

# What's New In Message Broker

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# Preface

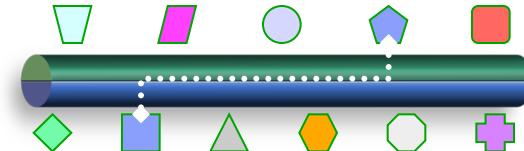
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# WebSphere Message Broker

- **Universal Connectivity FROM anywhere, TO anywhere**

- Simplify application connectivity for a flexible & dynamic infrastructure

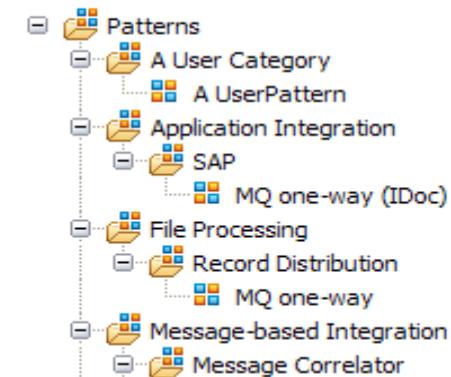


- **Comprehensive Protocols, Transports, Data Formats & Processing**

- 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, JD Edwards, SCA, CORBA, email...
- Understand the broadest range of data formats
  - Binary (C/COBOL), XML, CSV, DFDL, 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

- **Connectivity Packs for Industry Specific Content**

- Connectivity Pack for Healthcare includes HL7 Connectors, Patterns & Tooling



# Message Broker Product Roadmap

- Support for Microsoft™ .NET environments
- Data Format Description Language (DFDL)
- Graphical data mapper
- Enhanced auditing of data with record and replay
- Web administration and REST API
- Integration with IBM® Sterling Connect: Direct
- A new Hypervisor Edition for IBM AIX®
- A tiered pricing model including the new Express® Edition
- Support for Web Services Reliable Messaging (WS-RM)

- Embedded Cache
- Web Patterns
- Services + WAS Admin
- Worklight Integration
- JAXB Support

**MB V8.0.0.2**  
Q4 2012

**HCP V8**  
Q1 2013

**Message  
Broker V8**  
Q4 2011

**MB V7.0.0.3**  
Q2 2011

**HCP Fixpack 2**  
Q1 2012

▪ Expanded connectivity

▪ More countries and platforms

- HL7 Application connectors
- HL7 Connectivity Patterns
- Operational Management Tooling

- Analytics
- HL7 enhancements
- Document handling
- Extended devices

**MB V7**  
Q4 2009

**Healthcare  
Connectivity  
Pack V7.0**  
Q1 2011



*IBM's plans, directions, and intent are subject to change or withdrawal*

# Message Broker Themes

## ▪ Simple & Productive

- Making it easier and quicker to develop and manage MB solutions
  - Learn, Develop, Deploy, Manage, Migrate quickly and easily



## ▪ Universal & Independent

- Connecting MB 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 & Managed

- Allow the creation of dynamic and governed solutions
  - Design solutions for easy, flexible change with appropriate control



## ▪ High Performing & Scalable

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



# V8.0.0 Recap

## ▪ Simple & Productive

- Apps & Libs for streamlined development, packaging, deployment & management
- New .NET pattern, customization enhancements & user defined pattern editors
- Express Edition starting point for departmental capability, capacity & price needs
- Programmable message flow API for totally flexible solution creation and customization

## ▪ Universal & Independent

- New B2B nodes for Sterling Connect Direct
- Simple & high performing data modelling with DFDL
- Code-free graphical transformations with GDM
- Enhanced JMS connectivity, including JMS Receive node
- SOAP nodes now support W3C WS-RM
- Database & file enhancements

## ▪ Industry Specific & Relevant

- Healthcare Connectivity Pack
  - Clinical application connectivity, healthcare patterns & end-user tooling

## ▪ Managed & Dynamic

- Web 2.0 browser console with REST management API for ubiquitous access
- Record & Replay to capture, view, edit & replay in-flight messages
- Message flow activity trace for rapid flow analysis by end-users
- Deployable sub flows, ESQL, Maps & schemas for dynamic transforms
- IBM Workload Deployer for x/Linux & AIX private clouds

## ▪ High Performing & Scalable

- Extended platform support with deep .NET integration

The screenshot shows the WebSphere Message Broker Broker Development interface. At the top right, there are icons for Microsoft .NET and the IBM logo. The main window has tabs for 'Broker Development' and 'Patterns'. On the left, there's a sidebar titled 'Applications and Libraries' listing various components like 'HandleWebOrders', 'ProcessEmails', and 'MyLib'. Below the sidebar is a 'Firefox' browser window displaying a URL. In the center, there's a 'DFDL Test - Logical Instance' window showing a table of data with columns 'Name', 'Type', and 'Value'. To the right of the table is a tree view of the logical instance structure. At the bottom right, there's a 'JMS Receive' icon with a message envelope and a log viewer window showing several log entries.

	Message...	Timestamp	Message Summary
i	BIP12001I	17-Jun-2011 10:10:50.85...	Connected to JMS provider 'WebSphere_MQ'
i	BIP12002I	17-Jun-2011 10:10:50.85...	Created a 'Transaction_None' session for JMS provider 'WebSphere_MQ'
i	BIP12004I	17-Jun-2011 10:10:50.93...	Created JMS producer for destination 'ASYNCREQUESTQ'
i	BIP12007I	17-Jun-2011 10:10:50.93...	Sent a JMS message to queue 'ASYNCREQUESTQ'
i	BIP12004I	17-Jun-2011 10:10:50.52...	Created JMS producer for destination 'ASYNCRECEIVEQ'
x	BIP12014E	17-Jun-2011 13:47:51.65...	Failed to send message to 'ASYNCRECEIVEQ'
i	BIP12001I	17-Jun-2011 13:47:54.99...	Connected to JMS provider 'WebSphere_MQ'
i	BIP12004I	17-Jun-2011 13:47:55.00...	Created JMS producer for destination 'ASYNCRECEIVEQ'

# V8.0.0.1 Content At a Glance



## ▪ Simple & Productive

- Improved web admin: Role based access to view/control resources backed by public REST API
- Instantiate and deploy patterns from the web
- Simplified conversion of maps, and projects to applications and libraries
- Data lineage tools to understand the origin and history of data elements

## ▪ Universal & Independent

- DFDL improvements including C importer and field length prefixes (e.g. for ISO8583)
- Web services enhancements including async HTTP, broker wide SOAP listener and IHS configuration
- JAXB support to make it easier to address message elements in Java
- Mobile Services support with IBM Worklight including new patterns and MB Toolkit integration
- Better integration for Application Server users including services support and Admin Console

## ▪ Industry Specific & Relevant

- Healthcare Connectivity Pack: Medical Device Support
- Retail sample updates to support ACE V732

## ▪ Managed & Dynamic

- Improved UI for Record and Replay
- Improved support for cloud deployments including IWD, PureSystem and IBM SmartCloud image
- Source deploy, subflow overrides, mqsicreatebar and direct deployment of .NET assemblies
- Dynamic FTP and SFTP servers and pre- and post- commands

## ▪ High Performing & Scalable

- Built-in WebSphere Extreme Scale global cache for highly available and scalable data sharing
- Support for MQ 7.1 and 7.5

# 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
- IBM Workload Deployer for x/Linux & AIX; .NET CLR V4 for Windows
- New support for IBM Pure and SmartCloud (see later)

- **Optimized 64-bit support on ALL platforms**

- Execution group size is 64 bit & all commands are 64 bit on all platforms
- Maintain 32bit option for developers on Windows & x/Linux platforms

- **Built in ERP Connectivity using WebSphere Adapters**

- Connectivity to SAP, Siebel, JDE, PeopleSoft now at no additional cost

- **Full range of industry standard databases**

- DB2, Oracle, Sybase, SQL Server, Informix, solidDB
- Open Driver Manager support enables new databases to be accessed
  - Contact IBM for details on Teradata, PostgreSQL, Cache & Progress



- **MQ 7.0.1 prerequisite**

- Minimum prerequisite as MB7 simplifies migration
- MQ 7.1 and 7.5 now also supported as either primary or secondary install (see later)

- **Java 6 on all platforms**

- 64 bit IBM J9 engine for superior Java performance



- **Detailed MB8 System Requirements**

- See [www.ibm.com/software/integration/wbimessagebroker/requirements/](http://www.ibm.com/software/integration/wbimessagebroker/requirements/)



# Easy Migration and Co-existence

- **Migration from V6.1 and V7**

- Message flows, message sets, ESQL, Java, Maps and XSLT run without change
  - Includes automatic migration of existing MB6.1 32 bit execution groups to 64 bit
  - Migration from V8.0.0.0 not necessary; apply V8.0.0.1 as standard maintenance

- **Migration commands for in-place migration**

- Includes migration of all configuration data including broker databases, queues and registry
  - Forwards and backwards migration of existing components, in situ
    - `mqsimigratecomponents` command (includes –t option for rollback)

- **Co-existence for incremental migration**

- MB8 co-exists with MB6.1 & MB7 to enable incremental migration
  - MB8 Explorer administers MB7 and MB8 brokers
    - New web admin can only administer MB8 and higher brokers

- **Publish Subscribe migration**

- MQRT clients migrated to MQ7 clients with new MQ7 facilities for message streaming
  - MQTT and multicast clients use native MQ nodes with MQ7.0.1 & MQ7.1 respectively

# Web Administration for Universal Access



## ■ Web administration console

- Objective is to provide comprehensive web interface
  - Focus on non-admins to understand broker resources
- Supports all major browsers Firefox, IE, Opera, Safari, Chrome
- Designed as a complement to MBExplorer
  - MB Administrators can continue to use MB Explorer
- Easy to configure – uses internal HTTP(S) server to serve data

## ■ Role-based access and security

- Builds on existing Broker security model (MQ OAM)
- Web UI features based on role
  - e.g. Power users can start message flows
  - e.g. End users can view only
- Profile pages to manage user information

## ■ Improved content display and update operations

- Start and stop message flows and execution groups
- Tree view for consistent object display
  - Select deployed files and property details
  - Deployed policies (e.g. configurable services)
  - Monitoring views and data stores
  - Workspace views for pattern development...

# Web-based Patterns for Easy Solution Creation

## ▪ Patterns Based Development

- Quickly create best practice solutions from pre-built templates
  - e.g. WS façades, message processing, file to queue...
- IBM pre-supplied & User Defined Patterns
  - Create & share user patterns
  - Including community downloads

## ▪ Web-based quick & simple pattern generation

- Allows end users to configure repeatable solutions
- New tool aimed at web user
- Configure and deploy patterns directly to broker
- Role-based access & security for appropriate authorization

## ▪ Complements existing tools

- Pre-built, user-defined and imported patterns
- Design allows for future inclusion of user patterns
  1. Build .patternzip in MB Toolkit
  2. Import for web tool
  3. Configure and deploy
- Exploits source deployment (see later)
- Move from test to QA to production

## ▪ Operational Management

- Manage patterns using standard MB tools
  - e.g. MBX, web UI, CMP...

The screenshot shows the IBM WebSphere Message Broker web interface. At the top, the browser title bar reads "Firefox - IBM WebSphere Message Broker" and the address bar shows "localhost:8083/webui/". The main content area has a header "IBM WebSphere Message Broker". Below it is a tree view of configurations:

- BR800
  - Servers
    - default
  - Patterns
    - Sample
      - Solar
    - Service Virtualization
      - Service Proxy
        - Static Endpoint
  - Workspace (ibmuser)
    - Pattern Instances
      - WeatherInfo
  - Uploaded Resources
- WSDLs
  - Actions
  - WSDLService1.wsdl

A mouse cursor is hovering over the "Actions" link under the WSDLs section.

Below the tree view, there is a "Pattern Instance" dialog box. It has tabs for "Specification", "Configuration", and "Actions". The "Configuration" tab is selected, showing a "WeatherInfo" instance. There are "Save" and "Deploy" buttons at the bottom.

Underneath the dialog, a "Configure Pattern Parameters" section is visible, containing fields for service information, URL provider, URL path suffix, validation requests, and validation responses. There are also "Upload..." and "Upload..." buttons for WSDL files.

# Improved Record & Replay

- **MB V8.0.0.0 allows you to record and replay in-flight data**

- Comprehensive audit of messages, web, ERP, file & other data
- Flexible topology: single or multiple brokers for recording, capture & replay
- Replay for redelivery or flow reprocessing
- Filter, view, query and replay tools

- **New support for Oracle database**

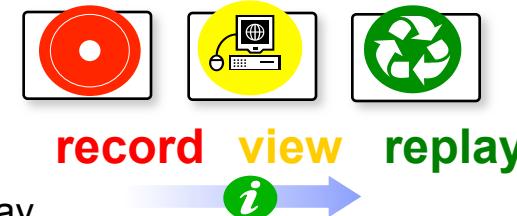
- Capture data into both DB2 and Oracle

- **Web UI data viewer**

- Scenarios include system loading and variation testing
- View directly in the browser
  - Supports both part and full message payload view
- Role-based access to only allow authorized users to view data

- **Flexible customization of column views**

- Add new fields, and hide unwanted or irrelevant fields
  - Allows for a cleaner UI for faster and easier searching
- Quickly view appropriate information for each record
- Customizations are described at the data store level
  - Allows for consistent views of data across users



**Data Capture Store**

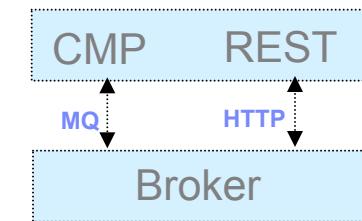
Data viewer		Replay list		
DefaultCaptureStore		<input checked="" type="checkbox"/> Mark for replay		
<input checked="" type="checkbox"/>	Event time		Local Transaction ID	Pare Tran
<input checked="" type="checkbox"/>	2012-01-24 16:16:48.716		TESTDATA01234 56789@!	CDA

	Event time	Local Transaction ID	Parent Transaction ID	Global Transaction ID	Data	Exception	User data	Event type
<input checked="" type="checkbox"/>	2012-01-24 16:16:48.716	TESTDATA01234 56789@!	CDATA	001		-	N	CDATA.OutTerminal

# Open Management with REST

- **REST based management API**

- MB V8.0.0 supports HTTP/REST management API
  - Complements & compatible with existing CMP interface
- Develop MB administration tools without installing any MB components
  - HTTP client can manage MB independent of CMP
  - Includes new interface for message record & replay



- **Fully open interface can be exploited by 3<sup>rd</sup> party tools**

- HTTP REST/ATOM formats published & maintained for use by external users
- Enables widgets, mash-ups & other situational applications

- **Read and update operations available on MB Resources**

- V8.0.0.1 implementation of PUT verb provides update of key resources, complements existing GET
- Includes execution groups, message flows, configurable services and web service endpoints

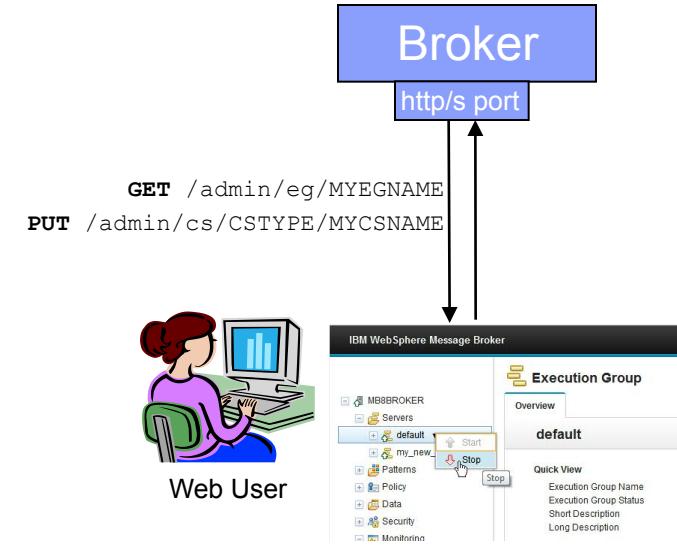
```

PUT /admin/eg/MYEGNAME HTTP/1.1
From: me@ibm.com
User-Agent: MyApp/1.0

<?xml version="1.0" encoding='utf-8'?>
<executiongroup
  description.long="" description.short="" ... >
</executiongroup>
  
```

```

HTTP/1.1 200 OK
Date: Fri, 10 Jun 2011 23:59:59 GMT
Content-Type: text/html
Content-Length: 427
...
  
```



# Natural Integration with WAS Admin Console

- MB8001 is a compelling choice for WebSphere Application Server**

- WAS provides efficient application development and delivery
- New tools to simplify MB learning curve for WAS users
- Addresses administrator requirements
- Supported on WAS V7 and V8

- WAS Admin Console Broker Plug-in**

- Varied set of MB administration tasks available
  - Connect to multiple local or remote brokers
  - View available execution groups and their current status
  - View services, applications, libraries, message flows
  - View Message Broker console help topics
- Uses standard MB features for ease of configuration
  - Role-based access to prevent unauthorized administration
  - Uses MB REST APIs for local and remote management
  - Use WAS Admin Console for WAS centric administrator
  - Complements V8 MB Web UI for MB centric administrator
- Design allows for future modification of WMB resources, start, stop etc.

- Fully compatible with WAS ND**

- In 8.0.0.1, the Message Broker feature operates at cell level.
- The configuration data is stored by the Deployment manager.
- All Application Servers have access to cell level configuration data.

The screenshot shows the WebSphere Admin Console interface. The left sidebar has a tree view with 'WebSphere Message Broker' expanded, and 'Broker connections' is selected and highlighted with a red box. The main content area shows a table for managing broker connections:

Select	Name	Execution Group	Broker Name	Host Name	Status
<input type="checkbox"/>	ServiceA	ExecutionGroup1	MB8BROKER	machine1.xyz.com	Up

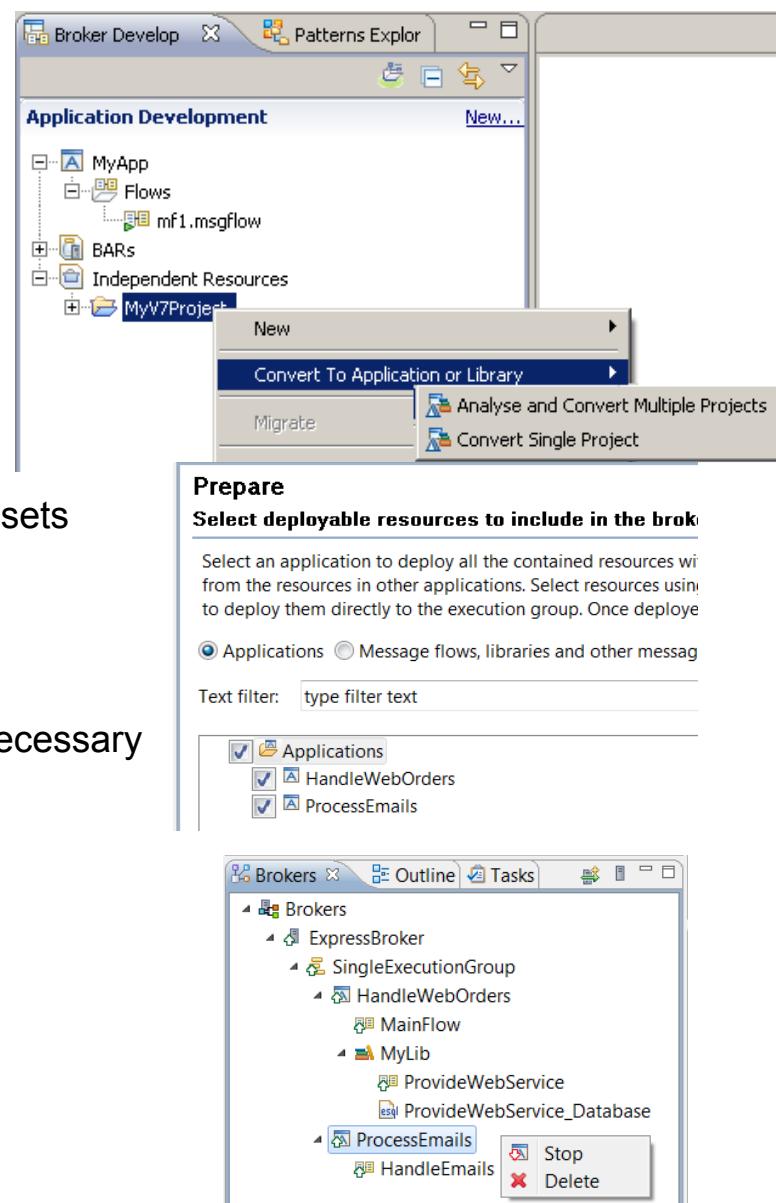
Below this, there's a 'Services' section with a table:

Services	
Use this page to view WebSphere Message Broker serv specified operations that are implemented as separate	
<input type="checkbox"/>	AJHService
<input type="checkbox"/>	AddressBookService
<input type="checkbox"/>	bankBalance
<input type="checkbox"/>	transferService

Total 4 services are listed.

# Easy to Develop, Deploy & Manage

- **Apps and Libs provide streamlined AD & Management**
  - Applications contain solution specific resources
  - Libraries contain common resources
  - New & migrated resources grouped into Apps & Libs
    - Encourages designing for reuse
    - Simplifies deployment & management
  
- **Flexible conversion of existing MB Toolkit projects**
  - New built-in tool simplifies conversion of V6.1/V7 AD assets
  - Convert all projects at once, or stage as appropriate
  - Toolkit intelligently suggests target container type
    - Top level projects become applications
    - Dependent resources projects become libraries
    - Convert between applications/libraries/projects if necessary
  - Deployed resources not affected
  
- **Other enhancements**
  - Edit Java in Broker or Java Eclipse perspectives
  - Simplification of WSDL import
    - Import remote WSDL into an app or lib
    - Simplified UI for import tasks
  - Update mqsiapplybaroverride to support apps and libs
  - Improved isolation for SOAP attributes (QName)



# Create and Manage Services for SOA

## ▪ Applications, Libraries and Services

- Services are “well-defined” applications
  - Services promote encapsulation and isolation for SOA solutions
  - Service 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

## ▪ 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 the service implementation
- Each operation is implemented as a .subflow file
  - Supporting resources also associated (e.g. Maps, ESQL, XSDs)
  - Resources optionally reside in libraries
- Main entry point is implemented as a .msgflow

## ▪ Simple lifecycle for services creation and management

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

### Quick Starts

Start building your application with one of the following tasks.

#### Start by creating an application

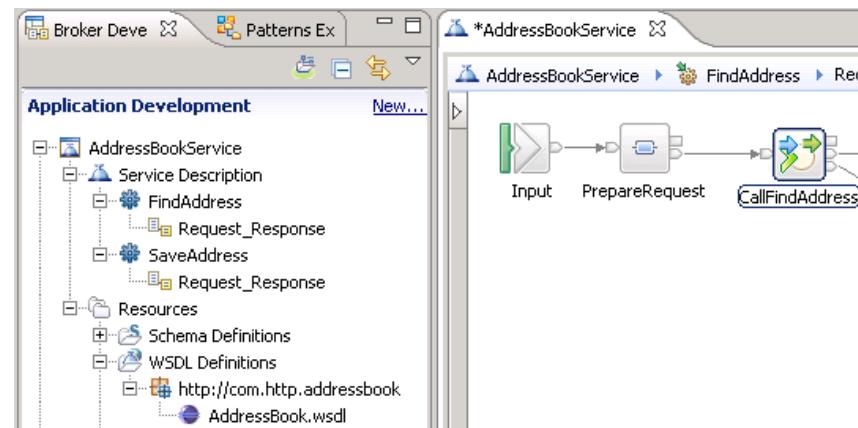
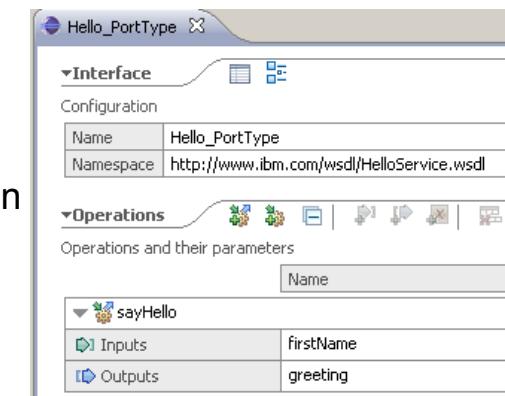
An **Application** is a container for all the resources that are required to create a solution. [More...](#)

#### Start by creating a service

A **Service** is a container for all the resources that are required to create a webService solution. [More...](#)

#### Start by creating a library

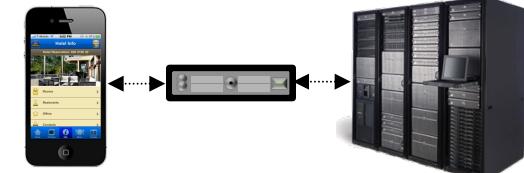
A **Library** is a logical grouping of related code, data, or both. [More...](#)



# Easily Create and Access Mobile Services

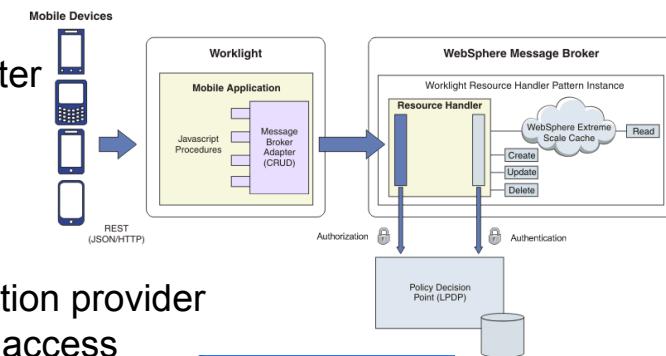
- **New Worklight integration with MB makes developing mobile services simple**

- Four new patterns makes mobile services integration quick and easy
- Toolkit support to convert existing WMB Services into Mobile Services
- Pattern source included for flexible customization for other tools



- **.NET Mobile Service Pattern**

- Integrates mobile applications with Message Broker .NET web services
- Simple to configure: drag and drop .NET assembly and enter Worklight adapter details
- Worklight adapter generated which reflects the web service methods
- One procedure is generated for each operation on the web service
- Pattern also creates a mobile application to test the Worklight adapter



- **Generic Resource Handler Pattern**

- Create, update, read and delete back-end data from mobile app
- User implements CRUD operations using stub subflows
- Secured access using built-in external authorization and authentication provider
- Caching of read resources in built-in WXS for high performing data access

- **Push Notification Pattern**

- Worklight supports asynchronous push notifications to mobile applications
- Pattern creates a push notification adapter from a WebSphere MQ queue

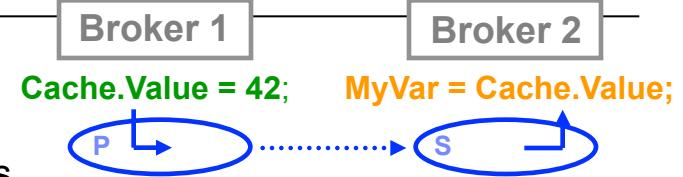


- **Mobile Service Enablement in MB Toolkit**

- Right-click option to mobile-enable existing MB services
  - Create a mobile-enabled service in as few as two clicks!
- Also available as a Pattern for further customization



# Global Cache



- **New Built-in facility to share data between multiple brokers**
  - Global cache shared between flows, execution groups & brokers
  - Seamless access to global cache using from all message broker flows and nodes
  - Typical scenarios include multi-broker request-reply and multi-broker aggregation
  - Improve mediation response times and dramatically reduce application load
  - Uses WebSphere Extreme Scale coherent cache technology to replace existing IA91 Support Pac
  
- **Easy Read and Write Access to Global Cache**
  - Accessed via global map data type corresponding to MB global cache
  - Read and write access in same way as other data types e.g. `LocalEnvironment`, `MyVariable`
  - Broker has own system cache for inter-broker information sharing
  - Support for external caches through embedding WXS JARs in JavaCompute node
  
- **Simple to Configure and Manage**
  - MB Cache completely contained within MB OS processes – no extra moving parts to configure
  - Flow write to global cache is replicated to other cache members using WXS technology
  - MB local cache can be administered via Explorer, command line & management API
  
- **Monitoring and Reporting**
  - Full resource manager statistics shows cache interactions and other relevant statistics
  - Activity log shows cache agent operations for write and read

E2 Resource Statistics Table (Waiting up to 20s for Data)											JAMES\EG1\SimpleCacheLoad\LoadFlow - Activity Log			JHBRK\E2\CacheDemo_Request\MF_StoreCache - Activity Log			
Message ID	Timestamp	RM	MSGFLOW	Message Summary								NODE		NODE...		CONNID	
I BIP11504I	27-Jun-2012 13:25:5...		MF_StoreCache	Waiting for data from input node 'MQ Input'.								MQ Input		INPUT			
I BIP11501I	27-Jun-2012 13:29:3...		MF_StoreCache	Received data from input node 'MQ Input'.								MQ Input		INPUT			
I BIP11109I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Checked whether key exists in map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11107I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Put data into map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11101I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Checked whether key exists in map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11107I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Put data into map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11101I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Checked whether key exists in map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11107I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Put data into map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11101I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Checked whether key exists in map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11506I	27-Jun-2012 13:29:3...	GlobalCache	MF_StoreC...	Put data into map 'SYSTEM.BROKER.DEFAULTMAP'													
I BIP11504I	27-Jun-2012 13:29:4...	GlobalCache	MF_StoreC...	Checked whether key exists in map 'SYSTEM.BROKER.DEFAULTMAP'													

# Healthcare Connectivity Pack: Medical Device Support

## ▪ New Feature for Healthcare

- Healthcare Connectivity Pack is a priced feature of Message Broker
- Typical scenarios include device integration, electronic forms, analytics...
- Range of integration patterns to quickly address common scenarios
  - HL7 to HL7, HL7 to Reports, Medical Devices to EMR



Medical Device Input

## ▪ Integrate medical devices with Message Broker

- MB now has the ability to read data from a range of medical devices
  - e.g. heart rate monitors, infusion pumps
- Supports a wide set of device manufacturers
  - GE, Philips, Cardinal Health, Dräger and more

## ▪ New Medical Device Input node

- Discrete, waveform and alarm readings fed directly into a flow
- Measurement sets specify which medical readings are to be taken
- Unified message tree structure for consistent analysis
- Operationally configure devices
  - Device configuration is stored in a configurable service file
  - Sophisticated editor for adding and modifying devices

**New Measurements Set**

Name:	Maternity	
Device Type:	VirtualDevice1	
Notes:	Maternity Ward 3 (North Wing)	
Tags:		
Filter		
Use	Measurement	Primary ID
<input checked="" type="checkbox"/>	Blood temperature	109::169:260
<input checked="" type="checkbox"/>	CPAP pressure	99:344-378:19...
<input type="checkbox"/>	Discontinuous, Noninvasive Diastolic Blood Pressure	99:346-371:67...
<input checked="" type="checkbox"/>	Discontinuous, Noninvasive Mean Blood Pressure	99:137-346-37...
<input checked="" type="checkbox"/>	Discontinuous, Noninvasive Systolic Blood Pressure	99:346-371-71...

**MQ Explorer - Content** **Healthcare Operational Monitoring**

Monitor your healthcare systems by selecting the broker on which your healthcare systems are running.

Click 'Refresh Connections' below to refresh your list of brokers and reconnect to the active brokers.

Broker: MB7BROKER

Clinical Application Connections	Queue Monitoring	Medical Device Log
Device ID	TimeStamp	Message Detail
MedicalVirtualDevice_3	2011-03-20 20:16:16	Information: Driver licensed
MedicalVirtualDevice_3	2011-03-20 20:16:16	Information: Driver started
MedicalVirtualDevice_2	2011-03-20 20:16:15	Information: Driver licensed
MedicalVirtualDevice_2	2011-03-20 20:16:15	Information: Driver started
MedicalVirtualDevice_2	2011-03-20 20:16:15	Error: Unable to open Comms port
MedicalVirtualDevice_1	2011-03-20 20:16:15	Information: Driver licensed

# Easy Data Modelling with DFDL

- **Simple & powerful standard for data modelling**
  - New standard for binary, text & industry data formats
    - Logical structure with physical annotations
    - e.g. endian, ASCII/EBCDIC, padding, justify...
  - Data Format Description Language (DFDL)
    - For use in IBM and non-IBM products
    - <http://www.ogf.org/dfdl/>
- **Support more features of the DFDL specification**
  - Fields with length prefixes (eg, PL/1, ISO8583)
  - Default values for missing structures when serializing
- **More ways to create DFDL models**
  - Import from C header files
- **Usability enhancements to DFDL editor**
  - More copy/paste & keyboard shortcuts
  - Multiple object selection
- **Improved performance**
  - Continued improvement when parsing & writing
  - Big gains for text numbers and packed decimals

The screenshot shows the WebSphere Message Broker DFDL editor interface. At the top, there's a toolbar with a green 'Export' button. Below it is a table with columns A through E, containing data for years 2009 to 2010 across various car models and manufacturers.

A yellow sticky note is overlaid on the interface, displaying the raw CSV data:

```
Year,Make,Model,Description,Price
2008,SK Inc,MBTk7,"4293cc, V8",53880.00
2008,Hans On,DFDL,"3000cc straight 6",31395.00
2010,AOD corp,MB8,"4163cc, V8",51435.00
```

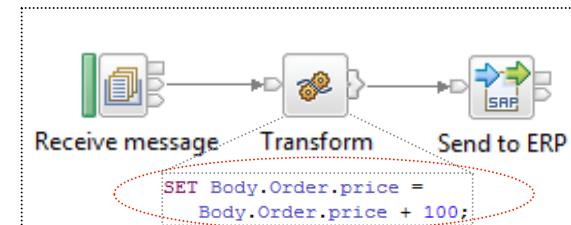
The main window title is 'New Message Model'. It has sections for 'Record settings' and 'Field settings'. Under 'Record settings', the 'End of record character' is set to 'Carriage Return & Line Feed - %CR;%LF;' and 'Blank records' is set to 'Skip a blank record'. A checked checkbox indicates 'The first record is a header'. Under 'Field settings', the 'Number of fields' is set to 5.

In the bottom section, titled 'DFDL Test - Parse', it says 'Runs the DFDL parser with the provided physical input data and Status: Parsing completed: Thu Jun 14 12:06:05 BST 2012'. The 'Input' field contains the path '/ST\_DFDL\_CSV/TestData.txt'. The 'Parsed Input' section shows the same CSV data as the table above, with each row highlighted in pink.

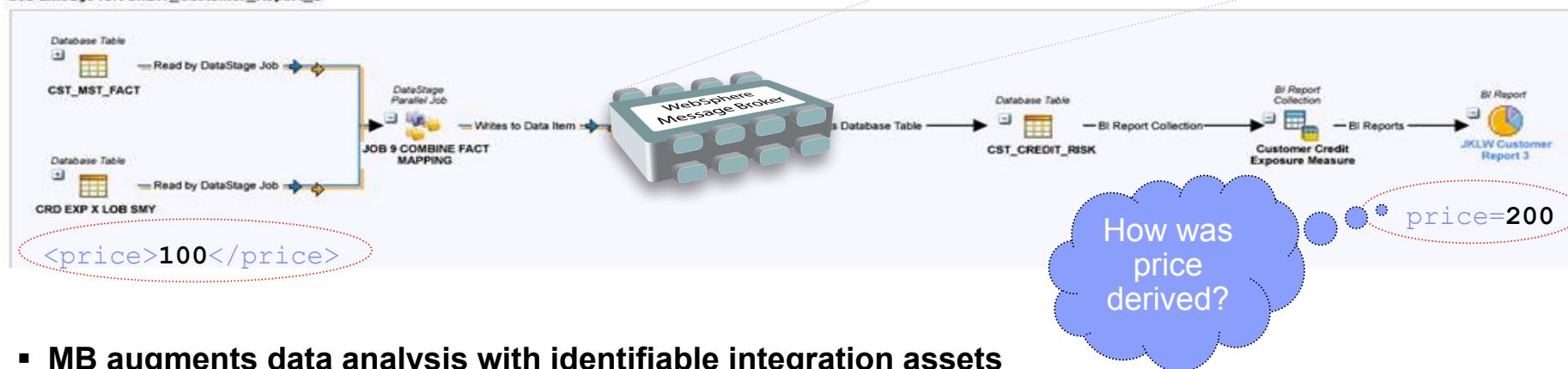
# Understand the origin and lineage of data

- **InfoSphere Metadata Workbench provides cross-tool data analysis**

- Trace the lineage of data back to its source
- Understand what really happened and why?
- Impact analysis: what happens if a particular field is changed
- Explore the relationship of data between assets



Job Lineage for: JKLW\_Customer\_Report\_3

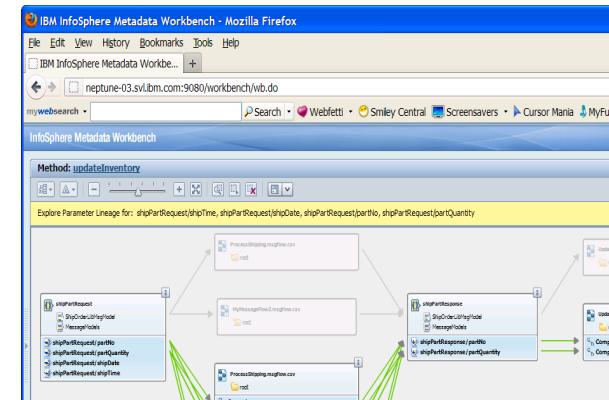


- **MB augments data analysis with identifiable integration assets**

- Message flows, nodes and transformation statements
- Select source assets for analysis e.g. ESQL
- Tools derive line-by-line metadata model of selected source
- Export collected analysis to Metadata Workbench

- **New MB tools for understanding the logic of MB transformations**

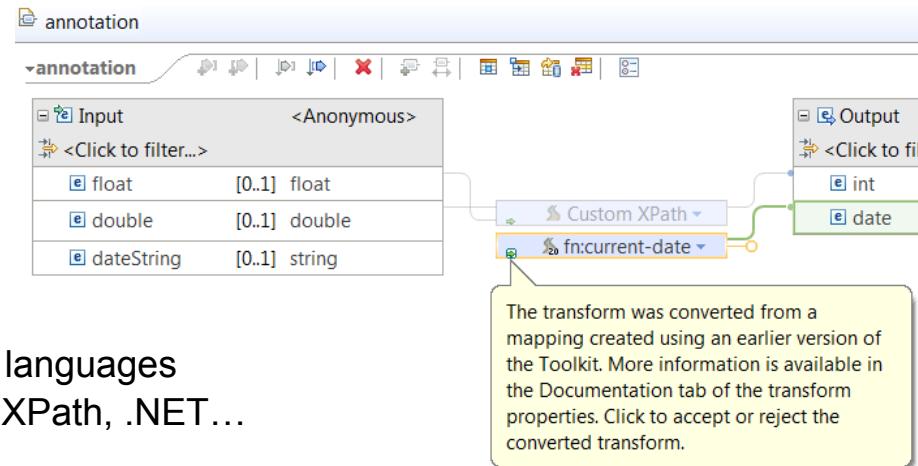
- Design allows for future metadata model available through CMP
- Allows third party and custom tools to analyze transformations



# Graphical Transformations

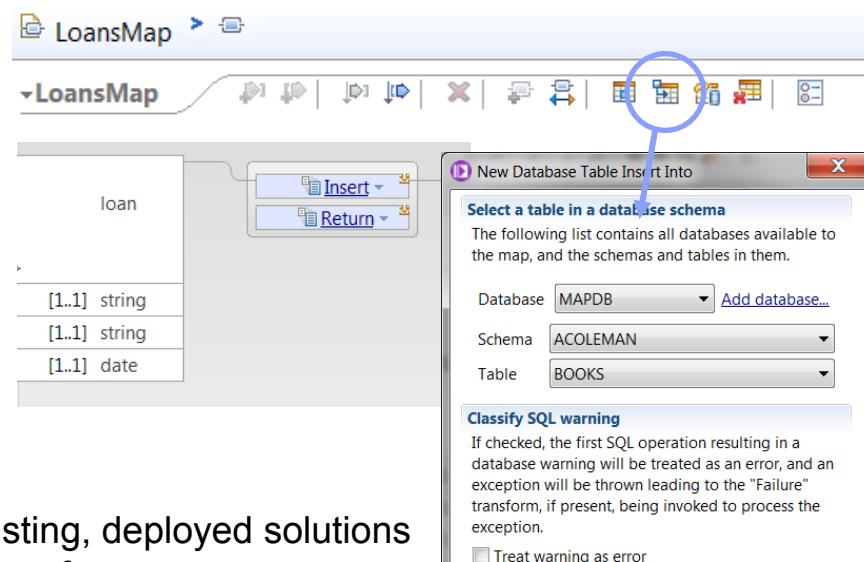
## ▪ IBM Graphical Data Mapper (GDM)

- Visually map and transform source to target data
  - Code-free, high performing & scalable
- GDM designed for whole IBM product set
  - e.g. Full map exchange with MDM Server V10
  - Mapping Specification Language (MSL)
- Complements and supports existing transformation languages
  - Call user defined transformation in Java, SQL, XPath, .NET...



## ▪ Migration from pre-version 8 maps

- Existing .mfmapping maps can now be converted to MSL
  - One-click operation to convert to V8 map
  - TODOs listed for additional configuration
- MB7 maps continue to run until migrated/redeployed



## ▪ Modify databases directly from map

- Support for insert, update & delete operations
- New operations on mapping toolbar
- Simple dialog to graphically configure access

## ▪ Improved performance and operations

- JIT compile means technology advances improves existing, deployed solutions
  - Source deploy + runtime compilation = enhanced performance
  - Further focus on performance makes mapper throughput higher than ever!
- Operationally configure database schema names used in maps; mapping configurable service

# JAXB for Simplified Java Transformations

## ▪ Write Java transformations using simple JAXB-style object model

- Getter and setter methods are used to traverse, modify and build messages
  - Uses JavaBeans style of getFieldName() / setFieldName()
  - e.g. myItem.setPrice(200);
- Natural conversion between XML schema types and Java data types
  - e.g. xsd:int, xsd:string, xsd:dateTime, xsd:any
- Useful for writing code for use across multiple products, or migrating existing code into MB
- Complements and extends existing MBElement class

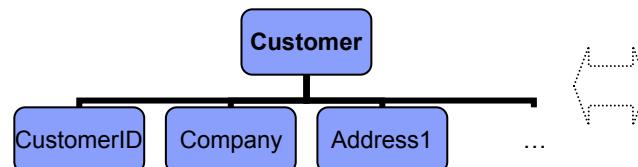
## ▪ Comprehensive tooling support

- New wizard option when implementing a JavaCompute node
- Full content assist available (e.g. Ctrl+Space)

## ▪ Multiple Entry points: Start from model or Start from Java

- Schema compiler – generates a set of Java assets from an XSD
  - JavaCompute node unmarshals corresponding Java objects from MbMessage
  - Call getters and setters directly using this simplified node
- Schema generator – generates an XSD from Java classes
  - JavaCompute node marshals modified Java objects back into the MB tree

## ▪ Comparable performance with native Java tree access



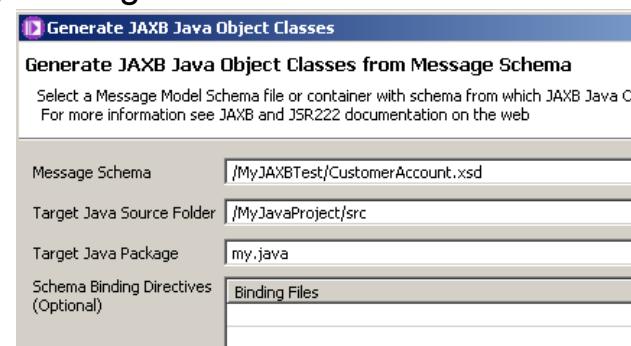
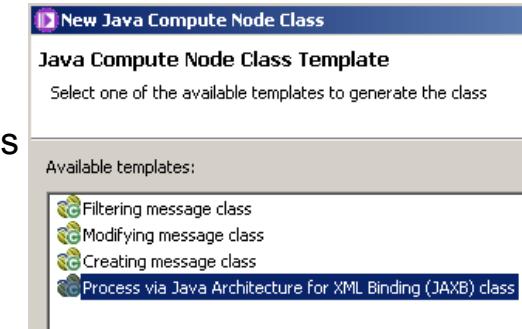
```

// -----
// Add user code below to build the new output data by updating
// your Java objects or building new Java objects
Customer inMsgJavaCust = (Customer) inMsgJavaObj;
String custID = inMsgJavaCust.get

// End of user Java object process
// -----

// TODO set the required Broker d
Document outDocument = outMessage
.createDOMDocument (MbXMLN
  
```

getAddress1() : String - Customer  
 getAddress2() : String - Customer  
 getCity() : String - Customer  
 getCompany() : String - Customer  
 getCountry() : String - Customer  
 getCustomerId() : String - Customer  
 getFirstname() : String - Customer

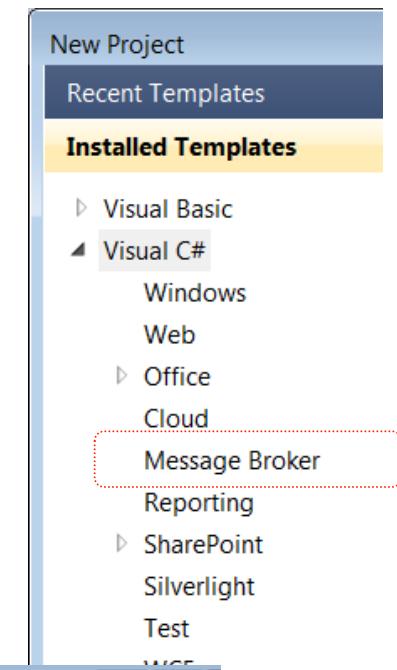


# Deep and Intuitive Integration for .NET

- **New node on Windows platforms for native .NET program invocation**
  - Call .NET programs directly via CLR V4; includes app domains for isolation
  - C#, VB .NET (COM), JScript & F# programming available natively in MB
    - Extensive range of .NET data types supported for easy integration
- **Common Usage Patterns**
  - Integrate best-of-breed Windows applications
    - Dynamics for CRM / ERP
    - SharePoint for collaboration
    - Excel for business data
    - Custom .NET applications and COM objects
  - Share data with non-MS environments without recoding your business logic
  - Speed up integration solution creation using Visual Studio
- **Deploy .NET assemblies inside BAR files**
  - Avoids the need to hand carry assemblies to destination machine
  - Fits in with your standard Broker deployment processes
  - Allows for easier promotion between environments
  - Complements “hot-swap” deployment option for development and test



Update Dynamics



```

BrokerNodeApplication1 - Microsoft Visual Studio
Solution Explorer      SimpleFilterNode.cs  Object Browser
Solution 'BrokerNodeApplication1' (1)
  SimpleFilterNode
    Properties
    References
      IBM.Broker.Plugin
      Microsoft.CSharp
      System
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)

```

# Web Services Enhancements

## ▪ Single SOAP/HTTP Listener per broker

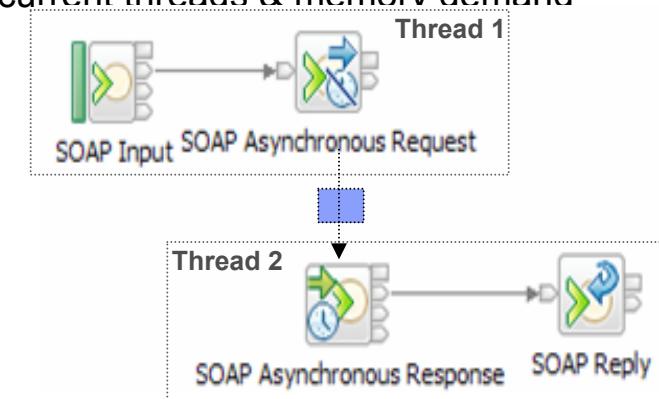
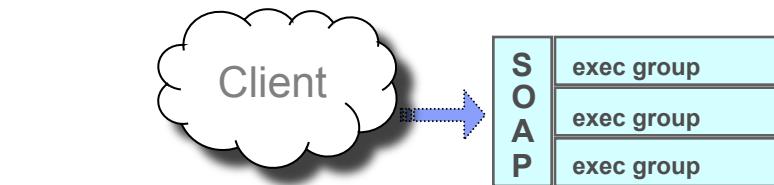
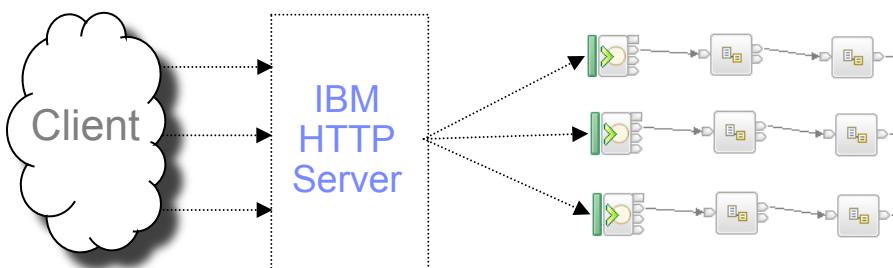
- Allows users to configure a single SOAP/HTTP for all execution groups
- Augments existing single HTTP listener, and embedded SOAP/HTTP & HTTP listeners
- Complements IHS, IIS, Proxy Servlet & IP sprayer technologies for flexible topology configurations

## ▪ IBM HTTP Server Configuration

- Formal support for IHS as external servlet engine
- Generate IHS configuration using MB Explorer
- Both WAS plugin (.xml) and mod\_proxy (.conf) formats supported

## ▪ Asynchronous HTTP Requests & Responses

- Both SOAP & HTTP request nodes can request and handle response on different threads
  - Even without WS-Addressing on SOAP nodes
- User Data can be automatically saved from request to response node to simplify processing
- Particularly useful for slow running HTTP servers – reduces concurrent threads & memory demand



# Extended File & Database Support

- **Dynamic FTP and SFTP Servers**

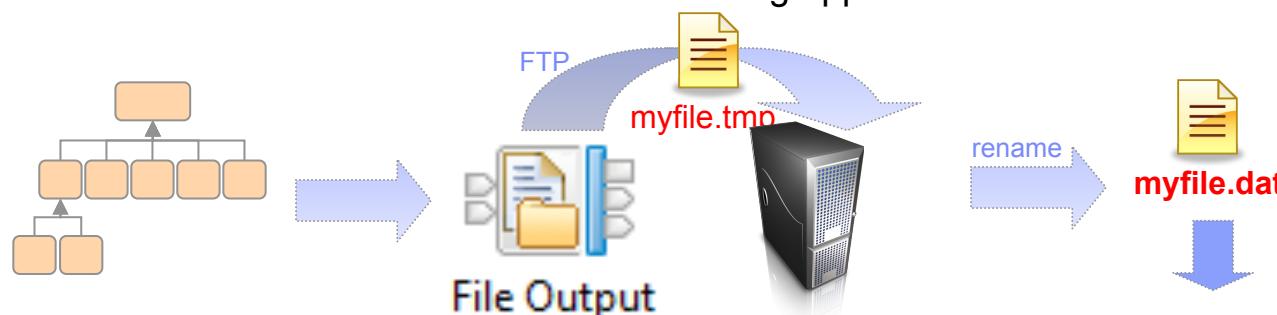
- Allow server information (hostname, timeout etc.) to be configured on a per-message basis
- Full set of override properties including server name, timeout etc.
- Uses LocalEnvironment for flexible configuration options
- Overrides any properties stored on node and configurable service

- **FTP and SFTP pre- and post- commands**

- Provide a script of FTP and SFTP commands to invoke before and/or after a transfer has completed
- E.g. quote, site, rename

```
quote site "lrecl=265 blksize=26500 recfm=fb cyl prim=50 sec=1-"
```

- Typical scenarios
  - Configure z/OS data set block size before file transfer starts
  - Rename after file transfer to make visible to receiving application



- **XA Transaction Support Now Optional for JDBC**

- New jdbcProviderXASupport property for preventing Java XA class loading
- For connecting to JDBC data sources that do not support XA

# Dynamic Deployment of AD Artefacts

- Simplified BAR creation from the command line**

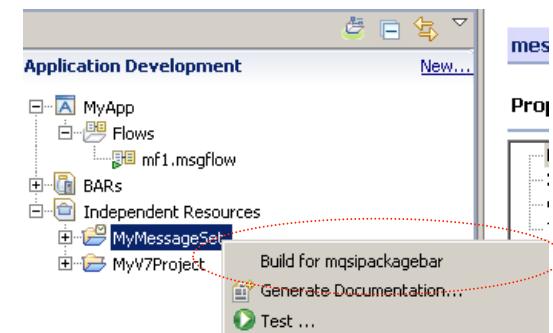
- New mqsi packagebar command focuses on BAR *packaging* rather than *compiling*
  - Ability to deploy WMB assets as source means that compile (mqsicreatebar) is no longer required
  - Specify applications, libraries and files (JARs etc.) to add to BAR
  - Toolkit option to compile message sets for mqsi packagebar
- Easy to take advantage of; a minor modification to existing scripts, e.g.

```

1. cvs checkout ...
2. mqsi packagebar -a MY.BAR -o my.msgflow my.dfdl my.esql
3. mqsiapplybaroverride ...
4. mqsideploy ...

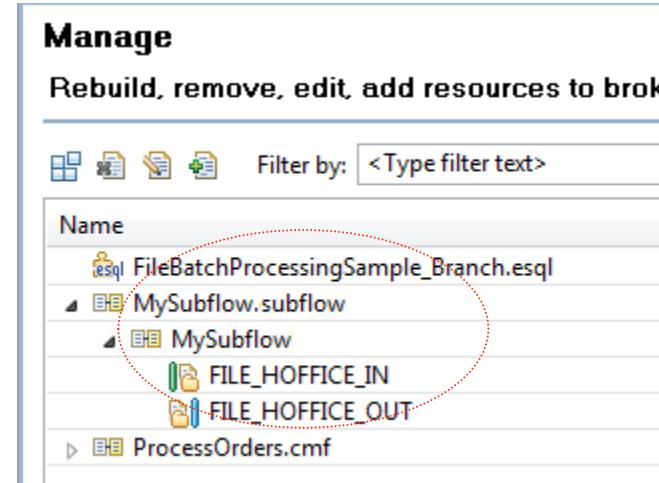
```

- Complements MBExplorer / MB Toolkit / CMP deployment
- Available on all broker platforms
- Old mqsicreatebar command retained for compatibility



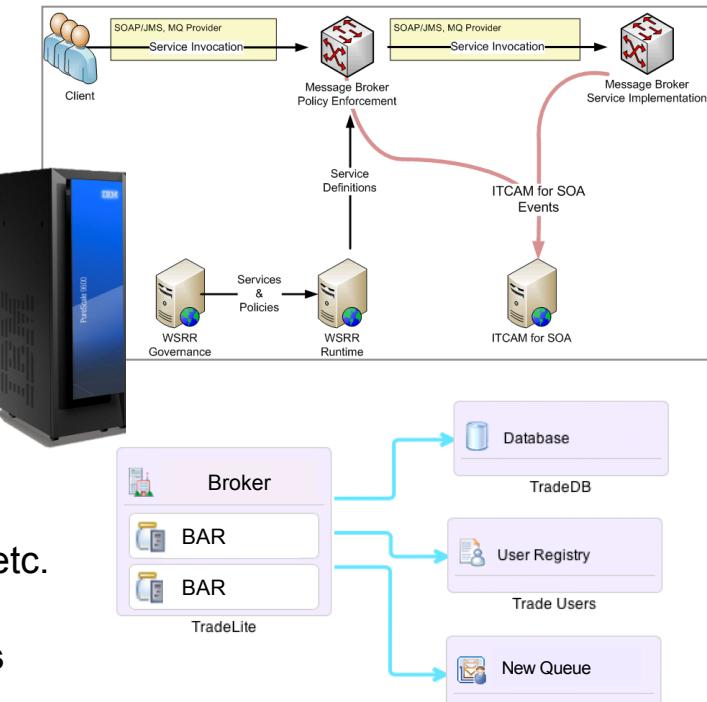
- Override subflow properties in the BAR file**

- Configure deployment descriptor overrides for subflows
- Use common property values, or modify per subflow instance
- Configurable at any time the subflow is deployed:
  - When deploying main message flows and applications
  - When deploying just the subflow
- Compatible with all existing tools:
  - BAR file editor, mqsiapplybaroverride and CMP applications



# Simplified Cloud Provisioning through IBM PureSystems

- **IBM PureSystems are pre-optimized, ready-to-go systems**
  - Allows you to quickly provision diverse combinations of products
    - e.g. WAS, MQ, MB, DB2, WSRR...
    - Not limited to provided IBM images
  
- **MB provides System and Application Patterns for PureSystems**
  - Pre-built System Pattern based on RHEL 6.2
    - Configure MB virtual image and deploy
  - SOA Policy System Pattern
    - Route between JMS applications based on WSRR policy
    - Fully configured scenario including message flows, policies etc.
  
- **Multiple options for provisioning MB in virtualized environments**
  - IBM Workload Deployer images
    - Virtual image software & hardware packages
    - RHEL 6.2 for VMware ESX x86-64 & IWD images
    - AIX 6.1 TL7 `mksysb` & IWD images
  - WebSphere Message Broker for the IBM SmartCloud
    - Pay for the capacity required (hardware, OS, services)
      - Copper, Bronze, Silver, Gold, Platinum
    - “Bring your own license”
      - Use a MB v8 license (express, standard, advanced)



## Support for MQ V7.1 and V7.5

- **MQ V7.1 and V7.5 contain significant new features**

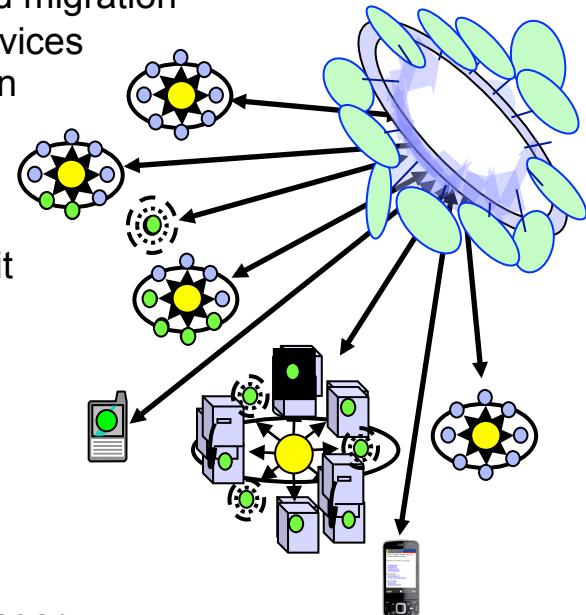
- Multi-version and relocatable installation for easier install, testing, and migration
  - Telemetry function for lightweight connectivity to mobile and other devices
  - Distribute across multiple end-points with integrated multicast function

- **MB now supports MQ V7.1 and V7.5**

- All components including broker runtime, MB Explorer and MB Toolkit
  - Latest fixpack required (V7.1.0.1)
  - MQ V7.0.1 continues to be supported
    - Same minimum prerequisite as MB7 simplifies migration
  - MB 7 will also support MQ 7.1/7.5

- **Both primary and secondary MQ installations supported**

- Automatic selection of MQ installation based on broker's queue manager
    - Active environment at time of `mqsicreatebroker` infers version of new queue manager
    - If queue manager already created, the version is already selected
  - Multiple MB Explorer instances plug in to multiple MQ instances
    - Each Explorer shows only brokers and queue managers associated with the same install
  - New queue manager channels are now secured by default; update definitions accordingly



# Other Features Our Users Requested

- **Execution group and broker specific shared-classes**
  - Allows each broker or execution group to specify a different set of Java shared-classes
  - Takes precedence over installation wide shared-classes
- **Alternative classloader for Java when calling ESQL**
  - Specify an alternative Java classloader when invoking external Java classes from ESQL
  - Invoke via qualification on ESQL, override operationally via configurable service definition
- **New delete() method on JavaCompute, Java and C plugin interfaces**
  - Deletes elements in the message tree
  - Allows performance improvements when manipulating large messages
- **ISO 8583 DFDL Sample**
  - Widely used binary standard for transmission of ATM and credit card transactions
  - \*New\* sample including ISO 8583:1987 DFDL schema plus message flows to transform to/from XML
- **TLOG Processor**
  - Updated to support the latest release of IBM SurePOS ACE (V7R3)
  - New transaction strings added to ACE MRM message set
  - XSLTs replaced with latest versions

# Message Broker Summary

- **Message Broker Version 8.0.0.1**
  - MB 8.0.0.1 is the first significant update since V8 GA
  - Builds on the continued success of V7 and V8 major engineering releases
  - Content heavily influenced by user requirements, participation and feedback
  - Continuous rollout throughout 2012 and beyond
- **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
  - Managed & Dynamic to create flexible solutions which can be changed with control
  - High Performing & Scalable to maximize hardware and grow with you
- **Message Broker is a key IBM connectivity technology**
  - Unparalleled range of connectivity options and capabilities
  - Supports users' range of experience & needs
  - Industry leading performance in a broad range of scenarios

# SAVE THE DATE



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## Impact 2013

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April 28 - May 2 • Venetian Hotel & Resort, Las Vegas

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