Driving information-led business innovation with IBM Information Server

Contents

Executive summary

In a perfect world, business information would be neatly organized into a single, coherent information infrastructure, easily accessible by the right people, processes and applications at the right time throughout the organization. And businesses would be able to deliver information on demand. Unfortunately, the situation that exists in most enterprises today looks very different from the perfect world.

Many business environments today have grown through change: reorganization, mergers and acquisitions, tactical quick-fix projects and new system implementations. New data and content sources are continually being added to the enterprise by departments or business units deploying their own applications with their own databases and repositories. These information sources can often be isolated from the users and applications that need them most. Available data may have questionable value because of inconsistency, poor quality and unclear meaning.

As today's global enterprises extend their boundaries to encompass global suppliers, partners and customers, the need to integrate and access disparate information sources in consistent, trusted and reusable ways—to deliver information as a service—becomes even more critical.

This white paper identifies a shift in corporate thinking about the value of information to the organization and outlines reasons why this shift has occurred. It explores common barriers when addressing information integration challenges and outlines a list of key characteristics needed in an information integration solution. Customer scenarios illustrate how these information integration challenges play out in typical business settings. And finally, this paper shows how IBM® Information Server can address information integration challenges and help companies achieve maximum business value for key business initiatives.

Introduction

The corporate view of information architecture is changing. No longer do companies view their internal information as subordinate to applications and processes. Information is becoming the key to business innovation. And the key to delivering actionable information is to have an enterprise information architecture that provides trusted information throughout the organization.
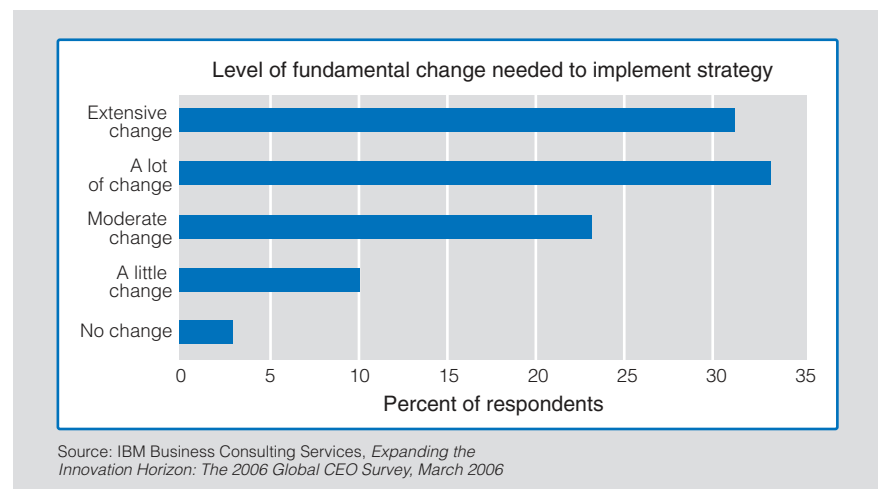
Companies that effectively leverage information can improve their processes, collaborate better with partners and customers, and reduce risk. In fact, the 2006 IBM CEO survey[1] found that organizations that were highly effective at integrating information were five times more likely to drive value creation compared to those that were less effective at it.

Most companies already own the information they need, but they are unable to access critical information when and where they need it and not able to put it to valuable use. In fact, the IBM CEO survey found that more than 60 percent of CEOs believe that their organizations need to do a better job leveraging information. The problem is that this information is usually spread across many heterogeneous systems and is not understandable as a complete whole. As companies move to embrace a Service Oriented Architecture (SOA), this problem becomes magnified. Although promising as a new method for building applications, Gartner believes that SOA will fail if long-standing data quality, data redundancy and semantic inconsistency issues are not addressed.[2] Additionally, businesses commonly cannot trust the information they do have available because of issues related to timeliness, quality or completeness.

At the same time, companies that wait for their application vendors to solve these problems for them are losing their opportunity to differentiate. According to the 2006 IBM CEO survey, 87 percent of CEOs believe a fundamental change is required within the next two years to drive innovation (see Figure 1)—but the application vendors simply do not move that fast. Companies that wait for their application vendors to act put themselves on an equal playing field with their competitors—all companies get improvements at the same time.

To differentiate, and to truly innovate, companies must do a better job of leveraging their information outside the scope of their existing applications.

Figure 1: Innovation requires different levels of effort

Level of fundamental change needed to implement strategy

Source: IBM Business Consulting Services, *Expanding the Innovation Horizon: The 2006 Global CEO Survey, March 2006*

What is driving this change?

Several business drivers are increasing the importance of information availability:

- *The ability to know the most profitable customers (master data management)*
- *The creation of accurate and informative data warehouses and operational data stores (business intelligence)*
- *The need to tie demand signals directly into supply chain replenishment (business transformation)*
- *Cost-reduction initiatives focused on hardware and software consolidation (infrastructure rationalization)*
- *Regulatory compliance (risk and compliance efforts)*
- *Real-time view of sales, accounts receivable and other key business indicators (corporate portals)*

These drivers increase the focus on accurate, timely information as chief executives face potential jail sentences if they cannot accurately account for their risk exposure and standards compliance. Companies lose customers and potential revenue from cross-selling opportunities because they do not know their most profitable customers. And the costs to maintain duplicate or obsolete systems increase while control of information becomes almost impossible with redundant and disparate applications. To supply the right information to the right people in the context they are seeking, companies need to enable their information infrastructure to be more agile and responsive to the various demands of the business.

What is needed to effect this change?

To fully realize the benefits of addressing these critical business initiatives, companies need an enterprise information architecture with the breadth and flexibility to enable access to trusted information wherever, whenever and however it is needed. The delivered information must not only be accessible, authoritative, consistent and timely, but it also must be in context to help managers gain insight and make better business decisions.

To deliver information you can trust across a full range of business requirements, a comprehensive information integration solution must provide six fundamental capabilities:

1. *Connect to relevant applications, data and content, and recognize and respond to data changes in those sources—whether structured or unstructured, mainframe or distributed, internal or external*
2. *Discover, model and govern information structure and content to completely understand data before it is integrated and proliferated throughout the enterprise*
3. *Standardize, merge and correct information to provide authoritative, consistent and complete views of business information and its relationships across the extended enterprise*
4. *Effectively and efficiently collect, combine and restructure high volumes of data for new uses*
5. *Synchronize, virtualize and move information for in-line delivery*
6. *Flexibly publish and manage reusable information services in an SOA*
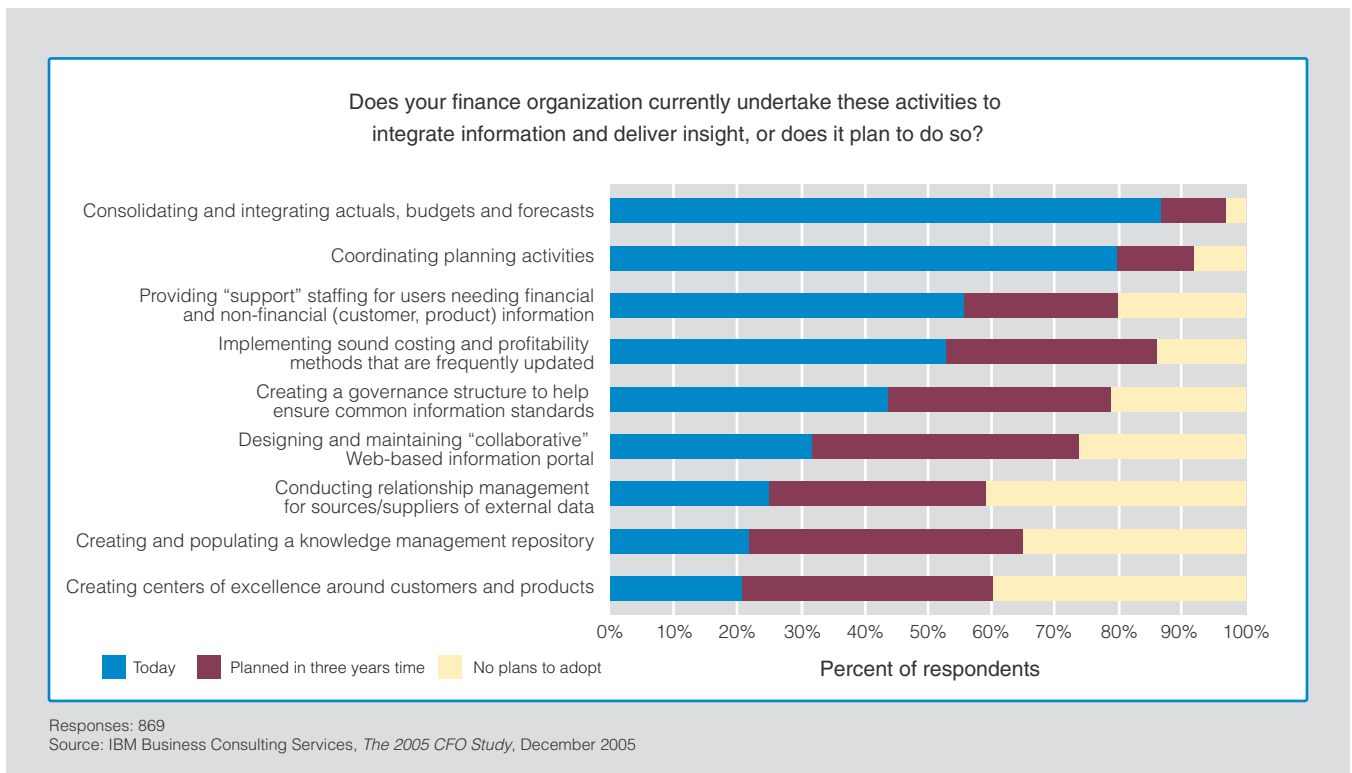
Challenges preventing change

Several technical and operational factors disrupt companies from developing solutions that support their business initiatives:

- ***Multiple versions of the truth** prevent organizations from effectively complying with information-centric regulations or achieving a single view of customers, products or suppliers. Data resides in multiple databases and applications with little governance of consistency or accuracy.*
- *Companies are dealing with **too much information** and cannot differentiate what is important. IT and business users share little about the specific meaning and usage of information because of the lack of metadata, which provides detailed information about the data itself.*
- *Different answers to the same question from different information sources feed a **lack of trust** in the information. Inability to efficiently standardize, merge and correct information from multiple sources breeds contempt for inaccurate information and lack of adoption of new business applications.*
- *Tightly coupling information to specific applications and processes creates a **lack of agility** within organizations, preventing them from innovating. Because multiple point-to-point integration connections must be maintained and updated, it becomes difficult and expensive to facilitate the natural evolution of IT architectures where new systems are implemented and obsolete ones are retired.*

The inability to address any one of these issues greatly reduces opportunities for innovation to take advantage of new market opportunities, respond to new customer demands or counteract competitive threats.

In a recent study of 1,800 global business executives, the most anticipated benefit for the top three IT initiatives was "information availability" (see Figure 2). However, the 2005 IBM Global CFO Survey study found that less than 20 percent of CFOs feel that their organizations are effective at driving integration of information across the enterprise.[3] The bottom line is that businesses expect better information from their investments, but IT projects are not always delivering on these expectations.

Figure 2: Companies that have or plan to have centers of excellence around critical information

Does your finance organization currently undertake these activities to integrate information and deliver insight, or does it plan to do so?

- Consolidating and integrating actuals, budgets and forecasts
- Coordinating planning activities
- Providing "support" staffing for users needing financial and non-financial (customer, product) information
- Implementing sound costing and profitability methods that are frequently updated
- Creating a governance structure to help ensure common information standards
- Designing and maintaining "collaborative" Web-based information portal
- Conducting relationship management for sources/suppliers of external data
- Creating and populating a knowledge management repository
- Creating centers of excellence around customers and products

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ Today ■ Planned in three years time □ No plans to adopt

Percent of respondents

Responses: 869
Source: IBM Business Consulting Services, *The 2005 CFO Study*, December 2005

Customer scenario

Consider the hypothetical case of ABC Corporation, a FORTUNE 500 organization. In recent years, the company has invested heavily in developing a data warehouse to manage and track all activities related to customer interactions: purchase and sales, customer support calls, seasonal buying patterns, promotional effectiveness and so on. ABC currently uses a data warehouse to aggregate, cleanse and standardize information from operational applications for historical analysis and business intelligence purposes. Given the level of investment and the robustness of the data contained in the data warehouse, the company has been seeking new ways to make this information available to other organizations and initiatives in the business to meet needs like these:

- *Conducting analysis of demand on an ongoing basis throughout the day to improve just-in-time manufacturing*
- *Providing a customer self-service portal for customer service and customized shopping*
- *Allowing historical, operational and transactional information to be plugged in line into new business processes and applications to improve responsiveness to customer demands, new market opportunities or competitive threats*

ABC Corporation chose to leverage the new capabilities of IBM Information Server to deliver information as a service to the entire organization.

To streamline supply chain operations, ABC has decided to enable the transformation jobs to feed sales information in real time into the data warehouse and to subsequently feed that information to the manufacturing department. Transformation and data quality jobs actively wait for new information delivered by order-entry applications, and then extract, transform, cleanse and load individual orders into the data warehouse throughout the day.

By trickle-feeding the data warehouse, ABC can help reduce the burden of bulk-loading large volumes of data into the warehouse during batch windows at the end of the day, and the real-time data quality processes help keep demand forecasts accurate. Additionally, by making product order information available in real time to manufacturing, ABC is able to tie demand signals directly into the supply chain, enabling accurate just-in-time manufacturing operations.

To implement more cost-effective self-service portals (off-loading work from the customer service department) and improve cross-selling effectiveness (increasing promotional opportunities for the marketing department), ABC has made the federation, cleansing and transformation capabilities of IBM Information Server available as Web services that can be called directly from the portal when needed. Customers can now review their past order history (transformation jobs pull customer information directly from the data warehouse and present it in the appropriate Web format in real time), order new products or get product questions answered (cleansing jobs improve accuracy of product information and customer addresses) or search for new products in ABC and affiliate partner catalogs (federation jobs query multiple databases and present relevant information as if from a single database). Additionally, IBM Information Server can correlate past purchase behavior to new promotional rules and targeting parameters that are set up by the marketing team, presenting appropriate cross-selling offers to the right customer at the right time. These Web services increase flexibility for ABC to install new merchandising applications without costly rewrites of integration logic, adapt marketing activities and sales promotions based on real-time customer data and improve responsiveness to customer inquiries.

By offering information as a service to the other departments (service-orienting the tasks performed on the information as it flows in and out of the data warehouse), ABC is able to provide information that is accurate, authoritative and reusable in consistent ways. By leveraging historical, analytical and transactional information in new ways to feed business processes and applications, ABC is increasing its agility and adaptability to new market opportunities and customer demands. The company is streamlining supply chain operations and improving customer service while reducing the costs associated with those tasks, and also increasing revenue opportunities by presenting appropriate offers to customers at the time of purchase.

Introducing IBM Information Server

IBM Information Server is a revolutionary new software platform that helps organizations derive more value from the complex, heterogeneous information spread across their systems. It enables organizations to integrate disparate data and deliver trusted information wherever and whenever needed, in line and in context, to specific people, applications and processes.

IBM Information Server helps business and IT personnel to collaborate to understand the meaning, structure and content of any type of information across any sources. It provides breakthrough productivity and performance for cleansing, transforming and moving this information consistently and securely throughout the enterprise so it can be accessed and used in new ways to drive innovation, increase operational efficiency and help lower risk.
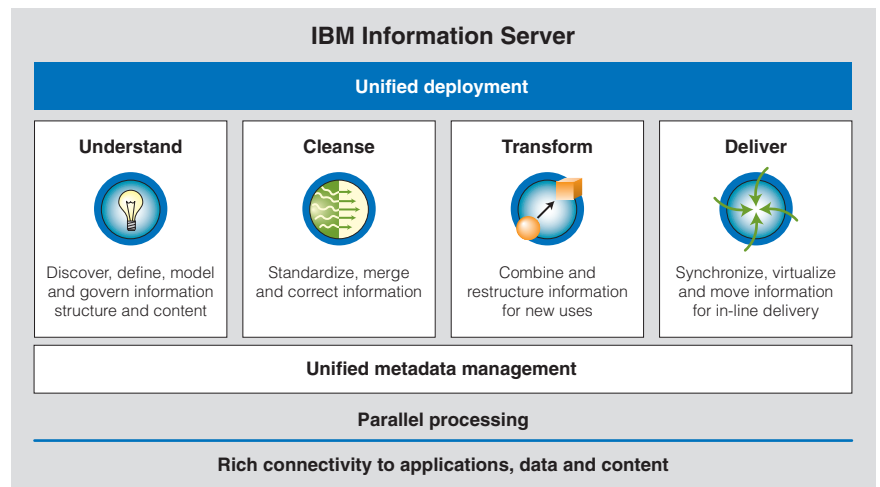
IBM Information Server achieves new levels of information integration speed and flexibility by providing:

- *A **comprehensive, unified foundation** for enterprise information architectures, scalable to any volume and processing requirement*
- ***Auditable data quality** as a foundation for trusted information across the enterprise*
- ***Metadata-driven integration**, providing breakthrough productivity and flexibility for integrating and enriching information*
- ***Consistent, reusable information services**—along with application services and process services, an essential for enterprises*
- *Accelerated time to value with **proven, industry-aligned solutions** and expertise*
- ***Broadest and deepest connectivity** to information across diverse sources: structured, unstructured, mainframe and applications*

IBM Information Server capabilities

IBM Information Server has capabilities to help users understand, cleanse, transfer and deliver data (see Figure 3).

Figure 3: IBM Information Server delivers new levels of information integration

IBM Information Server

Unified deployment

Understand	Cleanse	Transform	Deliver
Discover, define, model and govern information structure and content	Standardize, merge and correct information	Combine and restructure information for new uses	Synchronize, virtualize and move information for in-line delivery

Unified metadata management

Parallel processing

Rich connectivity to applications, data and content

Understand information: Enabling metadata-driven integration

Businesses today deal with massive volumes of data—often without much insight into the content, quality and structure of that data. Complex business transactions from customers and partners plus operational information moving within the enterprise are often the basis upon which key business decisions are made. These decisions are often undermined by the lack of insight and understanding of the data. Common questions arise as a result of this lack of insight and understanding: Where is my customer data? How do I find the information I need? What does this information mean in the current business context? Can I trust this information? Additionally, the lack of a common understanding of the relevance of information between technical and business users affects the usefulness of delivered information.

The first step to facilitate understanding of information across the various roles in the organization is to establish a common vocabulary built on three types of metadata:

- *Business metadata is critical for end users—or consumers—of information so they can be confident that the data they rely on for making business decisions is exactly what they expected.*
- *Technical metadata helps companies understand what information they have today and the reliability of that information, and streamlines development efforts by providing technical users with information about the data elements and how they are*

implemented currently across various systems. Additionally, this metadata can help establish a metadata map of source systems that can be leveraged to build federation queries, improve auditability and provide visibility through impact analysis and direct lineage reporting.

- *__Logical metadata__ enables companies to architect a future state for their IT architecture based on the logical and physical models created by data architects to describe what information should look like in new systems.*

IBM Information Server provides the automated data profiling and analysis capabilities necessary to unlock the mystery of source data content, quality and structure. IBM Information Server provides:

- *Secure, data-driven analysis of application, database and file-based sources to help understand source system structure and usage, and identify missing, inaccurate, redundant and inconsistent data*
- *Active metadata across IBM Information Server, removing the manual burden of metadata management and improving project transparency across roles*
- *Automated discovery of relationships and dependency analysis to establish the true metadata of the source systems*
- *Embedded metadata reports within each product module, enabling developers to quickly assess the impact of change and see where objects are used, without opening separate reporting interfaces*

The key is that multiple roles involved in the typical development project create and consume different types of metadata. These roles typically work in vacuums, sharing information offline or through documents and spreadsheets. However, with IBM Information Server, metadata is managed across these roles and functions. As each role creates new metadata, that metadata is immediately available to others working on the project. This process is managed through the IBM WebSphere® Metadata Server module within IBM Information Server. For example, data analysts who are profiling a source system can link columns to specific business definitions entered in the IBM WebSphere Business Glossary module by subject matter experts. Once that link is created, business users can see the link and understand how and where their business terms are implemented in various source systems.

This use of metadata provides an enormous amount of downstream leverage within projects, helping to dramatically reduce the time between specification and build and thereby reducing project cycle times. The metadata can be used to help shorten the time needed to design integration logic and sometimes even to automate the creation of code. It also creates an ongoing record of shared understanding that carries forward to future projects. The metadata itself becomes an asset that improves the overall understanding of the business and allows projects to be executed more efficiently on an ongoing basis.

Cleanse information: Providing auditable data quality

More and more, the combination of customer, partner and operational information provides the foundation for key business decisions across the enterprise. As data streams proliferate and this data experiences normal degradation of quality within its respective repositories—commonly reported at 2 percent degradation per month—the more error-laden the data sources become. In addition, the decision makers are becoming less confident in using this information to drive the business. Business information needs to be clean: identified, standardized, matched, reconciled and freed of redundancies to help ensure quality and consistency. Providing auditable data quality enables the establishment of a single, logically correct view of core business entities across the enterprise—the foundation for master data management.

IBM Information Server enables trust in information by delivering consistent, high-quality data across the enterprise, facilitating the alignment of business and IT to maintain an understanding of meaning, context and lineage of the data:

- *Standardization of source data fields helps establish consistency in information.*
- *Data quality measurement and baseline comparison capabilities enable the maintenance and understanding of information quality over time.*
- *Record matching across or within data sources removes duplicate data and enables common entities from different sources to be identified and linked together.*
- *A new design interface enables rapid, iterative creation of matching rules, allowing business users to tailor and fine-tune match rules more effectively without long cycle times.*

These functions can be applied to any type of business entity, including customers, products, suppliers, employees and chart of accounts. They also can be deployed as information services within an SOA, available to multiple applications and business processes. This process enables data quality rules to be applied to information universally so that any new data adheres to consistent standards established by the data management team. These functions are vital to improving information quality and enabling a comprehensive view of information for the most important business assets.

Transform information: Accelerating time to value
Business information today moves in, through and out of business systems and processes like a living organism. To achieve Information On Demand, businesses need to tap into that data flow to transform and deliver data of any complexity and volume, from any source—either structured or unstructured—for new or existing business contexts, within or outside the enterprise, at exactly the right time.

IBM Information Server leverages powerful parallel processing technology to help ensure that enormous volumes of information can be processed very quickly. With this technology, processing capacity is never an inhibitor to achieving project results, and solutions easily expand to incorporate new hardware and to fully leverage the processing power of all available hardware.

IBM Information Server dramatically simplifies how organizations deal with heterogeneous information, allowing information to be quickly and easily understood, integrated and delivered to meet any business requirement:

- *Combined data quality and transformation functions reduce the complexity of common tasks, helping to reduce the number of steps and the development time by up to 40 percent compared with development using separate tools and engines.*
- *The integration process is optimized for reuse of objects across data flows throughout the enterprise.*
- *Codeless, visual design of integration procedures enables faster job development.*
- *Hundreds of prebuilt transformation rules come right out of the box.*
- *Slowly changing dimensions can be defined in a single stage per dimension, helping to dramatically reduce development and maintenance time.*

With IBM Information Server, it is easy to begin with any function and then expand to additional functions, flexibly addressing many types of project needs and tailoring the implementation to your business and technical requirements and available skills.

Deliver information: Providing information in line and in context

In enterprise environments today, there is an unavoidable requirement to enable applications to access and update integrated data and content in real time, on an event-driven basis or in bulk, while also retaining the autonomy and integrity of the data and content sources.

IBM Information Server provides federation capabilities that allow applications to access and integrate diverse data and content—structured and unstructured, mainframe and distributed, internal and external—in real time, as if it were a single resource, regardless of where the information resides, while maintaining source integrity and autonomy. Additionally, IBM Information Server enables event-based replication between databases for high availability and disaster recovery, data synchronization and data distribution. Furthermore, to help ensure that critical information is always up to date, event publishing capabilities are available to detect and respond to changes in source systems. Changes are published to subscribed systems or fed into other modules for event-based processing. These broad capabilities allow all information sources to be considered, providing a complete view of information in a timely and efficient manner.

IBM Information Server provides:

- *Visual metadata and schema-based federation designs to make the creation of federated views much simpler and more productive*
- *An open, standards-based approach that leverages existing information assets and avoids the need to "rip and replace" systems to realize gains*
- *Federated two-phase commit, allowing updates to multiple data sources simultaneously within a distributed system, while maintaining data integrity across distributed sources*
- *Real-time access to and integration of a wide range of structured and unstructured sources, including databases, files, packaged applications, content repositories and collaboration systems*

Connectivity and performance: Scaling to meet your needs as they evolve

As businesses have grown through mergers and acquisitions, organic growth and expansion of new business opportunities, so have the IT architectures that manage their business operations. Your company probably has a plethora of databases and applications—all critical to different departments within your organization. To leverage the information contained within those systems, you need the ability to access it efficiently and accurately.

IBM Information Server provides the broadest and deepest connectivity to information across diverse sources, including structured, unstructured, mainframe and application data sources. Metadata-driven connectivity is shared across the platform and connection objects are reusable across functions, making it easier than ever to get to any type of information across the enterprise.

Additionally, as the volume and variety of information grow, so does the need to process that information in batch, real-time or service-oriented ways. IBM Information Server leverages powerful parallel processing technology to process huge volumes of information very quickly and its connectors are optimized for multiple modes of usage—bulk movement of large volumes of data for data warehousing and historical analysis, and real-time and event-driven processing of operational and transactional data with low latency.

The need for reuse: Delivering information as a service

Typical approaches to information integration rely on individual, point-to-point integration procedures for individuals, business processes or applications. As companies' environments naturally evolve, this tight coupling of data access to application and process logic makes these processes very fragile: Any change to data logic or sources forces every process or application touching that data to change. For example, companies commonly retire legacy systems in favor of a new packaged application, or consolidate multiple instances of an application (SAP R/3, for example) into a single instance. In these situations, the legacy systems, once critical sources of information, were tied directly to many other applications and business processes. Retiring those systems and implementing a new solution requires that all interfaces be updated. Transformation logic must be changed, data validation procedures require rework and the entire system must be tested prior to moving into a production environment. This process can become arduous and complex as IT environments naturally expand and contract.

SOA principles are being applied to many types of system infrastructures. In the realm of enterprise data management, SOA principles are being applied to the way information is created and distributed throughout the organization. An information service is a type of service that provides managers of shared

information assets, such as customer records or product descriptions, with a consistent, auditable and secure way to share an asset while maintaining control over how it is used. For the service consumer, the information service is a trusted information source provisioned by people who understand the meaning of the data and can ensure its accuracy and completeness. By separating the interface from the implementation, service providers are free to change how and where the data is produced and managed internally.

By decoupling information from the complex, heterogeneous data sources and offering it as reusable services, organizations can reuse core logic for information access, transformation and cleansing across systems. Data transformation services can be reused and applied not only to large batch jobs, but also to enterprise application integration (EAI) flows for consistent information delivery. Data quality services can be utilized within direct feeds from applications—packaged and home grown—for delivery of de-duplicated and standardized information.

Reporting tools and portals can benefit from the consistent access to multiple structured and unstructured data sources in real time provided by data federation services. Additionally, integrated business and technical metadata about those information services and the information they deliver facilitates a common understanding across roles in the organization, greatly enhancing reuse and rapid adoption of information services as a preferred information integration mechanism.

By providing information as a service, businesses can improve the availability and consistency of information and remove the traditional barriers to information sharing (see Figure 4). Information services can be reused across the enterprise, dramatically improving the productivity of IT resources. Once in place, this information integration infrastructure provides great downstream leverage, allowing IT to address new challenges with more flexibility and to gain better control over information quality and accessibility.

Figure 4: Information as a service enables consistent packaging of information services
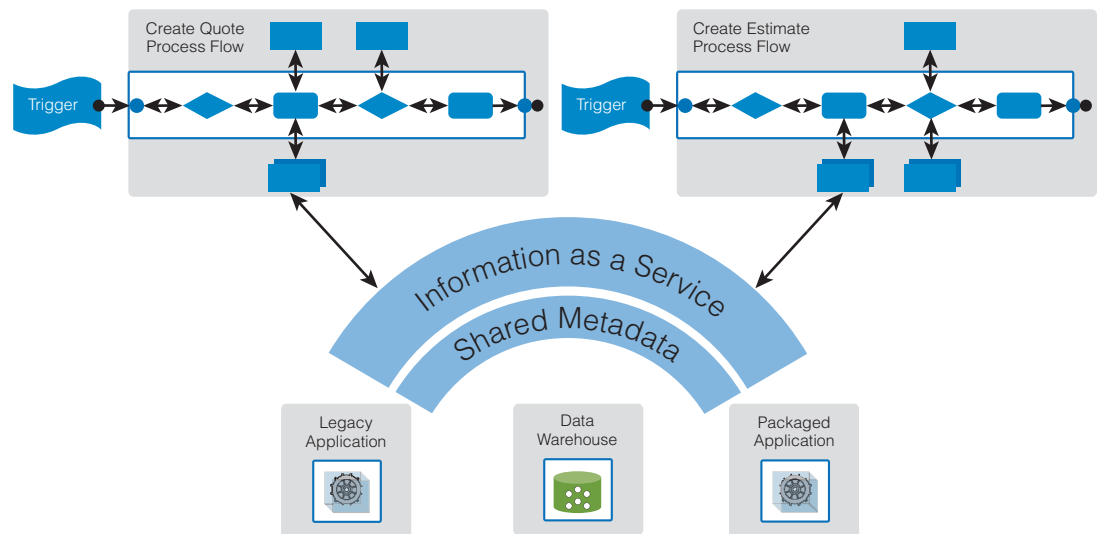
IBM Information Server delivers information services using an SOA framework that provides:

- *Rapid deployment through a single administrative interface to deploy a service–including service definitions in Web Services Description Language, directory entries and service artifacts in application servers–in minutes without requiring special programming skills*
- *Flexible bindings–services can be deployed as Enterprise JavaBeans™ (EJBs), Java™ Message Services (JMS) or Web services to meet diverse project requirements*
- *Metadata visibility from services to data sources and an understanding of the impact of any data structure change on deployed services*
- *A scalable, fault-tolerant architecture–load balancing provides the performance and high availability that customers need*

Focused information management professional services

With business growth comes an expanding IT infrastructure. To meet internal and external demands for new applications and functionalities, organizations may have a patchwork of servers, storage devices, specialty software and general business applications. What they need is an information infrastructure that provides information about where data lives and how it flows through various systems, and one that also helps to eliminate bottlenecks that can slow the movement of data through the system.

Determining the best way to fully integrate such a heterogeneous environment can be daunting. While IBM Information Server provides the technology to resolve these integration challenges, information integration professional services can help you achieve success by providing expert assessment of your IT landscape and helping chart the best course to increase data performance and reliability.

Considering experienced information management and integration services should be part of the total information management decision, because experienced services can speed the investment-to-payoff cycle as well as bring solid data system design, architecture and validation skills into the build of a superior final solution. Each client solution should be customized based on its unique needs and optimized to its existing IT assets. IBM Information Management Services helps clients configure an integrated IT architecture that incorporates leading technologies and maximizes both current and subsequent investments in information management by:

• *Integrating data to support business initiatives*
• *Improving the productivity of employees, customers and partners*
• *Raising the confidence levels in data validity and integrity*
• *Simplifying existing information assets to lower or avoid costs associated with new applications*

Professional engagements are designed to ensure a proven IT architecture that allows you to adopt new business solutions without fear of overburdening systems or losing investments in current assets. It can help avoid silos of functionality, and in supporting an integrated IT environment, the services aspect can increase your confidence that the critical data produced by one user is the same, accurate data available to another user—in real time.

Business initiatives driving information integration

Information availability is at the heart of most critical business objectives of companies today. Companies are investing heavily in initiatives focused on managing information complexity and providing better information across the enterprise. Six initiatives are frequently listed as top priorities. Within each of these initiatives, information integration serves as a component of the foundation. Leveraging IBM Information Server can help achieve success.

As a result of master data integration at Taikang Life Insurance, it now takes one person—rather than a staff of more than 10 employees—to compile real-time, consolidated business reports.

Master data management: Providing a single view of the enterprise

Every business has elements of core reference data that are used in multiple types of applications and business processes. They represent the organization's understanding of its most important business information, including customers, suppliers, products, inventory, bills of materials or parts. This type of data, known as master data, comprises the most important information assets for any company. For example, customer reference data is vital to understanding customer buying patterns, identifying up-sell opportunities, providing a higher level of customer service, tailoring and optimizing marketing activities, and predicting and addressing business triggers such as renewals, recalls and upgrades. However, the importance of master data is not always fully understood.

Organizations that recognize the importance of this data often develop master data management initiatives. In this context, IBM Information Server helps organizations develop authoritative master data by enabling master data integration—helping companies understand where and how information is stored across source systems; consolidating disparate data into a single, reliable record; cleansing and standardizing the information; removing duplicates; and linking records across systems. This master record can be loaded into operational data stores, data warehouses or master data applications like IBM WebSphere Customer Center. It also can be assembled either completely or partially—on demand.

Business intelligence: Driving business decisions

The discipline of business intelligence and data warehousing is being used by organizations to build analytical applications that answer key strategic and operational business questions. Unfortunately, the lack of data transparency and data quality across the sources that feed these analytical applications inhibits the success of almost every initiative. Data stored in data warehouses or data marts forms the basis of the analytical application and needs to represent a superset of data available across multiple applications. The source and definition of the data must be easily understood by the business user of the analytical application.

By decoupling the information contained within these data warehouses or datamarts and making it available as a service to the organization, businesses can leverage some of the highest quality data available in new and innovative ways. Injecting this information in real time into business applications allows companies to streamline supply chains and optimize inventory levels.

For business intelligence, IBM Information Server helps organizations develop a unified view of the business, enabling better decisions by helping them understand existing data sources; cleanse, correct and standardize information; and load analytical views that can be reused throughout the enterprise.

The State of New Jersey saved an estimated US$500,000 in IT development costs and expects to save as much as US$8 million overall by automating the integration of data from four disparate systems into agency-specific datamarts.

Zhejiang Transportation Bureau dramatically increased customer satisfaction through the integration of more than 100 ticketing agencies.

Business transformation: Becoming an On Demand Business

The simple fact that businesses need to respond faster to the information demands placed on them is fueling a reconsideration of the requirements to make business transformation work. In many cases, inhibitors to the timely flow of information must be removed. Once information is made available in a timely, accurate and reliable manner, it can enrich operational processes and decisions.

For business transformation initiatives, IBM Information Server helps organizations speed development and increase business agility by providing reusable information services that can be seamlessly plugged into applications, business processes and portals. These standards-based services are maintained centrally by information specialists, with a single point of maintenance, but are widely accessible throughout the enterprise.

Infrastructure rationalization: Saving money through simplification

Driven by the need to increase shareholder value, companies seeking to reduce their business complexity are looking at their IT infrastructure to cut costs. IT departments are discovering a proliferation and fragmentation of separate regional, departmental or business unit systems, making their enterprise expensive to maintain and difficult to change.

To achieve cost reductions, many companies are simplifying their information infrastructures using two distinct solutions or a combination of the two. First, companies are undertaking instance or application consolidation—reducing the number of separate copies of a single enterprise application. Second, companies are federating disparate information sources across and beyond the enterprise—making it appear to the end user as if there were a single source.

For infrastructure rationalization, IBM Information Server helps organizations reduce operating costs by allowing them to understand relationships between systems, and define migration rules for consolidating instances or moving data from obsolete systems to new applications and databases. Within this process, data cleansing and matching are applied to help ensure the highest possible data quality in the new system.

Risk and compliance: Reducing exposure and consequences

The information required for both managing and regulating businesses continues to grow at an unprecedented rate. The management of this information has increasingly come under the scrutiny of industry regulators. The typical large organization must comply with literally thousands of regulations involving information management. IT managers must comply with a wide variety of government standards and regulations, many recently enacted, that specify how to handle information. Some recent regulations have dramatic effects on whole industries and the way businesses operate.

For risk and compliance projects, IBM Information Server helps organizations improve visibility and data governance by allowing them to define and maintain complete, authoritative views of information with proof of lineage and quality. These views can be made widely available and reusable as shared services, while the rules inherent in them are maintained centrally.

Mazda improved access response time by 93 percent and implemented its systems in under two months without infrastructure changes.

Corporate portals: Providing on demand access to the enterprise

As companies continue to drive for higher revenues and greater operational efficiency, IT leaders frequently seek better ways to access, integrate and act upon critical business information. Corporate portals have become the standard way of delivering information to business users. The primary mission of a corporate portal is to make information available to those who need it, allowing users to personalize how and when they receive information as well as the context in which they receive it.

For corporate portals, IBM Information Server delivers consistent, high-quality information across the enterprise, providing information that users can trust and facilitating the alignment of business and IT to meet strategic business goals.

Conclusion

Using information effectively can help your organization outperform competitors, create innovation and build shareholder value. Effective information integration can help accelerate success in key business initiatives. Whether the focus is a single integration project or a broad infrastructure initiative, IBM Information Server provides the proven, scalable and reliable technology needed for risk reduction and accelerated success.

IBM Information Server product modules and companion products

IBM WebSphere Information Analyzer: Profiles and establishes an understanding of source systems and monitors data rules on an ongoing basis to eliminate the risk of proliferating "bad" data

IBM WebSphere QualityStage™: Standardizes and matches information across heterogeneous sources

IBM WebSphere DataStage®: Extracts, transforms and loads data among multiple sources and targets

IBM WebSphere Federation Server: Defines integrated views across diverse and distributed information sources, including cost-based query optimization and integrated caching

IBM WebSphere Information Services Director: Enables information access and integration processes to be published as reusable services in an SOA

IBM WebSphere Metadata Server: Provides unified management, analysis and interchange of metadata through a shared repository and services infrastructure

IBM WebSphere Business Glossary: Creates, manages and searches metadata definitions

IBM Rational® Data Architect: Provides enterprise data modeling and information integration design capabilities

IBM WebSphere Replication Server: Provides high-speed event-based replication between databases for high availability, disaster recovery, data synchronization and data distribution

IBM WebSphere Data Event Publisher: Detects and responds to data changes in source systems, publishes changes to subscribed systems or feeds changed data into other modules for event-based processing

Data source connectors

- **Structured:** *Native high-speed, bulk and event-driven connectors to all types of databases, including relational, non-relational and XML, as well as other file systems and hierarchical data sources*
- **Unstructured:** *Content-optimized connectors to unstructured data sources, including content repositories, file systems, e-mail systems and workflow engines*
- **Application:** *High-speed and bulk metadata-driven connectors to packaged applications, including SAP, PeopleSoft, Siebel, JD Edwards and others*
- **Mainframe:** *Native high-speed, bulk and event-driven connectivity to all mainframe data sources*

For more information

For more information about IBM Information Server and related services, please visit our Web site at **ibm.com**/software/data/integration

TAKE BACK CONTROL WITH **Information Management**

IMW11782-USEN-00