



**WebSphere** software

**Connecting business-critical  
applications across and beyond  
your enterprise.**

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**Introduction**

IBM WebSphere® Business Integration Connect, a key product in the WebSphere Business Integration portfolio of products from IBM, provides an environment that allows businesses to connect to each other so they can exchange data and share processes in a highly secure and auditable manner. Built on IBM WebSphere Application Server, WebSphere Business Integration Connect software integrates with IBM WebSphere Business Integration Server and IBM WebSphere Portal Server, helping you connect processes, people, applications and systems end-to-end across your enterprise.

IBM’s business integration portfolio gives you the breadth of function you need to efficiently tackle virtually any integration challenge. The robust, reliable products that make up the WebSphere Business Integration portfolio deliver six key capabilities, shown in Figure 1, that can help you accelerate your company’s transformation into an on demand business.



Figure 1. The six integration capabilities provided by WebSphere Business Integration software

This white paper focuses on the integrate capability, explaining the benefits of integrating more closely with trading partners – and how WebSphere Business Integration Connect software can help you achieve this connectivity.

WebSphere Business Integration Connect can offer you substantial benefits, regardless of the size of your business. It can help you overcome the obstacles of managing information with trading partners by enabling you to connect with virtually any number of them using a wide range of industry-standard protocols, such as RosettaNet, AS2 and XML. The software also works on a variety of operating system platforms, such as IBM AIX®, Linux, Sun Solaris operating environment and Microsoft® Windows® 2000.

Three editions of WebSphere Business Integration Connect meet different trading-partner connection requirements and deployment models.

- *IBM WebSphere Business Integration Connect Enterprise Edition, if your enterprise requires unlimited numbers of trading-partner connections.*
- *IBM WebSphere Business Integration Connect Advanced Edition, if your business requires connectivity to a growing number of trading partners and you want to accommodate growth in trading-partner connections more cost-effectively.*
- *IBM WebSphere Business Integration Connect - Express, if your business wants to integrate with trading partners quickly, simply and cost-effectively. You can also use WebSphere Business Integration Connect - Express as a spoke option when you want to enable large trading communities with a consistent protocol and software-delivery model.*

#### **Connecting enterprises to increase efficiency and business value**

The phrase *business-to-business (B2B)* is often used to describe inter-enterprise integration or the implementation of a message-based business integration framework that allows you to extend business processes between trading partners. Enterprises recognize the importance of B2B connectivity as a key component of a solid business integration strategy. According to an Evans Data Corporation report, the number of B2B e-commerce projects being planned rose by 40 percent over the last six months of 2003, moving these projects from eleventh place to first in the list for enterprise development project plans.<sup>1</sup>

The renewed drive toward combining intra-enterprise (enterprise application integration [EAI]) and inter-enterprise (B2B) solutions is driven primarily by progressive organizations that want to realize cost savings by expanding their business processes to their customers and trading partners. In effect, these organizations are creating a tightly integrated, extended organization capable of connecting the business processes of customers, suppliers, governmental agencies and logistics providers. Driven by the competitive importance of effective B2B communication, these new initiatives build on the B2B communication capability achieved by many industries – such as retail, manufacturing, healthcare and government – over the past 30 years. Gartner predicts that by 2007, 60 percent of enterprises will use a B2B gateway to centralize B2B communications.<sup>2</sup>

Your business is driven by events: the delivery of supplies, products and information; the receipt of an invoice; or a process exception. Your organization's ability to handle these events successfully depends on:

- *Defining events your company expects to generate by interacting with trading partners, such as the successful exchange of information, exchanging information outside expected hours or errors occurring in the data-handling process.*
- *Creating a process to execute when a particular event occurs, such as sending an e-mail to the appropriate party, or triggering another process within the enterprise.*
- *Looking at each trading partner's definition and then drilling down to all the individual exchanges of information with that trading partner to see the successes and failures, and even to see the data exchanged.*
- *Extending this visibility to each of your trading partners so they can validate the data exchanged with your enterprise and that it was received successfully.*

Some events may occur outside the physical limits of your business – in a distributor’s warehouse, in a supplier’s manufacturing facility or in a bank’s payments system. To respond effectively to these events you need the systems, applications and information that can let you know they’ve happened, as soon as they’ve happened. By more closely integrating your business processes with those of your trading partners, you can be fully aware of the events that impact your business, directly or indirectly. Your organization and your processes can respond quickly with timely decisions that drive competitive advantage and position your business for future growth.

To build a strong B2B environment, you need the flexibility to adapt to your trading partners’ ever-changing processes and their unique connectivity requirements. You need real-time visibility into multitier, trading community-wide processes that enable you to exchange clean, error-free data with everyone along your value chain. You need a solution that enables you to start small, while maintaining a high quality of service with larger numbers of participants as your business grows. Above all, a successful B2B environment is based on processes that are monitored, managed and improved to deliver information more quickly and more cost-effectively than ever before.

**B2B diversity: supporting trading partners and customers using multiple standards**

Historically, companies have exchanged vital trading data using value-added networks (VANs) designed to support electronic data interchange (EDI). VANs supported the posting or pulling of batches of EDI messages tailored according to industry or geographical criteria. As the amount and timeliness of information exchanged between companies has grown, so too have the costs and risks associated with using VANs.

The emergence of the Internet led to the development of EDI for the Internet (EDI INT) standards, which have become one of the core capabilities required to successfully trade with large numbers of business partners, suppliers and customers. Companies now have the option to do real-time EDI on the Web at potentially lower costs and with a more rapid response than current VAN services. This development has made the ability to interact with mission-critical trading partners easier and more accessible.

With the B2B environment so widespread in all its forms, whether using EDI-, flat file- or XML-based standards, the demand for an inclusive, holistic approach to B2B is rapidly increasing. Regardless of the data format, companies of all sizes want to leverage B2B capabilities to extend internal business processes and integrate them with trading-partner processes. The nature of modern, complex B2B value chains means that even the largest retailer, manufacturer, hospital or government agency can be directly impacted by the business processes of much smaller B2B trading partners. As a result, you may wish to establish a trading hub from which you can have visibility into your trading partners' processes. The integration of B2B processes and data exchanges into the wider enterprise integration infrastructure means that you can enjoy an unprecedented view of all your trading activities. You can analyze each distinct trading relationship and determine whether the ongoing maintenance of that relationship makes good sense for your business. You can more clearly understand the impact – including business value and cost – that any trading-partner relationship has upon your business. And this increased ability to monitor these business activities increases the benefits seen from these new forms of trading relationships. Real-time awareness of interactions with trading partners can tie into your enterprise integration systems to deliver faster response times. You can more quickly identify not valid or incomplete data received from your trading partners. And you can catch delayed responses in time to prevent larger failures. All enabling your enterprise to increase end-user satisfaction and drive down your supply-chain costs.

A key set of trading partners are small and midsize businesses (SMBs). By 2005, more than 60 percent of SMBs will use some software technology to integrate their operational applications with those of their customers (0.7 probability).<sup>3</sup> They will require very quick, easy and cost-effective integration with a wide variety of other businesses of differing sizes. WebSphere Business Integration Connect software has the breadth of function to address the needs of both large enterprises and SMBs, allowing virtually any business to extend processes beyond the limits of the enterprise and into trading-partner organizations.

### **Improve your interactions with trading partners and customers**

WebSphere Business Integration Connect, Version 4.2 helps you create or improve your interactions with external entities, such as trading partners and customers. It's a B2B gateway focused on connecting enterprises of varying sizes so you can help ensure the tight integration of information exchanges that make up your trading relationships. Using WebSphere Business Integration Connect can help you derive better value from your extended value chain by making it more efficient and more responsive. The improved integration between your organization and its trading partners can shorten the end-to-end process of communicating with your trading partners and can help you streamline the business processes that rely on interactions with those partners. WebSphere Business Integration Connect includes streamlined event handling and integrated linkage with applications and integration products, such as WebSphere Business Integration Server, to provide potentially substantial reductions in human errors and administration costs, which can directly affect your bottom line. You can also avoid exchanging bad (not valid or incomplete) data with another organization by taking advantage of the automation capabilities in WebSphere Business Integration Connect software – helping reduce the incidence of bad data, or enabling you to identify it earlier in a business process.

WebSphere Business Integration Connect, Version 4.2 leverages the wider business integration capabilities of the WebSphere Business Integration portfolio, helping to demonstrate the intrinsic value a robust B2B environment has as part of an overall EAI strategy. WebSphere Business Integration Connect, Version 4.2 is designed to enable your enterprise to extend intra-enterprise integration to partners beyond the firewall. You can then choose to integrate by sharing processes or by exchanging data.

You can use WebSphere Business Integration Connect Enterprise Edition or WebSphere Business Integration Connect Advanced Edition to connect to large numbers of trading partners, allowing your procurement organization to manage hundreds or even thousands of suppliers or trading partners within a single enterprise infrastructure. You can leverage this function to integrate your business processes with those of any number of trading partners, either in a peer-to-peer relationship or in a more differentially sized relationship, where your organization can be represented as a hub and other partners can be represented as spokes to the hub. If you're deploying WebSphere Business Integration Connect to handle high numbers of transactions, across multiple processors, but with a relatively small number of trading partners, WebSphere Business Integration Connect Advanced Edition is probably your best choice. If you want to connect to large numbers of trading partners, but you aren't necessarily expecting a high number of transactions per trading partner, and thus have a smaller processing requirement, WebSphere Business Integration Connect Enterprise Edition may be more appropriate. Both product editions provide equivalent functions, but offer flexible deployment strategies to suit a variety of deployment requirements.

Not all companies want to connect to hundreds of different external organizations. Smaller enterprises still need the ability to connect to their trading partners and customers, even if they have less sophisticated internal integrated infrastructures. SMBs can take advantage of improved external connectivity to minimize the potential for human error and to reduce the incidence of data that is incomplete or not valid. And they can respond more effectively to the needs of larger trading partners.

IBM addresses the unique requirements of SMBs with IBM WebSphere Business Integration Connect - Express, designed to reflect the needs of smaller businesses that want to simply improve their exchange of information with external enterprises. WebSphere Business Integration Connect - Express enables smaller businesses to connect their business processes with even very large enterprises. And large enterprises can include businesses of all sizes in



their community of trading partners, generating the critical mass required to make the wider integration with trading partners for larger enterprises a viable business proposition. For example, a large petroleum company may wish to integrate with all of its franchised garage affiliations, so it buys the hub product (IBM WebSphere Business Integration Connect Enterprise Edition or IBM WebSphere Business Integration Connect Advanced Edition). It also purchases as many WebSphere Business Integration Connect - Express software licenses as it needs for the outlets themselves. Now, the company has an operational B2B environment founded on an integrated trading-partner community, all using the same set of business processes and applications. And because WebSphere Business Integration Connect software is based on open standards, virtually any software that supports the chosen exchange standard or protocol can be used on either side of the B2B environment.

WebSphere Business Integration Connect, Version 4.2 helps you to rapidly establish and support numerous trading-partner exchanges – providing real-time visibility across the value chain. So everyone involved can quickly anticipate, identify and resolve problems.

#### **Deployment versatility to meet your unique business requirements**

WebSphere Business Integration Connect offers a versatile approach to deployment, allowing businesses of all sizes to use it in varying configurations. You can deploy it on a single server – or on multiple servers – depending on the specific needs of your organization. Shared work queues and a highly available storage system enhance document-queuing capabilities and smooth peaks in system demand. The distributed-architecture design, coupled with redundant configurations for Internet Protocol (IP) load balancing and shared storage, permits dynamic environment configuration without the need for system downtime.

You can choose how you want to implement and deploy your B2B solution through a variety of configurations. Figure 2 shows these configurations.

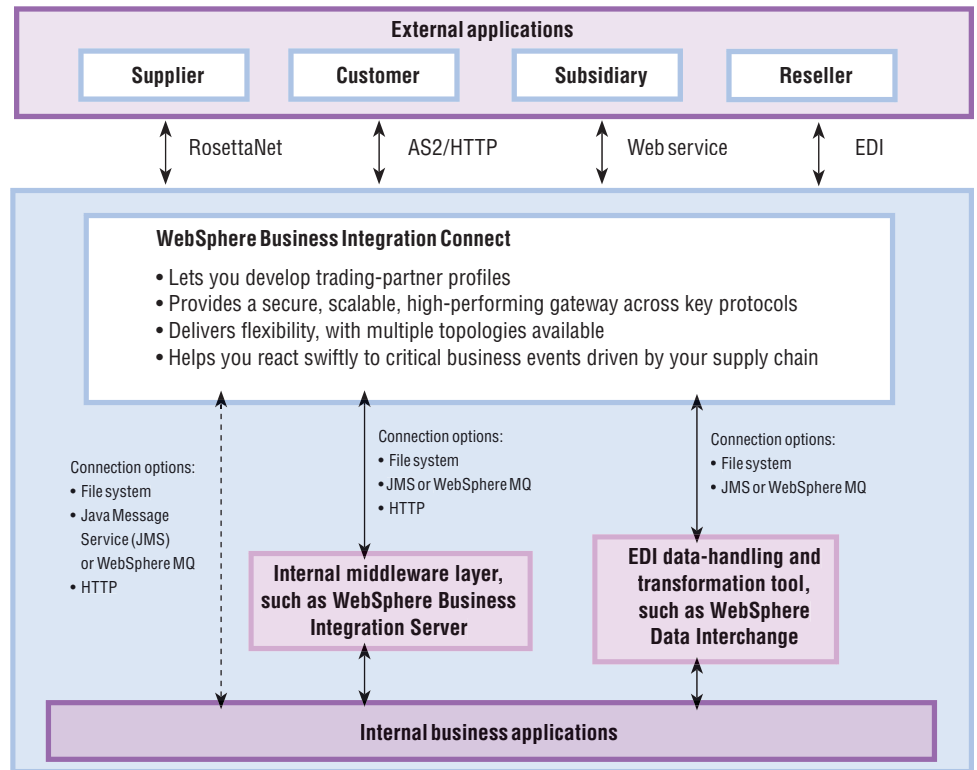


Figure 2. B2B deployment configuration options

- Use just the gateway function to exchange data with trading partners more efficiently.
- Extend internal processes to trading partners outside the firewall by using WebSphere Business Integration Connect software in conjunction with a process engine, such as IBM WebSphere InterChange Server.
- Link WebSphere Business Integration Connect software with other components that are part of the integration infrastructure. For example, link with data transformation software, such as IBM WebSphere Business Integration Server, or EDI-specific software, such as IBM WebSphere Data Interchange.
- Combine a solution using WebSphere Business Integration Connect for application and process integration between trading partners, with a solution using WebSphere Portal Server to provide human-driven, trading-partner integration support for a comprehensive B2B solution.

These options allow your organization to enhance, grow and focus on the value of your trading-partner communities by streamlining interactions and tightening integration across your value chain. Your enterprise can then deliver better value from the integrated supply chain and extended value chain associated with each trading partner or customer. Each member of the trading-partner community can respond more effectively to the needs of customers and suppliers through fast, efficient processes that can lower costs and reduce the likelihood of errors. With quick activation, extensive visibility across the supply chain, flexible implementation options and integration with other B2B components in the enterprise, WebSphere Business Integration Connect provides the rich features required to give all participants exchanging data in your B2B environment optimal business value. Whether you simply want to connect one or two of your key trading partners. Or you want to build large-scale communities of trading partners.

**Technology that lets you manage your business processes through a single point of access**

WebSphere Business Integration Connect creates a framework that allows you to implement each individual connection with external entities through repeatable processes. Yet you can maintain these connections within a single management environment. WebSphere Business Integration Connect can help you move into the on demand world by helping to activate trading-partner connections quickly and by allowing you to enhance function through community integration services to provide 24x7 hosted operations if required. Because it supports multiple file formats, certificate authorities and major industry-standard Internet transport protocols, WebSphere Business Integration Connect helps ease integration of new B2B communication and the consolidation of existing B2B infrastructures. You get:

- *24x7 at-a-glance visibility into the performance of your extended business processes*
- *Robust data-integrity tools*
- *Proven interoperability*
- *Assured delivery*
- *A platform that can grow as your business needs evolve*

*24x7 at-a-glance visibility into the performance of your extended business processes*

Browser-based tooling provides visibility into all aspects of your community integration, from the time a trading partner joins the community to the operation of the production environment. And you can extend the function of WebSphere Business Integration Connect software by adding separately available community integration services from IBM that provide different levels of services, including installation and configuration help, the ability to define relationships and operational hosting.

One of the key benefits of using WebSphere Business Integration Connect Advanced Edition or WebSphere Business Integration Connect Enterprise Edition to provide a B2B environment is the up-to-the-second visibility of data flows across the enterprise and out to trading partners. You can dynamically manage and configure the system, including valuable aspects, such as console branding, permissions, password policies, workflow and object routing. You can also use the community participant simulator, a test tool that helps ensure B2B software functionality and data integrity.

Operational data is available to more than the enterprise running the B2B environment. With WebSphere Business Integration Connect, you can grant each trading partner access to the management console, allowing them a filtered view of the data relevant to individual needs. Each partner can drill into transactions, viewing individual message status (received, in progress, failed, successful), as well as document content and choreography. WebSphere Business Integration Connect uses a range of summary views to build a comprehensive audit trail and event log. An error troubleshooting tool rapidly pinpoints and analyzes document structure and format errors based on field location and value, and then recommends corrective action. Permitting trading partners to securely access their own data can greatly help to reduce support costs.

*Robust data-integrity tools*

The benefits derived from using a B2B environment depend on the accuracy and security of data flowing in and out. WebSphere Business Integration Connect offers a host of robust tools to help ensure data integrity. Predefined, customizable query tools help you locate documents by trading partner, document ID, time stamp, protocol and document status. Errors in document structure and format are identified based on field location and value, with corrective actions suggested based on comprehensive error analyses. A robust alert engine generates an e-mail to notify users about exceptions.

To protect your organization's systems against lost data and to verify document transmission and receipt in case of queries, data repositories in WebSphere Business Integration Connect Advanced Edition and WebSphere Business Integration Connect Enterprise Edition store original and final documents, document origin information, transport method information (HTTP, File Transfer Protocol [FTP], Simple Mail Transfer Protocol [SMTP]), and packaging information (RosettaNet Implementation Framework [RNIF], AS1/AS2). System security is enhanced by Secure Sockets Layer (SSL) server-based authentication, preventing unauthorized parties from intercepting proprietary business data, and a permission model is employed to configure and enforce access rights.

To help protect your organization against fraud and unauthorized data use, WebSphere Business Integration Connect Advanced Edition and WebSphere Business Integration Connect Enterprise Edition support digital signatures while employing industry-standard (RSA) document encryption and decryption, and security tools. For data validation, the solution confirms data-element type and length, checks value range, and also executes cardinality checks for optional and required fields.

*Proven interoperability*

To help you facilitate document transport, WebSphere Business Integration Connect Advanced Edition and WebSphere Business Integration Connect Enterprise Edition support multiple Internet transport protocols, including HTTP over SSL (HTTPS), FTP, SMTP, Simple Object Access Protocol (SOAP) and Java™ Message Service (JMS). For document packaging and unpackaging, multiple industry trading protocols are supported, such as RNIF, Version 1.1 and RNIF, Version 2.0, EDIINT (AS1 and AS2), and proprietary XML and HTTP frameworks. Using Extensible Style Language Transformation (XSLT) and Java document translation capabilities, you can modify messages at the hub level.

WebSphere Business Integration Connect includes full support for RosettaNet standards, key to many of today's global B2B implementations. RosettaNet is an independent, nonprofit consortium dedicated to the collaborative development and rapid deployment of open, Internet-based business standards to align processes within global-trading networks. The design of the WebSphere Business Integration Connect B2B offering from IBM is the result of expertise gained by working with and running some of the largest RosettaNet hubs. For flexibility in conducting business with a variety of trading-partner communities, WebSphere Business Integration Connect includes more than 20 RosettaNet Partner Interface Processes (PIPs). It complies with RosettaNet standards, including RNIF, Version 1.1 and RNIF, Version 2.0.

Support for the interoperability of key standards, such as AS2 and RosettaNet, is so critical to B2B processing that standards bodies provide verification of products' compliance. WebSphere Business Integration Connect is certified as eBusinessReady by the Drummond Group, which certifies compliance to the AS2 standard. WebSphere Business Integration Connect is also certified as RosettaNet Ready by Drake Certivo for RosettaNet.

*Assured delivery*

If you send a message to a trading partner – but it isn't received and you don't know that – the satisfaction of everyone along your value chain can suffer, and your organization's reputation can be compromised. With WebSphere Business Integration Connect, you can help ensure end-to-end delivery of a transaction, from the initiating partner to the receiving partner. To preserve the integrity of critical business activities and help assure end-to-end delivery, WebSphere Business Integration Connect also provides sophisticated message-queuing capabilities. For example, if a message is sent to a trading partner's system with an unavailable gateway, WebSphere Business Integration Connect holds the message for later delivery. The system continues to try resending the message at both transport and process levels. After the system exhausts the configured number of retries, it notifies the hub of the failure through specifically configured error and exception messages.

WebSphere Business Integration Connect also employs a process-state repository for tracking time-to-perform, time-to-acknowledge, nonrepudiation and authorization requirements, retry counts, failure and success conditions, and time-stamp processing. You achieve full visibility into the document-processing status, while preserving the integrity of critical business activities.

*A platform that can grow as your business needs evolve*

When it comes to scalability, WebSphere Business Integration Connect offers tremendous versatility. You can deploy and run components on separate servers for flexible, independent component scalability. And all of the components in WebSphere Business Integration Connect are designed to scale both horizontally (to run multiple instances across multiple servers) and vertically (to add processing power to a single server).

To support horizontal scaling, each component is built based on the same design principle. Components pick up a unit of work from a shared work queue, thereby locking it so other instances do not pick up the same unit of work.

### Platform support

*WebSphere Business Integration Connect Advanced Edition, Version 4.2 and WebSphere Business Integration Connect Enterprise Edition, Version 4.2*

- *AIX, Version 5.2*
- *Windows 2000*
- *Sun Solaris operating environment, Version 8*
- *SuSE Linux Enterprise Server, Version 8*
- *Red Hat Linux Advanced Server, Version 2.1*

*WebSphere Business Integration Connect - Express, Version 4.2*

- *Windows 2000*
- *SuSE Linux Enterprise Server, Version 8*
- *Red Hat Linux Advanced Server, Version 2.1*

When processing is completed, the results are recorded, the item is removed from the shared input work queue, and the work unit is passed to the next component through another shared work queue mechanism. Work queues are shared among all instances of the component, even if multiple instances of the component are running on different servers. Shared work queues are implemented as persistent JMS queues.

To support vertical scaling, each component is implemented as a multithreaded managed bean (MBean), and each MBean is deployed within the WebSphere Business Integration Connect run time. Each WebSphere Business Integration Connect run time is configured with the MBeans that will run in that instance, and the MBeans can be configured for the number of processing threads the MBean creates. Because each WebSphere Business Integration Connect run-time instance represents a separate Java Virtual Machine (JVM), having the ability to group MBeans within a single run time allows you to tune the memory configuration of a single JVM to the needs of the MBeans configured to run in that instance. Likewise, MBeans with vastly different JVM configuration needs can be segregated into different JVMs and tuned appropriately.

Having the ability to run any of the components on any server gives you greater flexibility, so you can grow your solution as your business increases. I/O or compute-intensive components can be deployed on servers optimized for their needs. And the shared work queue mechanism allows each component to scale independent of other components.

### **Technology and architecture overview: WebSphere Business Integration Connect Enterprise Edition and WebSphere Business Integration Connect Advanced Edition**

WebSphere Business Integration Connect is a suite of distributed, multitier Java applications that are built from the ground up to exploit the security, messaging, scalability and performance benefits of Java 2 Platform, Enterprise Edition (J2EE). These applications can work together to provide your enterprise with robust B2B function. Each WebSphere Business Integration Connect offering instance is deployed on a per-enterprise or per-community basis. By using a proven solution based on open standards, you and your trading partners can reduce integration costs and speed deployment of new processes and services.



WebSphere Business Integration Connect includes three components.

#### *Target*

The target handles highly secure and reliable receipt of documents from community participants and places these documents in a file system for the document manager to process. The receiver receives a document over a supported transport protocol. Then, it writes the document and related metadata to shared file services. The receiver records any transport-specific data (for example, the source IP address and certificate information about the SSL connection) to the metadata file and completes any transport-specific technical acknowledgment (for example, sending a 200 response to an HTTP POST).

#### *Community console*

The community console provides access to your enterprise (community manager) and to your company's defined trading partners and customers (community participants). The community manager can view the entire community around the clock. Participants can access the community console through a Web browser to get a real-time view of the documents, processes and events that relate to their trading activities. The console provides role-based access control to various features and views.

- *Tools to quickly connect to the community*
- *Business-process event and exception monitoring*
- *Detailed reports and analysis about business process, trend and exception activity*
- *Tools to troubleshoot document processing*
- *Ability to drill down to events and raw documents*

#### *Document manager*

The document manager function, delivered as one or more routing and processing servers, implements the reliable routing, validation and translation services within WebSphere Business Integration Connect. The document manager function polls the file system for documents, performs any user-configured validation processing, and then delivers the document to its final destination. Subsystems of the document manager component also decrypt the document (if required), perform digital signature verification (if required),

perform XML transformation and validation (if required) and log entries about the processing of the document in the database. Validation processing includes validating the received document against a defined map for that document type. You can use XML schemas to perform validation when required. XSLT-based transformations and Java technology-based transformations, optimized for performance, are used when translation is required.

The document manager retrieves stored data, processes it and routes it, both to community participants and to enterprise applications by:

- *Reading the raw document and metadata, and saving the inbound document to the nonrepudiation directory on shared storage*
- *Saving the inbound document location pointer to the database using a JDBC link*
- *Processing the data to the destination format (performing tasks, such as validation and transformation, if specified) and saving the destination document to the nonrepudiation directory on shared storage*
- *Saving the destination document metadata and document location pointer to the database using a JDBC link*
- *Delivering data to its intended destination, which could be a JMS queue, a directory or a URL*

#### *Database repository*

The data repository stores partner profile information, documents for nonrepudiation purposes, and guidelines and maps (for validation and translation). It also enables you to log events, record the state of various processes and track trading activity. The information stored in the data repository can give you visibility into your entire trading community.

WebSphere Business Integration Connect lets you choose between using IBM DB2® or Oracle as your preferred database.

Figure 3 shows how these components work together.

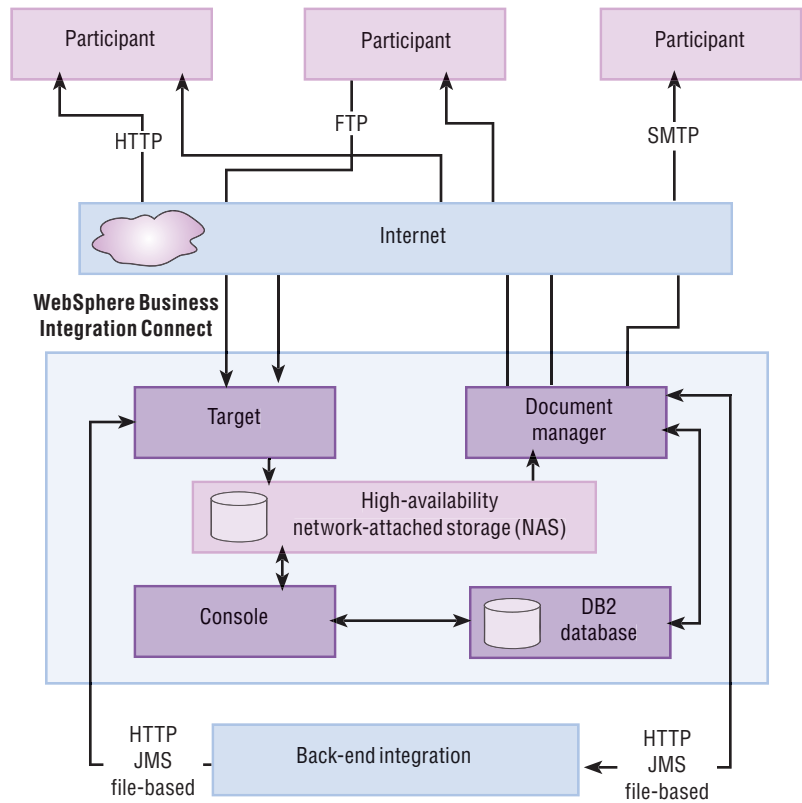


Figure 3. WebSphere Business Integration Connect components

### Technology and architecture overview: WebSphere Business

#### Integration Connect - Express

WebSphere Business Integration Connect - Express is a cost-effective, easy-to-install and easy-to-use, AS2-certified connectivity solution that enables your company to participate in a B2B environment. With WebSphere Business Integration Connect - Express, you can send and receive documents containing XML, EDI or binary content over AS2, and any document over HTTP.

WebSphere Business Integration Connect - Express includes a set of robust tools that lets you view the status of your documents. For example, you can view:

- *Information about queued documents that are pending transmission and acknowledgment*
- *Historical information about documents that have been sent and received successfully and unsuccessfully*
- *Public certificates and private keys, and add or update information as needed*

With WebSphere Business Integration Connect - Express, you have 24x7 visibility into your document processing, so you can manage, analyze, track and troubleshoot the flow of your business processes. You can also configure WebSphere Business Integration Connect - Express to fit your requirements. For example, you can have WebSphere Business Integration Connect - Express alert one or more individuals by e-mail if a document fails to be transmitted. You can send documents from the WebSphere Business Integration Connect - Express console, or a back-end application can generate the document to be sent (see Figure 4). In either case, the document is placed in the send directory associated with the intended recipient.

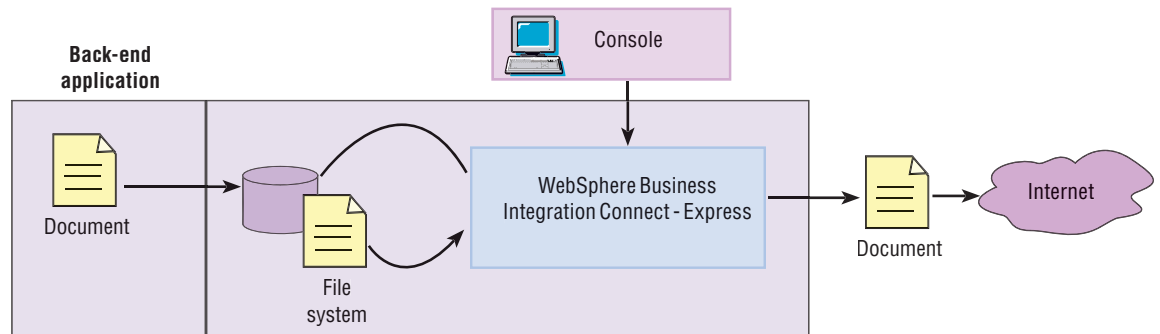


Figure 4. Document flows through WebSphere Business Integration Connect - Express

WebSphere Business Integration Connect - Express polls this directory. When it detects a new document, WebSphere Business Integration Connect - Express retrieves the document and sends it over the Internet to the intended recipient. WebSphere Business Integration Connect - Express can detect, from the directory structure, the recipient, protocol and transport. The process is reversed when a document is sent to WebSphere Business Integration Connect - Express. The document is placed in the received directory associated with the sender.

**Designed to address the integration needs across a range of industries**

WebSphere Business Integration Connect software can efficiently and cost-effectively meet your industry-specific integration challenges. The following scenarios illustrate how WebSphere Business Integration Connect can be leveraged across a range of industries.

*Effectively manage complex interactions across your healthcare organization*

The healthcare industry offers unique challenges for business integration. Interactions between healthcare providers and patients nearly always involve third-party insurance organizations or governmental agencies. These entities must check procedures, prescriptions and medical equipment to ensure payment authorization, claims for payment made and payments remitted have been handled.

But the financial aspects are only a part of the complex interactions among people and application systems that keep healthcare systems running. Physicians depend on a number of third parties to help them deliver healthcare services. Hospitals are an amalgam of systems and functions that include administration, finance, nursing, housekeeping, laboratory, radiology, pathology, inpatient services and outpatient services. Physicians must have access to historical data about similar encounters to help them improve future outcomes. Government regulators and industry watchdogs must be kept informed of performance, errors and exceptional medical conditions in laboratory results or diagnoses. Integrating these internal and external systems and processes is a task well suited to the function available in the WebSphere Business Integration portfolio from IBM. WebSphere Business Integration Connect can deliver data communication among systems that drive the healthcare industry. Your healthcare organization can benefit in a number of ways.

#### Improve clinical effectiveness

Hospitals use many systems to manage healthcare delivery. WebSphere Business Integration Connect enables them to compile accurate, complete and current patient information from a wide variety of sources – helping healthcare professionals deliver more effective patient care.

#### Reduce incidence of medical errors

Hospitals need the cooperation of numerous departments and third parties to deliver quality healthcare services. It's critical that any information passed between parties is accurate and up-to-date. WebSphere Business Integration Connect enables healthcare providers to electronically enforce protocols and procedures, reducing the incidence of medical errors.

#### Improve operational efficiency

Today, hospital procedures still tend to be largely manual. Each department and organization within the hospital may handle patient data and medical information differently – making it difficult to quickly and easily access the correct information on demand. WebSphere Business Integration software can model these procedures as business processes and workflows that tie hospital information systems and personnel together for efficient delivery of patient care. WebSphere Business Integration Connect can manage the data flowing among the internal and external systems involved with the delivery of patient care.

#### Facilitate compliance reporting

Hospitals must report more and more information to a myriad of industry and government agencies, providing a legal audit trail, not just for compliance purposes, but to certify the people and processes that have access to the data. Automating the exchange of this information across processes enables your healthcare institution to let your applications track this reporting – and restrict all aspects to those within the acceptable process. WebSphere Business Integration software ties internal healthcare information systems together to make data readily available – and WebSphere Business Integration Connect manages the assured delivery of that data using required protocols and formats.

*Integrating consumer goods processes to help gain competitive advantage*

A reliable infrastructure is paramount to the success of companies that produce or handle consumer packaged goods (CPG) because their needs are always changing in response to the demands of consumers, retailers, distributors and suppliers. Simply reacting to these demands will leave you behind. Improved integration of both internal and external processes can create a more proactive environment, giving you greater insight about consumer buying behavior. As a result, you can better understand how your enterprise's actions can promote its global brand assets to improve sales. And reduce the costs associated with supply chain ordering, with carrying too large or too small inventories, with inefficient distribution planning and with unsuccessful sales promotions.

Integrating business processes with those of your trading partners enables you to make your business more efficient and your value-chain relationships more interdependent and responsive. As a result, you can reduce costs and eliminate bottlenecks by lowering the incidence of errors, reducing the need for human intervention and identifying supply chain problems earlier. All of which enable you to respond faster to customer needs – increasing their satisfaction and loyalty. WebSphere Business Integration Connect extends integration to customers and partners so you can respond faster and more efficiently to business needs from both internal and external events. Implementing WebSphere Business Integration Connect to extend integration beyond the enterprise boundary will allow you to enhance not just your internal business processes, but those that involve your supply chain, distribution network and retailers.

Forecast orders and anticipate demand

Your profit margins can be determined by how you balance your stock levels. Too much stock and you not only have to store it, but you also carry assets that aren't generating a return on your investment. Instead, they may lose value. On the other hand, carrying a stock level that is too low can mean your customers' orders may go unfulfilled. As a result, you can lose money as your customers can choose to take their business elsewhere. WebSphere Business Integration Connect can help you rapidly determine inventory levels at retailers and distribution depots, so you can more accurately forecast when inventory needs to be replenished.

#### Respond to customer orders with specific manufacturing

As a response to planned demand – perhaps a sales promotion or a new business opportunity – demand may occur for CPG items that are outside the scope of your company’s general manufacturing plans. To meet this challenge, you would have to make additional requests to suppliers, possibly outside the usual extended value chain. WebSphere Business Integration Connect gives you the flexibility to add new partners quickly and easily – and integrate their systems with your internal processes just as you would existing partners – while enabling you to track events separately for each partner and each transaction.

#### Identify and track bottlenecks and delays in shipment

As a CPG company, you can have a global presence and multiple brand assets. However, consumers don’t get your goods directly. They purchase from retailers that receive your deliveries through a distribution chain. You depend on these deliveries meeting schedules. But tracking order progress from manufacture to distribution – and receiving shipment delivery notification at the retailer location – can prove hard to correlate. WebSphere Business Integration Connect enables your organization to extend processes to trading partners and to send and receive data with other trading partners, giving you up-to-the-minute tracking of orders being dispatched and received all along your distribution network.

#### Track invoices and payments

With multiple shipments of goods and deliveries of supplies, correlating goods received and paid for can be difficult to audit. You need an integrated system to tie together your internal payment systems, and the tracking of goods and invoice requests and demands. WebSphere Business Integration Connect delivers tight integration between data exchanged with partners. WebSphere Business Integration Server can handle payments made by internal systems. Combining the two functions can give your enterprise real-time visibility to whether goods and supplies have been paid for. You can identify regular late payers and you can impose different terms and conditions if required.



*Leveraging a robust integration infrastructure to handle an unpredictable electronics marketplace*

As an electronics company, you also require a robust infrastructure to succeed. Electronics is perhaps the most competitive sector, with eroding margins, rapidly obsolete products and global competitors competing with both simple and complex solutions. This unpredictable marketplace demands that you be dynamic and innovative. When communicating with third parties, response time, availability and cost are all critical parts of the business processes driving the interaction. If you try to conduct business as usual in an on demand world, you'll end up losing ground to your competition. To keep pace, you need a solution that gives you end-to-end business visibility and that drives costs down the extended value chain.

Accelerate time to market

To succeed in the electronics industry, you must maintain market presence with new and innovative products, while shortening the cycle time associated with new product development and introduction. The ability to compensate for increased product complexity and customer demands and decreased product life cycles requires using new techniques to support product evolution and to speed product development. By integrating business processes and supply chains with WebSphere Business Integration Connect and WebSphere Business Integration Server, you can decrease costs and improve time to market, so you can:

- *Increase design quality and designer productivity by leveraging outsourced design models.*
- *Collaborate across the enterprise to shorten development cycle time.*
- *Integrate product information to improve product design decision making.*
- *Leverage manufacturing experience to expand value-added project time.*

#### Decrease inventory costs

The trend in electronics is for companies to focus on unifying order processing, enabling multitier distribution channels, extending product offerings with services and improving customer response times. These companies are pushing more of the fulfillment process (product design, manufacture, distribution and installation) to partners and suppliers. While this practice lowers inventory management costs, it also creates challenges in maintaining control of partners and suppliers conducting outsourced operations. Automating and integrating business processes with WebSphere Business Integration Connect and WebSphere Business Integration Server gives you greater control over inventory management practices, so you can:

- *Minimize inventory exposure associated with rapid product life cycles.*
- *Integrate data, such as inventory history, purchase orders, transportation orders and recommended shipments.*
- *Synchronize demand forecasts between demand-planning applications.*
- *Reconcile item master and bill-of-material (BOM) information across enterprise resource planning (ERP) and supply chain management (SCM) systems.*
- *Connect with trading partners outside the firewall, regardless of the trading partner's requirements.*

#### Optimize outsourced supply chains

As electronics manufacturers concentrate on core competencies and outsource strategic and nonstrategic operations, the need for supply chain visibility increases dramatically. The combination of outsourcing and rapid product life cycles requires you to automate previously intercompany business processes. You must tightly coordinate inventory and production status information, and global operations require support for multiple information formats and sources. Integration of information across outsourced entities increases your supply chain's flexibility and reduces costs associated with SCM.

WebSphere Business Integration Connect can enable you to:

- *Efficiently manage inventory levels across an extended network.*
- *Connect to and leverage private and public industry trading exchanges.*
- *Adhere to electronics industry standards, such as RosettaNet.*
- *Reduce cycle time for new supplier approval and provide data for performance analysis.*
- *Dynamically update key elements of a supplier rating scheme.*

#### Improve order fulfillment

Electronics companies need to get the right product to the right customer for the right price at the right time. This requires alignment of processes across the supply chain. Order fulfillment is increasingly a mixture of both outsourced and internal components and multiple management systems. Internal and external enterprise and manufacturing systems need to be linked as a single, extended order-fulfillment system to achieve cost savings and meet customer expectations. By using WebSphere Business Integration Server with WebSphere Business Integration Connect, you can:

- *Improve supplier integration to ensure timely delivery of high-quality goods.*
- *Integrate logistics provider activities to ensure timely fulfillment services.*
- *Manage legacy and packaged enterprise systems as a single, integrated order-management system across partners, customers and suppliers.*

#### Improve customer service

Electronics companies must anticipate and respond to evolving customer requirements. As the trend from mass production to mass customization continues to grow, maintaining strong customer relationships becomes more critical. You need to monitor your value chain and receive timely data about consumer priorities, retailer inventory and supplier shortages to make sound and timely operational decisions. Automating and integrating customer-relationship processes can help simplify operations, improve customer service and lower costs.

Building a solution using WebSphere Business Integration Server and WebSphere Business Integration Connect can help you:

- *Coordinate the real-time needs of customers and suppliers and enable highly integrated product development and support.*
- *Improve customer service to drive post-sale service agreements and to encourage repeat business.*
- *Capture and leverage customer data for product design.*
- *Enable suppliers to build custom-engineered products based on customer requests.*
- *Consolidate and manage complex purchase orders.*

**Take advantage of leading-edge community integration services**

IBM recognizes that to deliver an effective operational B2B environment, your entire value chain must participate in the preparation and enablement support process. Historically, B2B implementations have been costly and labor-intensive, because they were based on piecemeal trading-partner identification and lengthy, unrepeatable partner-enablement processes. Instead of focusing on the connection of each individual trading partner, IBM Community Integration Services lets you implement a framework around the awareness of the entire trading-partner community to be connected. This helps ensure that you can apply more repeatable and rigorous processes to the individual connections as part of the overall project. With WebSphere Business Integration Connect, Version 4.2, IBM introduces a range of complementary services to support the creation, growth and management of trading communities of any size and type.

These services can be key to the successful implementation of WebSphere Business Integration Connect, Version 4.2. As part of your WebSphere Business Integration Connect, Version 4.2 solution, Community Integration Services include readiness, solution activation and operational services to help you prepare, enable and manage a B2B network of any size.

### Summary

Improving B2B integration with trading partners and customers is increasingly important in today's corporations. Augmenting your ability to automate how you exchange information with your customers and partners is no longer optional. The costs associated with doing business externally – in money, time and customer satisfaction – demands improvement. Improving integration of applications and processes internally can only deliver a viable return on your investment if the improvements in response times and reduction in errors also apply to external interactions. By taking advantage of the benefits of more seamless integration beyond the enterprise and offering your customers more order information, faster delivery and lower costs, your corporation can gain competitive advantage – and increase its profit margins as a result.

As you begin the transformation to an on demand business, WebSphere Business Integration Connect, as a part of the WebSphere Business Integration portfolio, provides a highly secure, scalable, flexible environment that can help you define and manage your trading relationships, supporting multiple industry and technical protocols that enable you to exchange data between trading partners, regardless of their individual systems. You can track the business events you've integrated beyond your enterprise to provide alerts on successful completions, or failures and exceptions. With WebSphere Business Integration Connect, you can identify exceptions that could negatively affect your business, as well as make your business more responsive and flexible in an on demand world, by meeting external demands faster. WebSphere Business Integration Connect helps you make the most of your business processes and your external relationships with trading partners and customers.

### For more information

To learn more about how IBM WebSphere Business Integration Connect software can help your business, visit:

**ibm.com**/software/integration/wbiconnect/



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<sup>1</sup> Orgell, Erik. "E-commerce Leads Enterprise Project Plans, New Evans Data Report." Evans Data Corporation. December 1, 2003.

<sup>2</sup> Kenney, F. "Predicts 2004: Enter the B2B Gateway." Gartner Research. December 10, 2003.

<sup>3</sup> "How SMBs Should Approach B2B Integration." Gartner Advisory, Electronic Commerce and Extranet Applications. September 2002.