IBM Software Group | Ascendant Technology

IBM Rational Automation Framework for WebSphere®

Geir Sjurseth – Ascendant Technology Architecture and Development

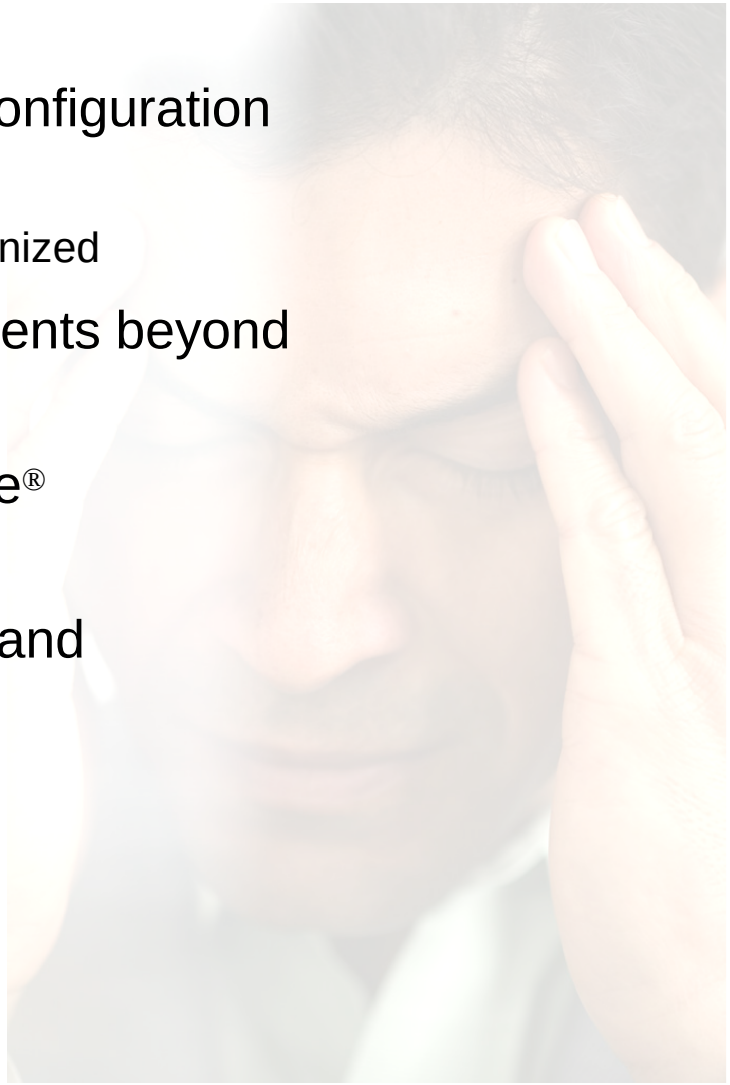
Rational. Build Forge

ascendant TECHNOLOGY

Topics to Cover

- Problems Addressed by RAFW
- What is RAFW?
- Overview of RAFW Technology and Implementation
- Benefits of RAFW
- Scenarios
  - Including Cloud Support
- Wrap-up and questions

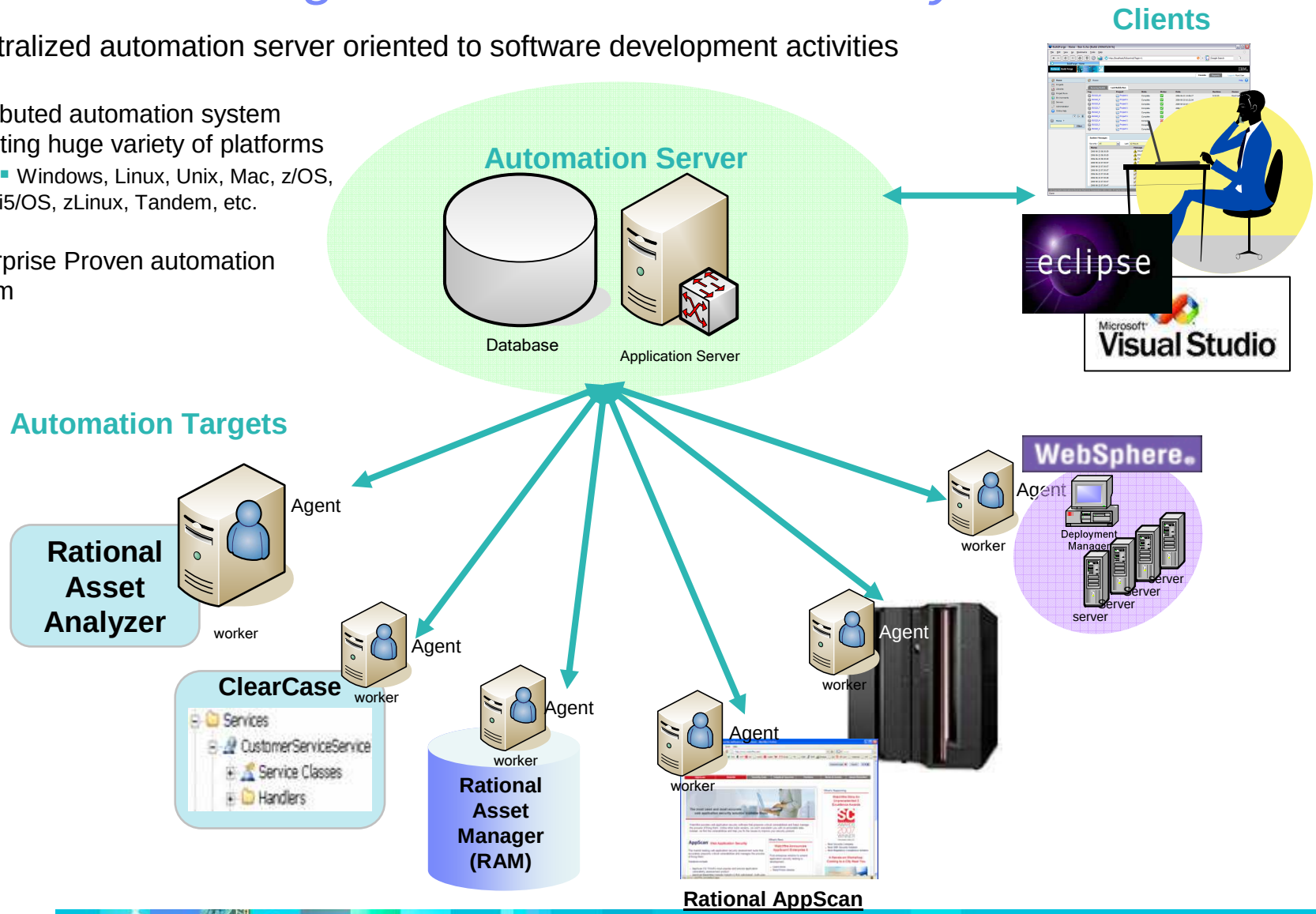
Pain Points: Typical WebSphere Admin Challenges



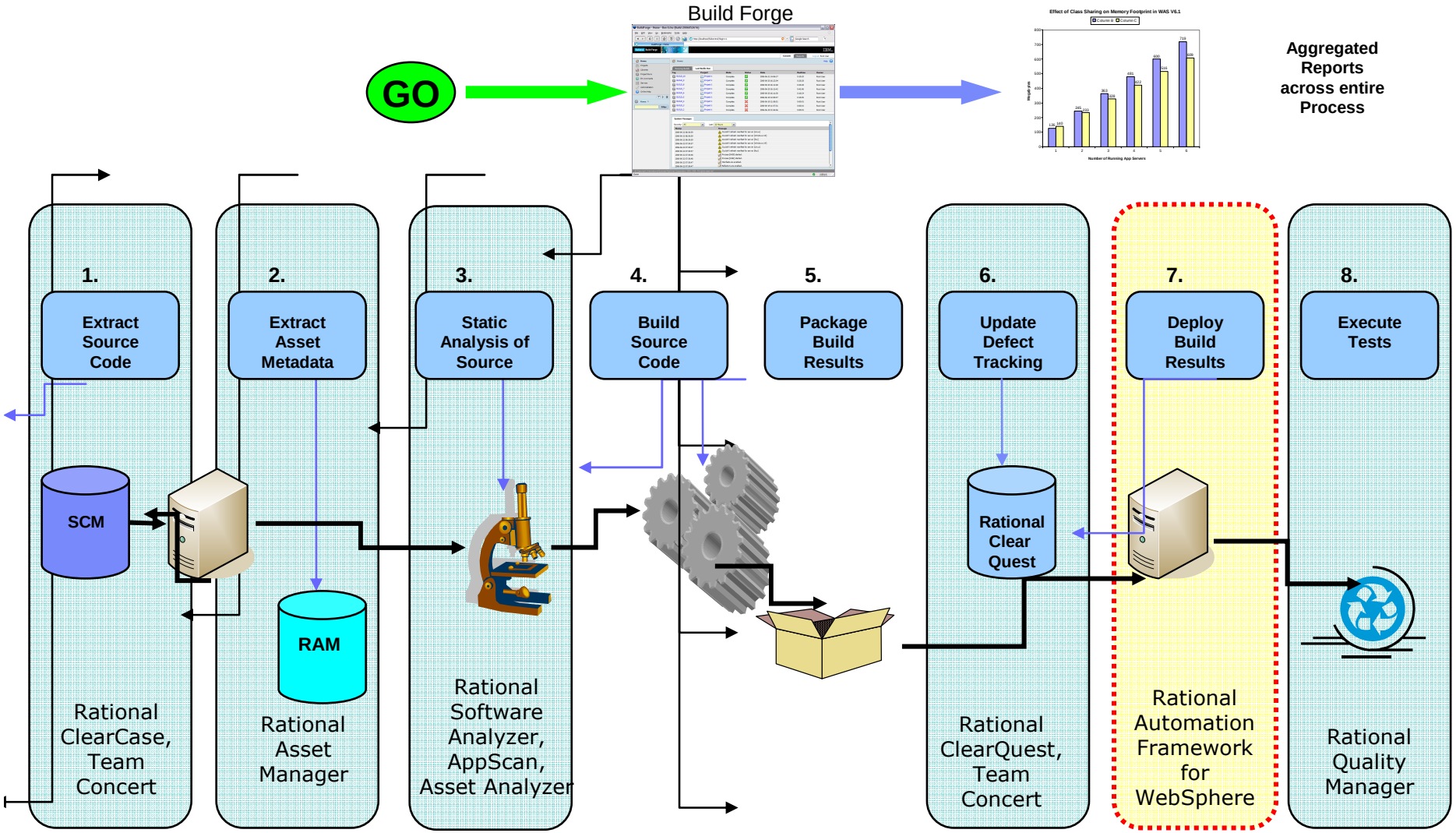
- Lack of consistency and/or repeatability of configuration changes
  - Staff bogged down in keeping environments synchronized
- No ability to manage WebSphere® environments beyond the cell level
- No change history / audit trail for WebSphere® configuration
- Costly automation of configuration changes and deployments
  - Requires custom coding
  - Time consuming to deploy without a framework
- Lack of a disaster recovery

The Build Forge Automation Server System

- Centralized automation server oriented to software development activities
- Distributed automation system supporting huge variety of platforms
  - Windows, Linux, Unix, Mac, z/OS, i5/OS, zLinux, Tandem, etc.
- Enterprise Proven automation platform



Example Build Forge Automated Process



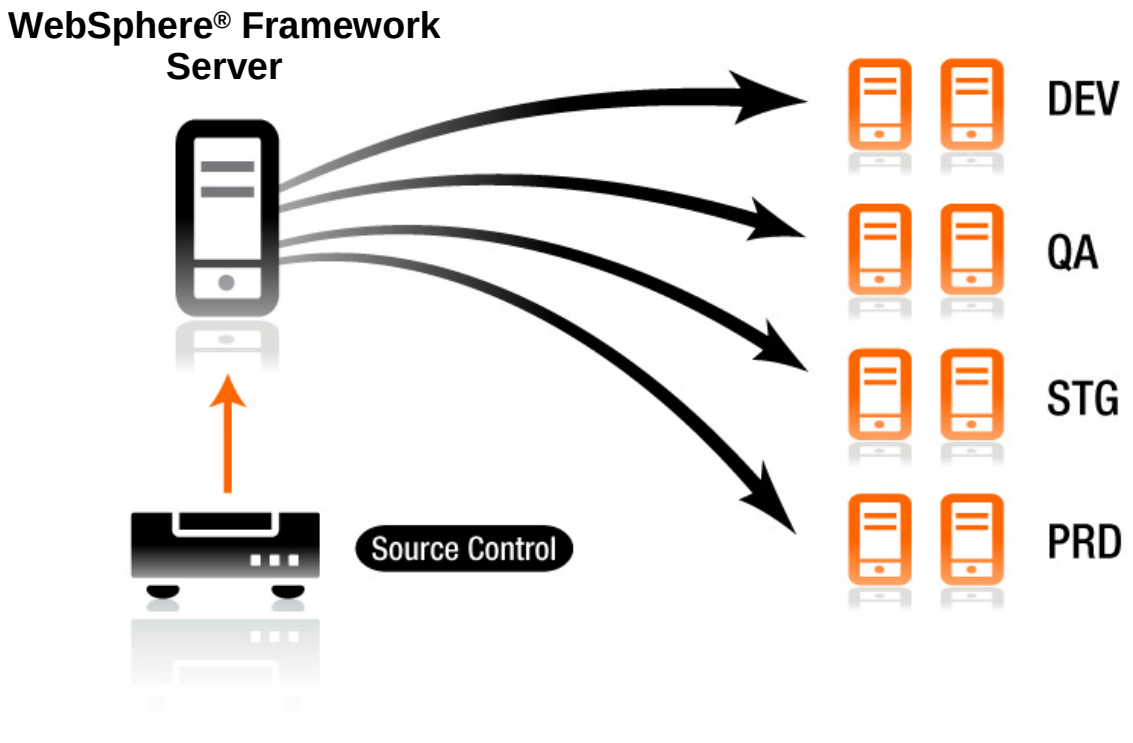
What Is the Rational Automation Framework for WebSphere?

- Customizable Framework for the WebSphere Family of products that delivers
  - WebSphere product installation & patching automation
  - Configuration change management
  - Application deployment automation
- The framework's strength is
  - "Data Driven" - Maintains normalized configuration data
  - Apply this data in a consistent and repeatable manner to your WebSphere enterprise environments

Centralizing the Management of WebSphere®

- Enterprise solution
- Multiple OS support
- Multi-cell WebSphere® management
- Over 400 field validated actions

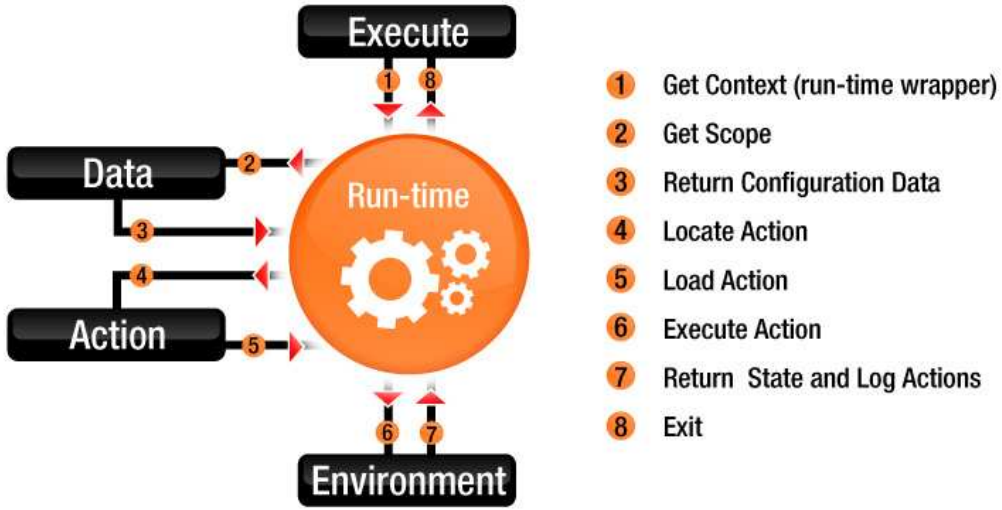
Overview of Distributed Architecture



How RAFW works

- Binding of scoped configuration data, environment, and action execution
- Common collection of reusable actions
- Reflects scope in WebSphere®
- Ability to chain actions together
- Context switching between cells
- Data Driven

Run-time Overview



The Framework Technology Stack

- The framework is composed of:
  - Ant
  - Jython
  - Shell/Batch
  - Tivoli RXA
- A shell/batch script invokes Ant
  - Typically use a single script as the entry point to all functionality
- Ant performs most of the procedural logic necessary
  - Prerequisite targets
  - Controls the order of targets
- Ant invokes other tools to complete the task
  - Shell/Batch scripts
  - Jython
  - Installation programs (install.sh, rpm, etc.)

Rational Automation Framework for WebSphere Features

- Build Forge + Rational Automation Framework for WebSphere makes Administration easier and faster:
  - Robust Command Line Interface
  - Environment Creation Wizard
  - Ability to Import configuration from WAS environment into the framework
  - Reporting
  - In-line dynamic help system
  - Includes hundreds of ready to use actions (450!)
  - Dependency checking
  - Ability to manage enterprise from central server

Middleware Versions Supported

- Release 7.1.1 (May 2009)
  - WebSphere Application Server 6.0, 6.1, 7.0
  - WebSphere Network Deployment Server 6.0, 6.1, 7.0
  - WebSphere Portal Server version 6.0, 6.1
  - Special Bid for 5.1 releases of above products
- Possible features for second release
  - Enhancements based on feedback from Portal and WebSphere development
  - Additional WebSphere stack products (for instance Virtual Enterprise 6.1)
  - Integration with other Rational products (RTC, RTLM, RQM, RAM)

Initial Operating Systems Supported

- Linux
- AIX
- Solaris
- Windows
- HP-UX

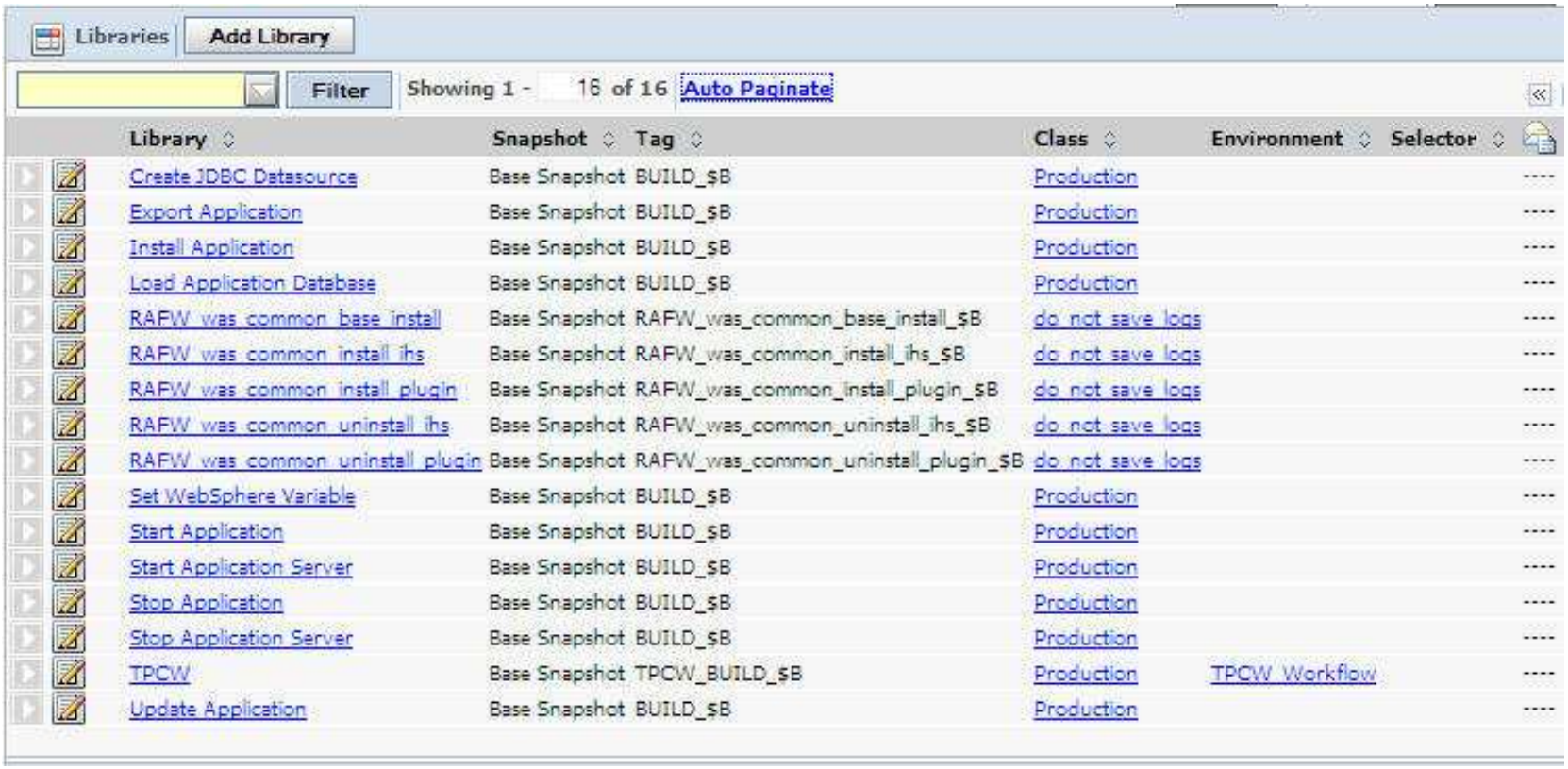
Second release to add System z and System i support

Combination of Build Forge and WebSphere Framework

- Automation of entire Software Development Lifecycle (SDLC)
- WebSphere Framework is tightly integrated with Build Forge
  - Easy to integrate into Build Forge steps
  - Automatic generation of Build Forge Projects by Framework
- Security layers (common interface for various roles involved in SDLC)
  - Developer
  - Build Engineer
  - WebSphere Administrator
- User friendly web console UI
- Ability to thread tasks (horizontal clustered environment)
- Notifications on task completion
- Highly Customizable End-to-End Solution!

Screen capture of Framework Libraries

Common configuration and deployment patterns defined as RAFW "building block" reusable Libraries



Library	Snapshot	Tag	Class	Environment	Selector
Create JDBC Datasource	Base Snapshot	BUILD_$B	Production		----
Export Application	Base Snapshot	BUILD_$B	Production		----
Install Application	Base Snapshot	BUILD_$B	Production		----
Load Application Database	Base Snapshot	BUILD_$B	Production		----
RAFW_was_common_base_install	Base Snapshot	RAFW_was_common_base_install_$B	do_not_save_logs		----
RAFW_was_common_install_ihs	Base Snapshot	RAFW_was_common_install_ihs_$B	do_not_save_logs		----
RAFW_was_common_install_plugin	Base Snapshot	RAFW_was_common_install_plugin_$B	do_not_save_logs		----
RAFW_was_common_uninstall_ihs	Base Snapshot	RAFW_was_common_uninstall_ihs_$B	do_not_save_logs		----
RAFW_was_common_uninstall_plugin	Base Snapshot	RAFW_was_common_uninstall_plugin_$B	do_not_save_logs		----
Set WebSphere Variable	Base Snapshot	BUILD_$B	Production		----
Start Application	Base Snapshot	BUILD_$B	Production		----
Start Application Server	Base Snapshot	BUILD_$B	Production		----
Stop Application	Base Snapshot	BUILD_$B	Production		----
Stop Application Server	Base Snapshot	BUILD_$B	Production		----
TPCW	Base Snapshot	TPCW_BUILD_$B	Production	TPCW_Workflow	----
Update Application	Base Snapshot	BUILD_$B	Production		----

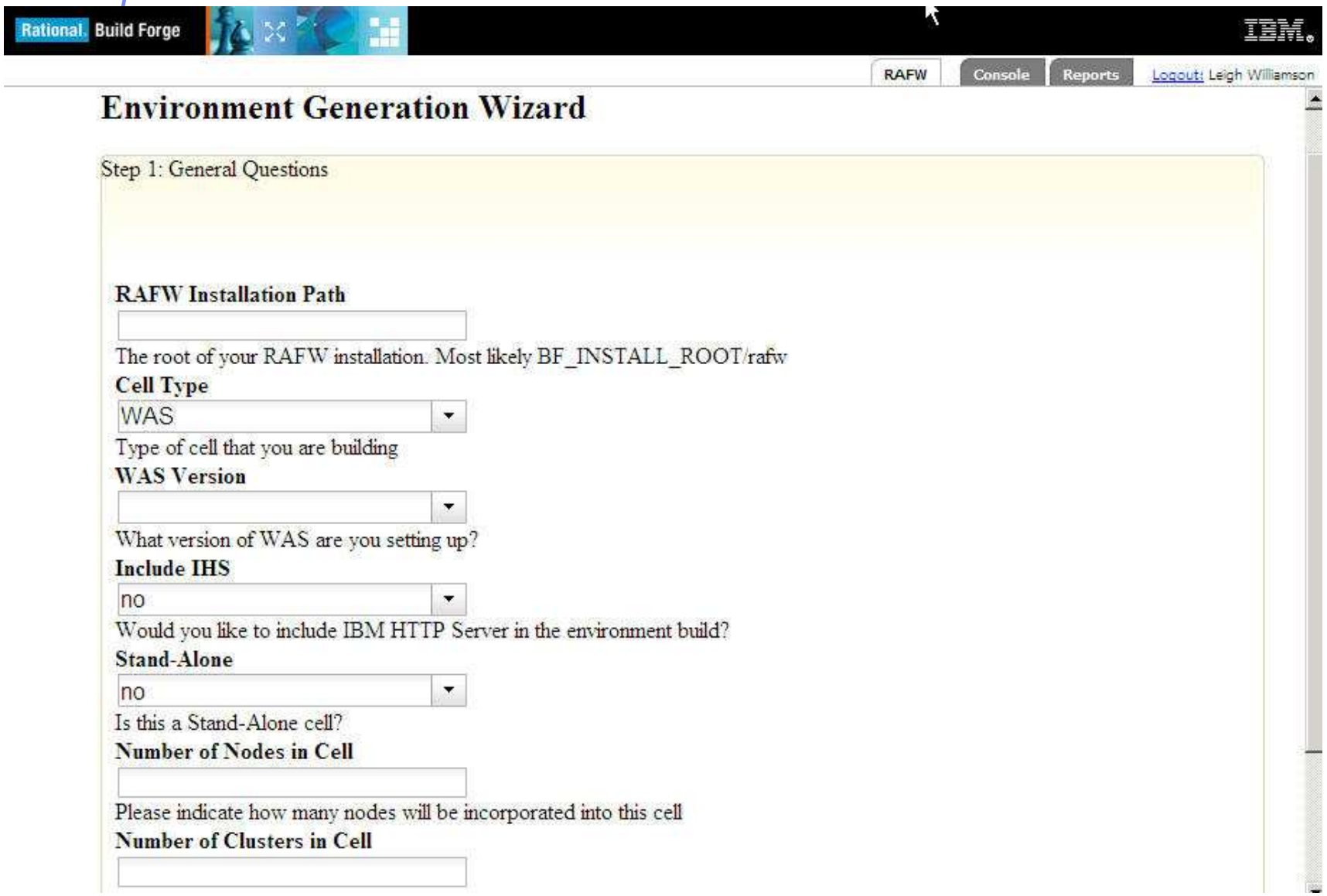
Build Forge WebSphere® Framework Use Case

Need to Build Out New WebSphere® Clustered Environment

1. Generate New Environment using Wizard Interface
2. Click on New Project to launch automated build of new WebSphere® Environment
3. Automatically Notify interested parties upon completion
4. Customize steps in project for Configuration elements (JDBC, JMS, JAAS etc)
5. Rebuild environment as Needed!

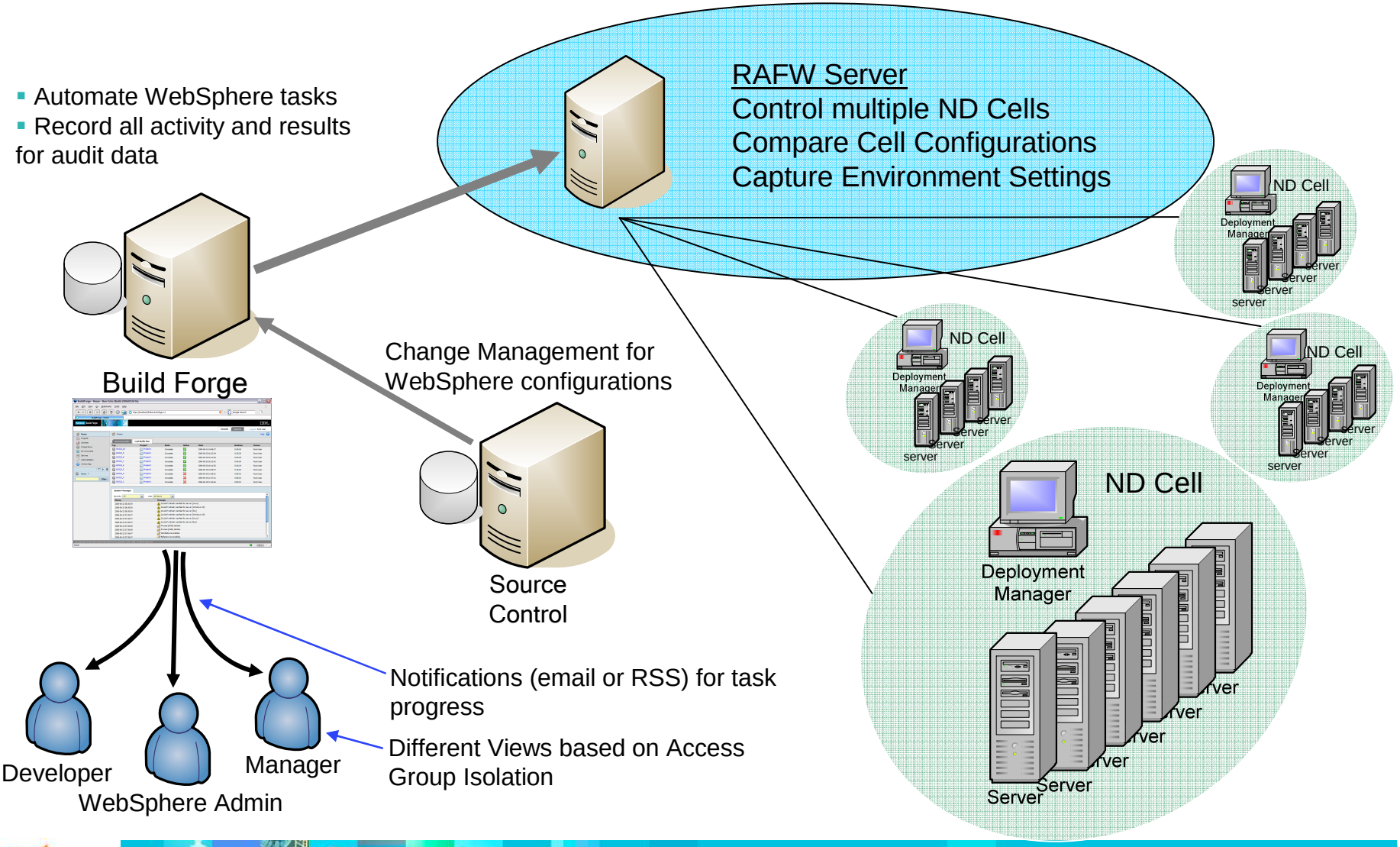
Complete Automated WebSphere® Cell Build out!

Screen capture of RAFW Environment Wizard



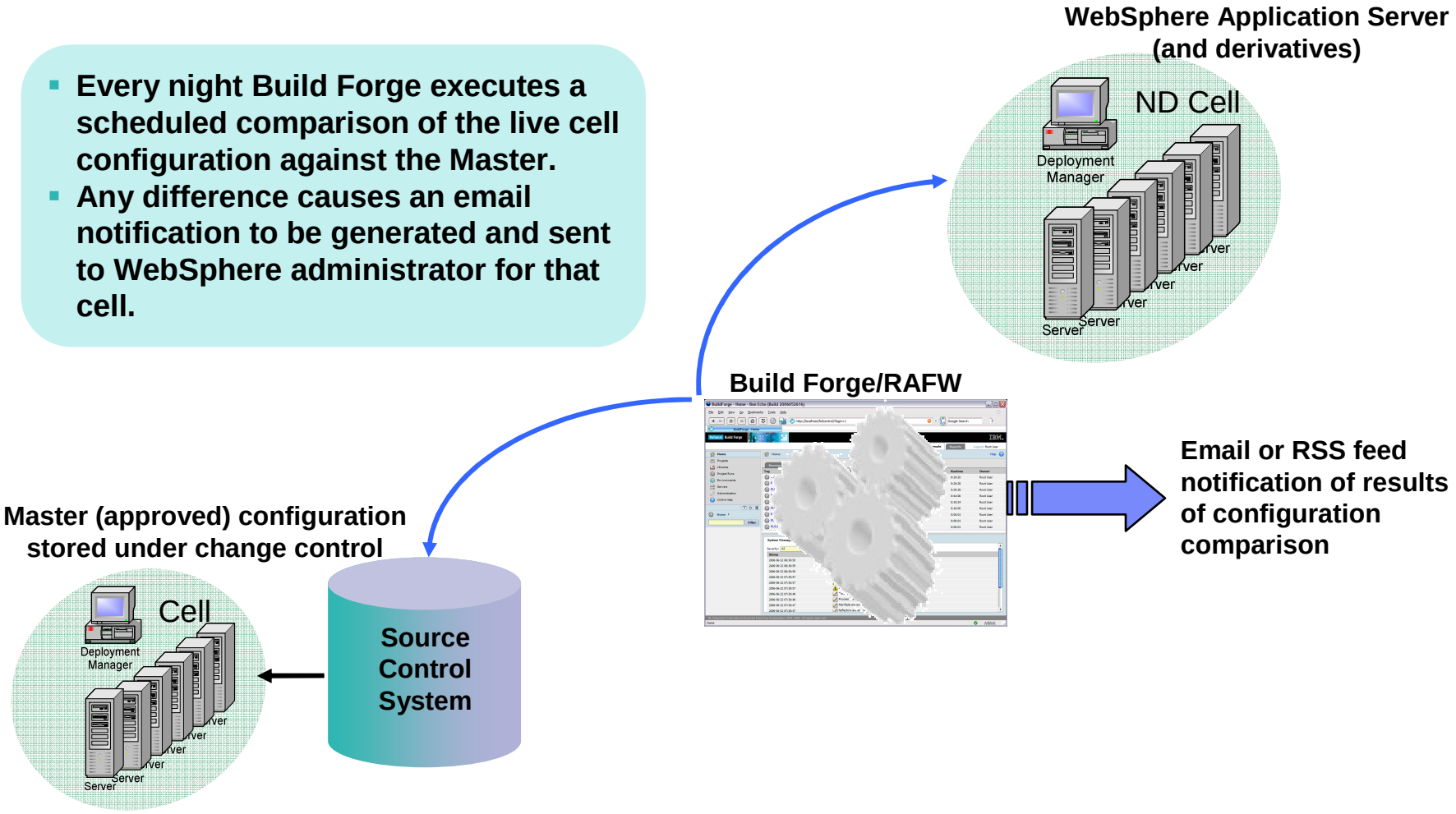
Rational WebSphere Framework Topology

- Automate WebSphere tasks
- Record all activity and results for audit data



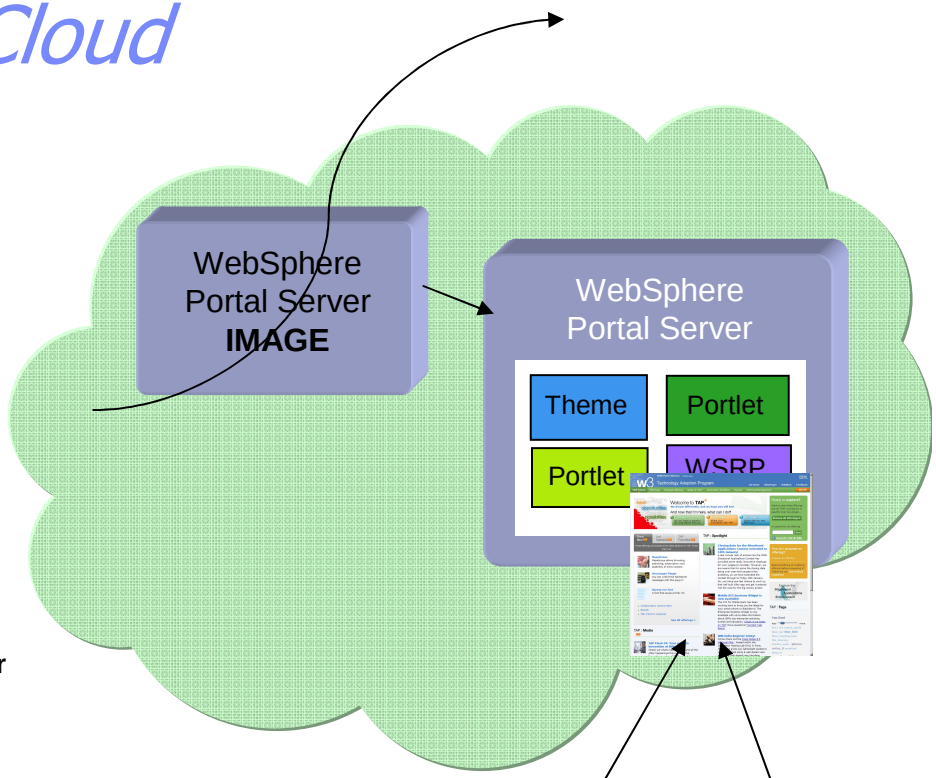
Example Use Case: Catch Configuration Drift

- **Every night Build Forge executes a scheduled comparison of the live cell configuration against the Master.**
- **Any difference causes an email notification to be generated and sent to WebSphere administrator for that cell.**



Use Case for Portal in the Cloud

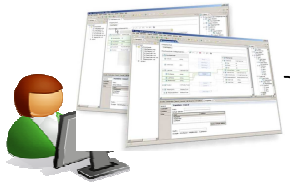
- **The Cloud includes an image for Portal Server that is to be used on-demand for testing the Portal application**
- **RAFW bridges the gap between development IDE and Portal Server running in the Cloud**



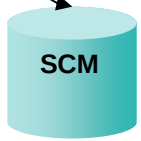
2. An RAFW automated process is launched that ensures that the target Portal Server image is started within the Cloud.

1. Portlet developer makes modifications to a portion of the Portal Application and checks changes in to the project SCM

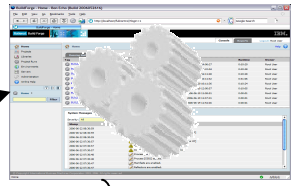
Development Tools



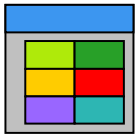
Application Developer



Rational Build Forge & Rational Automation Framework for WebSphere



3. The RAFW automated process builds the portal application changes into a solution release package



4. The RAFW automated process deploys the solution release package on to the Portal Server running in the Cloud

RQM

Rational AppScan

5. Testing and validation is performed against Portal application to detect quiality problems and potential security vulnerabilities

Extend the Value

- Continuous Integration techniques for fast application code change processing
- Automated code scanning and analysis to ensure compliance, reduce security exposures, and improve code quality
- Optimize and accelerate builds through parallel execution
- Exploit virtual image libraries to reduce IT resource requirements
- Automate multiple test tools on deployed application


Thank You !

IBM Software Group

Q & A Period

Rational. Build Forge