IBM

IBM Cognos 8 Business Intelligence

Two industry leaders,
one powerful result

Cognos.
software

Contents

Abstract

In 2003 IBM® Cognos® ReportNet, a new reporting software, was introduced, built on a Web services-based, service-oriented architecture that complemented IBM technology. For IBM Cognos ReportNet, its open, modern architecture was the key innovation, and key to its value for both business users and IT. IBM Cognos ReportNet bridges the worlds of both pixel-perfect production reporting and highly flexible business reporting. It promises and delivers a single product for all reporting requirements, with simplified deployment, maintenance, and integration; drag-and-drop ease of use; multilingual reporting; and many other innovations.

Overview

IBM Cognos ReportNet is phenomenally successful; it addresses the pent-up demand among customers looking for a single reporting product to meet all of their reporting needs. Because of this, many organizations have selected IBM Cognos ReportNet as their reporting standard.

In 2005 IBM® Cognos® 8 Business Intelligence was introduced, software that takes the strength of the IBM Cognos ReportNet platform and delivers a single, web services architecture for all business intelligence capabilities.

IBM Cognos 8 Business Intelligence offers reporting, query, and analysis; dashboards and scorecarding; business event management; and the unifying power of centralized metadata in one product, on a single, proven service oriented architecture. IBM Cognos 8 BI delivers all of these capabilities through a 100 percent Web browser interface for all users.

Part of the success of this platform has been the dedicated effort to create solutions that smoothly integrate with all technology environments. Over the past decade IBM has worked to provide a seamless, end-to-end enterprise business intelligence solution for joint customers.

This paper explains how integrating IBM Cognos BI software with IBM software, hardware, and middleware provides organizations with the ability to effectively manage performance and improve their success.

Business problem

The new standard: IBM Cognos 8 BI

A single view of all data, ease of reporting, coordinated information — IBM Cognos 8 BI can deliver all of these values for IBM customers. IBM Cognos 8 BI is a single product delivering all BI capabilities:

Reporting
Create any type of report, for any user, with any data.

- Covers the complete range of reporting needs — managed, production, ad hoc, personalized. Report against all operational systems, OLAP, and relational data sources. Display reports in all desired output formats (Email, HTML, Adobe® PDF®, Microsoft® Excel®, CSVs, and XML).

- Drag-and-drop data elements, formatting, and selection extends self-service report authoring to users, offloads IT requirements, and reduces the reporting backlog.

- Single, zero-footprint and adaptive authoring interface for reports and dash-boards.

- Drill-through and drill-down automatically built-in.

- Build a report once and deploy in any language.

Analysis
Explore and analyze large volumes of data covering all dimensions of the business, whether stored in OLAP or dimensionally aware relational sources.

- Analyze large data sets with easy-to-use, drag-and-drop user interface.

- Compare performance to see trends over time.

- Pursue business questions through analysis and exploration with fast and predict-able response times.

- Powerful, yet easy-to-use comparative analysis. See performance outliers, such as most and least effective suppliers, in one analysis.

Scorecarding

Link initiatives and projects to strategy with metrics and strategy maps. Use the same scorecard metrics to drive enterprise planning for integrated performance management.

• Easily see and track the status of key performance indicators and initiatives.

• Understand the root cause of performance issues.

• Scorecards and metrics use the same single metadata model that drives analysis and reporting.

• Attach reports and analysis to get the information underpinning metrics and understand what drives the performance.

• Link metrics to owners to help drive accountability.

• Support Balanced Scorecard or other scorecarding approaches.

Dashboards

Deliver Web-based dashboards with information from different data sources in a single visual report. Provide an at-a-glance snapshot of the business.

• Cut the time to decision with multi-object performance reports, maps, charts, scorecards, and interactive OLAP analysis coordinated in a single view.

• Set up personalized information centers to monitor performance.

• Connect dashboard elements with underlying data for further context and analysis.

• Support various management methodologies.

Business Drivers

Business Event Management (BEM)

Business event management goes beyond the basic notification functionality provided in other products to automate the decision-making process, launch business processes, and integrate with Business Process Management. Where human intervention is required, through decision-process automation, BEM notifies the people who are accountable and provides the relevant information they need to resolve the issue. Where human intervention is not required, it initiates business processes such as data updates or Web service procedures to resolve the issue. Throughout the event lifecycle, it continues to monitor and notify, ensuring that all relevant players and systems take appropriate action at the right time.

Business event management benefits include:

- Link different parts of the organization together for enterprise-wide event management.

- Compress the time to action and resolution.

- Define compound events and tasks using event conditions.

- Manage events in context.

- Use both decision-based and business-process issue resolution.

- Track critical events. Integration with Enterprise Planning

IBM Cognos 8 BI delivers even greater integration with IBM® Cognos® 8 Planning. As a result, IBM customers can increase the value of their BI investment as part of a corporate performance management initiative.

IBM Cognos 8 Planning enables top-down objective setting based on bottom-up contributions from all parts of the enterprise. It automates the creation of personalized plans for business units, and integrates feedback from all contributors. The result? Your strategies are translated into specific plans that share a common purpose and engage the company.

The Solution

The IBM connection

IBM Cognos business intelligence solutions make use of IBM® DB2® Universal Database, IBM® DB2® Warehouse Manager, IBM® DB2® OLAP Server, IBM® DB2® Cube Views, IBM® WebSphere® Application Server, IBM® WebSphere® Portal, IBM® WebSphere® Information Integrator, and IBM® WebSphere® Data Integration Suite, and is available on IBM® eServer® IBM® pSeries® and IBM® xSeries® systems (Microsoft® Windows®, IBM® AIX®, and Linux®). Data can be accessed from all IBM eServer platforms including IBM® iSeries®, IBM pSeries, IBM xSeries, and IBM® zSeries®.

In terms of the implementation itself, IBM Business Consulting Services (BCS) implement integrated IBM Cognos BI and CPM solutions to numerous industry verticals and lines of business such as sales, marketing, and human resources. IBM BCS has a history of successfully integrating people, applications, and data, and jointly offering customers a fast, cost-effective route to better business decision-making.

IBM Cognos solutions are featured in IBM® PartnerWorld® for developers. This worldwide program is designed to help software developers reach broader markets, lower their costs of doing business, and take their products to market faster.

IBM Cognos 8 Business Intelligence offers your organization a solution that is:

Certified

IBM® ServerProven®

IBM Cognos software is IBM ServerProven on both IBM xSeries and IBM pSeries. IBM eServer Solution Connection is an integrated marketing initiative that connects leading software solutions with a wide variety of valuable IBM resources that can position customers to make better informed decisions. With IBM ServerProven for IBM eServer certification, customers have access to special offers that can enhance their solution implementation and lower their total solution cost when they purchase an IBM ServerProven solution on IBM eServer.

Linux-ready certified

IBM Cognos Reporting is compatible with Red Hat® Enterprise Linux®, having achieved Red Hat Ready status - enabling IT decision makers to integrate reporting functionality into their Linux applications. IBM Cognos ReportNet was developed on the Linux platform as part of the company's global commitment to the Linux market.

Proven

IBM Cognos solutions — along with their IBM technologies — are validated to run quickly and reliably. In August 2003, the IBM Cognos reporting platform underwent extensive testing at IBM's Solution Partnership Center (SPC). It was successfully stress-tested on IBM xSeries running Microsoft Windows and supporting IBM middleware, using IBM DB2® Universal Database for data access. Scaling to over 190,000 named users, this testing exercise validated that the architecture for IBM Cognos 8 BI is maximized for enterprise performance and scalability.

In addition, IBM Cognos reporting capabilities were put to the test in an IBM grid computing environment. At the IBM Innovation Center in San Mateo, California, IBM Cognos reporting software performed a series of complex benchmarks using our reporting platforms, IBM DB2, and IBM WebSphere Application Server platforms. The testing validated IBM Cognos reporting on a grid infrastructure that spanned the two geographic locations. The test used real-world application scenarios including user logon, logoff, portal navigation, report execution, and report viewing. HP LoadRunner scripts generated real-world transactions simulating 320 simultaneous users. IBM Cognos reporting performed flawlessly in the grid computing environment.

Innovative

Another example of this partnership is the decision to embed strategic IBM middleware into a special edition of IBM Cognos 8 BI. IBM® Cognos® 8 BI Special Edition comes with the Express versions of IBM WebSphere as its Application Server, IBM DB2 UDB as content store for reporting, and IBM® HTTP Server® for the Web server. Based on open standards, such as SQL, Java®, XML, SOAP, and WSDL, and built to leverage existing enterprise infrastructure investments including relational databases and Web application servers, IBM Cognos 8 BI is available with these components bundled into the IBM Cognos 8 BI Special Edition. This gives customers choice and flexibility as they design and deploy their enterprise reporting environment. In addition, this combined solution reduces overall deployment costs, because no additional database, application server, or Web server is required for the running of the IBM Cognos BI solution.

The IBM technical foundation for Business Intelligence

The foundation of IBM Cognos software — the underlying back end of the IBM Cognos solution — is made of leading middleware, hardware, and software technologies from IBM. These include Web infrastructure technologies such as IBM WebSphere, the IBM DB2 UDB database for the data warehouse, and enterprise operating systems such as IBM AIX. Together, they make up IBM's world-class, BI-enabled, enterprise platform.

IBM has conducted extensive testing at IBM Cognos labs to ensure its products exceed the expectations of IBM users. It backs up this testing with thousands of real-life implementations.

IBM Cognos software supports the following IBM products:

IBM Information management

- DB2 UDB (Windows; Linux)

- DB2 UDB on pSeries (AIX; Linux)

- DB2 UDB for iSeries (OS/400)

- DB2 UDB for z/OS and OS/390

- DB2 Cube Views

- DB2 OLAP Server

- DB2 Intelligent Miner

- IBM® Informix® Dynamic Server

- IBM® Red Brick® Warehouse

IBM WebSphere

- WebSphere Application Server

- WebSphere Portal

- WebSphere Information Integrator

- WebSphere Data Integration Suite (Ascential)

IBM® Lotus®

- IBM Workplace

IBM® Tivoli®

- Tivoli Access Manager

- Tivoli Decision Support

- Tivoli Data Warehouse

IBM eServer

- IBM xSeries - Windows; Linux

- IBM pSeries - AIX; Linux

The following section explains how IBM Cognos products support, access, and utilize IBM technologies.

Hardware

"Linux on POWER in conjunction with the mission-critical, user-friendly performance of IBM Cognos software not only delivers a key competitive advantage, but also a time-to-value to our joint customers. IBM is laying the successful foundation to assist customers to achieve the vision of delivering information on demand."

Gary Schneider
Director of Linux Business Development
IBM Information Management.

The IBM server family provides a balanced, highly secure foundation for dynamically managing critical applications. It features a broad range of capabilities for integrating your business, consolidating infrastructure, improving efficiencies, and lowering costs. These server components provide an efficient automated platform and an ideal foundation for building business intelligence solutions with IBM Cognos software.

IBM Cognos BI runs on IBM xSeries and IBM pSeries, and supports data access to IBM DB2 UDB and IBM DB2 OLAP on IBM xSeries, IBM pSeries, IBM iSeries, and IBM zSeries. In addition, a customer that has both IBM xSeries and IBM pSeries servers available can have different IBM Cognos components running on any combination of these servers. This provides the flexibility to add additional computing power on demand.

In accordance with the IBM Linux on POWER initiative, IBM Cognos 8 BI supports the Red Hat Linux operating system. IBM Cognos 8 BI support for Linux on IBM hardware greatly influences the total cost of ownership equation. With IBM Cognos 8 BI on IBM pSeries Linux, organizations no longer need to sacrifice price for performance. Organizations are turning to the Linux operating system for cost savings. Typically, these saving occur due to the lower cost of the hardware and software, or from the ability to consolidate servers. Organizations deploying IBM Cognos solutions on Linux will realize these benefits.

Software

The IBM DB2 Framework for BI is focused on the infrastructure layer—preserving and reinforcing customers' investment in IBM Cognos tools, skills, and practices. IBM Cognos software embraces IBM's standards, architecture, and technologies, extending the IBM value proposition with best-of-breed business intelligence software.

The framework:

- Uses open standards such as SQL and XML as the sole BI interface to IBM DB2.

- Integrates federated access to distributed disparate data sources, Web services access to BI functions, and operational systems with real time warehouses.

- Presents a single version of the truth across enterprise data topology through integrated OLAP.

IBM Cognos BI software delivers operational and management reports, explorable analysis, ad hoc queries, rich data visualizations, and event-driven business intelligence via email to any user across the organization, anywhere, using IBM DB2 UDB or IBM® Informix® as the source for data.

IBM DB2 Cube Views
IBM DB2 Cube Views create a unique dimensional platform that allows BI tools to connect easier, deploy faster, and perform better. IBM's DB2 UDB with IBM DB2 Cube Views is uniquely aware of business intelligence data requirements, and integrates easily with data structures for BI to present an integrated view. The database uses this understanding to improve performance of all BI access to the database. This solution:

- Improves reporting and analysis performance, creating enterprise-wide user acceptance and easier large-scale deployment.

- Creates a seamless and centralized business intelligence platform when paired with IBM Cognos software, providing an end-to-end architecture.

IBM® DB2® Intelligent Miner

Data mining technologies have advanced so that even novice users can use algorithms and create meaningful, sophisticated output. IBM DB2 Intelligent Miner places sophisticated data mining capabilities inside the database where IBM Cognos 8 BI can leverage its capabilities. Whether using a user-defined function (UDF) that contains data mining logic such as predictive model markup language (PMML), or using a database table populated with the results of a data mining exercise, IBM Cognos software provides sophisticated analysis capabilities.

For example, you can create a user-defined "customer life-time profitability" function. Advanced heuristics let you analyze volumes of data, and even a novice user of IBM Cognos 8 BI can use it with no training. A user can also query an IBM DB2 table that is populated with PMML output. You can create and deliver additional analysis and meaningful output from the base data and the mined data.

IBM Red Brick Warehouse

IBM Red Brick Warehouse meets specialized database server requirements for business-critical, high-demand data analysis. IBM Cognos BI delivers reporting, analysis, querying, scorecarding, and event-driven business intelligence via email to any user across the organization anywhere, with IBM Red Brick Warehouse as the source for data.

IBM Tivoli

IBM Tivoli manages the IBM Cognos 8 BI workload and implementation to ensure that all services are operational and that system uptime is maximized. In addition, IBM Tivoli can monitor all IBM Cognos 8 BI services and enable new services based on current load information. For example, during month-end reporting, if IBM Tivoli notices that there is a peak usage of the base reporting service, IBM Tivoli can create new reporting services on demand. This helps ensure that users are getting the level of service they expect from IBM Cognos 8 BI.
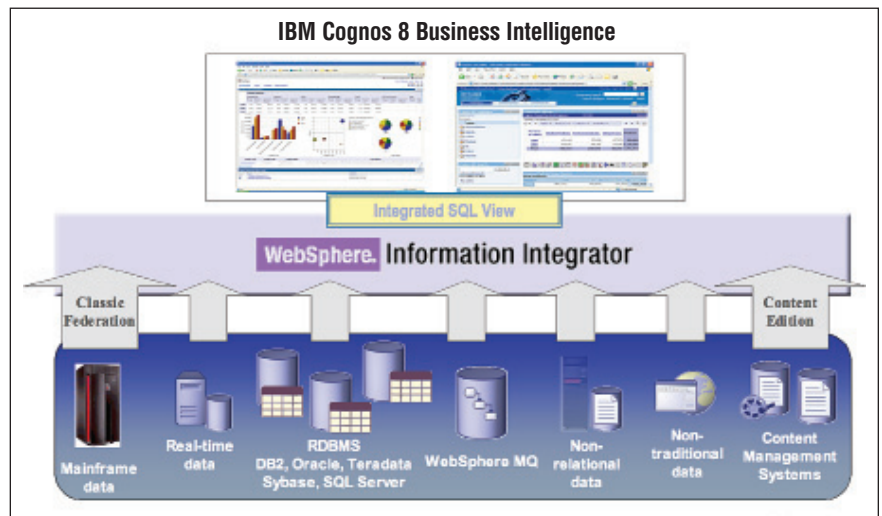
IBM Tivoli Access Manager
Using IBM Tivoli Directory Server (LDAP repository) IBM Cognos 8 BI can leverage your existing security and can reinforce the value of IBM Tivoli as the single source of security-based information.

Middleware

To deliver consistent information, IT must remove the barriers to integrated architecture with a framework that supports interoperability between heterogeneous environments. The combination of IBM Cognos business intelligence software and IBM's WebSphere Information Integrator provides companies with access to all of the enterprise data needed to deliver corporate performance management (CPM).

IBM WebSphere Information Integrator
IBM WebSphere Information Integrator gives companies real-time access to a wide range of enterprise information. It offers a range of integration technologies such as enterprise search, data, and content federation, data transformation, data placement (including replication and caching), and event publishing. Business-critical information is often distributed across various sources and operating platforms including databases (relational and mainframe), XML files, content repositories, and workflow systems.

IBM Cognos 8 BI runs on top of the IBM infrastructure to provide seamless reporting, analysis, dashboards, scorecarding, and business event management capabilities

IBM WebSphere Information Integrator lets applications access diverse and distributed enterprise data as if it were a single source, making it easier to work with disparate data and content, while enhancing a user's execution of IBM Cognos 8 Business Intelligence capabilities. Additional functionality and data access is available through other IBM WebSphere Information Integrator offerings.

IBM WebSphere Information Integrator Classic Federation
IBM WebSphere Information Integrator Classic Federation for IBM® z/OS® extends IBM Cognos 8 Business Intelligence for access to mainframe data sources including VSAM, IMS, CA-IDMS, CA-Datacom, Software AG Adabas, and IBM DB2 Universal Database on the z/OS platform. With this solution, you can access mainframe data without mainframe programming or legacy database skills. IBM Cognos 8 BI and IBM WebSphere Information Integration Classic Federation enable companies to quickly integrate legacy data sources with business intelligence applications.

IBM WebSphere Information Integrator Event Publisher products
The IBM WebSphere Information Integrator Event Publisher family of products accelerates data warehousing and business integration by making it easy to link data events with business processes. Changed data items can be used by an application, tool, or message broker to drive additional processing such as data replication, application-to-application communication, workflow initiation, and data population.

IBM WebSphere Information Integrator Content Edition
By providing a consistent, bi-directional interface to disparate content sources, IBM WebSphere Information Integrator Content Edition allows organizations to quickly integrate IBM Cognos 8 BI and other business applications with disparate content repositories that store documents, images, reports, digital assets, e-mail, and other important business content. This allows users to access and work with distributed content as if it were stored and managed in a single repository, further extending the capabilities of IBM Cognos 8 BI.

IBM WebSphere portal

IBM Cognos 8 BI leverages the IBM WebSphere Portal that offers a customizable, uniform, and consolidated view of a user's working environment. IBM Cognos 8 BI is seamlessly integrated into your IBM WebSphere Portal environment providing capabilities such as single sign-on, and view, search and navigation capabilities of all related IBM Cognos content. In addition, the open Web services architecture of IBM Cognos 8 BI is fully exposed through the IBM Cognos 8 BI SDK. Custom developed IBM WebSphere portlets can be deployed to meet a company's specific needs.

IBM WebSphere Application Server

IBM Cognos 8 BI leverages the IBM WebSphere Application Server that is a Java J2EE–compliant, high-performance, scalable, and manageable middleware transaction engine.

As companies strive to decrease their costs and the complexity of their reporting environment, IT managers have been looking for a single, Web-based BI solution that can address all of their organization's BI requirements. They require a flexible solution that leverages existing IT infrastructure, is truly scalable, and has the ability to grow. IBM Cognos 8 BI is that solution, covering all BI needs with one product and one architecture. Coupled with IBM's Information Management, IBM WebSphere, and server components, your organization will have the right foundation for taking enterprise business intelligence to the next level of performance.

Conclusion

A BI solution must be able to access all data, provide all BI capabilities, and be appropriate for all users. IBM Cognos 8 Business Intelligence is that solution, driving adoption by over 80 percent of the Fortune 500. The flexibility and functionality of IBM Cognos software has also resulted in a steady increase of IBM users selecting IBM Cognos solutions as their BI standard. IBM Cognos 8 BI offers IBM customers considerable value.

Deliver all BI capabilities from a single product

- Single product and architecture with all BI capabilities: Reporting, analysis, scorecards, dashboards, business event management, as well as data integration.

- Simplified maintenance: Zero-footprint, browser-based deployment and administration. No duplication among BI capabilities.

- Increase BI adoption: One product meets the needs of your entire user base, from casual users to power users.

- Proven integration: Web services architecture simplifies deployment and administration. Single, open API lets you integrate with existing security, portals, and IT infrastructure. No single point of failure.

Serve all users with BI that matches their needs

- BI consumers: Deliver pixel-perfect reports to their desktops with secure Web portal access adaptable to mobile devices.

- Senior executives: Deliver scorecarding, dashboards, and reports for quick communication of complex data.

- Business managers: Deliver all BI capabilities, with drag-and-drop simplicity and the same zero-footprint interface.

- Professional authors/analysts: Deliver advanced features such as high-volume burst reports for distribution, the full range of report elements and output types, and reporting and analysis against relational or multidimensional sources.

- IT administrators: Deliver a zero-footprint, browser-based environment, modular deployment, consistent metadata, and access to all corporate data on a Web services architecture.

Leverage all corporate data

- Open data strategy and common metadata: Common business rules, calculations, and filters consolidate your heterogeneous data into a consistent business view.

- Direct access: Leverage the information directly from existing sources including relational, OLAP, and other multidimensional sources.

- Enterprise Information Integration (EII): Access multiple disparate data sources in batch, historic, or real time. Use the built-in EII capability or third-party integration technologies.

- Extract, transform, load (ETL) processes: Integrate, cleanse, transform, and aggregate data for a consolidated historical view. A dimensional framework provides information formatted in the way business users think and optimized for all BI capabilities.

About IBM Cognos BI and Performance Management

IBM Cognos business intelligence (BI) and performance management solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Cognos solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Cognos solutions.

For further information or to reach a representative: www.ibm.com/cognos

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