IBM Boston Technical Exploration Center
404 Wyman Street, Boston MA

WebSphere Lab Jam
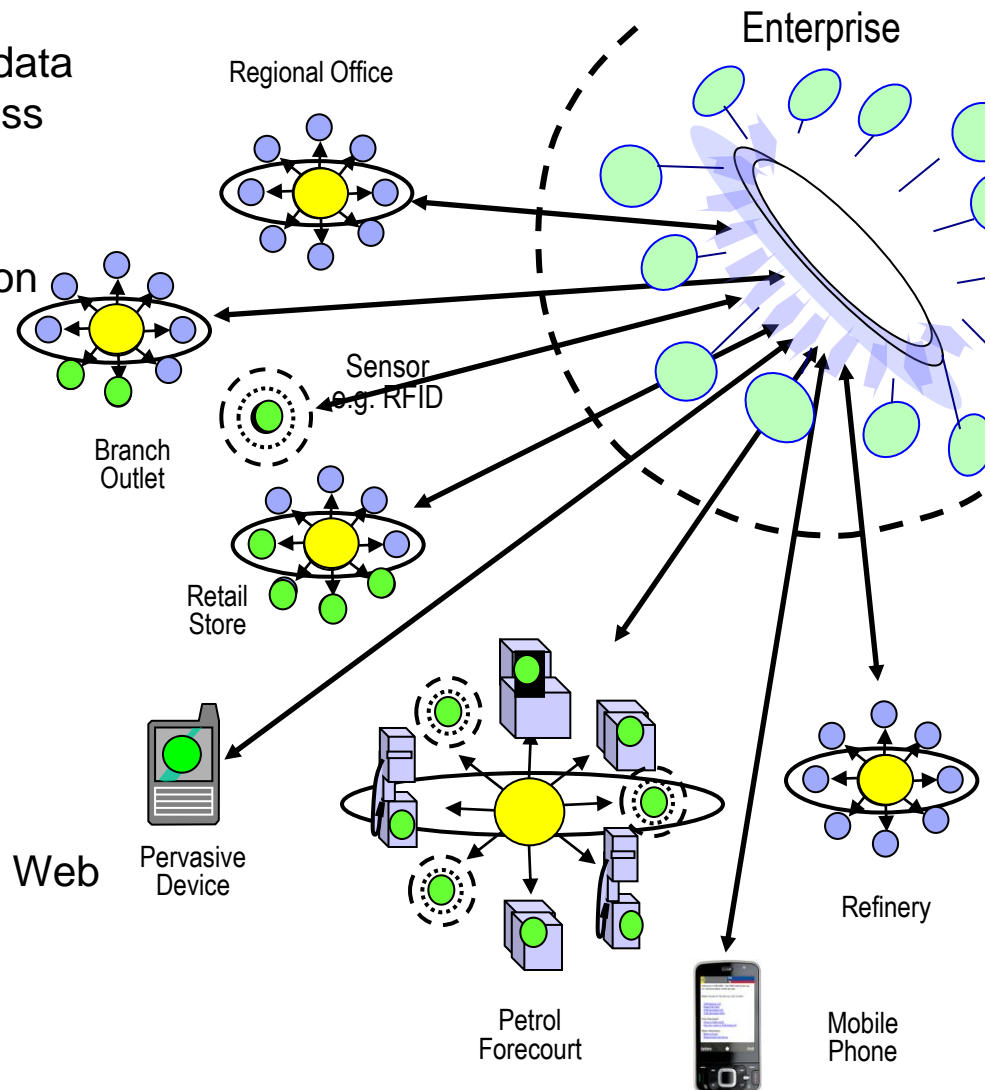
WebSphere. software

IBM

Overview

- WebSphere MQ

- WebSphere Message Broker

- WebSphere DataPower

- WebSphere Service Registry & Repository

- WebSphere Cast Iron

- Getting Started - Labs

WebSphere Lab Jam

WebSphere MQ

WebSphere Lab Jam

# WebSphere MQ: Connectivity to, from and within an Enterprise

- A Universal Message Bus for access to data wherever it exists to support your business

- Provides a comprehensive range of Messaging capabilities to support your Business requirements for data integration
  - Managed File Transfer
  - Messaging integration patterns
  - Reliability and availability QoS
  - SOA foundation

- Provides appropriate data access and data privacy controls to help meet audit and regulatory requirements

- WMQ Telemetry is one step in extending the reach of WMQ to a wider world of data relevant to your business

- Recent technology demonstration of MQ Web Messaging using HTML5 WebSockets continues this progress

Enterprise

Regional Office

Sensor e.g. RFID

Branch Outlet

Retail Store

Pervasive Device

Petrol Forecourt

Mobile Phone

Refinery

What is WebSphere MQ?

- Software that enables programs to communicate across a network of unlike components (processors, operating systems, subsystems and communication protocols).
- It is messaging and queuing **middleware** with publish/subscribe:
  - **Messaging :** programs communicate by sending each others data in messages rather than calling each other directly.
  - **Queuing:** the messages are placed on the queues in storage, so that programs can run independently of each other at different times and speeds, in different locations, and without having a logical connection between them
  - **Publish/Subscribe:** A program can send (publish) data to a single destination, and let Websphere MQ deal with the distribution of the data to other programs (subscribers). The publisher defines a topic for the information, and the subscriber specifies which topics it wishes to receive.
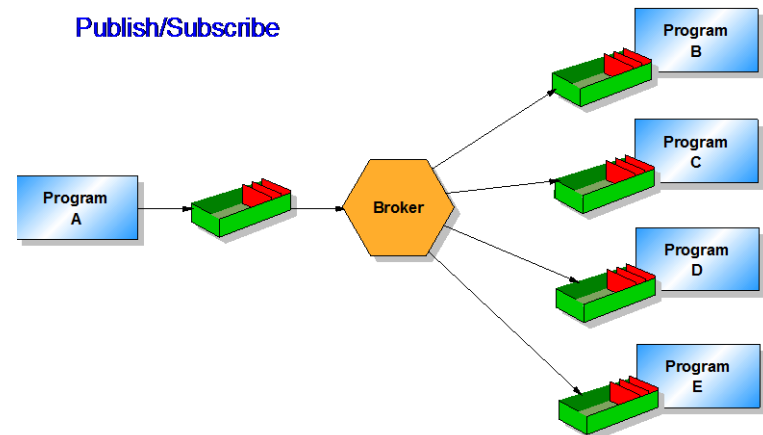
Fire & Forget

Program A → Program B

Request/Reply

Program A ↔ Program B

Publish/Subscribe
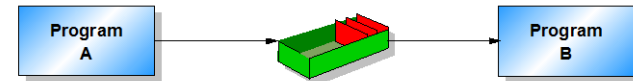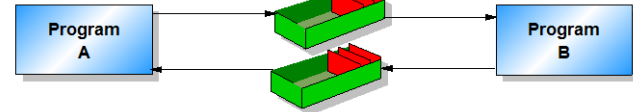
Program A → Broker → Program B
Program C
Program D
Program E

Benefits of WebSphere MQ Built-in Security

- Data is secured while in transit
  - Time when data is most vulnerable
  - Using SSL, data is protected against:
    - Eavesdropping – With data encryption techniques
    - Tampering – With Digital Signatures
    - Impersonation – With Digital Certificates

- MQ Resources can be secured against unauthorized access
  - Queue managers, queues, topics, channels, etc
  - Security based on ACLs and profiles
  - Granular authorization possible
    - e.g. Can configure users to put but not get, to subscribe but not publish, etc

- Flexible security administration
  - Command-line (supports scripting)
  - Programmatic (PCF)
  - GUI Tooling (MQExplorer)

Security Administration Using the WebSphere MQ Explorer

WebSphere Message Broker

What is WebSphere Message Broker?

Provides an Enterprise Service Bus (ESB) that has been designed for universal connectivity and transformation in heterogeneous IT environments

Multiple platforms

Built on WebSphere MQ

Range of EAI patterns

Industry Leading Performance

Standard protocols

WebSphere Message Broker

High volume processing

Extensive transformations of data formats

Characteristics Of An Effective Enterprise Service Bus

- Transformation
- Multi-Protocols
- Content Based Routing
- Database Management System (DBMS) Integration
- Fully Transactional
- Effective, Powerful Tooling
- Simple
- Extensible
- Standards based
- Non-Invasive

WebSphere Message Broker

- Universal Connectivity FROM anywhere, TO anywhere
  - Simplify application connectivity for a flexible & dynamic infrastructure

- Comprehensive Protocols, Transports, Data Formats & Processing
  - Connect to applications, services, systems and devices
    - MQ, JMS 1.1, HTTP(S), SOAP, REST, File (incl. FTP, FTE, ConnectDirect), Database, TCP/IP, MQTT, CICS, IMS, SAP, SEBL, .NET, PeopleSoft, JDEdwards, SCA, CORBA, email…
  - Understand the broadest range of data formats
    - Binary (C/COBOL), XML, CSV, JSON, Industry (SWIFT, EDI, HL7…), IDOCs, User Defined
  - Built-in suite of request processors
    - Route, Filter, Transform, Enrich, Monitor, Publish, Decompose, Sequence, Correlate, Detect…

- Simple Programming with Patterns & Graphical Data Flows
  - Patterns for top-down, parameterized connectivity of common use cases
    - e.g. Service façades, Message processing, Queue2File…
    - IBM & User defined patterns for development reuse & governance
  - Graphical data flows represent application & service connectivity
    - Custom logic via Graphical mapping, PHP, Java, ESQL, XSL & WTX

- Extensive Management, Performance & Scalability
  - Extensive Administration & Systems Management facilities for developed solutions
  - Wide range of operating system &hardware platforms supported, including virtual & cloud options
  - High performance transactional processing, additional vertical & horizontal scalability
  - Deployment options include Trial, Express, Standard and Advanced

11
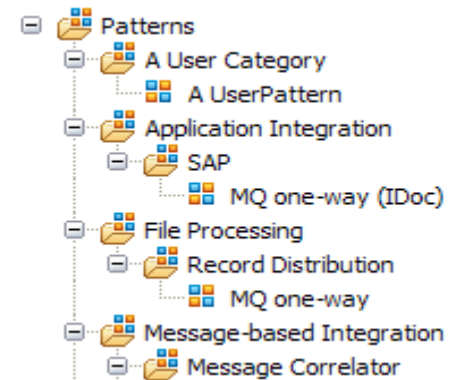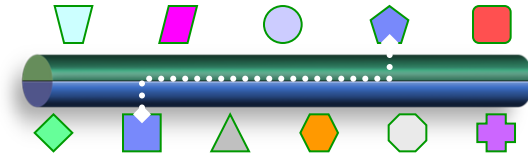
WebSphere DataPower

WebSphere DataPower Appliance Family

XE82

- Edge Appliance for Web applications using public network

- Includes WebSphere Application Accelerator for Hybrid Networks

XB62

- Unparalleled B2B performance

- Secure B2B messaging (AS1, AS2, AS3)

- Trading partner profile management

- B2B Transaction Viewer

XI52

- Consumable hardware ESB

- "Any-to-any" conversion at wire-speed

- Dynamic routing; intelligent load distribution

XG45

- Security Gatreway Device ++

- Lightweight ESB (HTTP,MQ,JMS)

- Rich security, authentication and authorization features

Service Processing

- Web GUI
- Building services
  - Web Service Proxy
  - Multi-Protocol Gateway
  - XML Firewall
  - Web Application Firewall
  - XSL Accelerator

Flexible Authentication, Authorization, and Auditing (AAA) policies

HTTP Headers
WS-Security Tokens
WS-SecureConversation
WS-Trust
Kerberos
X.509
SAML Assertion
IP Address
LTPA Token
Custom

LDAP
System/z NSS (RACF, SAF)
Tivoli Access Manager
Kerberos
WS-Trust
Netegrity SiteMinder
RADIUS
SAML
LTPA
Verify Signature
Custom

🚫 **AAA**

LDAP
ActiveDirectory
System/z NSS
Tivoli Access Manager
SAML
XACML
Custom

Add WS-Security
Generate z/OS ICRX Token
Generate Kerberos
Generate SAML
Generate LTPA
Map Tivoli Federated Identity

Extract Identity

Authenticate

Map Identity

Authorize

Audit & Post-Process

input

output

Extract Resource

Map Resource

URL
SOAP Operation
HTTP Operation
Custom

External access control server *or* onboard identity management store

WebSphere Service Registry & Repository

WebSphere Lab Jam

Service Visibility and Governance within SOA Governance

SOA Governance and Service Lifecycle Management

Org Change

Portfolio Management

Service

Visibility

Governance

Process Modeling Services
Portfolio Management
Organizational Change
Human Collaboration
Risk Management

Service Lifecycle Management
Registry & Repository Support
Policy Lifecycle Management
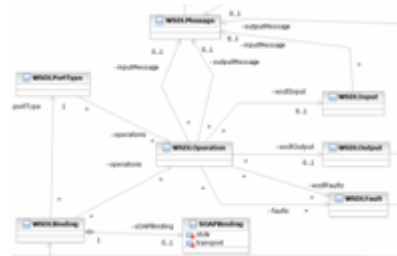Service Level Agreements
Change Management

WSRR is your Enterprise SOA Registry / Repository
Highly Prescriptive Service Lifecycle Governance

Optimize resource costs by governing service consumption with service contract management

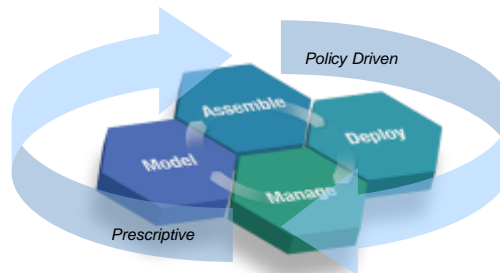Tailor Service Governance implementation to fit your business needs

Governance Model

Business Space

Reports

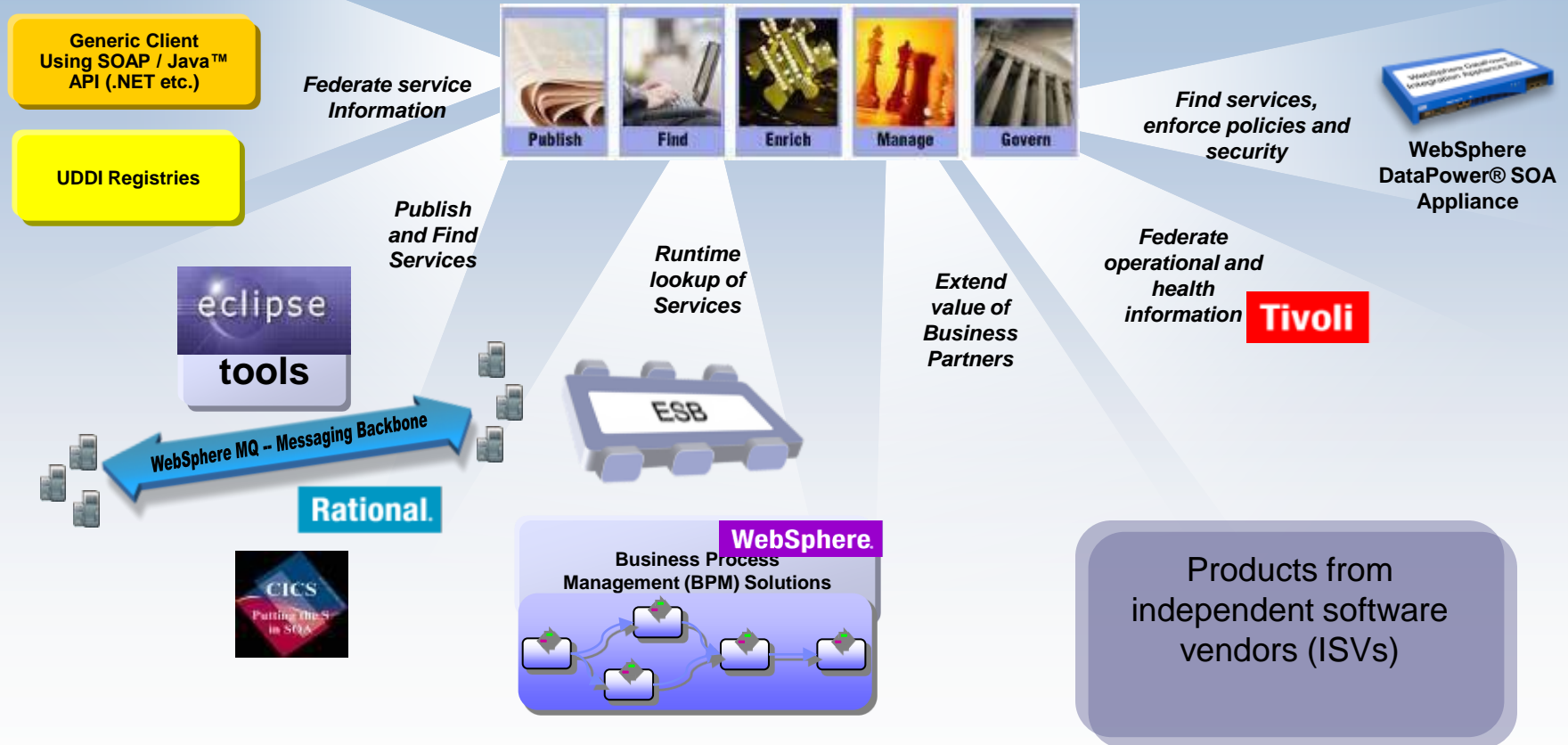Accelerate reuse with Automated Service Discovery across heterogeneous environment

Policy Driven

Prescriptive

Enforce policies consistently to help achieve reliability and compliance

Mediations

Reduce business risk with prescriptive service lifecycle governance including WebSphere MQ

WAS Policy Sets

Policy

Policy

Publish **Find** **Enrich** **Manage** **Govern**

Policy Management
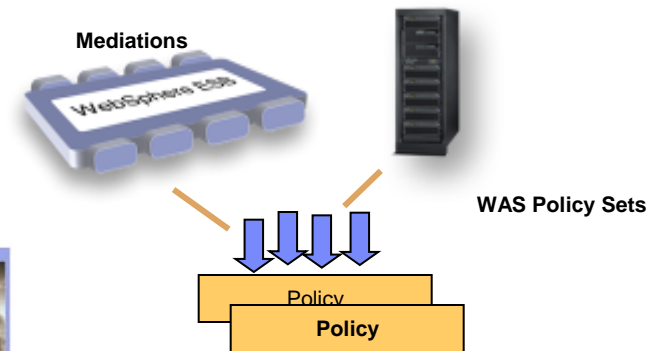
WebSphere Service Registry and Repository provides integration and interoperability across ESBs, BPM & Connectivity

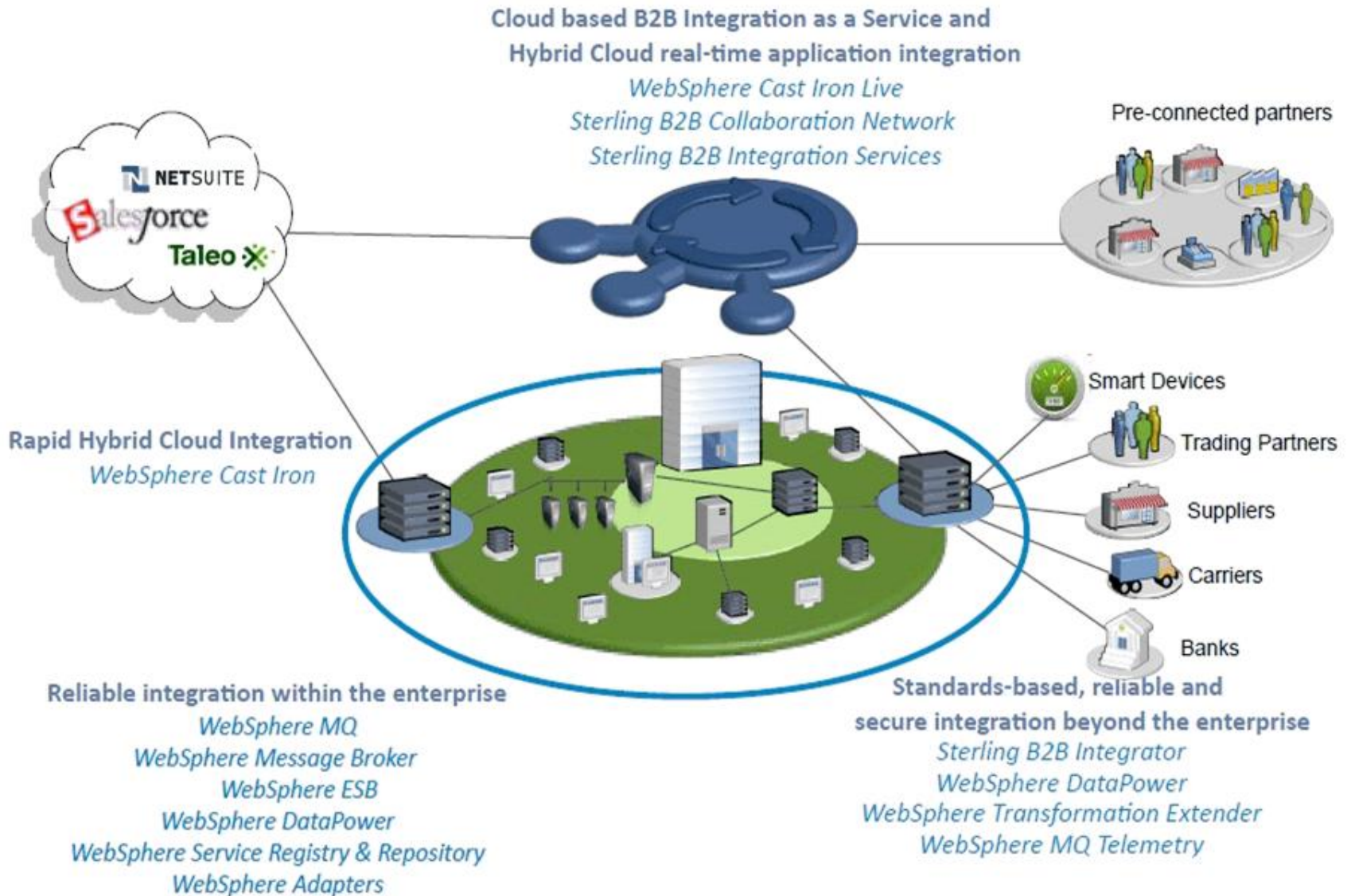**Generic Client Using SOAP / Java™ API (.NET etc.)**

UDDI Registries

Federate service Information

Publish | Find | Enrich | Manage | Govern

Find services, enforce policies and security

WebSphere DataPower® SOA Appliance

Publish and Find Services

eclipse **tools**

Runtime lookup of Services

Extend value of Business Partners

Federate operational and health information **Tivoli**

WebSphere MQ -- Messaging Backbone

Rational.

ESB

CICS Putting the S in SOA

WebSphere

Business Process Management (BPM) Solutions

Products from independent software vendors (ISVs)

WebSphere Cast Iron

WebSphere Cast Iron

Connect Packaged and Custom Applications In Days

Integration as a Service   Physical Appliance

Virtual Appliance
(SOFTWARE)

WebSphere Lab Jam

IBM's Connectivity across Dynamic Business Networks

Cloud based B2B Integration as a Service and
Hybrid Cloud real-time application integration
WebSphere Cast Iron Live
Sterling B2B Collaboration Network
Sterling B2B Integration Services

Pre-connected partners

NETSUITE
Salesforce
Taleo

Rapid Hybrid Cloud Integration
WebSphere Cast Iron

Smart Devices

Trading Partners

Suppliers

Carriers

Banks

Reliable integration within the enterprise
WebSphere MQ
WebSphere Message Broker
WebSphere ESB
WebSphere DataPower
WebSphere Service Registry & Repository
WebSphere Adapters

**Standards-based, reliable and
secure integration beyond the enterprise**
Sterling B2B Integrator
WebSphere DataPower
WebSphere Transformation Extender
WebSphere MQ Telemetry

Cast Iron Integration Approach

No Coding
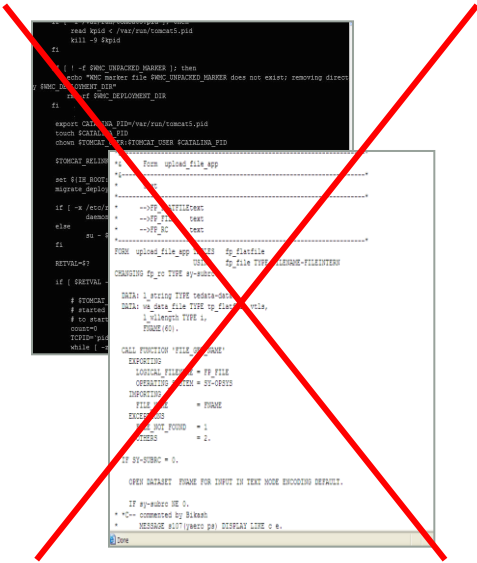
Beyond Configuration
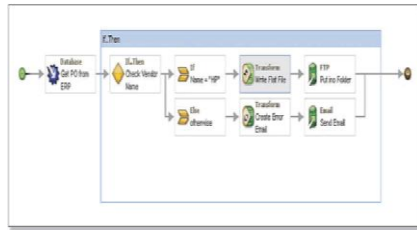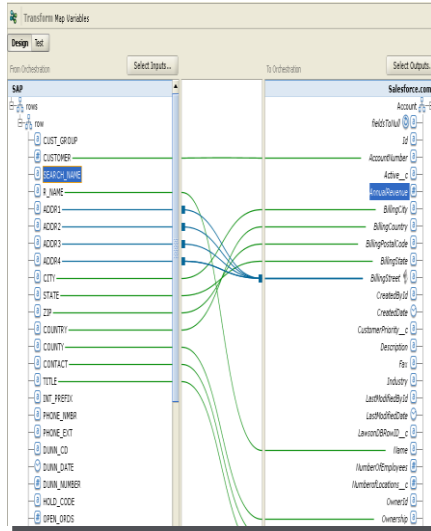
Preconfigured Templates (TIPs)

WebSphere Lab Jam

And now for the "Labs"

WebSphere Lab Jam

Getting Started - Labs

- Lab Choices:
  - WebSphere MQ
  - WebSphere Message Broker
  - WebSphere DataPower
  - WebSphere Service Registry & Repository
  - WebSphere Cast Iron

- Select the vmware

WebSphere DataPower

WebSphere MQ

VMware Workstation

File Edit View VM Team Windows ...lp

Home   × | Web_CastIron   × | Web_DataPower   × | Web_MessageBroker   × | Web_MQ   × | Web_ServiceRegistryRepository ×

WebSphere Cast Iron

WebSphere Message Broker

WebSphere Service Registry & Repository

Start the vmware image

- Look in the "Description section" for Log on and password information
- Select the "Power on this virtual machine"

WebSphere Lab Jam

Bring up the image

- Select "OK" for any pop-ups
- Once the image is up, move into full screen mode by selecting, Ctrl-Alt-Enter
- You may begin your lab
- Please see a specialist, if you have any problems with the labs

WebSphere Lab Jam