Matt Lucas – IBM Integration Bus Lead Architect – lucas@uk.ibm.com

IBM Integration Bus

What's New in Version 9

© 2013 IBM Corporation

Important Disclaimer

- THE INFORMATION CONTAINED IN THIS PRESENTATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
- WHILST EFFORTS WERE MADE TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION CONTAINED IN THIS PRESENTATION, IT IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED.
- IN ADDITION, THIS INFORMATION IS BASED ON IBM’S CURRENT PRODUCT PLANS AND STRATEGY, WHICH ARE SUBJECT TO CHANGE BY IBM WITHOUT NOTICE.
- IBM SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES ARISING OUT OF THE USE OF, OR OTHERWISE RELATED TO, THIS PRESENTATION OR ANY OTHER DOCUMENTATION.
- NOTHING CONTAINED IN THIS PRESENTATION IS INTENDED TO, OR SHALL HAVE THE EFFECT OF:

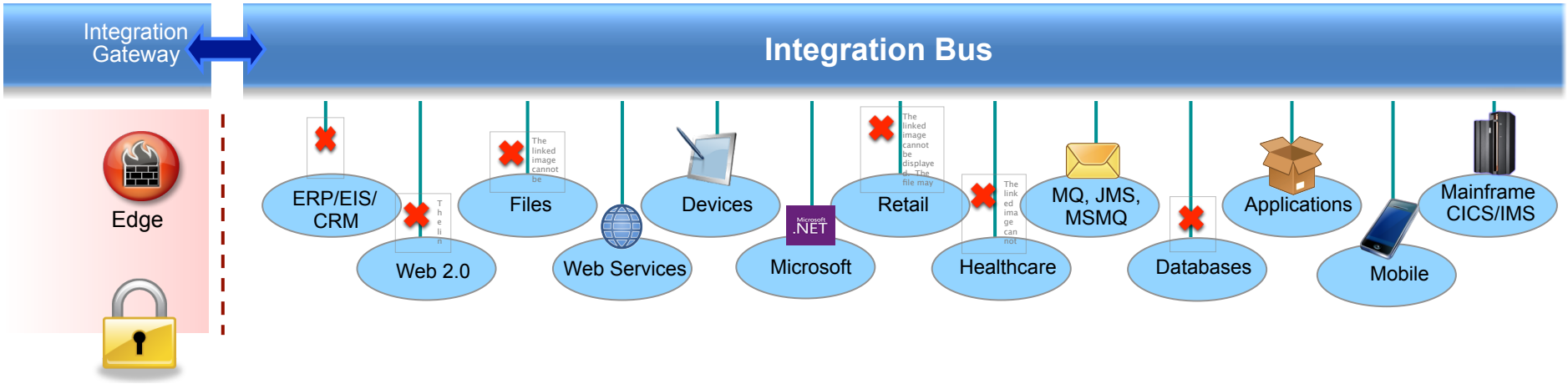
– CREATING ANY WARRANTY OR REPRESENTATION FROM IBM (OR ITS AFFILIATES OR ITS OR THEIR SUPPLIERS AND/OR LICENSORS); OR

– ALTERING THE TERMS AND CONDITIONS OF THE APPLICABLE LICENSE AGREEMENT GOVERNING THE USE OF IBM SOFTWARE.

© 2013 IBM Corporation

Introducing IBM Integration Bus

- IBM's Strategic Integration Technology
  - Single engineered product for .NET, Java and fully heterogeneous integration scenarios
  - DataPower continues to evolve as IBM's integration gateway

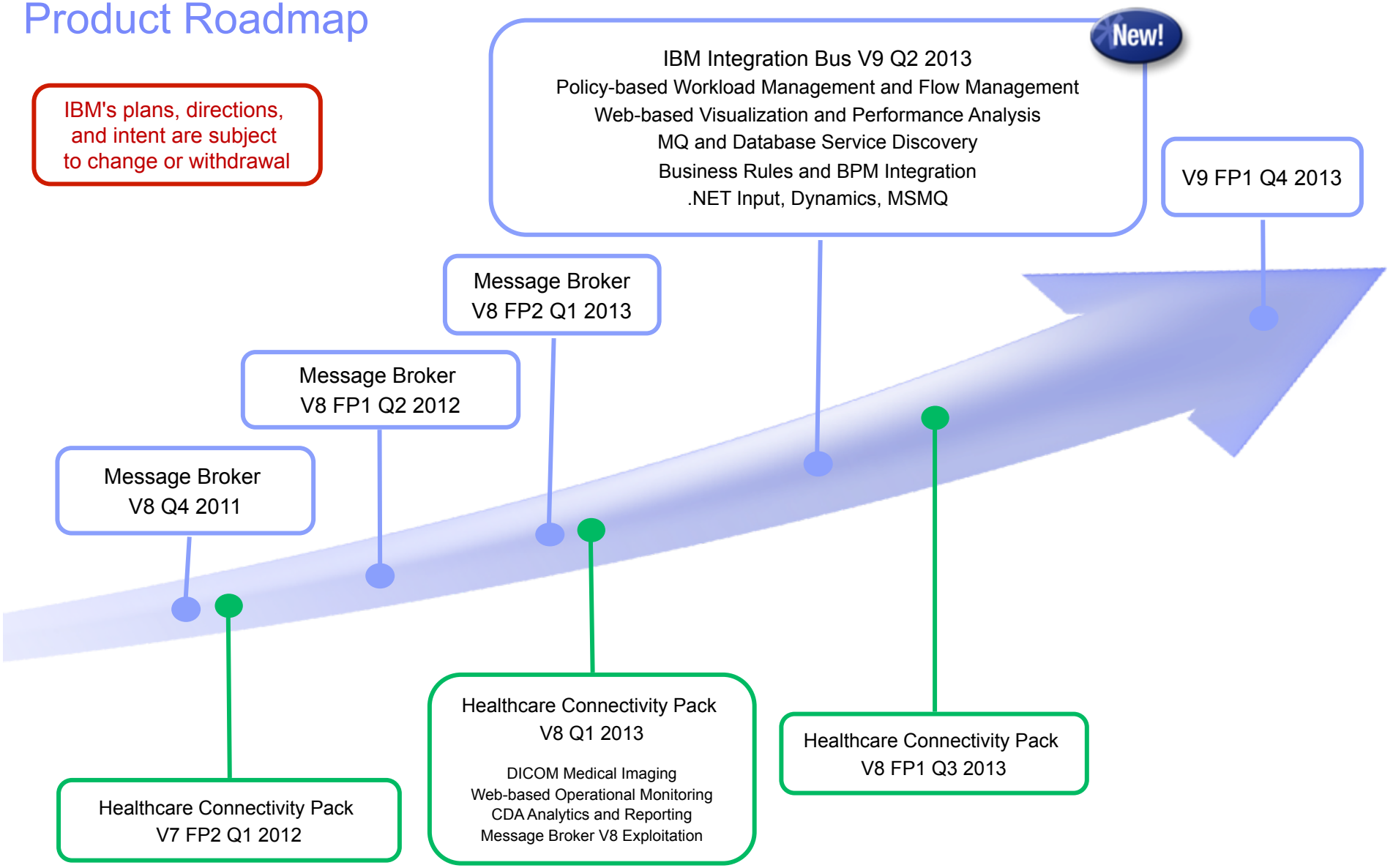


- A Natural Evolution for WebSphere Message Broker users
  - Significant innovation and evolution of WMB technology base
  - New features for Policy-based WLM, BPM integration, Business rules and .NET

- Designed to incorporate WebSphere Enterprise Service Bus use cases
  - Capabilities for WESB are folded in to IBM Integration Bus over time
  - Conversion tools for initial use cases built in to IIB from day one
  - WESB technology remains in market, supported. Migrate to Integration Bus when ready

© 2013 IBM Corporation

Product Roadmap



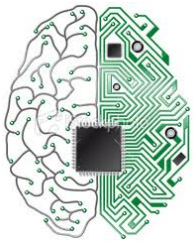
© 2013 IBM Corporation

IBM Integration Themes

- Simple & Productive
  - Making it easier and quicker to develop and manage integration solutions
    - Learn, Develop, Deploy, Manage, Migrate quickly and easily

- Universal & Independent
  - Connecting to a range of different systems
    - Universal connectivity includes standards, de facto standards, industry and custom systems

- Industry Specific & Relevant
  - Provide industry relevant connectivity packs to solve domain specific problems
    - Industry specific nodes, solution-oriented patterns & user-oriented tooling



- Dynamic & Intelligent
  - Allow the creation of dynamic solutions that provide business insight
    - Flexible configuration tools, analysis of data and intelligence

- High Performing & Scalable
  - Provide a platform and technology neutral connectivity option
    - Work on the widest possible range of hardware, software and virtualized environments

© 2013 IBM Corporation

Integration Bus Content

- Simple & Productive
  - Graphical Mapper: stored procedures, patterns and enhanced conversion of older maps
  - BPM Express/Standard (Lombardi) Integration: Process Designer synergy and integrated deployment
  - Web Tools: Real-Time Performance Statistics for understanding system behaviour

- Universal & Independent
  - WESB Conversion: Import and conversion of mediation flows and “to do” list
  - MQ service discovery to facilitate sharing of service definitions
  - Database discovery and analysis tools for diversified access to systems of record
  - DFDL improvements including lengthKind “pattern” and enhancements for TLOG
  - .NET Input node, Dynamics and MSMQ samples and patterns, support for Windows Server 2012
  - System of awareness for service mapping application-oriented integration

- Industry Specific & Relevant
  - Healthcare Pack update: MB8 Exploitation, DICOM Imaging, Analytics with Netezza and COGNOS

- Dynamic & Intelligent
  - Integrated Workload Traffic shaping policies to manage back-end system load
  - Managing unresponsive integration flows for improved overall system reliability
  - Business Decision Services using ODM technology for business rules integration
  - Security enhancements: Improved BasicAuth, Multiple certificates, CRL checking

- High Performing & Scalable
  - Embedded cache extensions: External cache, expiry and SSL support
  - Flexible Cloud Provisioning with IWS, SCAS and Pure, including Pure POWER support

© 2013 IBM Corporation

A Broad Range of Supported Platforms and Environments

- Broad range of operating system and hardware platforms supported
  - AIX, Windows, z/OS, HP-UX, Linux on xSeries, pSeries, zSeries, Solaris (x86-64 & SPARC), Ubuntu
  - Optimized 64-bit support on all platforms; 32-bit option available for Windows and x/Linux
  - New support for Windows 8 and Windows Server 2012; .NET CLR V4.5 included on Windows
  - Express, Standard and Advanced editions make IIB applicable for all solutions and budgets
    - All new V9 features available in all editions unless otherwise stated

- Virtual images for efficient utilization & simple provisioning
  - Extensive support for virtualized environments, e.g. VMWare, AIX Hypervisor… any!
  - IBM Workload Deployer for x/Linux & AIX
  - Support for Pure on POWER hardware to complement xLinux
  - SmartCloud and IBM Workload Deployer images for simplified solution provisioning

Traditional OS

- Includes access to full range of industry standard databases and ERP systems
  - DB2, Oracle, Sybase, SQL Server, Informix, solidDB
  - Open Driver Manager support enables new ODBC databases to be accessed
  - JDBC Type 4 for popular databases
  - SAP, Siebel, Peoplesoft, JDEdwards at no additional cost

Public Cloud

- Technology components and pre-requisites
  - Java 7 on all platforms
  - MQ 7.5 prerequisite (7.1 on z/OS)

IBM Workload Deployer

Private Cloud

IBM Pure

- Focus areas for performance Improvements
  - Significant gains include HTTP, TCP/IP, DFDL and graphical mapping

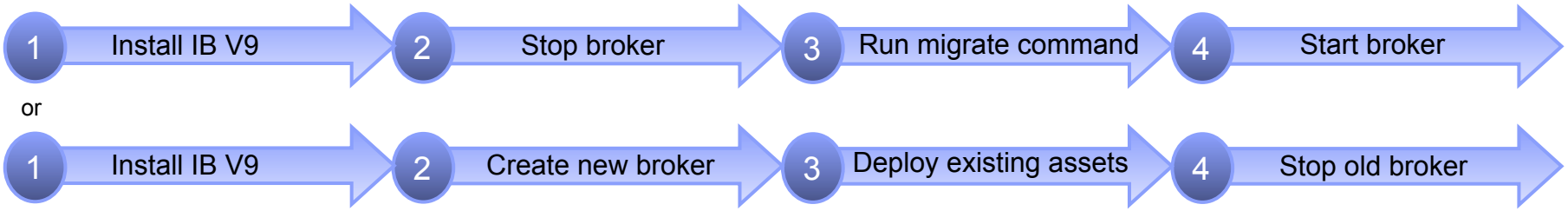
© 2013 IBM Corporation

Migration from WebSphere Message Broker V6.1, V7 and V8

- Migration from WMB V6.1, V7 and V8
  - All development assets (e.g. message flows, ESQL, DFDL, Java, Maps and XSLT) import directly
    - Right-click convert action for pre-V8 maps; some manual tasks may be required
  - Migrate brokers using a single command, or create new brokers for phased migration
    - No broker redeployment necessary when using built-in migrate command
    - All existing BAR files can be deployed to IB V9 brokers without change

- Migration commands for in-place migration
  - Includes migration of configuration data including broker databases, queues and registry
  - Forwards and backwards migration of existing components, in situ
    - `mqsimigratecomponents` command (includes `-t` option for rollback to V7 and V8)

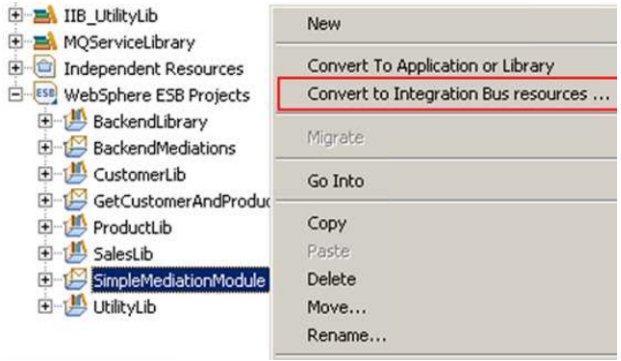
- Flexible co-existence options remove the need for additional hardware when migrating
  - IB V9 co-exists on the same OS with all previous MB versions
  - MQ V7.5.0.1 required for all IB V9 brokers
    - MQ V7.5.01 supported with V7 and V8 brokers for the purposes of V9 migration
    - For V6.1 migration, upgrade MQ and MB simultaneously



© 2013 IBM Corporation

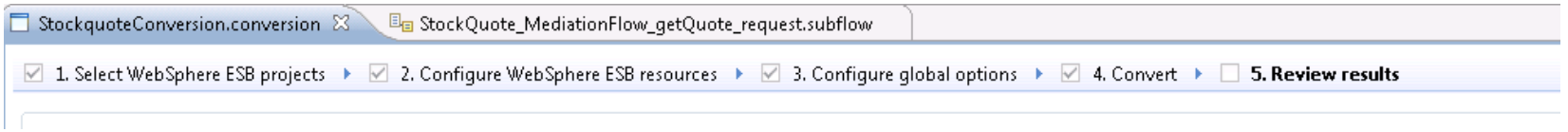
Conversion from WebSphere Enterprise Service Bus

- Built-in conversion tools for WESB source assets
  - Initial emphasis on web services use cases (e.g. StockQuote)
  - Advanced use cases over time; convert when appropriate for your installation
  - Open framework for user and partner extensions



- Simple workflow creates IB resources

1. Export WESB PI from IID
2. Import mediations into Eclipse Toolkit
3. Right-click “convert” task to start conversion
4. Follow guided editor to generate resources
5. Task List will identify remaining manual steps
6. Iterate as necessary



- Open Conversion Framework

– Extensibility means more WESB primitives and resource types can be converted over time

• No minimum version requirement of WESB source

• Builds directly into WESB conversion editor

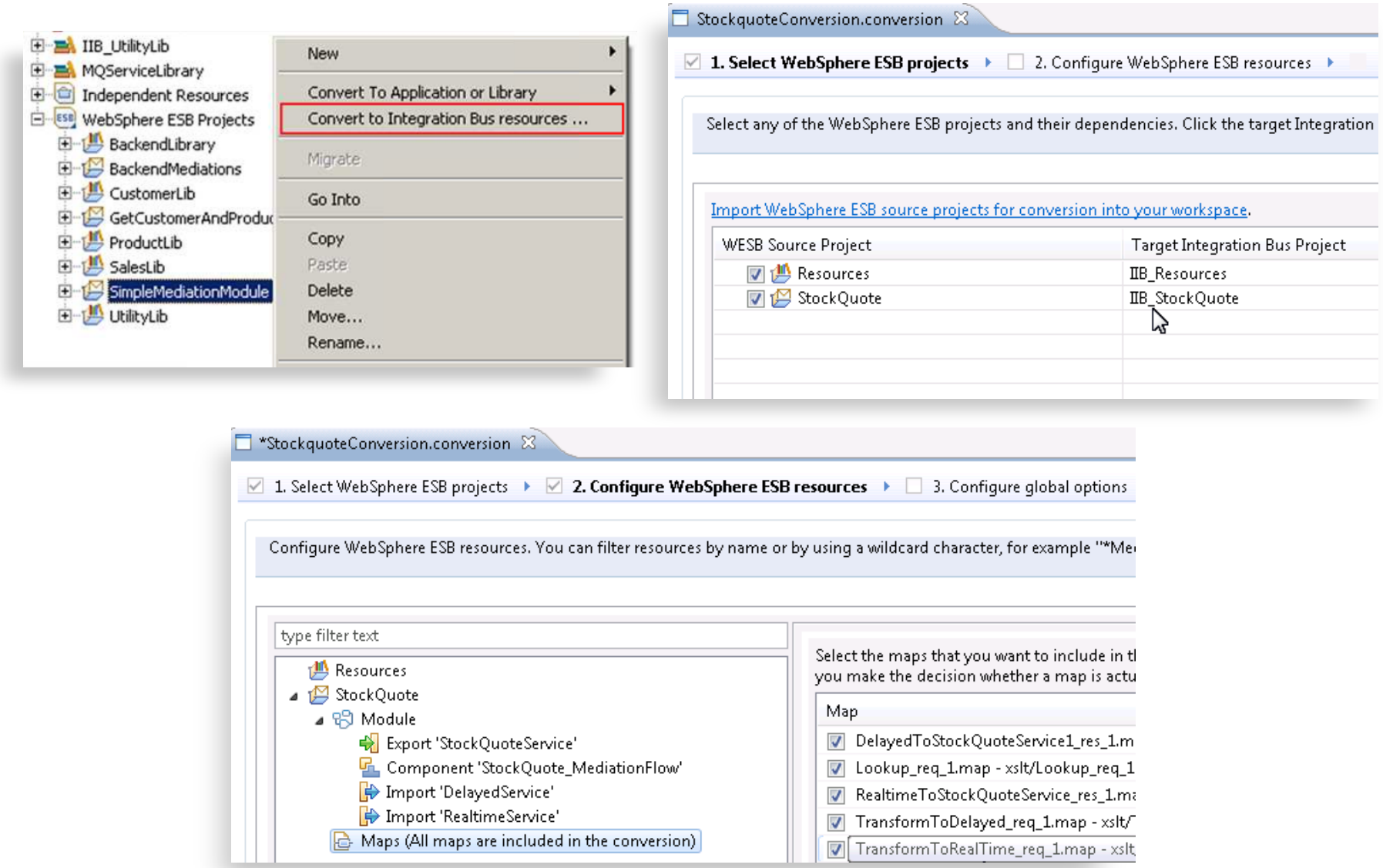
– Design allows for future assisted resource creation from non-Integration Bus sources, e.g.

– eGate Java collaborations and Event Type Definition, exploiting existing JAXB support

– ICS collaborations, including ASBO and GBO model, exploiting new GDM pattern enablement

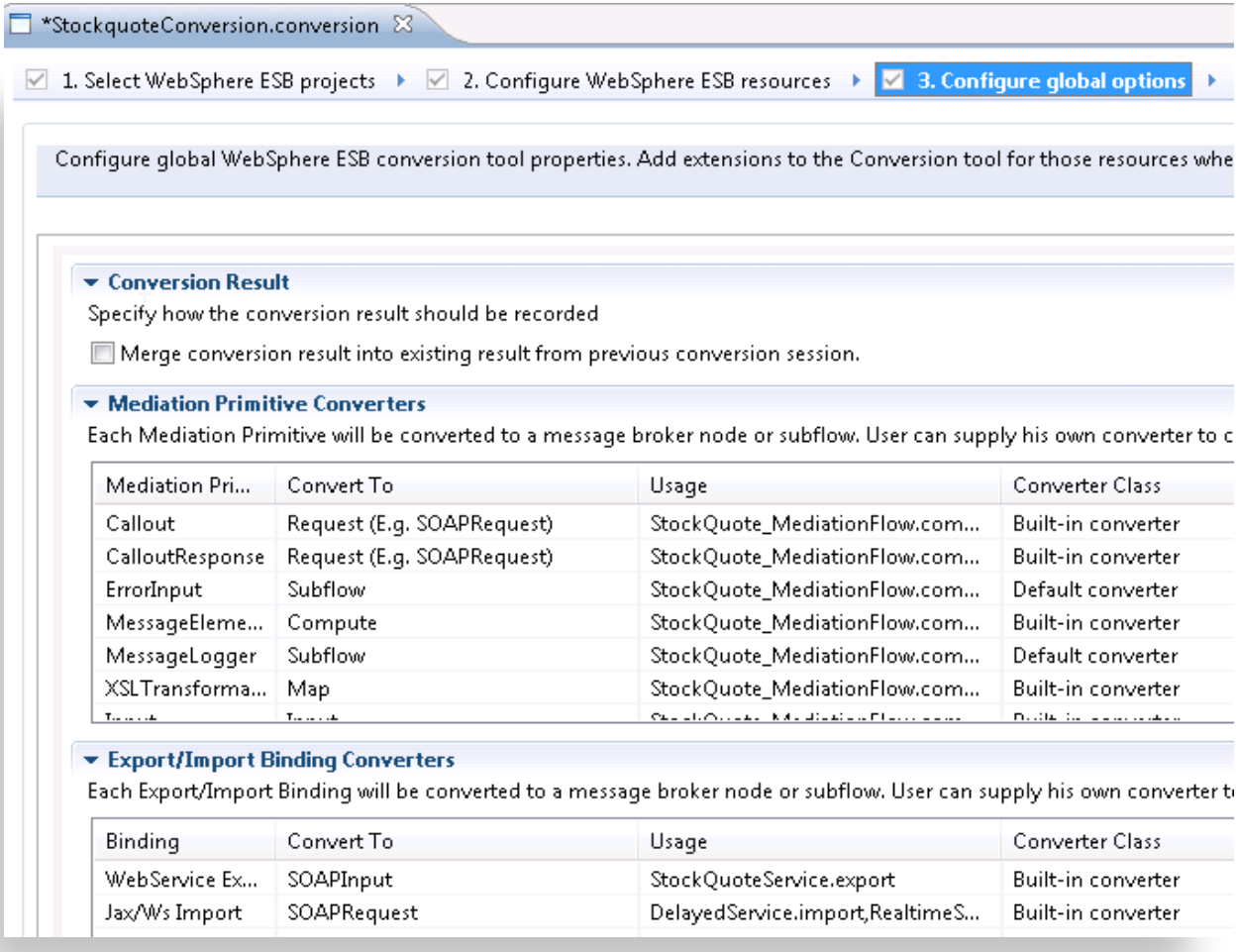
© 2013 IBM Corporation

Example WESB Conversion (1/4)



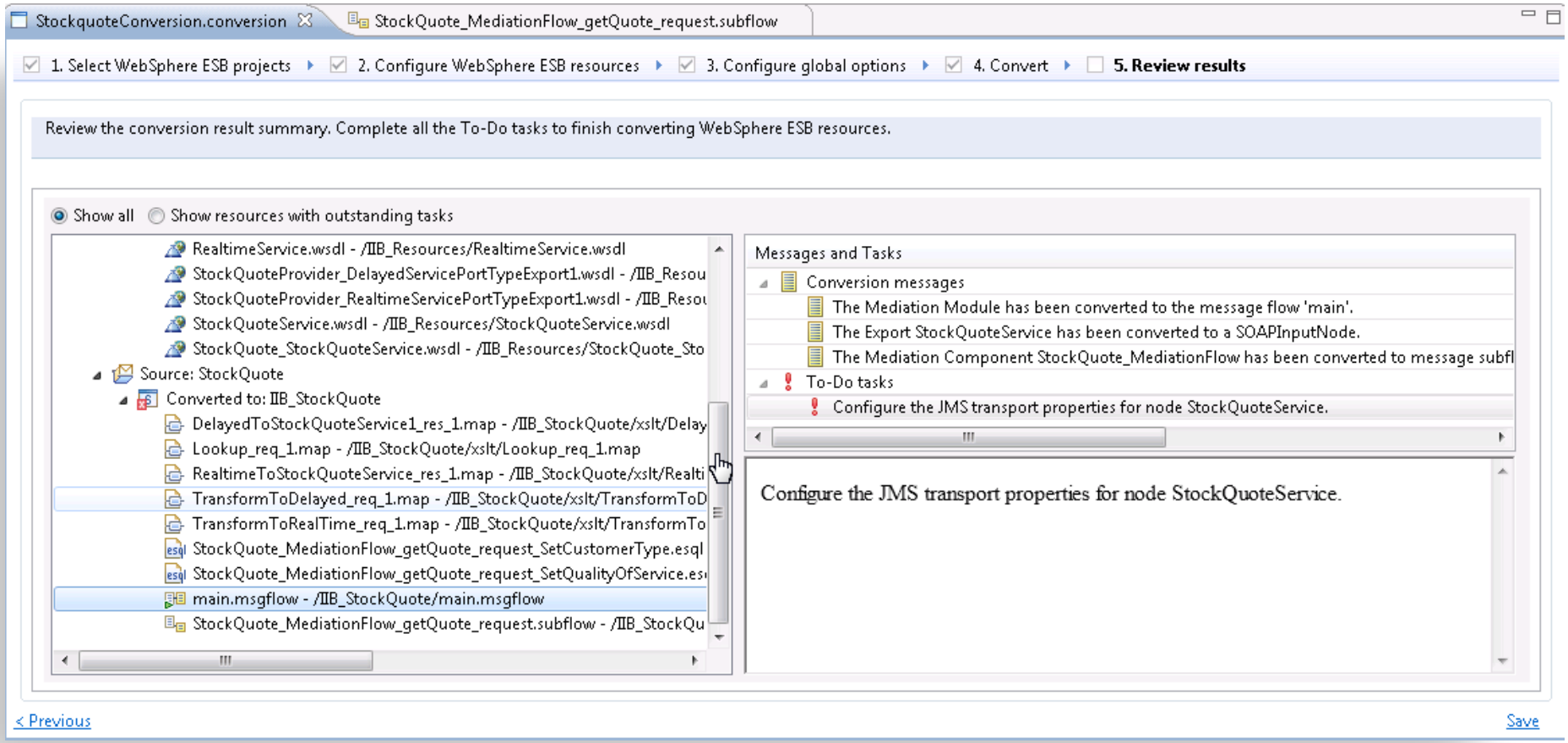
© 2013 IBM Corporation

Example WESB Conversion (2/4)



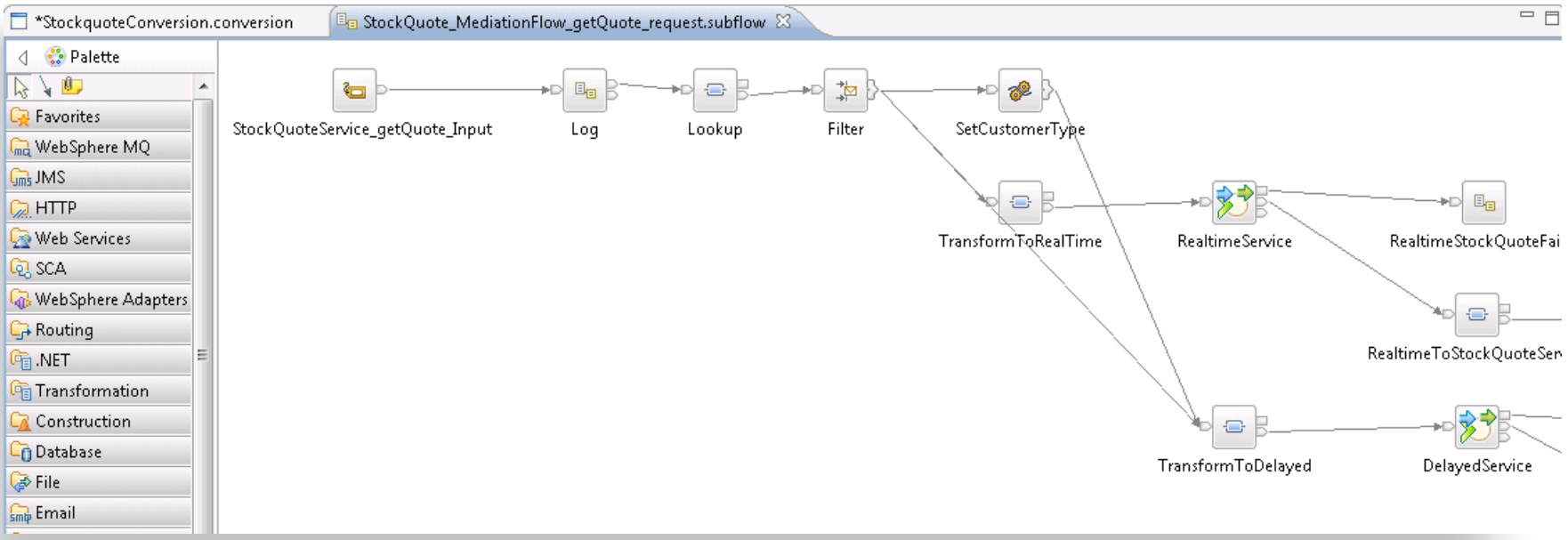
© 2013 IBM Corporation

Example WESB Conversion (3/4)



© 2013 IBM Corporation

Example WESB Conversion (4/4)



© 2013 IBM Corporation

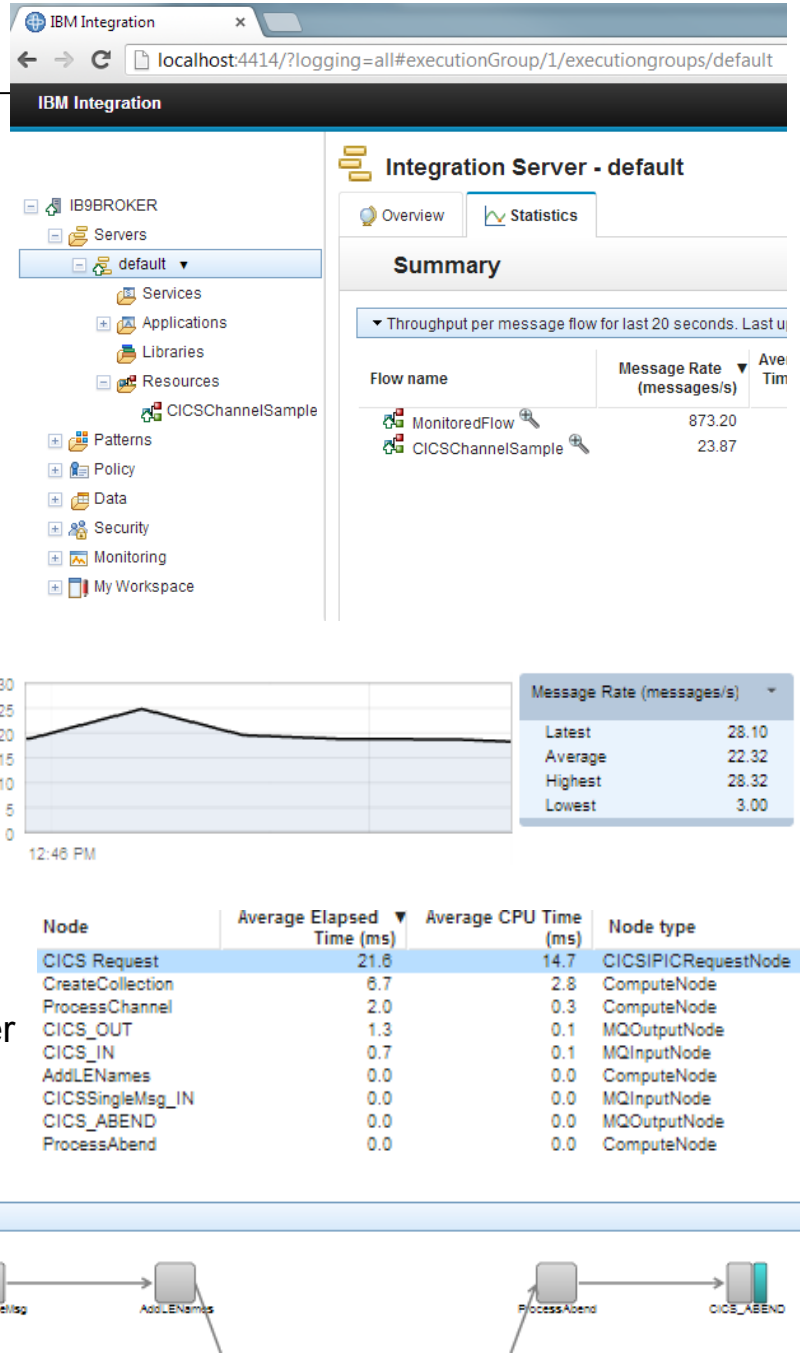
© 2013 IBM Corporation

Web Visualisation and Analytics

- A comprehensive tool for web management
  - Manage all integration resources from zero-footprint client
  - Analyze integration performance in real-time
  - Supported on a variety of browsers: IE10, Firefox, Safari…
  - Complements MQ Explorer and WAS Admin consoles

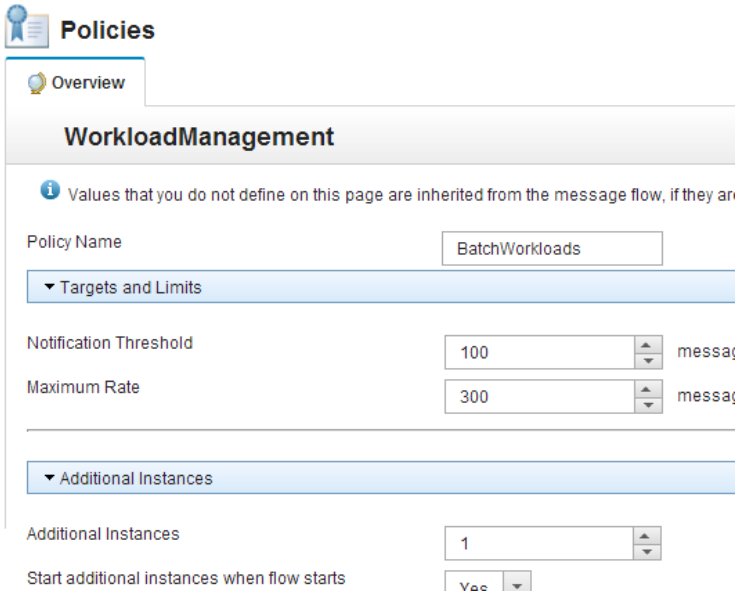
- Managing Integration Resources
  - View top-level integration node properties
  - Add/remove/change integration servers
  - Start/Stop integration data flows
  - Role based access to control usage
  - Advanced options include data replay, policy & monitoring
  - Exploits underlying public REST/JSON API

- Integration Performance Analysis
  - Operational experience; no developer intervention required
    - New and existing flows can exploit without change
  - Many metrics of integration flow available in real-time
    - CPU & I/O time shown by default in integration analyzer
    - Other metrics include thread, data sizes, errors…
  - Flexible display includes data tables and flow profile
    - Drill down to understand detailed behaviour
  - Exploits underlying MQTT web sockets technology
    - Asynchronous notification at low CPU cost

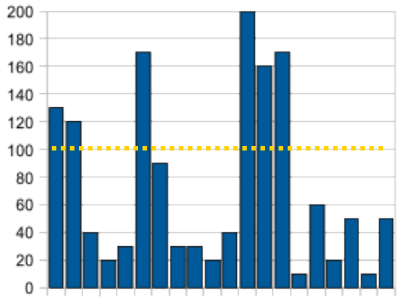


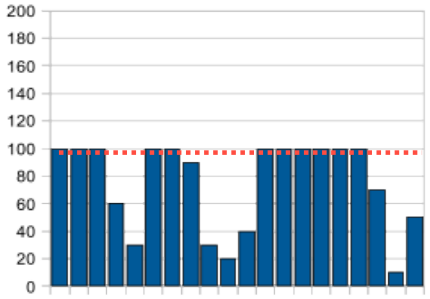
© 2013 IBM Corporation

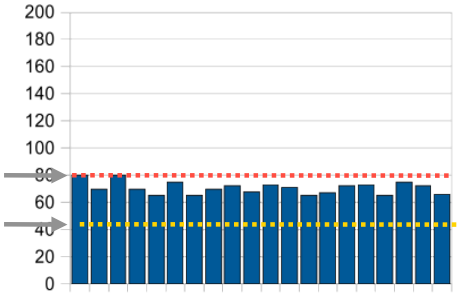
Controlling Integrations with Policy



- Integration Workload Management
  - Provide intelligent mechanisms to control processing speed
  - Most common scenario is to reduce back-end server load
  - Design allows more policy-based processing over time
  - Can be applied to new or existing integration data flows
- Policy defines threshold limits and relevant actions
  - Set thresholds for integration data flow throughput
  - Specify actions at threshold, for example:
    - NOTIFY: Higher (or lower) than threshold generates publication
    - DELAY: Excessive workload will have latency added to shape throughput
- Web Console used to manage WLM policy
  - Sophisticated behaviour controllable by broker WLM policy
  - Workload can be managed across classes of message flows (e.g. batch vs. online)
  - Policies stored in local registry, and dynamically configurable
  - Developer can also specify limits as integration data flow properties

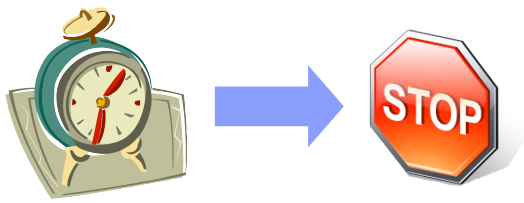




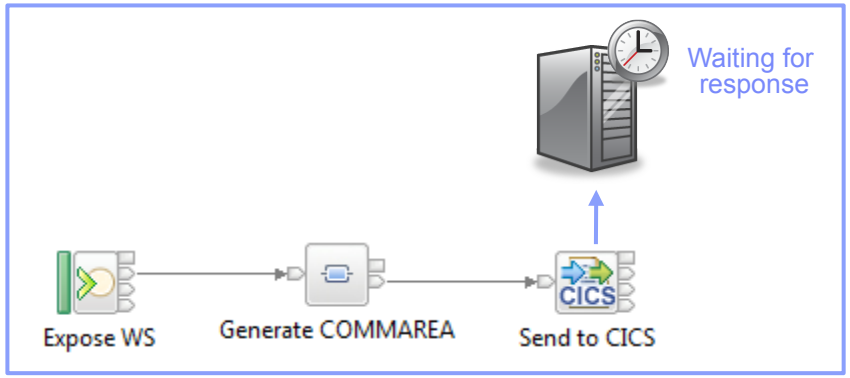


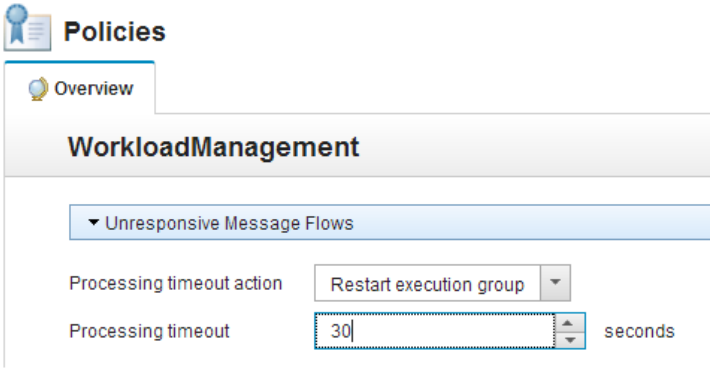
© 2013 IBM Corporation

Managing Unresponsive Integration Flows



- Target unresponsive flows through policy to improve overall system reliability
  - Additional WLM option aimed at unresponsive integration flows
  - An integration flow can become unresponsive for multiple reasons
    - e.g. Waiting for external system, infinite loop, deadlock, malformed XML





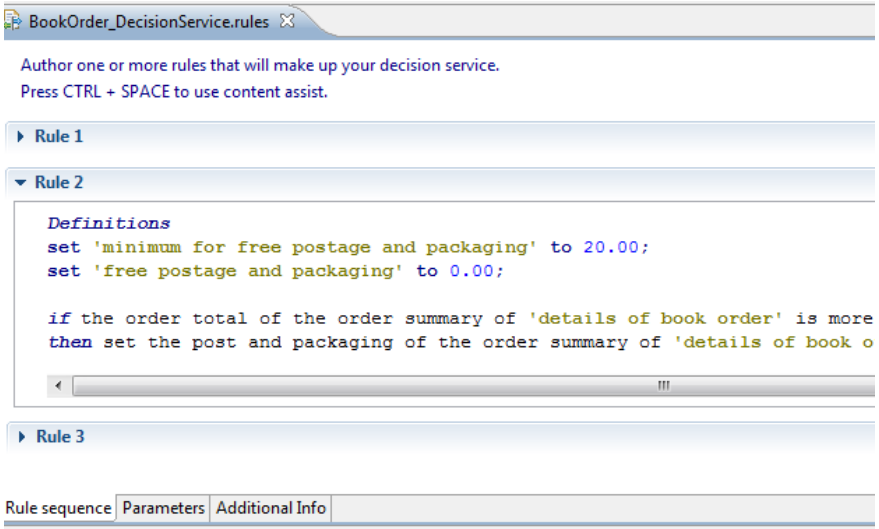
- Flexible configuration, actions and reporting options
  - Specify threshold at which flows are considered unresponsive, e.g. 30 seconds for processing
    - Configured via WLM policy, or directly on the flow in the BAR file
  - Define action to trigger when flow considered unresponsive
    - Administrative notification through a new “timeout exceeded” event message
      - If flow eventually continues through to completion, a second event is published
    - Restart the integration server (execution group) on which the unresponsive flow is running
  - New command option to forcibly stop integrations manually: `mqsistopmsgflow -f`

© 2013 IBM Corporation

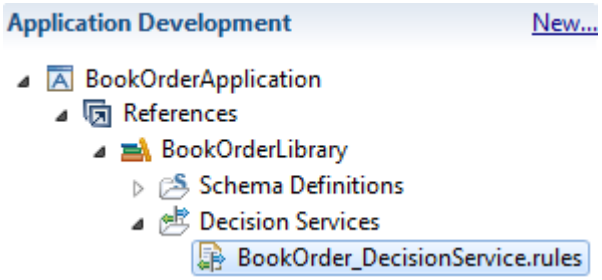
Understand and Act on In-flight data

- Provide business insight during integration data flows
  - e.g. intelligent decision making; score then action in-flight request based on a business rule
  - User creates (e.g.) if-then-else rules using tool of choice (Excel, Word, Eclipse…)
  - The bus acts on these rules in flow, e.g. for business level routing

- New Decision Service node
  - Identifies inputs to business rules from in-flight data
    - e.g. `details of book order` from request
    - e.g. `the item price` from key fields…
  - Invokes built-in rule engine to perform business logic
    - Open interfaces for 3rd party and user engines
  - Captures rules output for downstream processing
    - Business objects mapped back to in-flight data



- Create rules directly inside Integration Bus toolkit
  - Significant rules authoring facility built-in
  - Automatic package & deploy with integration assets
  - Dynamically reconfigure business rule using configurable service policy
  - Optionally refer to business rules on external ODM decision server
  - Exploit separate full ODM Decision Center for BRMS scenarios

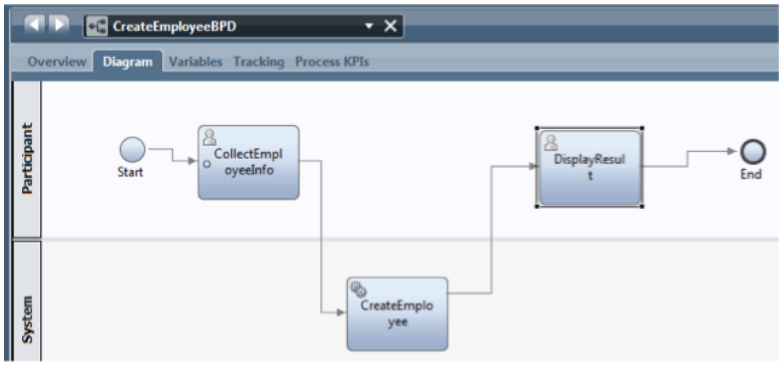


- Embedded rules engine for high performance
  - Rule is executed in the same OS process as integration data flow
    - Succeeds IAM9 Support Pac
  - Rule update notification ensures consistent rule execution
  - Optional governance of rules through remote ODM Decision Center

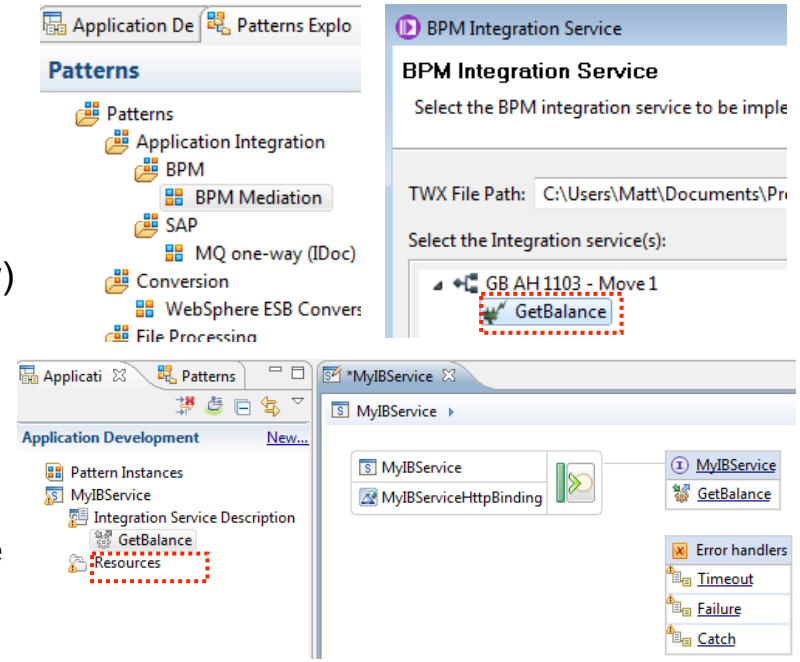
© 2013 IBM Corporation

Synergy with BPM Express and Standard (Lombardi)

- IB provides powerful connectivity layer for BPM workflows
  - Allows BPM developer to exploit rich integration features
    - E.g. .NET, Healthcare Pack, TCP/IP, GDM, DFDL…
  - No changes required to existing BPM programming model
    - Helps maintain separation of concerns between roles
    - Process designer works with integration developer
  - Complements SCA nodes for BPM Advanced (WPS)



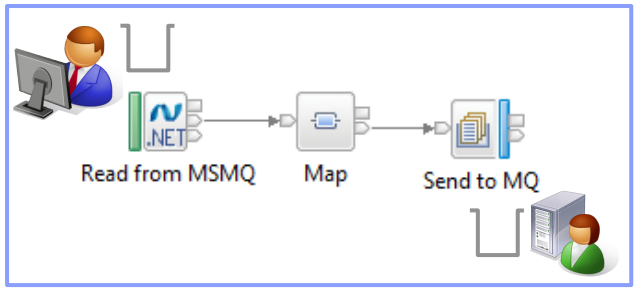
- Start with business process definition
  - Process Center snapshots provides integration handover
    - Snapshot can include multiple service definitions
    - Captured as .twx file
  - Integration developer imports snapshot from BPM
    - Provides implementation of selected definitions
    - Built-in integration tools simplify this activity (see below)
  - Process designer re-imports updated snapshot from IB
    - Completes business process definition
    - Calls integration service in BPM system activity



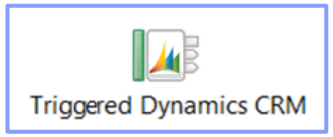
- New BPM pattern simplifies creation of integration solution
  - Start from Pattern Explorer, or right-click on existing service
    - Import .twx file to create skeleton integration flow
  - Customize created integration flow with IB capability…
    - All other IB features available
  - Deploy integration and pass back concrete references to BPM e.g. server IP address, etc.

© 2013 IBM Corporation

Comprehensive .NET Support



- New patterns and samples for MS Dynamics CRM and MSMQ
  - SAP CRM pattern for customer account synchronization
    - Map account operations between BAPI & CRM Entities
  - Advanced CRM pattern enables dynamic graphical mapping
  - New customizable sample for 2-way MSMQ and MQ exchange



- New and enhanced nodes for .NET programmers
  - .NET Input node allows developers to initiate integration logic from any .NET system
    - e.g. receive request from Dynamics CRM, AX, periodically read EXCEL file…
    - Highly customizable polling and trigger mechanisms
  - CLR V4.5 runtime embedded within the integration server provides .NET technology foundation
    - Languages include C#, VB .NET (COM), JScript & F#, with full range of .NET data types
    - Also includes app domains for isolation
    - Exploited by .NET Compute node and .NET Input node
  - Further extensions include Visual Studio 2012, Windows 8/Server 2012 and Azure Cloud compatibility

SimpleFilterNode.cs | Object Browser

SimpleFilterNodes.SimpleFilterNode | Evaluate(NBMessageAssembly assembly)

```
6   using IBM.Broker.Plugin;
7   [assembly: CLSCompliant(true)]
8   namespace SimpleFilterNodes
9   {
10    public class SimpleFilterNode : NBComputeNode
11    {
12      public override void Evaluate(NBMessageAssembly assembly)
```

- Developer Customizations
  - Cloned .NET nodes
    - Easy to understand, consume and reuse
  - Custom user properties
    - Expose key properties
    - e.g. CRM IP address
  - Simple cloned node capture
    - User-defined icons
    - .NET Toolkit drawer

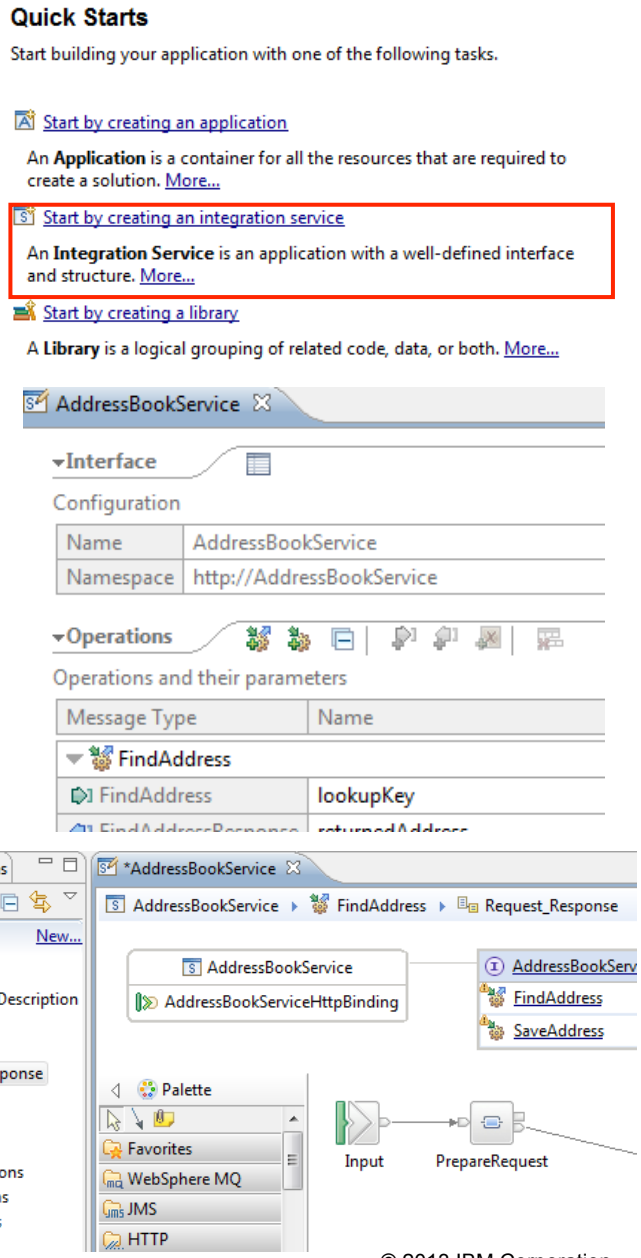
© 2013 IBM Corporation

Integration Services for SOA

- Integration Services are well-defined containers of integration logic
  - Integration Services are created for and reside inside the bus
  - Interface is expressed via WSDL with a port type
    - Interface and structure are both required
      - e.g. Request, response & fault handlers per operation
    - Default binding is created out of the box

- Integration Services are defined through standard resources
  - WSDL (port type) defines service interface
  - Service interface defines one or more operations
  - Service Descriptor (XML) ties service interface with implementation
  - Each operation is implemented as an integration subflow
    - Supporting resources also associated (e.g. Maps, XSDs)
    - Resources optionally reside in libraries
  - Main entry point is implemented as an integration flow

- Simple lifecycle for services creation and management
  - Simple creation of new integration services
    - Creating a new “Service” container
    - Import WSDL or create from scratch
    - Implement services
    - Specify binding before or during deployment
  - Deployment as per standard integration applications
  - Unit Test and Team options available

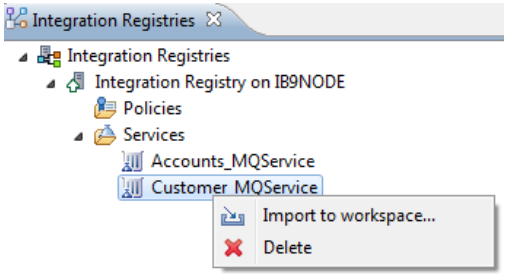


© 2013 IBM Corporation

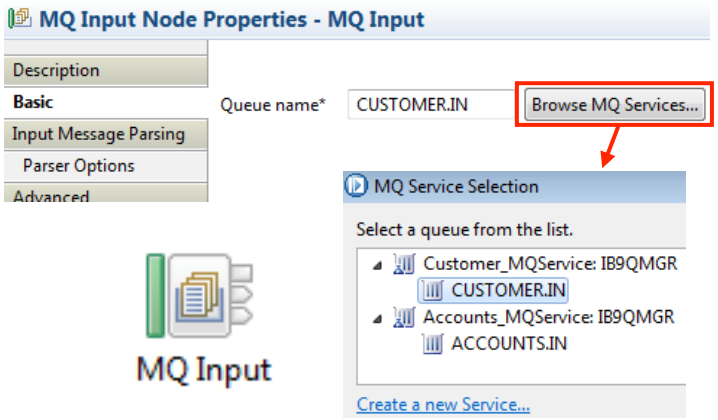
MQ Service Discovery

- Service definitions allow you to make best use of available resources
  - Facilitates sharing of service information between users and systems
  - Allows users to understand interfaces (e.g. CustomerAddress.Update operation)
  - Provides a connector with which to exchange technical configuration (e.g. hostname)
  - Provides attachment points for associated policies (e.g. authorization)

- New framework enables discovery, cataloguing and re-use of services
  - Discovery connectors translate the service provider description to a common model
  - Interrogate IT systems for definition of technical assets – objects, functions and interaction points
  - User selects and refines definition of technical assets
  - Service definitions created and associated with technical assets
  - Discovered service definitions stored in embedded registry
  - Use catalogued services to configure integration solutions



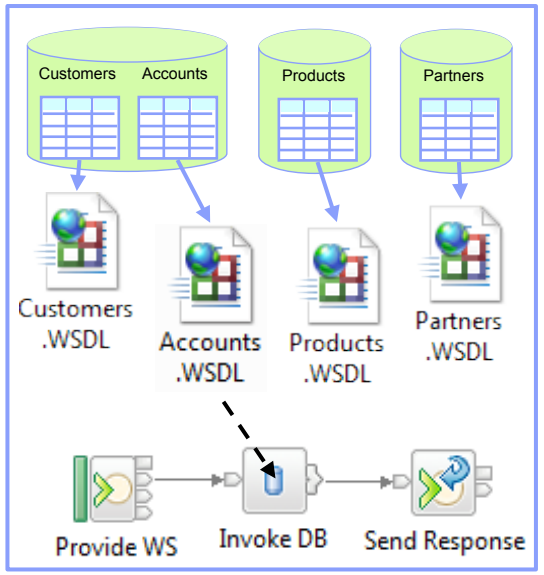
- Initial implementation discovers and catalogs MQ service definitions
  - Discover queues from referenced queue manager endpoint
  - IB develops MQ service definition and stores in registry
  - Use service definitions to configure MQ connectivity
    - Sets required MQ headers and queue references



- New and existing nodes will be updated over time
  - Completely aligned with runtime connector framework
    - Simple protocol points appropriate for style of interaction
    - Allows for simple development of custom connectors

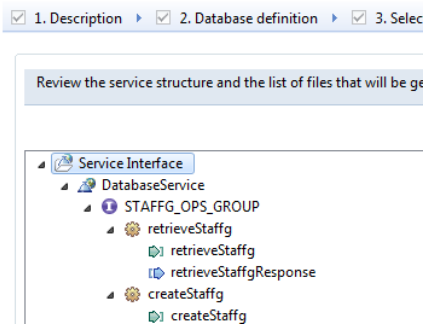
© 2013 IBM Corporation

Database Service Discovery and Data Analysis

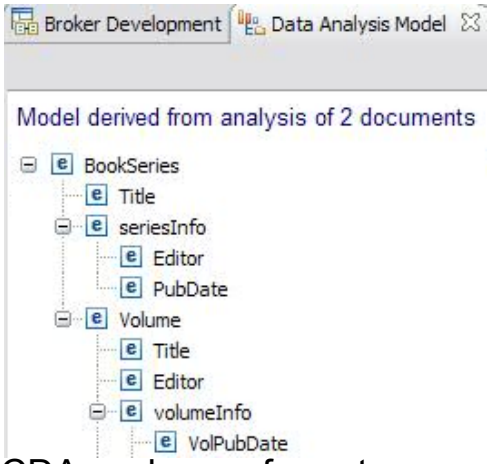


- DBMS represents system of record for key business entities
  - Customers, accounts, partners, products… all stored in databases
  - Integration Bus tools discover and represent these key data
  - Integration services extends access to end-user applications

- New integration tools discover key database assets
  1. Connect to DBMS
  2. Discover source tables
  - Map CRUD operations to service interface
  - Save in canonical WSDL document
    - Custom bindings for SQL access
  - Re-use database WSDL in multiple scenarios



- Many uses for database service definition
  1. WSDL contains both logical and physical database information
  2. Drag and drop WSDL to automatically create SQL access methods
  - Create new integration service to exploit customized database access
    - End-user application consumes as regular (e.g.) web service



- Customize integration services with data analysis
  - Tools for solving the problem of XML document understanding
    - XML message formats can be structurally diverse
    1. Often useful to semantically interpret related elements, e.g. healthcare CDA exchange format
  1. New Data Analysis Perspective provides a collection of useful data views
     - Model data based on input element XML; understand and visualise related elements
     - Generate resources (subflows, maps) that allow transformation between modelled elements

© 2013 IBM Corporation

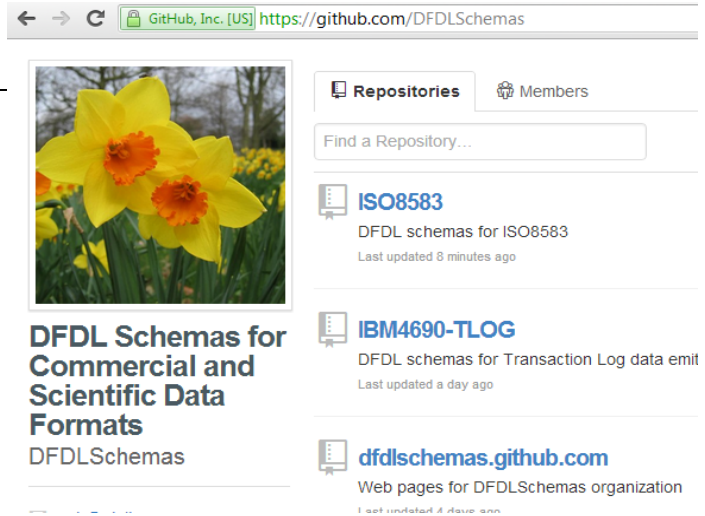
Easy Data Modelling with DFDL

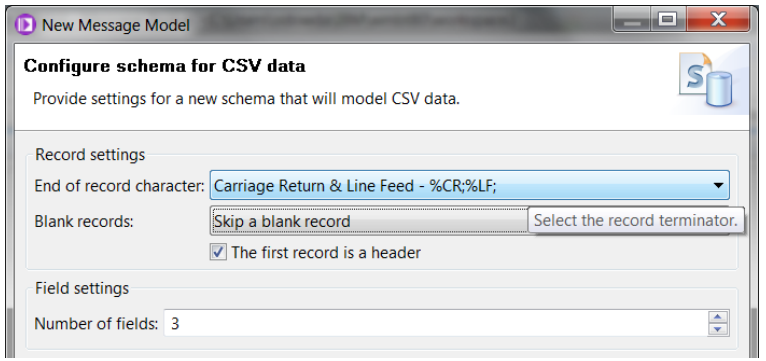
- Simple & powerful open standard for data modelling
  - For use in IBM and non-IBM products
    - e.g. Integration Bus, Rational Performance Test Server, InfoSphere MDM V11, Rational Test Virtualization Server, Rational Test Workbench, Rational Developer for System z…
    - May also be used in standalone applications
  - DFDL web community now active
    - Public GitHub repositories for DFDL models
      - Including HL7, ISO8583 and TLOG
    - Commercial and scientific formats
    - Collaborative development of models

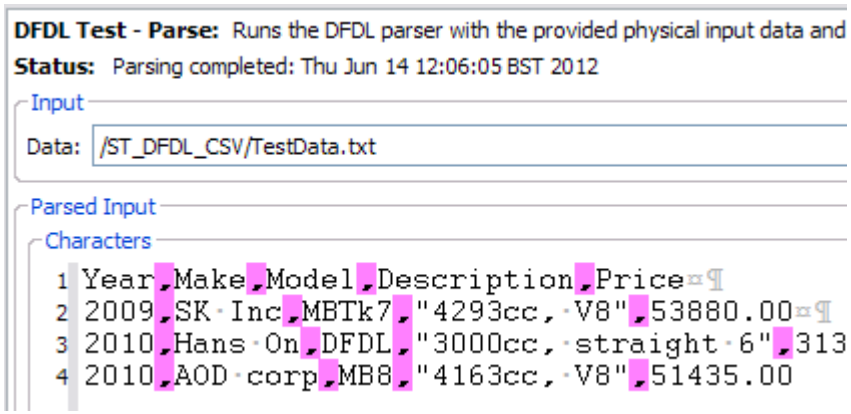
- Support more features of the DFDL specification
  - User-defined variables in DFDL expressions
  - TLOG packed numeric fields
  - Delimited binary data
  - Fields lengths given by regular expressions

- Improved performance
  - ~20% parsing and serializing gain over V8.0.0.1
  - Improved deployment times

- Usability Improvements to the DFDL editor
  - Copy and paste of schema objects
  - More refactoring operations

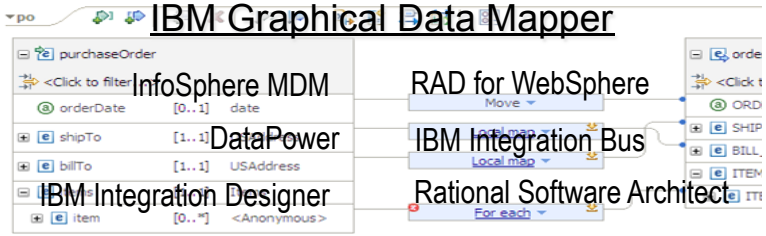




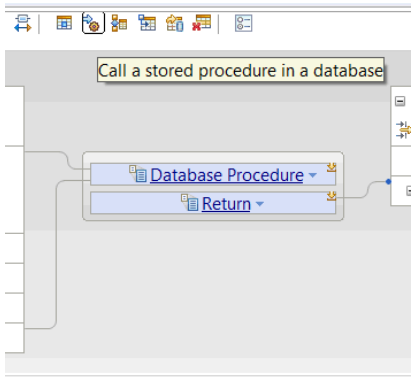


© 2013 IBM Corporation

Graphical Transformations

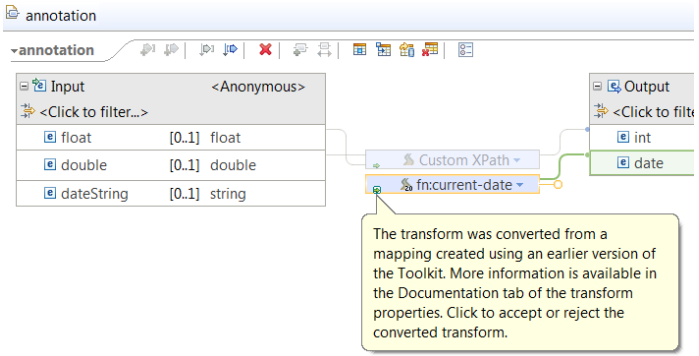


- IBM Graphical Data Mapper (GDM)
  - Visually map and transform source to target data
  - GDM designed for whole IBM product set, e.g.
    - Integration Bus V9, WebSphere Message Broker v8, DataPower
    - InfoSphere Master Data Management v10, Integration Designer v7.5/v8
    - Rational Application Developer for WebSphere Software v8.5
    - Rational Software Architect v8.5, RSA for WebSphere Software v8.5
    - Other products yet to announce
  - Rich feature set and simplicity make this a good default transformation choice



- Directly access stored procedures from within a map
  - Complements existing database select, insert, update, delete
  - Incorporate user-defined database functions into your graphical transforms

- Maps available to user patterns
  - Graphical creation of flows which require transformation logic
    - e.g. new input or output messages
  - Invocation of mapper when pattern instances are generated
  - User guidance through HTML pattern help and task list
  - Patterns to demonstrate include CRM account mapping



- Migration of pre-V8 maps to IBM GDM
  - Most sophisticated maps can now be converted in a single step
  - Editor provides enhanced feedback about conversion to assist user understanding

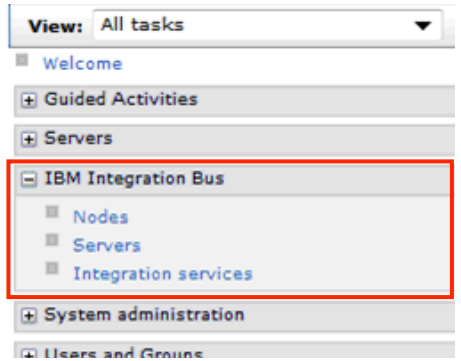
© 2013 IBM Corporation

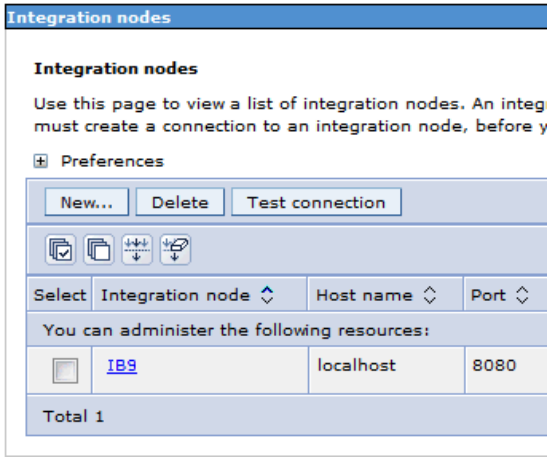
Natural Integration with WAS Admin Console

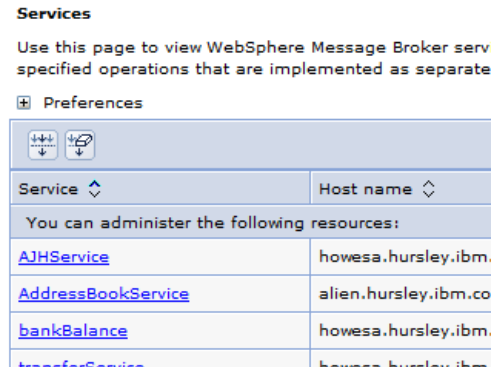
- IIB is a compelling choice for WebSphere Application Server
  - WAS provides efficient application development and delivery
  - New tools to simplify learning curve for WAS users
  - Addresses administrator requirements
  - Supported on WAS V7 and V8.x

- WAS Admin Console Broker Plug-in
  - Varied set of IIB administration tasks available
    - Connect to multiple local or remote integration nodes
    - View available execution groups and their current status
    - View services, applications, libraries, message flows
    - View IIB console help topics
  - Uses standard features for ease of configuration
    - Role-based access to prevent unauthorized administration
    - REST APIs for local and remote management
  - Use WAS Admin Console for WAS centric administrator
    - Complements IIB Web UI for IIB-centric administrator
  - Design allows for future modification of integration resources, start, stop etc.

- Fully compatible with WAS ND
  - Integration feature operates at cell level
  - The configuration data is stored by the Deployment manager
  - All Application Servers have access to cell level configuration data

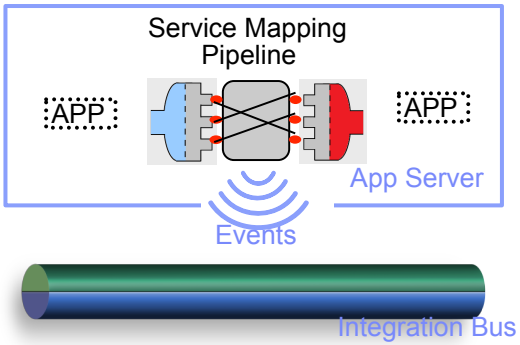






© 2013 IBM Corporation

WAS Service Mapping for Application Developers

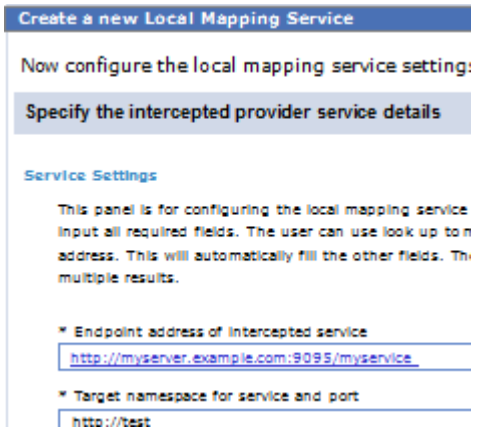


- Provides basic mapping, routing and versioning capabilities to applications
  - Scenarios include service versioning and meet-in-the-middle interfaces
  - Uses existing developer skills and tools, e.g. Java and RAD
  - Service Mapping pipeline invoked directly from application
  - Delivered as part of WebSphere Application Server
  - Service Mapper can generate events for Integration Bus
    - Enables audit, replay and out-of-band processing

- Developer experience enables mapping between Application Server services
  - Line-of-business application developer calls service from within application logic
  - New WAS mapping service intercepts, maps and reroutes WS calls accordingly
  - Uses existing application developer tools
    - Develop service maps directly within RAD using standard GDM technology
    - Configure and enable in WAS Admin Console
  - Map between services without leaving WAS runtime environments for high efficiency
    - Included in WAS v8.5.5 – no additional install or license required

```
protected void doGet(HttpServletRequest r
    HttpServletResponse response) throws
ServletOutputStream out = response.getOut
String name = request.getParameter("name"
try {
    out.print("<html><head><link href=\"s
    port.getGreeting(greeting,header1,hea
    GetGreetingResponse greetingResponse
    strResponse = greetingResponse.getRet

        // get returned SOAP headers
        if(name.equals("Header1")){
            // add returned soap headers
            GetGreetingHeader3 soapHeader
```



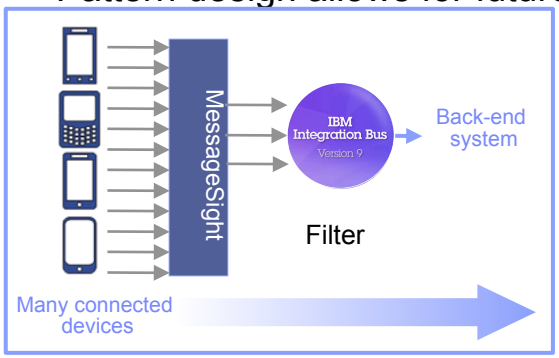
- IIB consumes events from service mapping for “system of awareness”
  - Service map invocations can emit business events
    - Just like IB integration flows, can be captured, recorded and replayed
  - Built on GDM technology with interface mapping
    - Allows for future hosting of same service maps inside Integration Bus

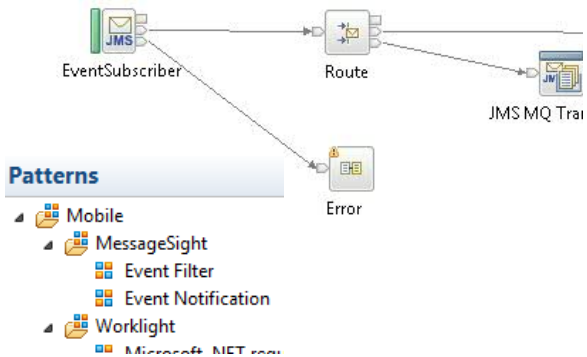
© 2013 IBM Corporation

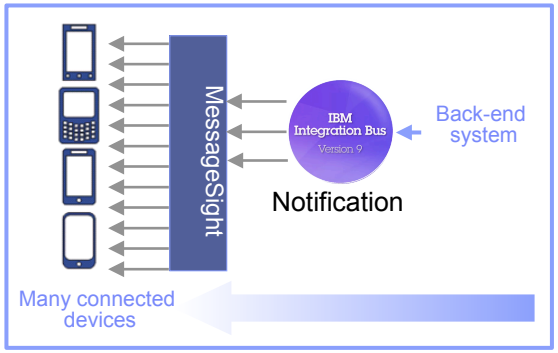
Easily Integrate with Appliance-based Messaging

- Introducing IBM MessageSight
  - An appliance-based messaging server built on special purpose hardware
  - Supports very large numbers of connected clients and devices, and high volumes of messages
  - Secures the edge of the enterprise and enables use cases like mobile and telemetry

- Two new patterns for integrating IBM MessageSight with backend systems
  - Covers common use cases for bi-directional connectivity
  - Use of JMS enables standards-based appliance connectivity that is also extensible to other providers
  - Pattern design allows for future selection of high performance, standard MQTT as protocol





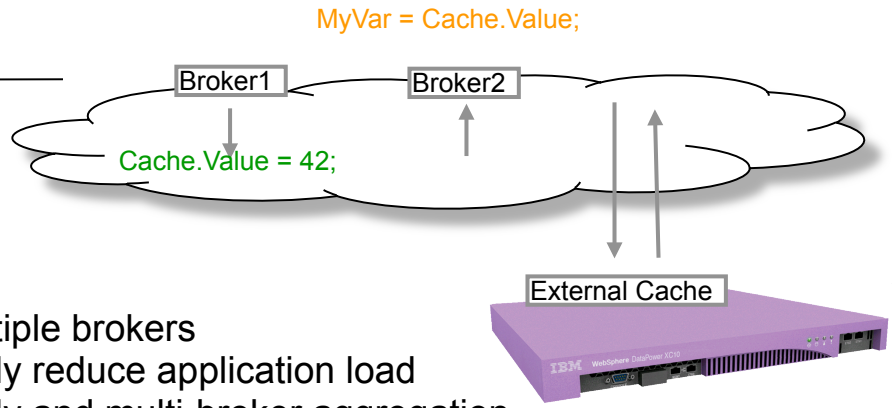


- 1) Event Filter Pattern
  - Messaging appliance routes inbound events into the broker via JMS
  - The broker narrows down events using decision service and inserts the subset into backend systems

- 2) Event Notification Pattern
  - The broker detects an event from a backend system (e.g. message queue, database trigger)
  - Broker fans out event via JMS to the appliance to interested connected clients

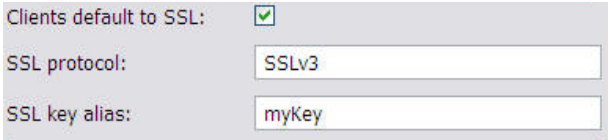
© 2013 IBM Corporation

Global Cache Enhancements



- IB contains a built-in facility to share data between multiple brokers
  - Improve mediation response times and dramatically reduce application load
  - Typical scenarios include multi-broker request-reply and multi-broker aggregation
  - Uses WebSphere Extreme Scale coherent cache technology

- Support for external software and hardware caches
  - Access separate eXtreme Scale and DataPower XC10 appliances from within the broker
  - Allows broker to interact with enterprise caching solution without embedding additional libraries
  - Cache access, activity log, resource statistics etc. just like embedded cache
  - Operationally configured using dynamic configurable service
  - New EG options to specify SSL connections to external WXS grids
    - Uses existing MB SSL infrastructure to configure certificates



- Cache Expiry options
  - New getGlobalMap() variant to set the time to live for data in the embedded global cache.

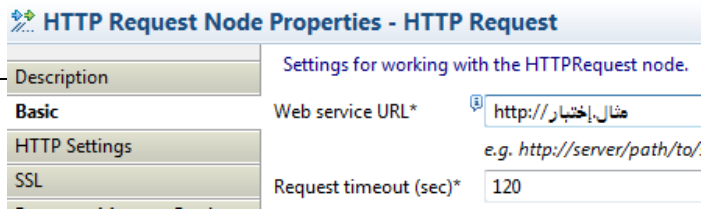
```
MbGlobalMap evictMap = MbGlobalMap.getGlobalMap("…", new MbGlobalMapSessionPolicy(30));
evictMap.put("key", "val");
```

  - Specify a value in seconds. The default value is 0, which means data never gets automatically removed.

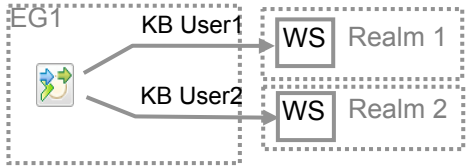
- Programming and operational enhancements
  - Insert and lookup map data using a wider range of Java object types for simplified programming logic
  - Support for highly available multi-instance configurations

© 2013 IBM Corporation

HTTP and SSL Enhancements



- Internationalized Domain Name Support
  - Allows HTTP traffic to interact with hostnames containing language-specific characters
  - Applicable to all hostname lookups in the Broker: HTTP, JMS etc.
  - Uses standard “punycode” encoding as required by RFC 3490

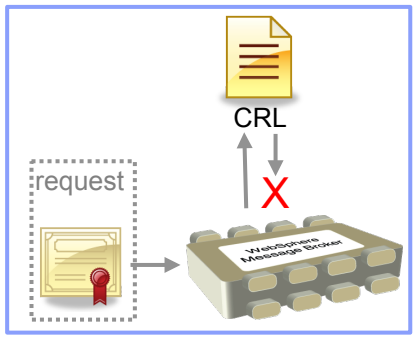


- Multiple Kerberos userids within the same execution group
  - Remove the current restriction of one user ID per execution group per Kerberos realm
  - Allows different Kerberos accounts for different outbound webservices on the same EG

- SSL Key Aliases
  - Allows SSL-based nodes to specify a “key alias” to identify the correct key for a given connection
  - Allows broker to communicate with a large number of remote servers using different keys
  - Works with all SSL enabled nodes including HTTP, SOAP, TCPIP, WSRR, LDAP, JMS, WS-Trust etc.
  - Works for both client and server connections, using either one-way or mutual authentication
  - Specify as node property or override using LE, e.g. LocalEnvironment.Destination.HTTP.KeyAlias

- Improved Support for HTTP Basic Auth
  - Failure responses on SOAP nodes now correctly respond with HTTP 401 rather than 500
  - WWW-Authenticate header also now included in the 401 response
    - Field describes the style of authentication (e.g. basic, digest) and realm information
    - Avoids errors when connecting with clients expecting it (e.g. web browsers)

- CRL Checking
  - Certificate Revocation Lists provide a means to check client certificate validity
  - New support to allow IB to check CRLs when acting as an HTTP provider
  - Complements existing client-side support
    - e.g. using the checkRevocation/enableCRLDP Java properties



Improvements for our z/OS Users

- IBM Integration Bus is a compelling choice for z/OS users
  - Broad connectivity options to support processing of z/OS subsystems
    - WAS, CICS, IMS, DB2, File…
  - Makes use of z/OS specific features such as Sysplex, security, automatic restart and WLM
  - New IIB features demonstrate commitment to the z/OS platform

- Standard Edition Pricing on z/OS
  - New entry-level edition offers flexibility to fulfil either broad-capability or high-performance scenarios

- Different users per execution group
  - The userid associated with each execution group address space is now configurable on z/OS
  - The execution group exhibits that userid for all resource manager interactions (e.g. MQ, DB2)
  - Configurable via execution group profile; takes effect when an execution group is started

- Co-ordinated transactions for CICS requests
  - The CICSRequest node now supports broker coordinated transactions (one-phase commit)
  - Allows multiple requests to a CICS server to be handled as part of the same transaction

- Activity log for CICS transactions
  - Provides a high-level overview of the recent interactions between IBM Integration Bus and CICS
  - Includes CICS invocation successes, failures, abends, security, timeouts and transactional state

© 2013 IBM Corporation

Other Features Our Users Requested

- Developer Edition
  - Free edition of IB with all nodes available and no time limitations
  - Throughput rate limited to 1TPS per integration flow
  - Assistance through user community (e.g. mqseries.net)
    - No formal IBM support
  - Simple to download, install and use
    - Single installation package contains ALL required software:
      - MQ 7.5, Integration Bus (Runtime, Toolkit, Explorer)
    - Available on Windows and Linux platforms

- DFDL may be used in standalone applications
  - Strategic modelling technology now available as separable components
  - Simple to configure: Install Integration Bus, copy DFDL libraries to appropriate location

- Flexible statistics output
  - Performance statistics can now be directed to multiple destinations (publication, user trace, SMF)

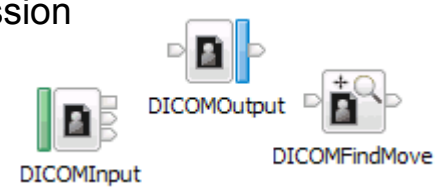
- Sub-second timeout on Aggregation nodes
  - More granular timeout values (ms) can now be specified on the aggregation nodes
  - Allows for quicker timeouts when aggregating data from usually fast responding systems

- ODBC Database verification (Linux/UNIX)
  - Broker environment, and ODBC connections defined both to the broker and in odbc.ini are verified
  - Run at broker startup (or with the `mqsicvp` command) ensures early capture of potential problems

© 2013 IBM Corporation

Healthcare Connectivity Pack V8 Updates

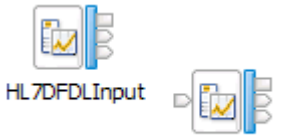
- Integration with medical imaging applications (DICOM)
  - High value use cases including expert second opinion and pre-fetch on admission
  - Nodes support the DICOM commands (FIND, MOVE and STORE)
  - Pattern provide end-to-end solution for DICOM integration



- Healthcare analytics
  - CDA has gained great traction worldwide for sharing healthcare information
  - Tooling to quickly and easily extract meaningful information from clinical documents
  - Supports real-time analytics, reporting and publication of CDA and DICOM data

- Data modelling and transformation enhancements
  - Industry standard DFDL for HL7 v2.x modelling
  - JAXB for Java based HL7 data transformation
  - Compelling for clients migrating from Oracle eGate/JCAPS

- Certification with IHE industry initiative (alongside IBM Initiate)
  - Includes generating ATNA audit messages to an IHE repository
  - Often asked for by clients and business partners!
  - Close integration with IBM Initiate Patient and provider



© 2013 IBM Corporation

IBM Integration Bus V9 - Summary

- IBM Integration Bus is IBM's Strategic Integration Technology
  - Single engineered product for .NET, Java and fully heterogeneous integration scenarios
  - Unparalleled range of connectivity options and capabilities
  - Supports users' range of experience & needs
  - Industry leading performance in a broad range of scenarios

- A strong feature set for V9 and beyond
  - We are working on a significant number of features for the next evolution of Message Broker tech
    - More to come - this is not a definitive list!
  - Continuous delivery throughout 2013 and beyond; features rolled back as available
  - Builds on the continued success of V7 and V8 major engineering releases
  - Content heavily influenced by user requirements, participation and feedback

- Diverse connectivity requirements
  - Simple & Productive to make connectivity easy and powerful
  - Universal & Independent to connect everything you need in the way you want to manage it
  - Industry Specific & Relevant to help solve business problems
  - Dynamic & Intelligent to create flexible solutions that provide business insight
  - High Performing & Scalable to maximize hardware and grow with you

© 2013 IBM Corporation

Trademark Statement

- IBM and the IBM logo are trademarks of International Business Machines Corporation, registered in many jurisdictions. Other marks may be trademarks or registered trademarks of their respective owners.
- Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.
- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- UNIX is a registered trademark of The Open Group in the United States and other countries.
- Netezza® is a trademark or registered trademark of IBM International Group B.V., an IBM Company.
- Worklight® is a trademark or registered trademark of Worklight, an IBM Company.
- Other company, product and service names may be trademarks, registered marks or service marks of their respective owners.
- References in this publication to IBM products and services do not imply that IBM intends to make them available in all countries in which IBM operates.

© 2013 IBM Corporation