IBM Software

# UKInnovate2010

## The Rational Software Conference

Smarter software for a smarter planet.

IBM Software

# UKInnovate2010

The Rational Software Conference

Doing things the automated way:
a straight forward approach to
application deployment

Dave Sayers, Technical Lead, Midvision
David Brauneis, STSM, RAFW Chief Architect, Rational Software

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# Case study overview

- Multi-billion pound integration programme of two large high street banks

- Massive upscale of ALL core services – Internet Banking, Branch network, Telephony, Payments, etc.

- Standardised on common middleware platform based on WebSphere family of products

- Overview of *how* through the use of automation and efficient process 2,400 environments were created in 8 weeks!

# Process / Procedures

- Process Engineering is the foundation of effective *enterprise* middleware automation

- The two most important processes in the success of this case study are:

  – Environment Life Cycle Management

  – Configuration / Deployment processes
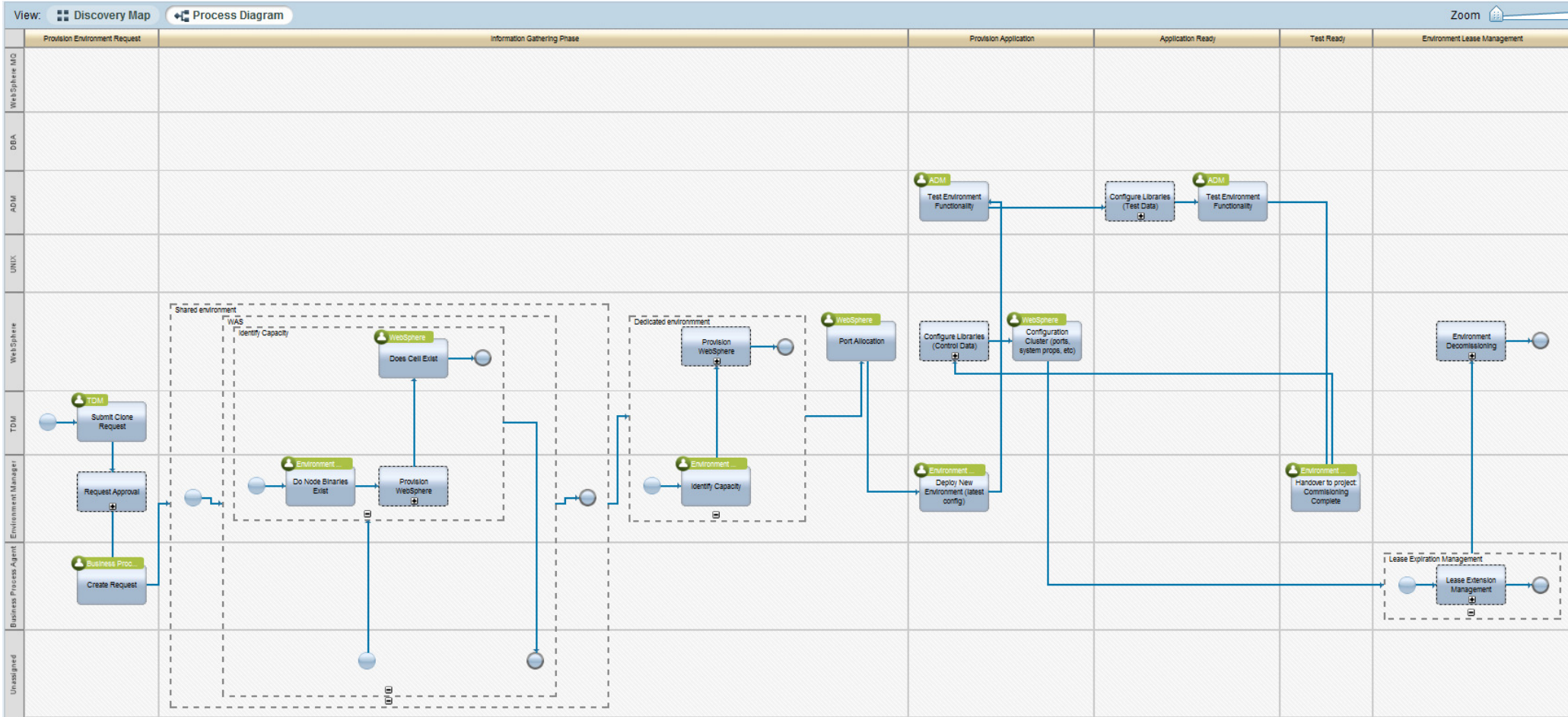
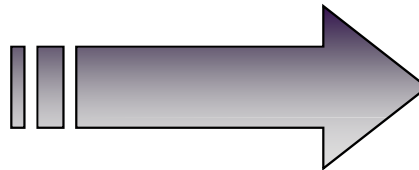Environment Life Cycle Management Process

# Key Principles

- Clearly defined entry and exit points for each stage

- Taxonomy: naming conventions, port allocation, file systems, etc.

- Port and Environment Identifiers

- Clearly defined roles and responsibilities

- High level of configuration and deployment automation

- Encapsulation of code and / or configuration into a "deployment package"
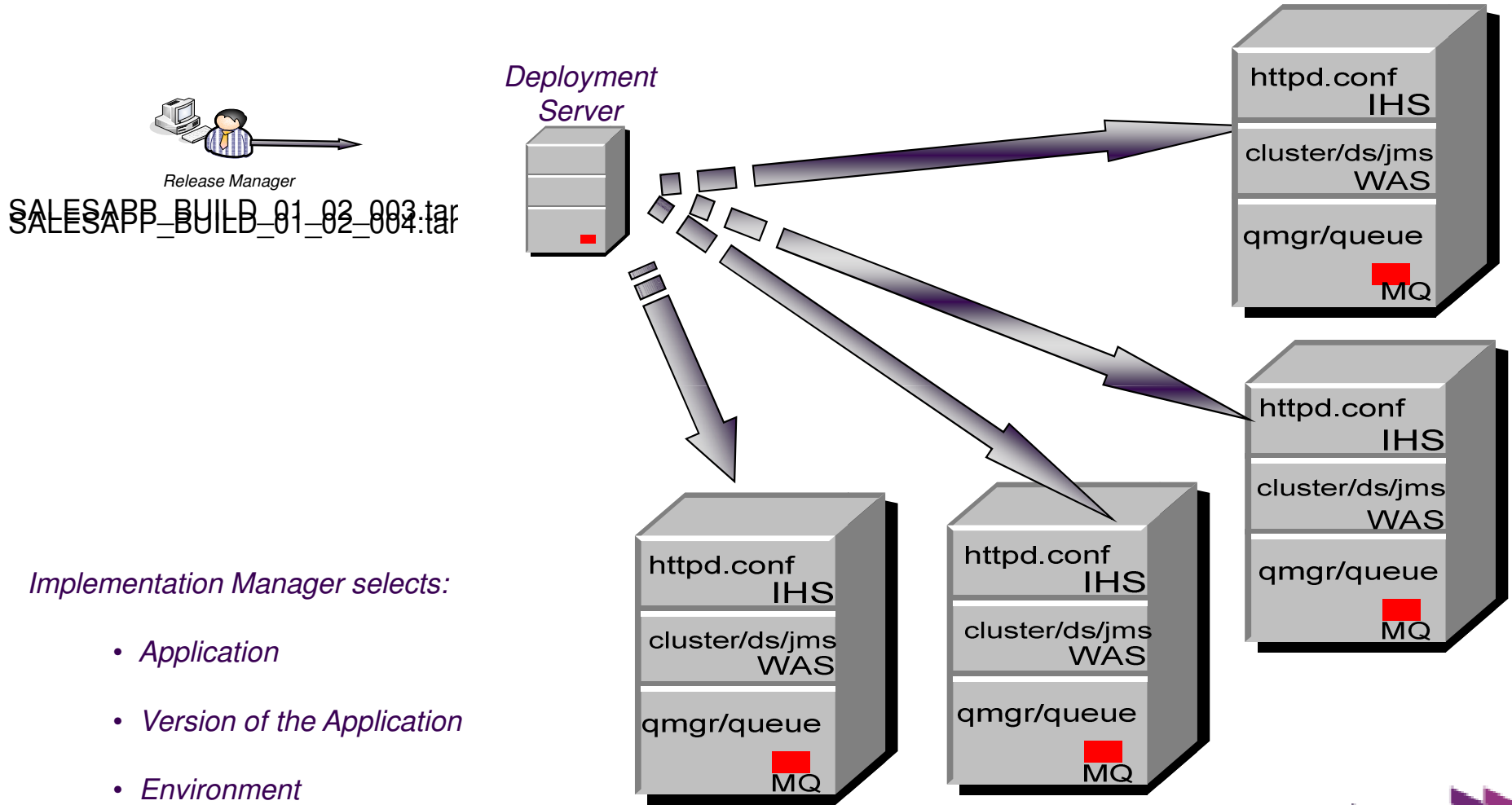
# Creating the Deploy Package



dev_area \EARS
      \database(s)
      \source

release_area \oracle
      \J2EE
      \wmq
      \wmb

Baseline File: SALESAPP_BUILD_01_02_003

DEPLOY PACKAGE

SALESAPP_BUILD_01_02_003.tar

Deployment
Server

Release Manager

SALESAPP_BUILD_01_02_003.tar
SALESAPP_BUILD_01_02_004.tar

**httpd.conf**
IHS

cluster/ds/jms
WAS

qmgr/queue
MQ

Implementation Manager selects:

• Application

• Version of the Application

• Environment

**httpd.conf**
IHS

cluster/ds/jms
WAS

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**httpd.conf**
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# *Principles*

- Version control and build configuration

- Release versions of configuration change in the same way as code

- Allows linking of configuration releases and application releases – together comprising a business application

- "Build Once, Deploy Anywhere"

- Bringing established best practice from application development to infrastructure management

# *Properties / Template*

| DevTst01 | |
|---|---|
| QMGR_NAME | SALESDEVQM01 |
| QMGR_HOST | lnxdev01 |
| QMGR_PORT | 1414 |

| MQSC Template |
|---|
| ------<QMGR_NAME>-------- |
| ------<QMGR_HOST>-------- |
| ------<QMGR_PORT>-------- |

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# *Properties / Template*

| DevTst01 | |
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| DB_USER | devtstuser |

| MQSC Template |
|---|
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# *Properties / Template*

| DevTst01 | |
|---|---|
| QMGR_NAME | SALESDEVQM01 |
| QMGR_HOST | lnxdev01 |
| QMGR_PORT | 1414 |
| DB_USER | devtstuser |

| SysTst01 | |
|---|---|
| QMGR_NAME | SALESTSTQM02 |
| QMGR_HOST | lnxtst01 |
| QMGR_PORT | 1415 |
| DB_USER | syststuser |

| MQSC Template |
|---|
| ------<QMGR_NAME>-------- |
| ------<QMGR_HOST>-------- |
| ------<QMGR_PORT>-------- |
| ------<DB_USER>-------- |

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| Version Control | Configuration Management Tool | Build Process | Release Mechanism | Middleware |
|---|---|---|---|---|
| Code Configuration | Eclipse or Web based config. UI | Generate Versioned Release Components | Ideally web based, self service | •WebSphere AS<br>•Portal / WPS / ESB / WSSR<br>•MQ / Broker / Datapower<br>•DB2 / Oracle |
| | | | | |
| | | | | |
| | | | | |

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| x.mqsc | Alter channel | | | |
| | | | | |
| | | | | |

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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | | |
| | | | | |
| | | | | |

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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| | | | | |
| | | | | |

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| x.py | JMS Queue Dest | | | |
| | | | | |

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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| x.py | JMS Queue Dest | SALES_WAS_01_02_046.zip | | |
| | | | | |

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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| x.py | JMS Queue Dest | SALES_WAS_01_02_046.zip | SALES_WAS_01_02_046 | WAS |
| | | | | |

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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| x.py | JMS Queue Dest | SALES_WAS_01_02_046.zip | SALES_WAS_01_02_046 | WAS |
| x.ddl | Column, View, etc | | | |

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| Version Control | Configuration Management Tool | Build Process | Release Mechanism | Middleware |
|---|---|---|---|---|
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| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| x.py | JMS Queue Dest | SALES_WAS_01_02_046.zip | SALES_WAS_01_02_046 | WAS |
| x.ddl | Column, View, etc | SALES_DB_01_02_012.zip | | |

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| Version Control | Configuration Management Tool | Build Process | Release Mechanism | Middleware |
|---|---|---|---|---|
| Code Configuration | Eclipse or Web based config. UI | Generate Versioned Release Components | Ideally web based, self service | •WebSphere AS •Portal / WPS / ESB / WSSR •MQ / Broker / Datapower •DB2 / Oracle |
| x.mqsc | Alter channel | SALES_MQ_01_02_033.zip | SALES_MQ_01_02_033 | WMQ |
| x.py | JMS Queue Dest | SALES_WAS_01_02_046.zip | SALES_WAS_01_02_046 | WAS |
| x.ddl | Column, View, etc | SALES_DB_01_02_012.zip | SALES_DB_01_02_012 | Oracle |

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# *Provisioning New Environments*
## *Products > Configuration > Code*

| AppServer - products |
| --- |
| |
| IBM HTTP Server |
| WebSphere AS 6.1.0.29 |
| WMQ6 ML72 |
| AIX 6  TL10 |

| Database - products |
| --- |
| Oracle 11.1.0.7.0 |
| AIX 6  TL10 |

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# *Provisioning New Environments*
## *Products > Configuration > Code*

| AppServer - products | Configuration / App |
|---|---|
| | |
| IBM HTTP Server | WEB_CONFIG_SALES_1_2_056 |
| WebSphere AS 6.1.0.29 | WAS_CONFIG_SALES_1_2_087 |
| WMQ6 ML72 | WMQ_CONFIG_SALES_1_2_032 |
| AIX 6  TL10 | STANDARD ORG IMAGE |

| Database - products | Configuration / App |
|---|---|
| Oracle 11.1.0.7.0 | ORA_CONFIG_SALES_1_2_042 |
| AIX 6  TL10 | STANDARD ORG IMAGE |

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# *Provisioning New Environments*
## *Products > Configuration > Code*

| AppServer - products | Configuration / App |
|---|---|
|  | APP_CONTENT_SALES_1_2_124 |
| IBM HTTP Server | WEB_CONFIG_SALES_1_2_056 |
| WebSphere AS 6.1.0.29 | WAS_CONFIG_SALES_1_2_087 |
| WMQ6 ML72 | WMQ_CONFIG_SALES_1_2_032 |
| AIX 6  TL10 | STANDARD ORG IMAGE |

| Database - products | Configuration / App |
|---|---|
| Oracle 11.1.0.7.0 | ORA_CONFIG_SALES_1_2_042 |
| AIX 6  TL10 | STANDARD ORG IMAGE |

} Sales Release 1.2

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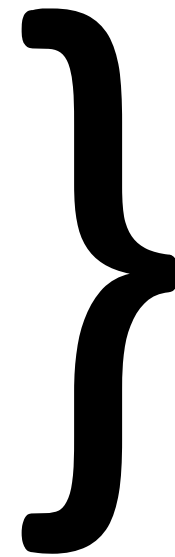
# Montpellier Internet Banking Lab

- From OS Ready to a fully working Online  Banking environment in one week

- This multi-tier environment consisted of:
  - WebSphere Application Server
  - Process Server
  - Portal Server / WCM
  - WebSphere MQ
  - WebSphere DataPower
  - IHS / Caching Edge Proxy
  - Oracle

# Some more statistics...

- Deployment of 38 cells with 152 individual binary installations together with post installation configurations in just one week
- 450 Users performing over 2000 self service application builds and 4000 deploys per month
- 40 applications cloned to new infrastructure in one week
- SLA's for new environments down to one week. This is for a fully working, multi component business application!

# Cost savings / efficiencies

- Not about having less people

- Doing more with the ones you have

- Increasing utilisation

- Removing delays caused by infrastructure teams on project life cycle

- Efficiencies through "Self Service"

# Compliance

- Audit and visibility of who made changes, and when.
  - Install and Patch
  - Configuration changes
  - Application deployments
  - Configuration Drift
- SOX compliance / Workflow

# On demand and cost recovery

- If you allow projects to have environments at will, make sure they are using them!

- Cost recovery focuses the mind. Plus – if your recovery is correct, you can use it to fund the infrastructure.

- Cloud concepts for business applications

- Decommissioning is as important as commissioning!

# WMQ Support Overview

- Support for v5, v6, v7 Queue Managers

- Supports many different Operating Systems due to Client-Server model:  Unix / Windows / z/OS / AS/400 / Tandem

- Queue Manager Creation (Windows / UNIX)

- Client-based deployment of WMQ artefacts to heterogeneous remote Queue Managers

- Token Scope and indexing

- Dynamic Authorisation Scripts

- Preview Mode

# WMB Support Overview

- Compatible with deployments to WMB v6, v7

- Supported platforms (Unix / Windows / z/OS)

- Automated BAR File Deployments

- Ability to override BAR files

- Module either appends or re-creates Execution Groups

- Broker Creation

- Deployment of Jplugins

- XSD Schemas

# What is RAFW?

Customizable and extensible framework that delivers…

✦ Configuration management automation

✦ Application deployment automation

✦ Product installation & patching automation

## Core Strengths…

**Accuracy** — "Data Abstraction" - Maintains normalized configuration data

**Reliability** — Apply right data to the right target environment

**Consistency** — Apply data in repeatable manner to target environments

# *RAFW Architecture*
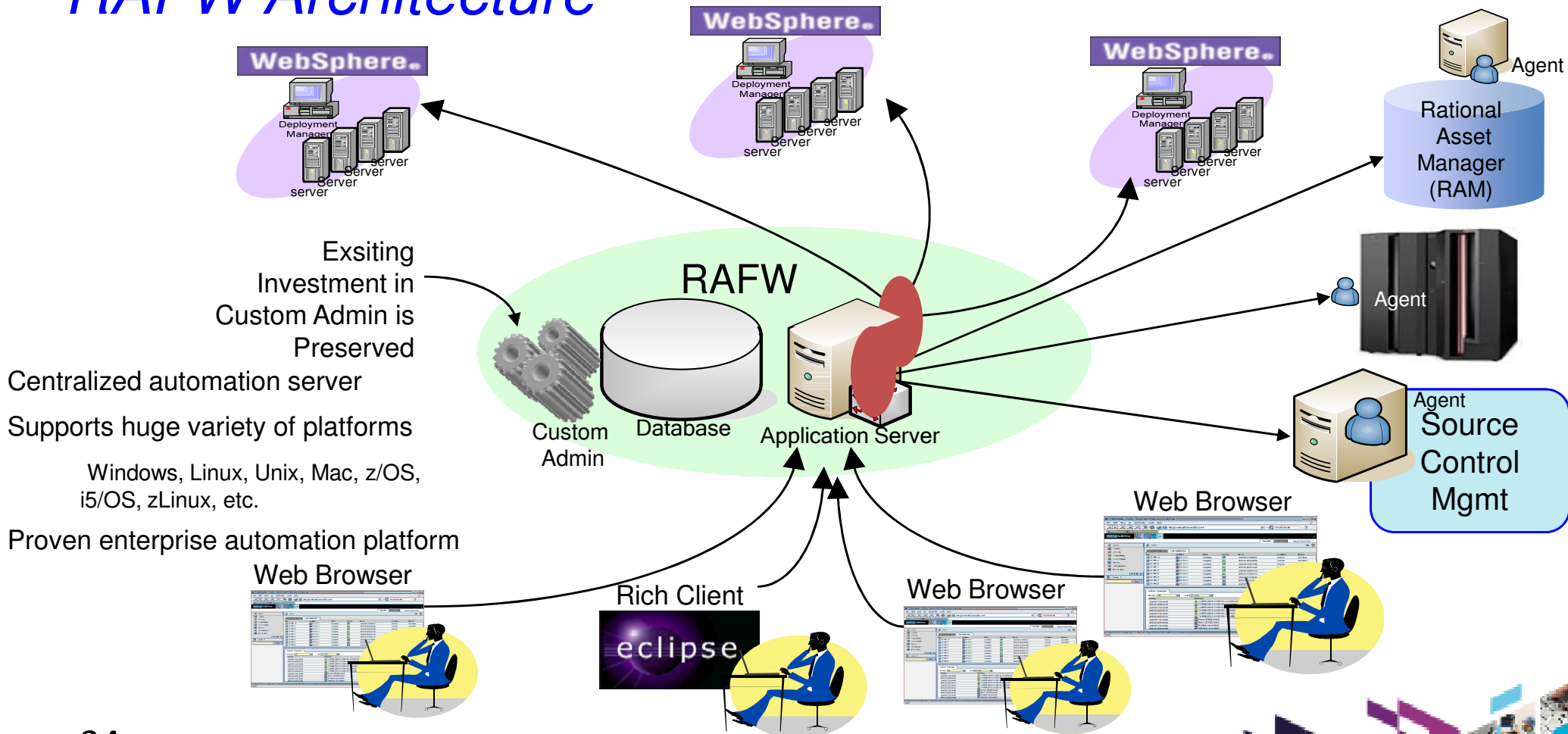


Exsiting Investment in Custom Admin is Preserved

Centralized automation server

Supports huge variety of platforms

Windows, Linux, Unix, Mac, z/OS, i5/OS, zLinux, etc.

Proven enterprise automation platform

**New!**

# RAFW Extension Concept

- Rational Jazz.net
  - Open, participatory development initiative by Rational
  - GA and pre-GA drivers available for evaluation and non-commercial use
  - In addition to downloading the drivers, users can also…
    - Get a peak into milestone plans, post feature requests, work items and feedback
    - Post issues or defects, access documentation and responses from Rational Product Engineering teams, and broader user community

- BF / RAFW on Jazz.net: https://jazz.net/downloads/rational-build-forge/
  - BF and RAFW 7.1.1.4 GA drivers and incubators
    - WebSphere BPM Suite: WebSphere Process Server, WSRR, WebSphere ESB
    - WebSphere Virtual Enterprise
  - Pre-GA drivers of upcoming releases of BF/RAFW 7.1.2 release
  - Pre-GA drivers of upcoming releases of 2011 BF/RAFW release

- 100% Customer driven scenarios
  - "Not dreamed up in the lab" – field-tested first
  - BPs or IBM Services implement extensions as services engagements
  - Rational validates market opportunity and "productizes" services assets after incubation period
  - Market opportunity validated for BPM Suite, WebSphere VE & WAS Feature Packs

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Leveraging Partners for Full Spectrum of Middleware

MQ, WMB

WebLogic, JBoss

.NET

BPM Suite

RAFW

RAF Core*
Framework
+
WAS/Portal

RAFW

WAS VE

MidVision

MidVision

Partner #2

Partner #4

MidVision

Partner #3

Oracle PA

DataPower

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Databases: Oracle, MySQL,
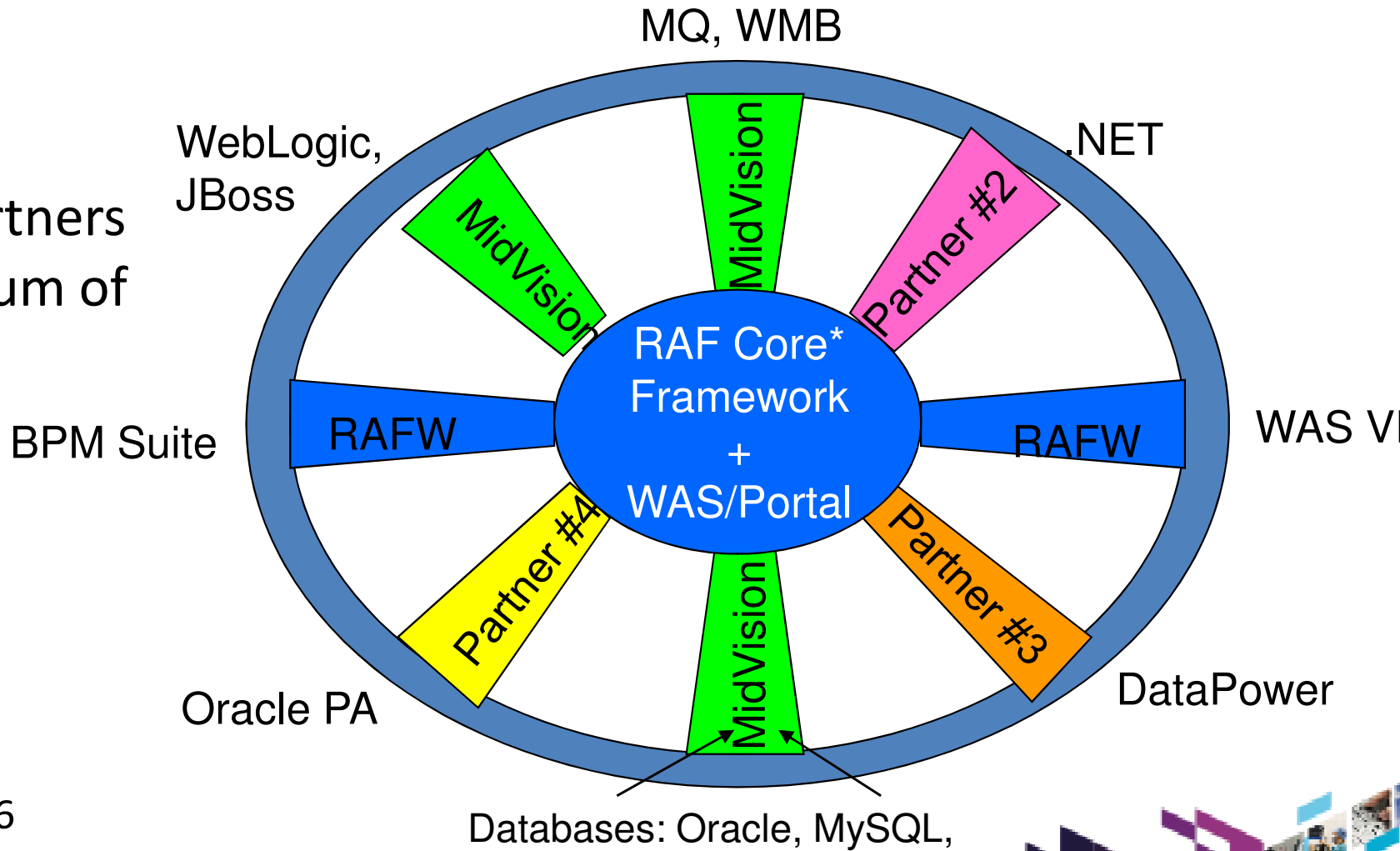
# RAFW 2H10 Release Highlights

- Expanded automation targets
  - WebSphere BPM Suite
    - WebSphere Process Server 6.2
    - WebSphere Enterprise Service Bus 6.2
    - WebSphere Service Registry and Repository 6.2
    - WebSphere Service Registry and Repository 6.3
  - WebSphere Virtual Enterprise 6.1
  - WAS Feature Packs
    - WAS 6.0: Web 2.0
    - WAS 6.1: Web 2.0, EJB3, Web Services
    - WAS 7.0: Web 2.0, CEA, XML, SCA, OSGi & JPA
  - WebSphere Portal 6.1.5
  - Fixpack updates for WAS, IHS and WebSphere Portal

- Performance/Scalability Improvements
  - Core Automation Framework (Purge, Scheduler, etc...)
  - RAFW Initial & Media Agentless Transfer

# RAFW 2H10 Release Highlights

- Consumability Improvements

  - Installer GUI for RAFW (in Build Forge)

  - A new uninstaller utility for incubator installations

- Extensibility Enhancements

  - Easily extend the product with custom actions that incorporate reusable Java code

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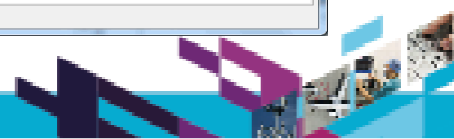  - Enhanced support for Custom Environment Templates
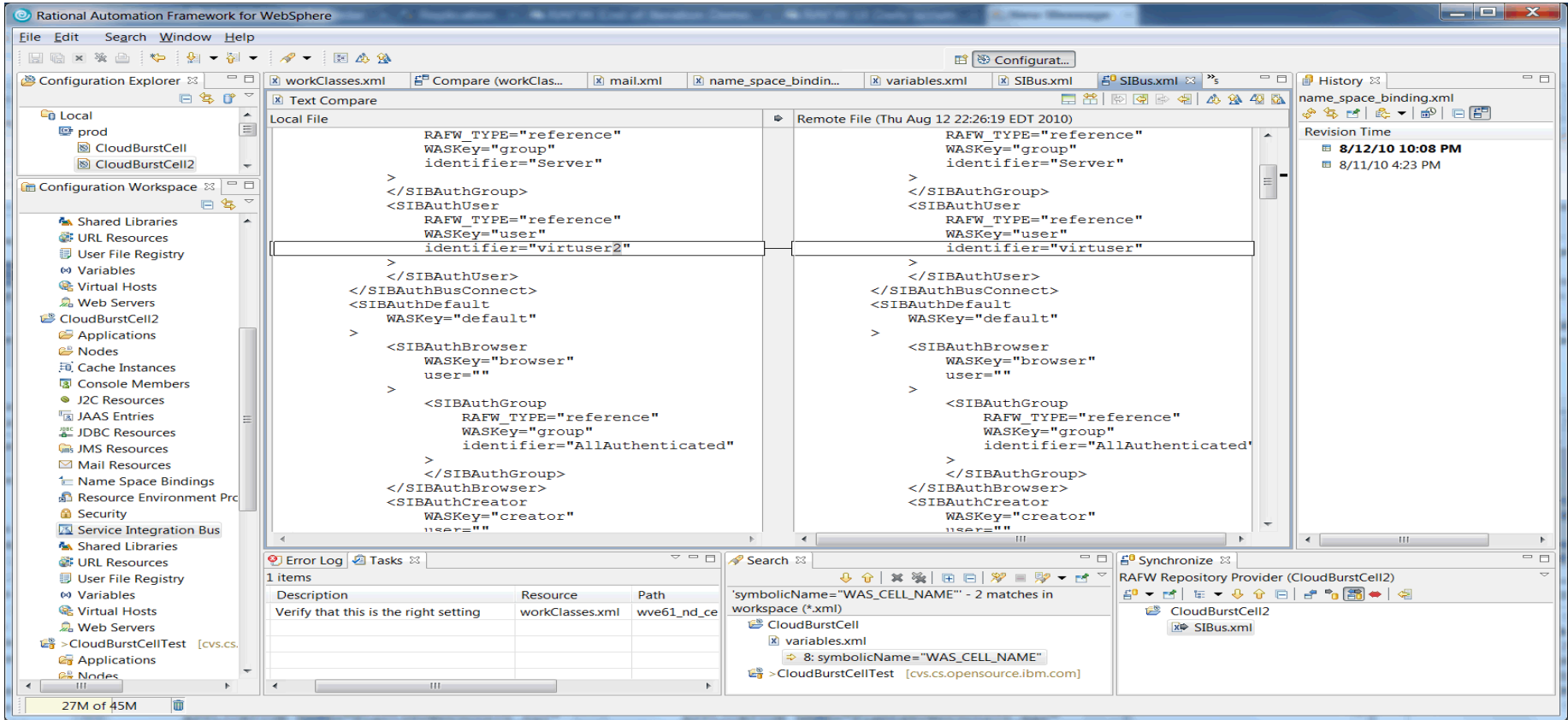
# RAFW: 2011 and Beyond

- Expansion of automation portfolio
  - Exclusively driven by market needs and customer feedback
  - IBM and non-IBM targets, including MQ and WMB

- Eclipse-based GUI for intuitive visualization of critical usage scenarios
  - Exploitation of Eclipse and VCE *(Screen shots on following pages)*

- Continued enhancements in scalability, performance and user experience

- End to end Lifecycle Management solutions through integration with key IBM Rational and Tivoli products
  - Tivoli Service Automation Manager/Tivoli Provisioning Manager
  - Rational Software Architect – Deployment Planning & Modeling

# Screen Shot of RAFW Configuration Editor (Pre-release)
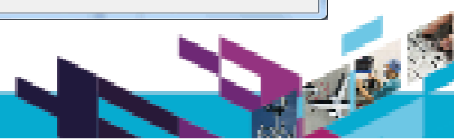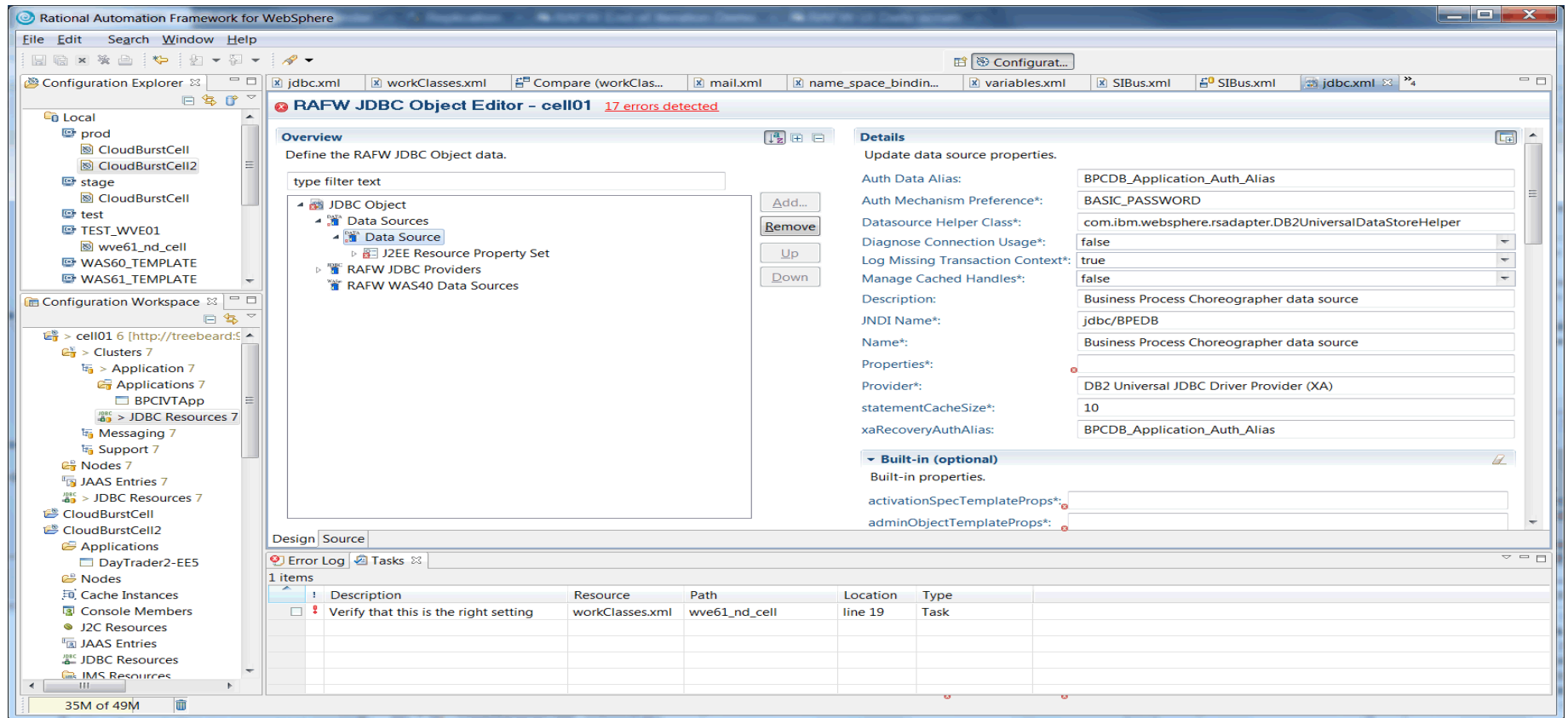
# Screen Shot of RAFW Configuration Comparison (Pre-release)