



IBM Software Group

2006 B2B Customer Conference

B2B – Catch the Next Wave

Process-Centric B2B

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WebSphere. software



ON DEMAND BUSINESS™

Objectives

- Contrast traditional and process-centric approaches to B2B
- Present the rationale for adopting a process-centric approach to B2B
- Review the adaptive process capabilities available in industry standards today
- Describe the technology and business components required to deploy an effective collaborative B2B environment



Competitive advantage lies not in how you gather the data, but what you do with it once you've got it.

The key to doing the most with the data you've got is to understand its relationship and value to key business performance parameters and to establish automated systems that monitor and manage the success of leveraging core business data.



The Value of B2B Integration



Manual effort, time to transaction,
error rates, LOB business cost

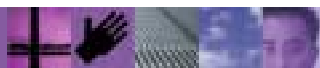
Styles of B2B Integration

- Verbal agreements
- Type-written quotes and PO's with carbon paper
- System-generated quotes and PO's
- Partner-specific system-to-system data interchange in a proprietary format
- Electronic Data Interchange (EDI) based on industry standards
- XML-based B2B (RosettaNet, ebXML, etc.)
- Web services



IT cost, system complexity,
reliability, business value

- **Automation for B2B integration delivers high business value through:**
 - Decreased manual effort and overall cost
 - Reduced time to transaction, improved agility in working with customers
 - Value chain flexibility
 - Improved accuracy and reduced error rates
 - Speed of execution in the value chain



Anatomy of a B2B Transaction

Process Layer

(Partner collaboration, message brokering, ESB, BPEL, etc.)

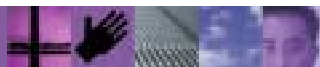
Interface Layer

(VAN, HTTP, FTP, AS2, etc.)

Document Layer

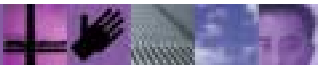
(X12, EDIFACT, etc.)

- Each B2B transaction has these layers, either **explicitly** or **implicitly**.
- Historical focus has been:
 - At the **document** layer (In what formats can I get the data needed) – 1990's
 - At the **interface** layer (How do I get the data needed at the lowest cost, with the highest security, etc.) – early 21st century
- Current and future focus will be at the process layer
 - How do I ensure that I am getting the right data at the right time?
 - How do I accommodate how my customers want to do business?
 - How can I best deliver on my promises to my customers while providing value above and beyond my competition?



What is Traditional B2B?

- Asynchronous message exchanges
 - Batch-oriented OR
 - Small messages
- Examples:
 - Proprietary flat file data format exchanges
 - EDI
 - Excel spreadsheets



Characteristics of Traditional B2B

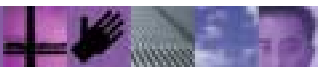
- Focus is primarily on the document layer:
 - Business document types
 - Messaging formats
 - Data integrity
- Document standards are built by reverse engineering from
 - Paper forms
 - Canonical data base structures
- Incomplete view of the real business transaction
- Data formats need to be agreed upon before testing and implementation can begin
- SMBs are challenged to implement traditional B2B
- Lack of true B2B process choreography leads to a high business performance risk, due to unavoidable gaps in data validation, unreliable human, missing processes, etc.



What is Process-Centric B2B?

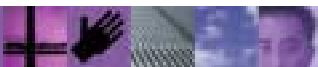
Asynchronous or synchronous inter-enterprise message exchanges, choreographed and managed by an explicit set of well-coordinated processes designed to directly support key business performance goals shared between the enterprises.

- Characteristics:
 - Small, self-contained messages (typically)
 - Flexible data structures
 - End-to-end transaction visibility across and within the entire value chain
- Examples of process-centric B2B standards:
 - RosettaNet
 - ebXML
 - XBRL



Characteristics of Process-Centric B2B

- Focus is primarily on **business results** achieved through effective management of the process layer:
 - An extension of the process-centric approach taken by ERP systems and middleware tools
 - Starts by defining and agreeing upon business goals and objectives first
 - Then defining key joint processes
 - Why? Because processes drive the kinds of information required
- Process centricity shifts focus to:
 - The business objectives
 - The 'what' before the 'how'
 - What data is needed when, under what conditions and before defining how it will be formatted
- Process centricity doesn't automatically mean real-time transactions



Why Is Process-Centric B2B Important?

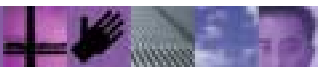
- Enterprises are increasingly dependent on a **global network** of suppliers and customers, heavily constrained by time and cost performance
- An **increase in outsourced partners** for manufacturing, logistics, distribution, HR – these relationships often are negotiated in real time
- **Brand experience** is a key differentiator, and linked directly to excellence in execution
- **Higher velocity decision-making** and the flexibility to respond quickly to rapidly changing market conditions are required for success
- All of this makes reliable, **agile business information exchange** even more critical to overall operational performance
- Most B2B infrastructures are misaligned to this competitive environment



Does Any of This Sound Familiar?

The logo for 'ON DEMAND BUSINESS' is displayed on a blue rectangular background. The word 'ON' is contained within a red, three-dimensional square button with a white border. To the right of this button, the words 'DEMAND BUSINESS' are written in a white, pixelated, uppercase font.

*An enterprise whose **business processes** - integrated end-to-end **across the company** and with **key partners, suppliers and customers** - can respond with speed to any customer demand, market opportunity or external threat.*



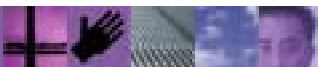
Implications of On-Demand for B2B

- B2B integration is **rapidly evolving** from traditional data-centric exchanges (*focus on reliable data transformation*) to complex integrated systems that need to support true collaboration between inter-dependent entities (*focus on flexible processes*)
- Design, orchestration and management of processes between enterprises is an essential requirement of **collaboration**
- Effective B2B integration solutions not only need to effectively execute these processes, they need to help **manage all aspects of partner relationships** – in an integrated manner
- Key areas of focus required for success:
 - Partner information management
 - Inter-enterprise process modeling and management
 - Process interoperability engineering
 - Distributed change management
 - An SOA infrastructure that can deliver these capabilities with speed and at a low cost

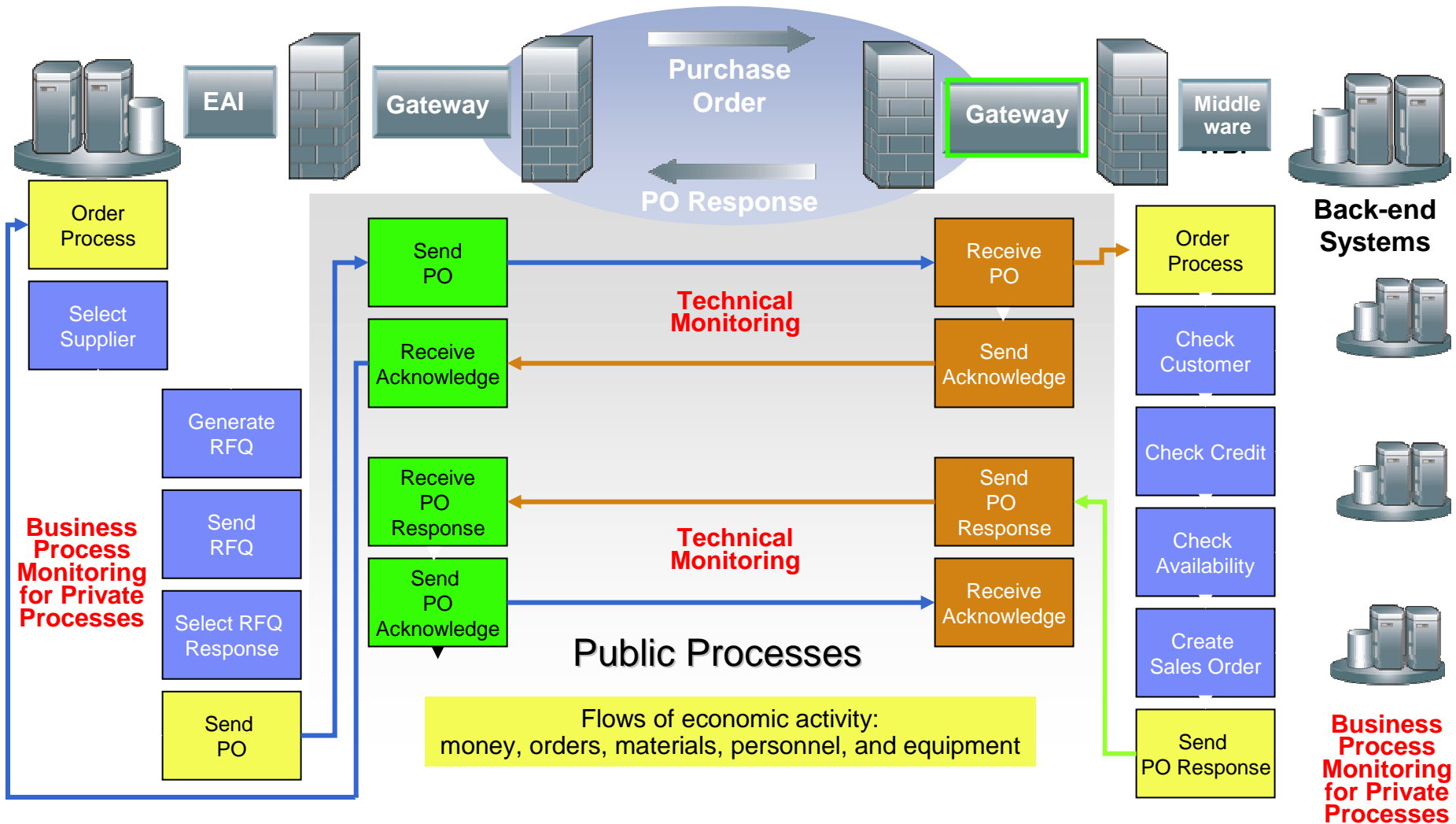


Classes of B2B Processes – Public and Private

- **Public processes** are visible to all trading partners involved in the process
- **Private processes** are visible only to one trading partner or only within the enterprise
- In general, each trading partner will have one or more private processes associated with a public process
- This classification (with appropriate governance) ensures that each partner's proprietary data and process elements remain invisible to other partners



A Process-Centric B2B Generic Example

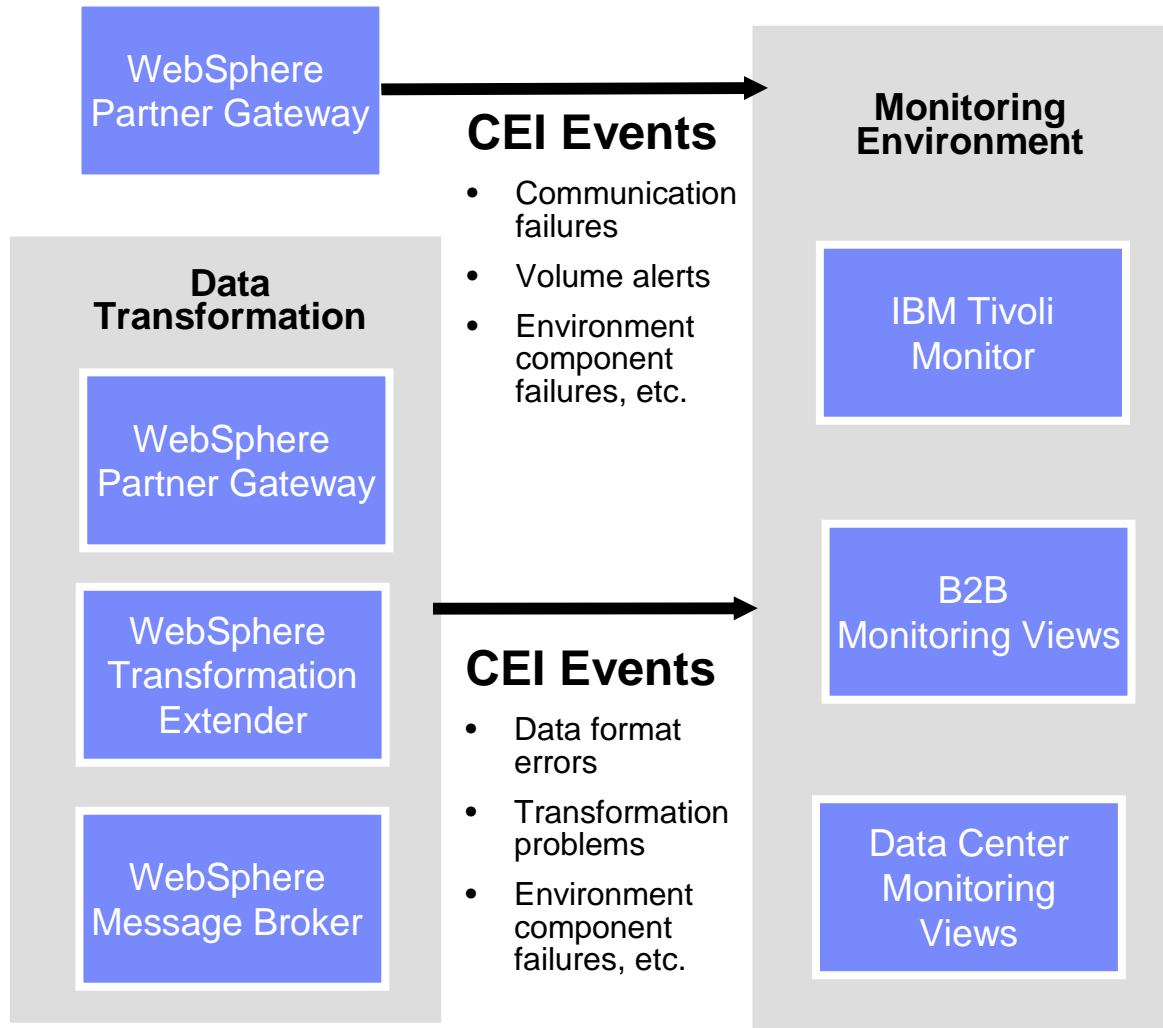


Layers of B2B Processes

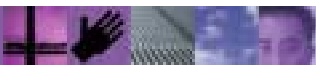
- At the application layer
 - System of record transaction processing – typically handled by ERP, CRM and other LOB applications
- In the middleware layer
 - Technical monitoring
 - Data transformation process management and private message routing
 - Process management for core business processes
- At the edge of the enterprise
 - Routine processing and routing of public messages
 - Exception processes for message anomalies
- Beyond the enterprise
 - Adaptive business processes
 - Collaborative process management



IBM B2B Environment Technical Monitoring



- WebSphere Partner Gateway emits Common Event Infrastructure (CEI) messages today
- WTX can be configured to deliver CEI messages
- CEI messages can be monitored by Tivoli to deliver value against SLAs and KPIs
- Tivoli monitoring can also help ensure the health of key B2B server components, (databases, queues, servlets, etc.)



IBM B2B Technical Monitoring Solution

The screenshot displays the IBM B2B Technical Monitoring Solution console with several panels:

- System Overview:** A table showing system details such as User Name, Operating System, Processor, and Page Size.
- Global Message Flows:** A table listing message flows with columns for Queue Name, Host Name, and various status indicators.
- DB2 System Overview:** A table showing database instance details like Instance Name and Status.
- Top Process CPU Time:** A 3D bar chart showing CPU utilization for various processes.
- Network Statistics:** A 3D bar chart showing network flow rates.
- Queue Statistics:** A table with columns for Queue Name, Total Depth, and various performance metrics.
- Log Search:** A table of log entries with columns for Log Name, Status, and Message Text.

Windows is ready ...

WebSphere MQ is active

DB2 is active

TCP Flow Rates

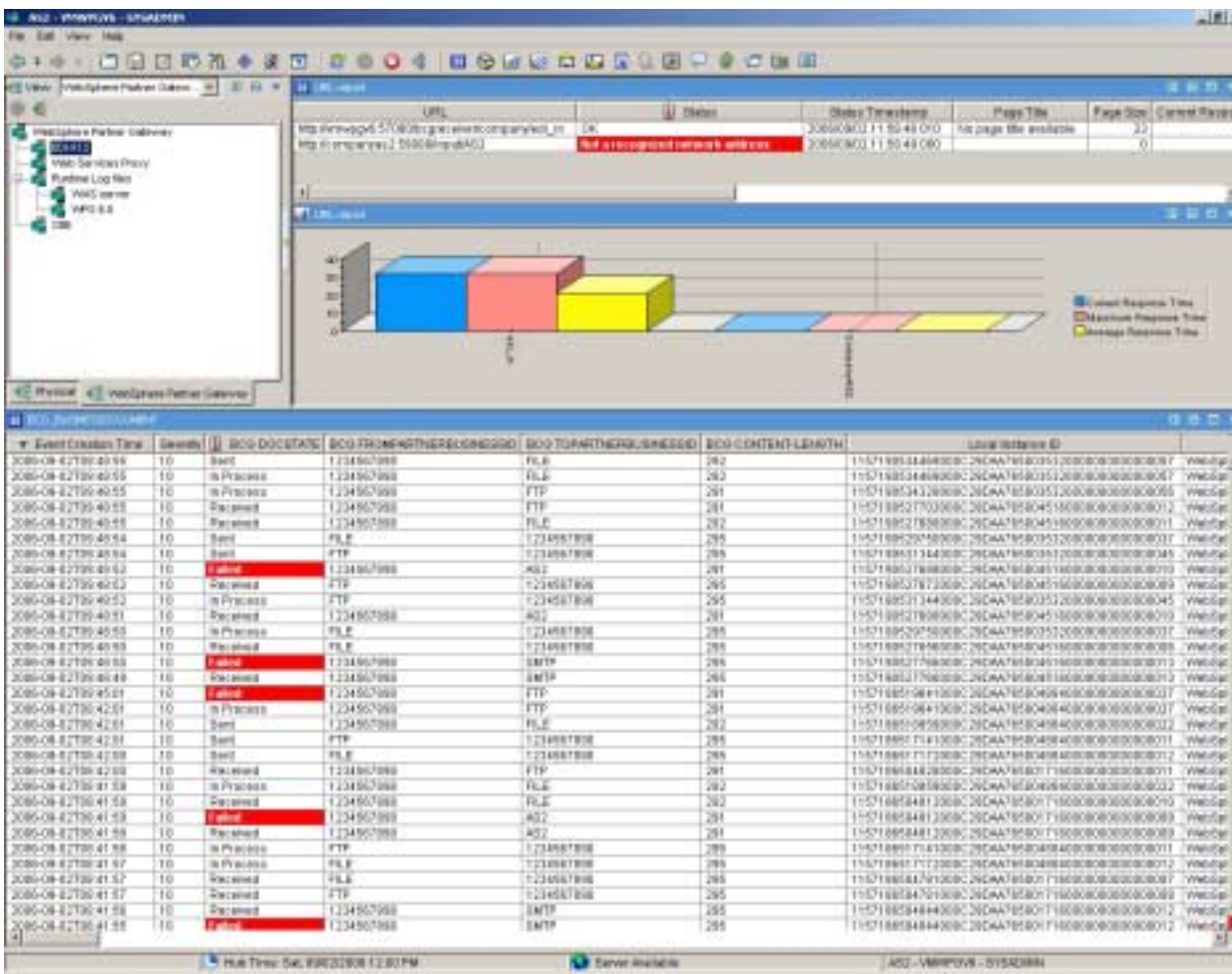
CPU Utilization Profile

Console and Targets are not started ...

Participant not reachable ...



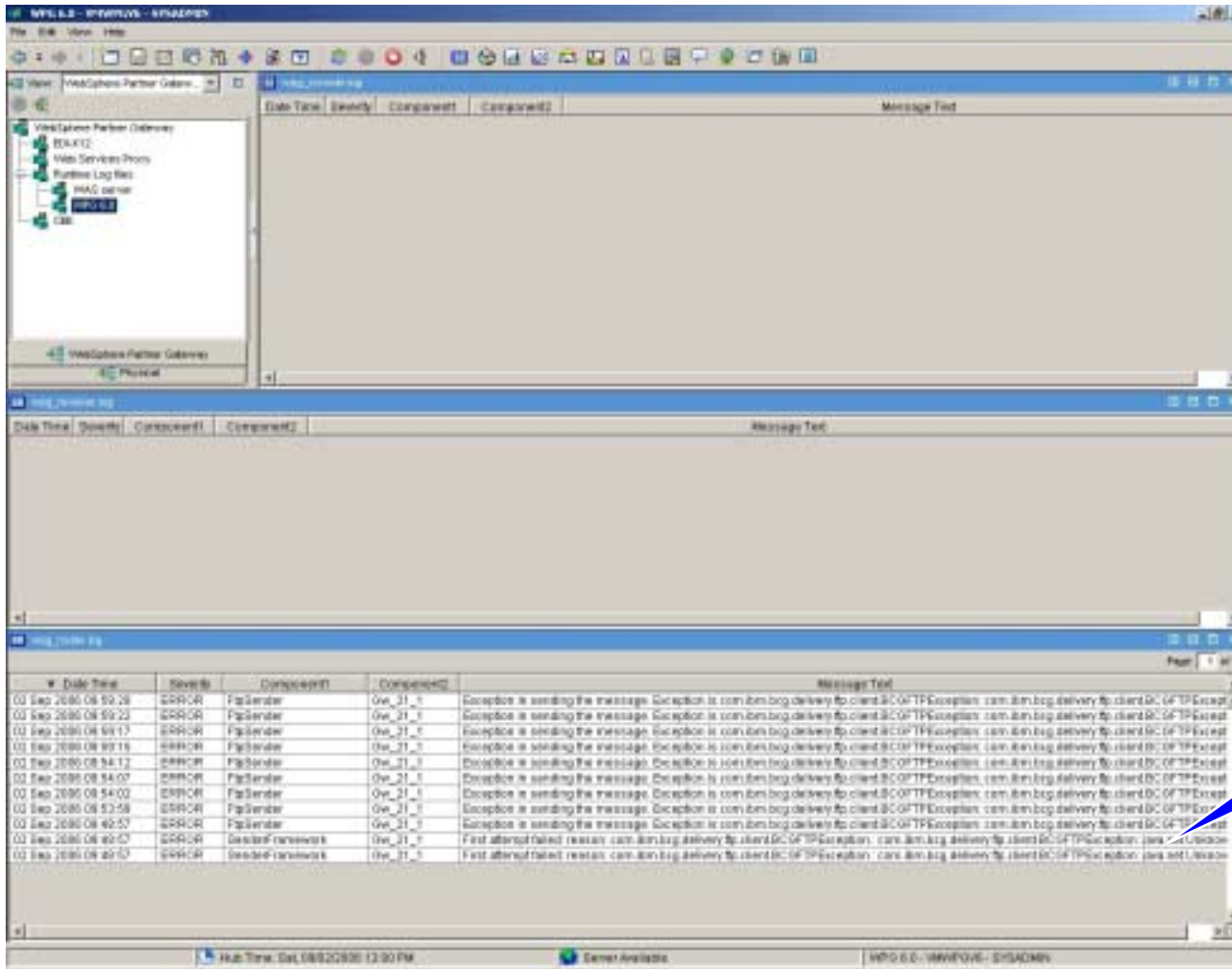
Monitoring X12 Flows Through the B2B Hub



Response time monitoring by URL for X12 transactions only

WPG and WTX inbound events for X12 transactions only (severity level can be filtered)

All B2B Logs Viewable From a Single Screen

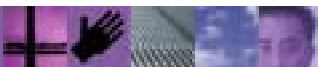


bcg_router.log



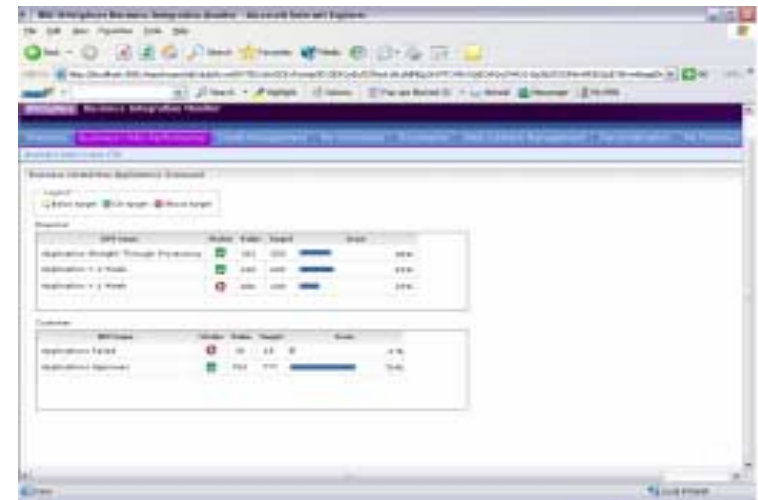
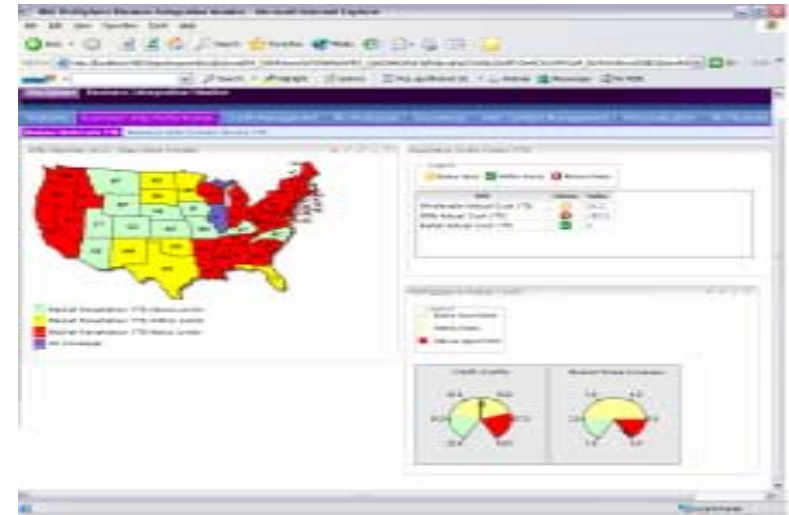
B2B Technical Monitoring Solution Value

- Integrates critical events and logs from **all** hardware and software involved in the B2B infrastructure
- Provides a single **end-to-end view** of a B2B transaction
- Provides **insight and alerts** related to the health of the B2B infrastructure
- Custom views allow **on-the-fly** research and tailored monitoring
- Provides tools for proactive and immediate identification and **rapid resolution** of B2B issues through:
 - Dashboards
 - Event monitoring
 - Alerts
 - Exception process management



Process Monitoring Business Goals

- Report on business performance, measured against targets (scorecard)
 - Service Level Agreements (SLAs)
 - Key Performance Indicators (KPIs)
- Track status of business process flows
- Monitor business process metrics (duration, cost, performance)
- Perform business analysis through aggregation and multidimensional reporting against data collected
- Detect exception conditions and publish action-centric alerts



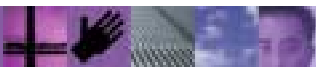
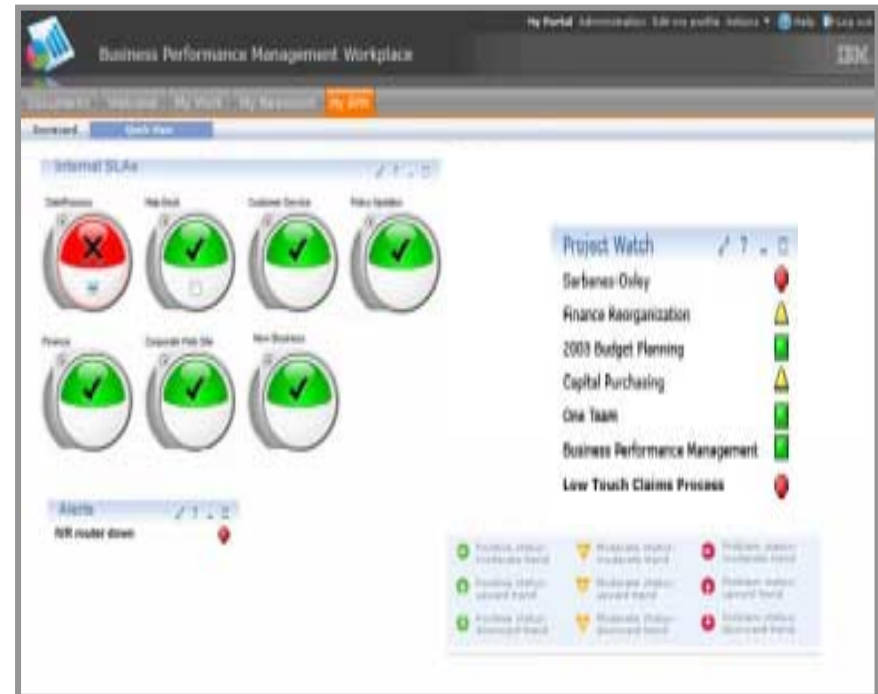
View Performance And Modify Dashboards In Real Time

- Scorecard view implemented through Key Performance Indicators
 - Eliminate redundancies or inefficiencies
 - Identify bottlenecks – balance workloads
 - Reduce latencies
- View information the way you want to see it
 - Management dashboards and reporting capabilities
 - Trending information
 - Tools to customize or define new dashboards
- Monitor different perspectives of business process metrics
 - Cost, time, resources



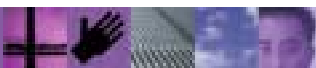
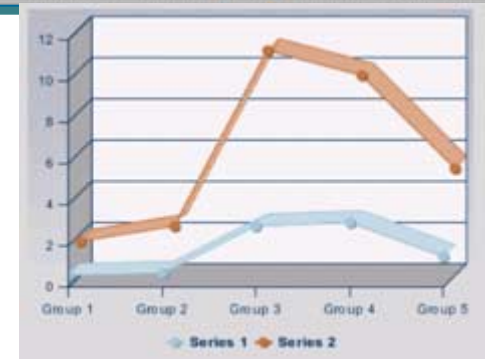
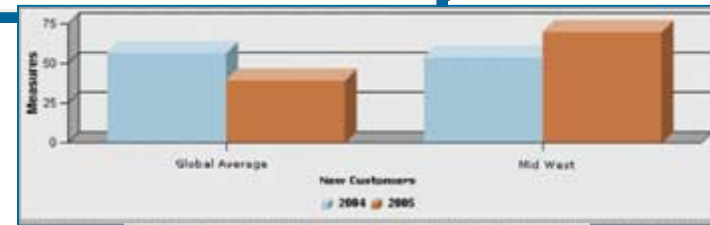
Intervention of a Process In-Flight

- Set triggers, notifications and responses to monitor
 - The business analyst has control over the hotspots that require focus
- Alerts received from the monitor server facilitate execution of appropriate actions
 - Ability to intervene and change the course of your business based on events and trends as they emerge
 - Redirect workload
 - Change process flows based on real needs
 - Corrective actions can automatically be invoked based on pre-defined alert triggers



Support Continuous Process Improvement

- Keep ahead of the competition
 - Respond quicker and make proactive changes to processes dynamically
- Business innovation and optimization
 - Improve your business through insight and informed decision making
- Closed-loop monitoring of your business's overall performance
 - Mitigate risks with relevant real-time data
 - Validation of business models
 - Make modifications based upon simulation data sent back to the WebSphere Business Modeler



Processes to Model and Monitor for B2B Exchanges

- Exception processes at the edge of the enterprise
 - What to do when there is a communication failure with a trading partner
 - Steps to execute whenever there are data anomalies
- Exception processes related to the B2B infrastructure
 - What to do when a key service becomes unavailable
 - What to do when there is a threat of security breach
- Business processes related to internal and external execution of the B2B transaction
 - Standard RosettaNet processes
 - RosettaNet-like processes created for standard EDI transactions
 - Human processes for handling a business condition not able to be managed by automated processes



B2B Process Monitoring Value

- Monitor and manage both public and private process from the perspective of KPIs and SLAs
 - Management by objective
 - Focus on the core business results needed
- Public and private processes can be modeled and monitored in a similar way
 - Leverages robust business practices and governance already in place for private processes
 - Reduces time to implementation for new or derived business processes
- Provide a platform for continuous improvement for public B2B processes
- Provide process-level
 - Alerts
 - Business analysis

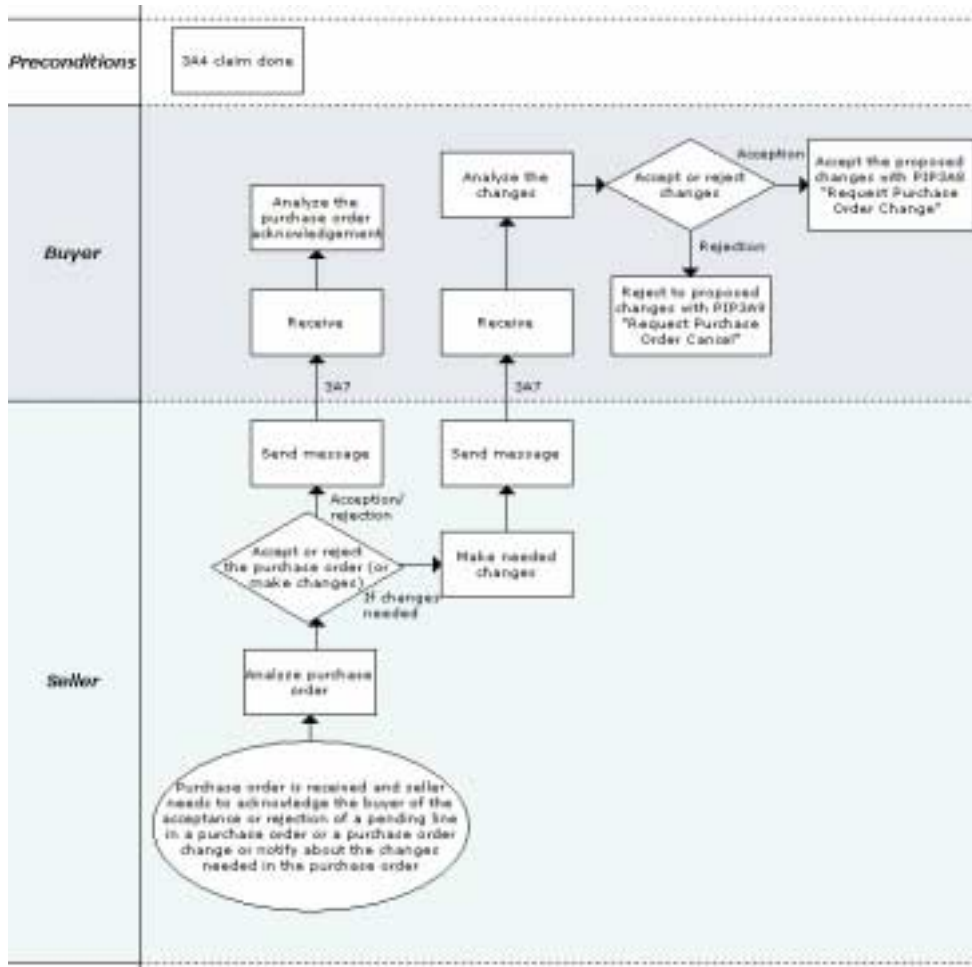


What are Adaptive B2B Business Processes?

- Adaptive business processes are those that can respond with speed to any customer demand, market opportunity or external threat.
- Typical enablers of adaptive processes:
 - Parameter driven processes *
 - XML technology *
 - Workflow and process management systems
 - Declarative rules engines
 - Advanced technical and business monitoring tools *\
 - Predictive business event analytics *



Parameter-Driven Process - RosettaNet PIP™ 3A7 Example



- In RosettaNet, each transaction type (Partner Interface Process or PIP™) is governed by a set of **standard** RosettaNet process flows.
- Steps in the flow are initiated either unconditionally or conditionally (**driven by data sent by a trading partner** in the PIP™)
- Values of key data elements determine the steps, when these steps need to be completed by and alternative action should a step fail to be completed.
- Some PIPs™ allow **variable payload structures**, implemented through XML schema technology
- RosettaNet **engines** (like the one in WebSphere Partner Gateway) are capable of tracking RosettaNet PIPs™ and providing alerts to help with process compliance.



Parameter-Driven Processes In RosettaNet PIP™ 3A7

- The "Notify of Purchase Order Update" Partner Interface Process™ (PIP) enables a seller to acknowledge acceptance or rejection of a pending line in a purchase order or a purchase order change.
- This PIP can also be used by the seller to initiate changes to a purchase order.
- Typically, the buyer must respond with PIP3A8, "Request Purchase Order Change," to accept the proposed changes.
- **If the changes are not accepted**, PIP3A9, "Request Purchase Order Cancel" must be sent by the buyer.
- After a buyer issues a purchase order to a seller and the seller responds by acknowledging that the status of one or more product line items is "pending." Or after a buyer issues a purchase order change and the seller responds by acknowledging that the status of one or more product line items is "pending."
- A seller completes a pending line-level transaction by acknowledging when a product line item has been accepted or rejected.
- **The time period in which a seller must complete transactions is specified** in the trading partner agreement.
- The reason for rejecting a product line item may be included in an update.
- The buyer accepts the changes or the purchase order is canceled. **Changes are limited to the constrained elements defined in the Trading Partner Agreement.** It should also **identify the time period in which the buyer needs to send PIP3A8**, "Request Purchase Order Change" or PIP3A9, "Request Purchase Order Cancel" to close the messaging process and synchronize both buyer and seller systems.
- **Should this transaction not complete successfully**, the requesting partner executes PIP0A1, "Notification of Failure."



Core 3A7 Parameters

- The specific changes that the seller is allowed to make to the purchase order change request parameters
- Additional restrictions on the scope of PO changes by the seller as required by the Trading Partner Agreement
- The time period in which the seller must either accept or cancel the PO change
 - What to do if the PO changes cannot be accepted
 - The time period in which the seller must complete the transaction, if accepted



Adaptive Process Capabilities in RosettaNet

- The new RosettaNet PIPs™ are based on XML schemas (not DTDs)
- Because they are based on XML schemas, the new PIPs™ allow:
 - Variable data structures
 - A way to enhance the basis PIP™ with enriched or tailored transaction content
 - An easy way to exchange proprietary engineering data
 - A way to share variable process data, as agreed upon between two or more trading partners
 - All this without compromising the standard exchangeability of RosettaNet transactions
- Not all RosettaNet PIPs™ are schema-based today



How Processes Can Be Made Adaptive With XML



- XBRL data is presented and treated "intelligently"
- Data can be selected, analyzed, stored and exchanged automatically in a variety of ways as allowed by the XBRL instance
- Shows all data relationships explicitly (not just their definition)
- Represents how all data is calculated and can conditionally perform calculations, cross tabulations and analysis
- XBRL provides features for automatic checking and routing of information
- Identifies data groupings for organizational or presentational purposes – thus each instance of an XBRL document can specify a different set of calculations and a different set of document routing paths
- XBRL allows for
 - Taxonomy extensions
 - Discoverable Taxonomy Sets



Adaptive Processes With XBRL - Example

Cash Assets	Total Loan Principal Value	Risk Calculaion Method	% of Loans > 60 Days Delinquent	Risk Datasets Needed	Dataset Routing	URL
100M to 250M	>200M	1	6.50%	A	FDIC regional office	https://fdic.gov.%region%.formA....
				B	FDIC national office	https://fdic.gov.us.formB....
250M to 500M	>600M	1	5.10%	A	FDIC regional office	https://fdic.gov.%region%.formA....
				B	FDIC national office	https://fdic.gov.us.formB....
				C	Treasury regional risk office	https://ustreasury.gov.%region%.formC....
500M to 1B	>800M	2	4.62%	A	FDIC national office	https://fdic.gov.us.formA....
				B	FDIC national office	https://fdic.gov.us.formB....
				D	Treasury national risk office	https://ustreasury.gov.us.formD....
				E	FDIC case manager	https://fdic.gov.us.%manager%.formE....
>1B	>1B	3	4.19%	A	FDIC national office	https://fdic.gov.us.formA....
				B	FDIC national office	https://fdic.gov.us.formB....
				D	Treasury national risk office	https://ustreasury.gov.us.formD....
				G	FDIC case manager	https://fdic.gov.us.%manager%.formG....
				H	SEC national investigations	https://sec.us.gov.investigate.formH....

- Risk conditions, analysis method, investigative thresholds, additional reporting needed and workflow are all determined from **within the XBRL document instance**
- Special XBRL software knows how to interpret, process and route XBRL data



What is Collaborative Process Management?

- Collaborative process management is the discipline whereby business processes are conceptualized, designed, and managed across enterprises who share a common tactical business goal.
- Helps enterprises to respond with speed to any customer demand, market opportunity or external threat.
- Cascading effect of multi-tier value chain execution
- Requires:
 - Process modeling tools that can share XML-based representations of business processes (like IBM WebSphere Process Modeler)
 - Governance management tools (who can change what, under what conditions, etc.)
 - Process monitoring tools that allow alerts, etc. to be shared across enterprises



WS-CDL Process Choreography

- The Web Services Choreography Description Language (WS-CDL) standard is one way to specify interoperable business processes collaborating to accomplish a common business goal.
- Business protocols that can be modeled using WS-CDL:
 - FIX
 - TWIST
 - RosettaNet
- WS-CDL choreography is built on top of BPEL and not a replacement for it
- BPEL and WS-CDL together can express virtually any business process, including collaborative trading partner interactions



Typical Web Services Stack

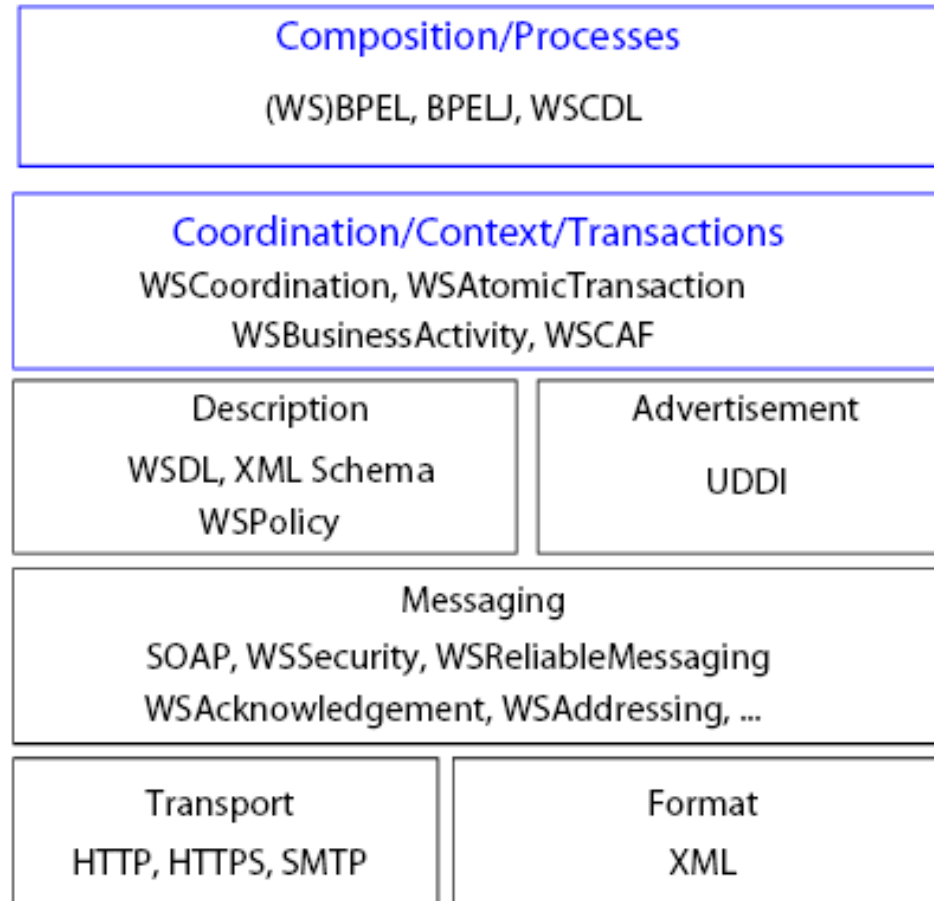


Figure 1. A view on the *Web Services Stack*

Source: W3



How WS-CDL is Designed to Work

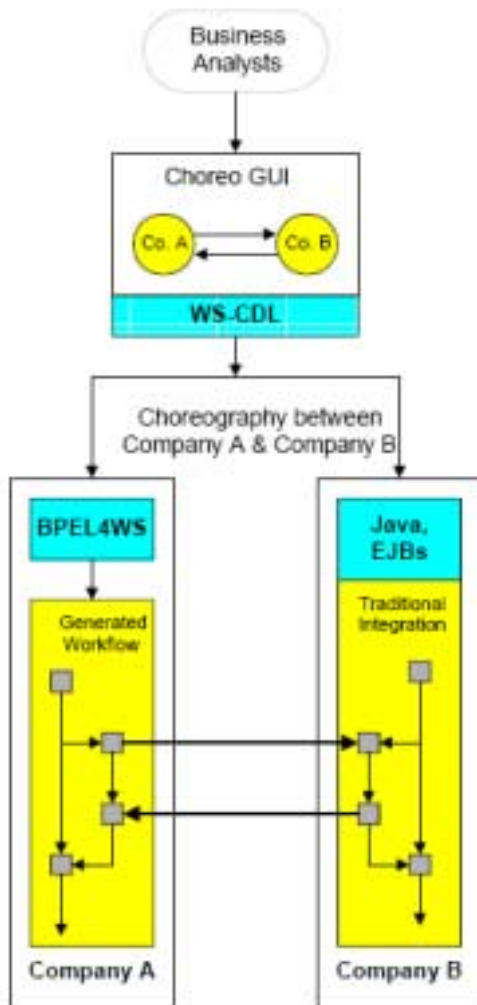


Figure 2 Source: W3

Advantages

- WS-CDL does not depend on a specific business process implementation language (such as BPEL).
- WS-CDL is flexible enough to be used to specify interoperable collaborations between any type of Web Service participant regardless of the supporting platform or programming model

Limitations

- WS-CDL is a premature specification and has not been widely adopted to date in mainstream applications and tools
- WS-CDL is often confused with an "executable business process description language", contributing to low adoption rates in the mainstream

Predictive Business Event Analytics

- Once processes related to a B2B transaction have been effectively modeled and monitored, there will be a rich source of:
 - Views of the ideal business process and its business performance links
 - Data about how an enterprise (internally or externally) performs against the ideal business process (time, incidence of exceptions, cost, etc.)
- Standard predictive analytics can be applied equally well to:
 - Traditional business intelligence applications
 - Analysis of public processes (these are simply a variant of the private processes normally analyzed today)
- The primary goals of predictive business event analytics are to:
 - Understand the causal links between failures in business processes (internal and external)
 - Build analytic models that exploit these links
 - Analyze and monitor those processes that are most at risk of affecting KPIs
 - Improve the accuracy of predictive models through continuous feedback loops
- Enhances the reliability and agility of public, collaborative processes



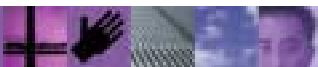
An Ideal Process-Centric B2B Environment

- Near real-time
- Adaptive
- Collaborative
- Predictive
- Global in scope and addresses organizations in the value chain (not just large enterprises)
- Manages 100% of all B2B processes
 - Technical (infrastructure monitoring, transaction exception processing)
 - Business (process modeling and monitoring)
- Internet-enabled
- XML-based



Implementing Process-Centric B2B Today

- An intelligent B2B **gateway** that can provide monitoring and alerts for exception conditions at the edge of the enterprise
- **Technical monitoring tools** that can:
 - Sense and respond to infrastructure exceptions
 - Provide an integrated view of how well the different pieces of the business integration platform are working against SLAs
- **Business process modeling and monitoring tools** that can improve public and private process performance against KPIs
- Flexible **XML-based approaches** to process-centric B2B exchanges



But How Do You Get There.....

- The right business focus
- The right executive commitment
- The right standards
- The right architecture
- The right infrastructure
- The right organization
- The right business practices



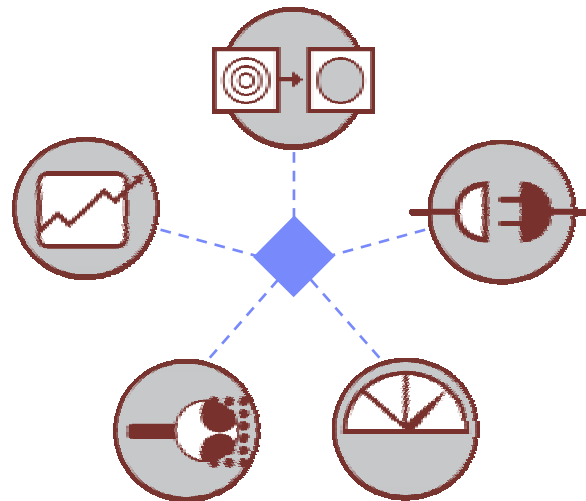
IBM Business Innovation and Optimization Method

The power of IBM's method is derived from each activity performed individually ...

Model
 Capture, simulate, analyze, and optimize business models to reduce risk and increase flexibility

Act
 Respond at the right time to insights through collaboration, optimization, and automation to excel

Deploy
 Direct deployment of models and policies to realize business intent



Analyze
 Gaining insight into business metrics and information for contextual based decision making

Monitor
 Correlate metrics and alerts in real-time from internal and external sources to gain visibility into the business performance

... and in combination to enable continuous improvement and innovation



Summary

- Traditional and process-centric approaches to B2B offer different points of focus
- Adopting a process-centric approach to B2B offers value above and beyond data-centric B2B approaches
- Adaptive process capabilities available in industry standards today provide new and innovative methods for collaborative public process management
- The technology and business components available today in off-the-shelf technical and process monitoring tools allow enterprises to deploy an effective collaborative B2B environment



Questions/Comments?

