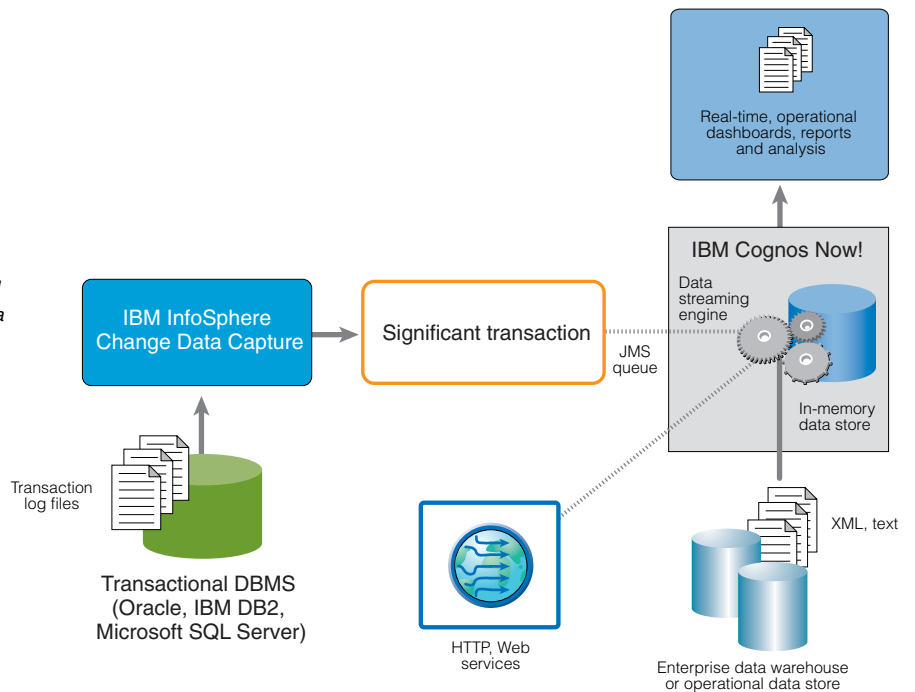
Source: “Operational Business Intelligence,” Ventana Research, December 2007

How IBM InfoSphere CDC enables IBM Cognos Now!

Once IBM InfoSphere CDC detects a transaction relevant to the business, it can immediately send the data to IBM Cognos Now! via a Java™ Message System (JMS) queue. The Cognos Now! data streaming engine processes these events in real time, combining them with data from other operational sources. As IBM Cognos Now! applies business rules to these data streams, it refreshes the dashboards monitoring the data and triggers any related alerts (see Figure 2).

Because it monitors transactions in real time, IBM InfoSphere CDC provides the transparency that transactional applications need to function more efficiently. The combination of IBM InfoSphere CDC and IBM Cognos Now! gives front-line workers and operations managers the corresponding opportunity for faster, more accurate decision making.

Figure 2: IBM Cognos Now! combines transactional data streamed from InfoSphere CDC with other data for complete, up-to-date views of operations and critical KPIs.



Departmental reporting with IBM Cognos 8 Reporting and Analysis

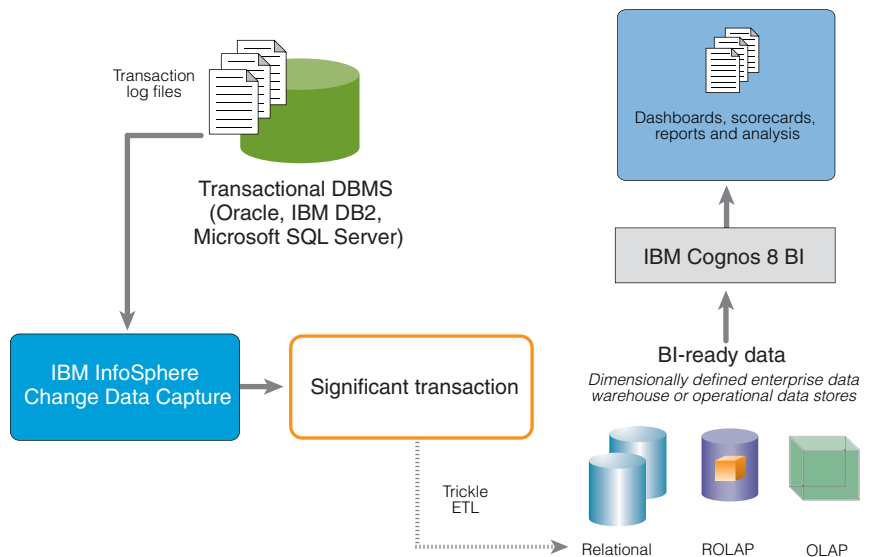
Reporting on stale, outdated data does not provide any business value to an enterprise, nor does having massive amounts of fresh data but no means of understanding it. The combined strengths of IBM InfoSphere CDC and IBM Cognos 8 BI provide enterprises with:

- Extensive analytical and trending capabilities for operational BI initiatives
- Current, accurate, up-to-date data to drive initiatives with minimal latency
- Increased business agility

How InfoSphere CDC enables IBM Cognos 8 BI

The increased timeliness and visibility into data systems provided by InfoSphere CDC, combined with the flexibility and depth of BI analytics offered by Cognos 8, help transform data into trusted information that can be interpreted, trended and analyzed to provide significant business insight that otherwise could not be unlocked (see Figure 3). Organizations currently supporting BI users on mission-critical systems because required data in the warehouse is not current enough can now offload that BI activity and free up critical systems for other tasks.

Figure 3: IBM Cognos 8 BI leverages IBM InfoSphere CDC to provide timely insights into business processes.



InfoSphere CDC enables multiple heterogeneous systems to be consolidated into a single operational data store (ODS), thus eliminating the need to query multiple sources and helping to simplify the IT architecture. Operational systems are not impacted because all querying and analytics are performed on the ODS. Hence, all BI-related tasks can be done at any time of the day—increasing agility and reducing the chance of negatively impacting the performance of existing applications or back-end systems.

Providing BI-ready data

Performance management applications are expected to provide consistent insights into the business, from operational to tactical to strategic. These insights require a consolidated, integrated information platform where data is combined from multiple sources and aggregated to support deep analytics and a broad range of queries from corporate metrics to transactional details.

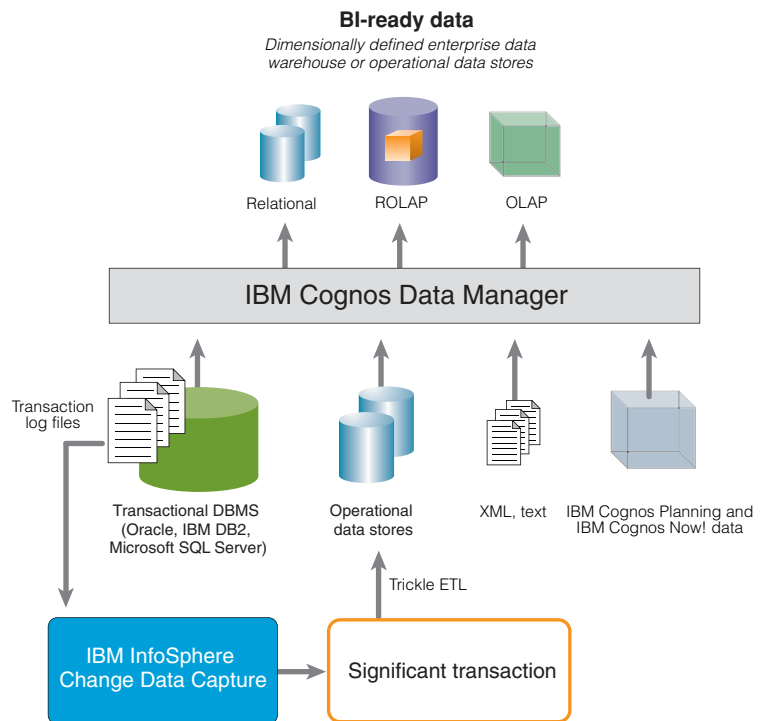
IBM Cognos 8 Data Manager helps to establish the views and dimensionally oriented information needed to create effective, BI-ready data. This can be either sourced directly using its extract, transform, load (ETL) capabilities or via IBM InfoSphere DataStage®. Key benefits include:

- *Easy-to-use, visually oriented modeling and job stream management*
- *Access to a wide range of data sources*
- *Automated hierarchy and dimensional management*
- *Aggregated, calculated and captured data history*
- *Consistent view of data for all consumers*

How InfoSphere CDC enables IBM Cognos 8 Data Manager

Instead of relying on ETL batch windows to update enterprise data warehouses, a real-time ODS can be populated with changes from production systems and applications with IBM InfoSphere CDC. Using delta tables, the fresh data within the ODS can be trickle-fed to enterprise data warehouses via IBM Cognos 8 Data Manager. This turns the data warehouse into an up-to-date repository of aggregated, valuable information and improves visibility into lines of business for consistent, intra-day reporting (see Figure 4).

Figure 4: IBM Cognos 8 Data Manager joins results from IBM InfoSphere CDC with other data to deliver timely, BI-ready data.



As data volume and demand for real-time data grow, batch windows become a less-viable option for updating a data warehouse. IBM InfoSphere CDC and IBM Cognos 8 Data Manager offer a low-impact alternative to deliver real-time data to a data warehouse without placing additional load on existing applications and systems and without denying end users access to timely data.

Conclusion

Together, IBM InfoSphere CDC and IBM Cognos 8 BI solutions can provide the trusted data that systems and employees need to make informed decisions at the speed of business. The benefits of using IBM InfoSphere CDC to enable IBM Cognos 8 BI products include:

- **Low risk**—Implementation requires no changes to existing IT infrastructure and applications or additional hardware
- **Low impact**—Log-based change data capture method can reduce the risk of negatively impacting CPU utilization or creating additional load for mission-critical applications
- **Low latency**—Changes and events of interest are detected and propagated as they happen, providing a continuous, up-to-date view of the business
- **Improved business visibility**—Ability to present and analyze a real-time data stream with context helps increase visibility into lines of business which, in turn, can help an enterprise differentiate itself from the competition and provide more value to its customers

About Cognos, an IBM company

Cognos, an IBM company, is a leader in business intelligence and performance management solutions. It provides world-class enterprise planning and BI software and services to help companies plan, understand and manage financial and operational performance. Cognos was acquired by IBM in February 2008.

For more information

To learn more about IBM Cognos solutions and IBM InfoSphere Change Data Capture, please contact your IBM representative or visit:

- ibm.com/software/data/infosphere/change-data-capture
- www.cognos.com



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