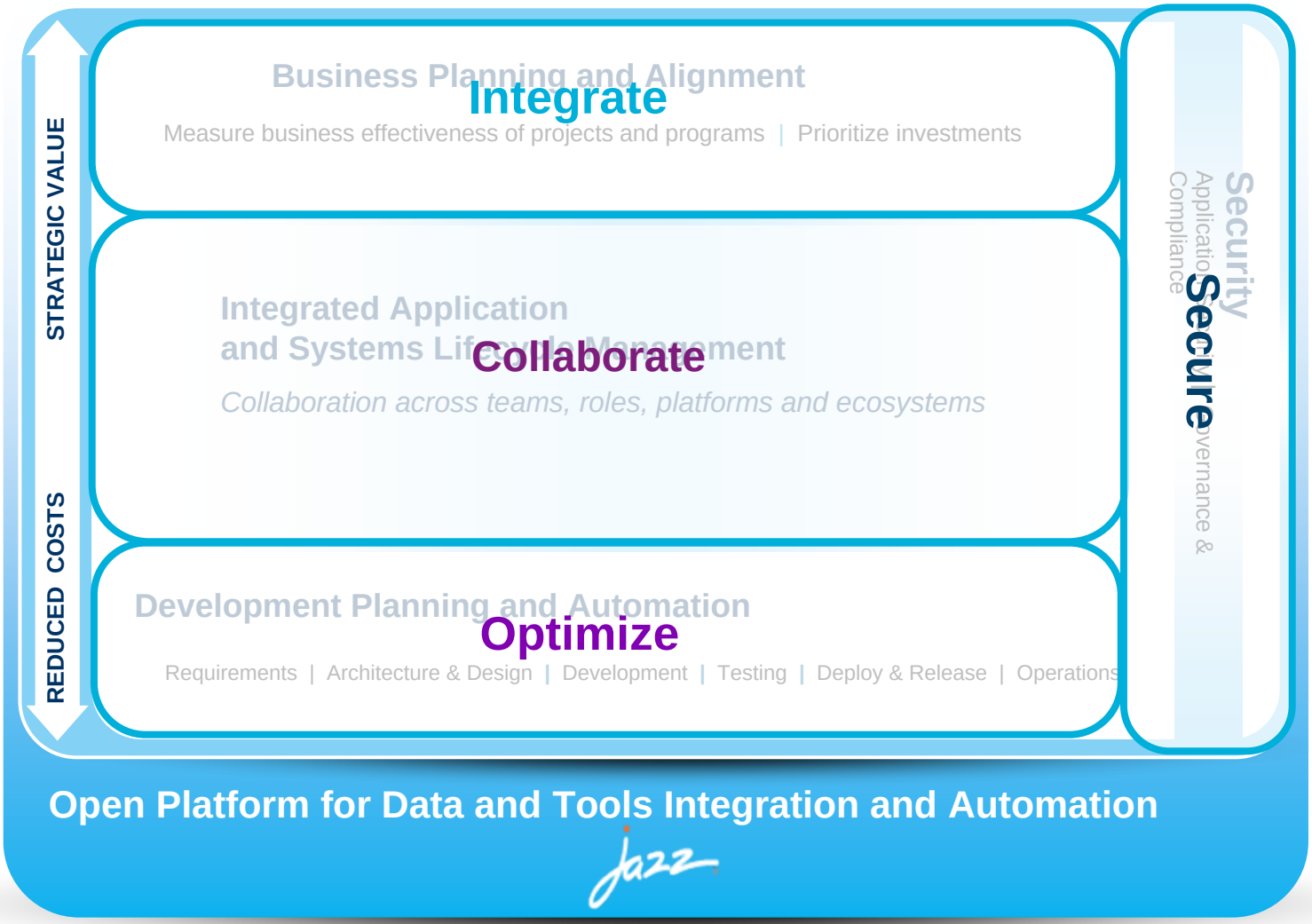
Deployment Planning and Automation

Achieving Operational Efficiencies: The Devil is in the Deployment Details

Sachin Raj
Rational Software Specialty Architect, ASEAN

Gold Sponsors:
Akamai
AVNET technology solutions

Our Capabilities to Help You Achieve Breakthrough Benefits



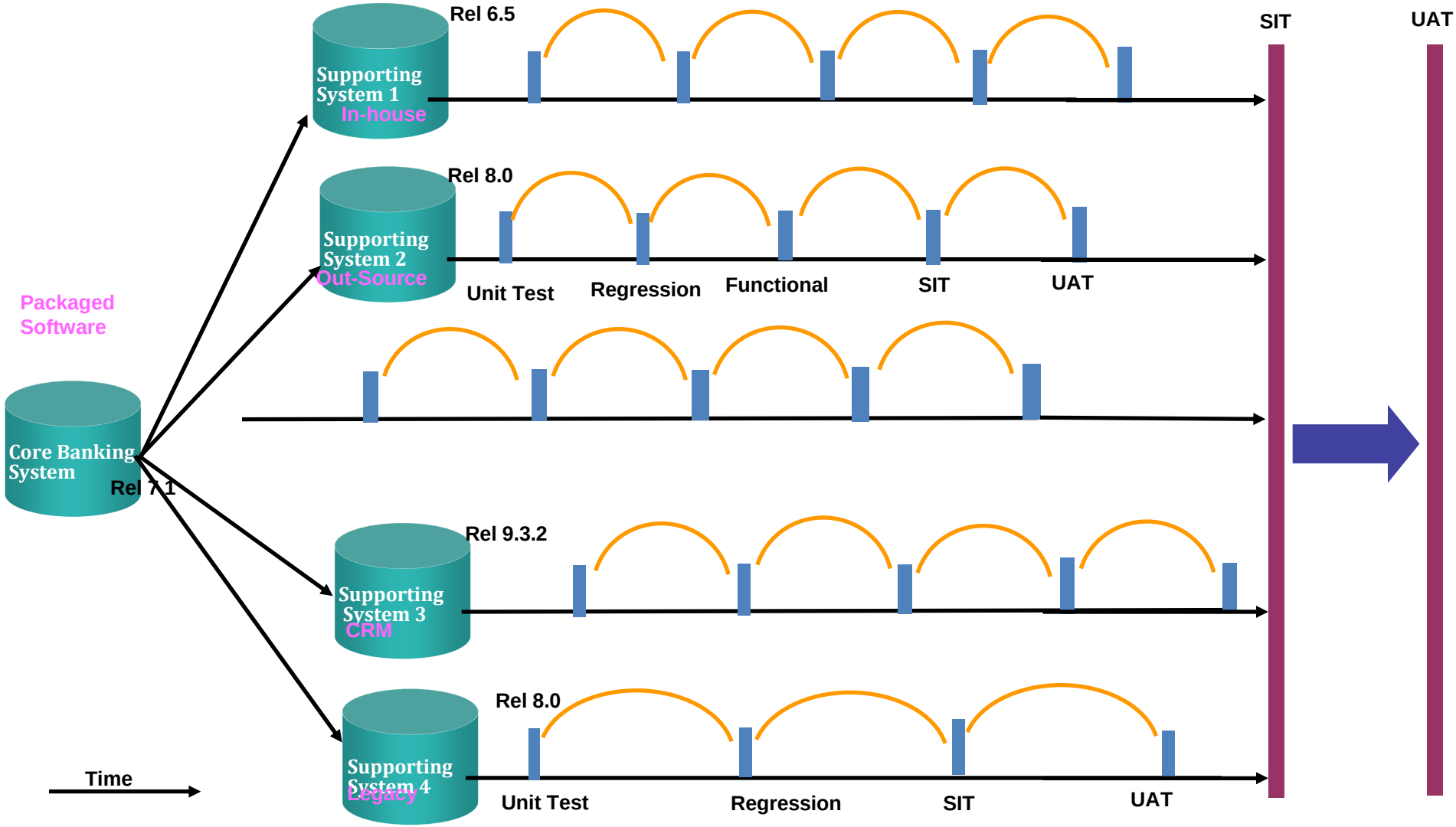
Agenda

- Introduction
  - Software delivery challenges
  - Deployment Challenges
- IBM Deployment, Planning and Automation
  - Plan, automate, govern
  - Scenario
- Summary
- Q & A

Business Impact of Challenges

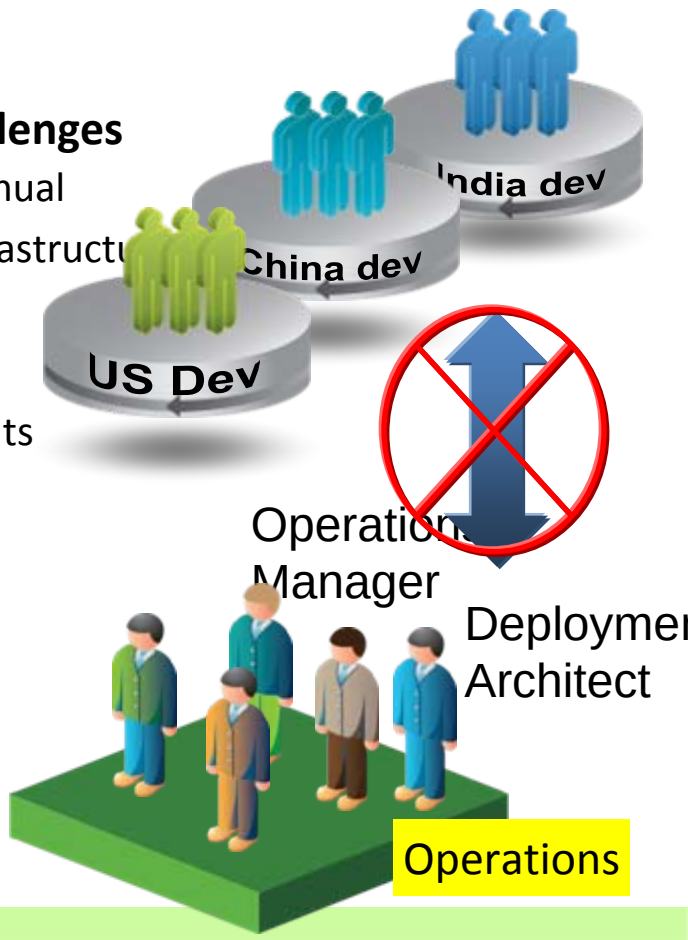
- **Delays and missed deadlines** for application releases/updates
- **Costly systems to support, troubleshoot and maintain**; High Risk with assembly and build knowledge held by few
- **Unpredictable product release cycles**, limited repeatability and portability
- **Bottlenecks** occur without increased headcount to handle additional volume
- **Unauthorized changes** to build and test systems lead to unpredictable results
- **Delayed releases** can lead to customer satisfaction issues
- **Requires more costly tracking** and auditing throughout the application lifecycle

Staged Application Releases makes complex



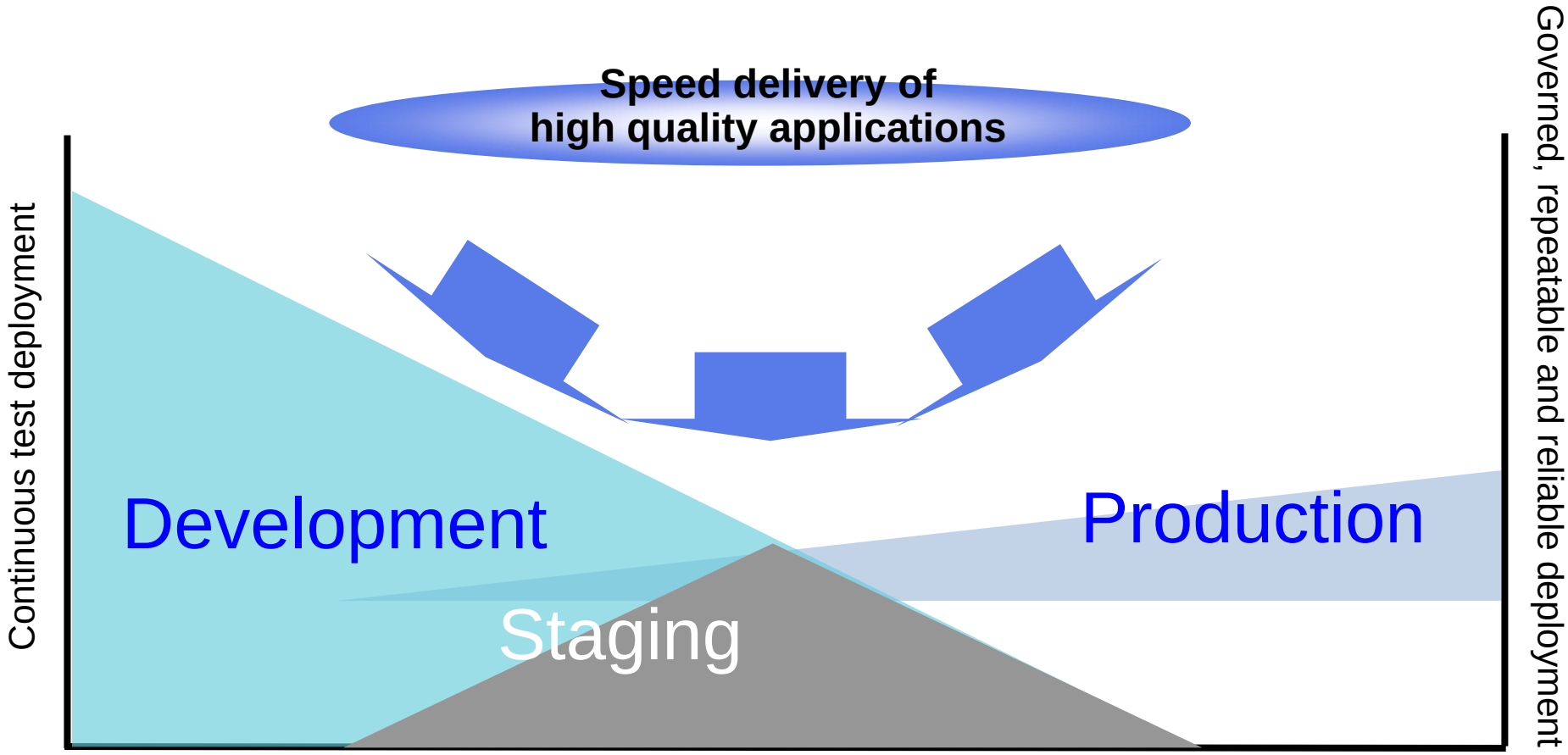
Deployment is a complex problem

- **Development and Operations teams collaboration challenges**
  - Hand-off from development teams is inconsistent and manual
  - Application component requirements do not match IT infrastructu
- **Deployment requirements are difficult to validate**
  - Enterprise, Software & IT architects all use different formats
  - No standardization or templates for reuse
- **Complex series of steps**
  - Deployment engineers often execute manual steps
  - Not repeatable, prone to error
  - Automations are hard to build, maintain and reuse
  - Hard to tell what if the right things were installed



- ✓ 50% of applications put into production are later rolled back *(Gartner)*
- ✓ 60% - 80% of an average company's IT budget is spent on maintaining existing applications *(Intelligent Enterprise.com)*
- ✓ Software related downtime cost industries almost $300 billion annually *(CENTS - Comparative Economic Normalization Technology Study)*

Deployment Planning & Automation



Introducing IBM Deployment Planning and Automation

- **Plan** *your desired deployment using discovered resources and standard configuration templates*

Plan

- **Govern,** *catalog and share application artifacts, standard templates and deployment plans*

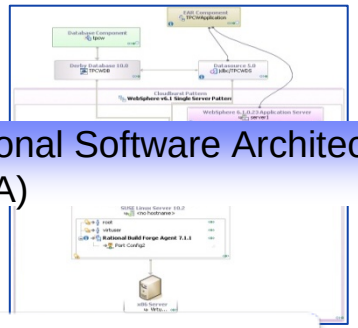
Govern

- **Automate** *infrastructure provisioning, middleware configuration, and application installation*

Automate

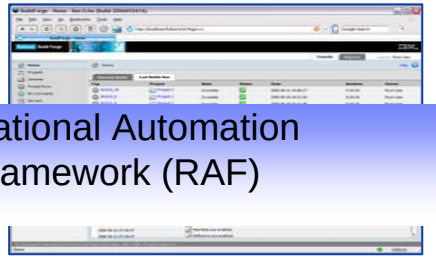
Speed the delivery of high quality applications to physical environments, virtual environments, and cloud environments

IBM Deployment Planning & Automation Product Mapping



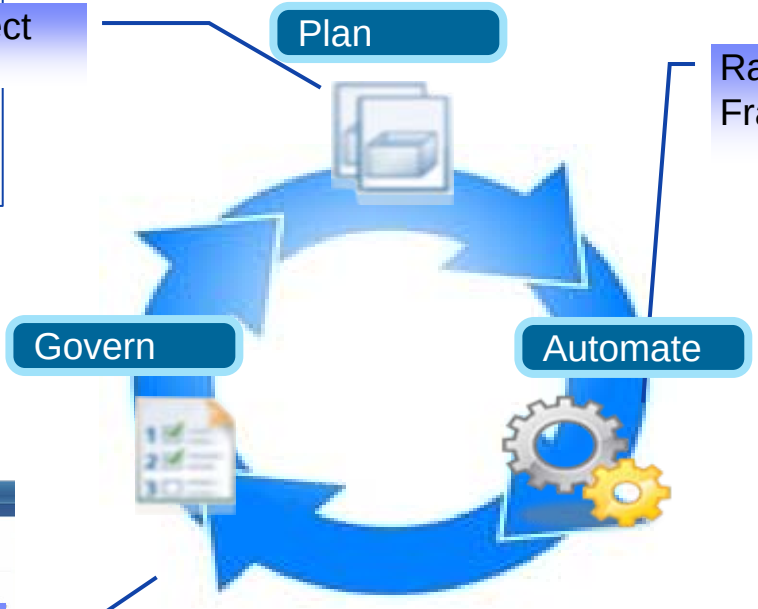
Rational Software Architect (RSA)

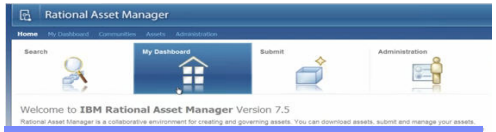
Proven templates and patterns to accelerate planning



Rational Automation Framework (RAF)

Drive automation with visual deployment plans



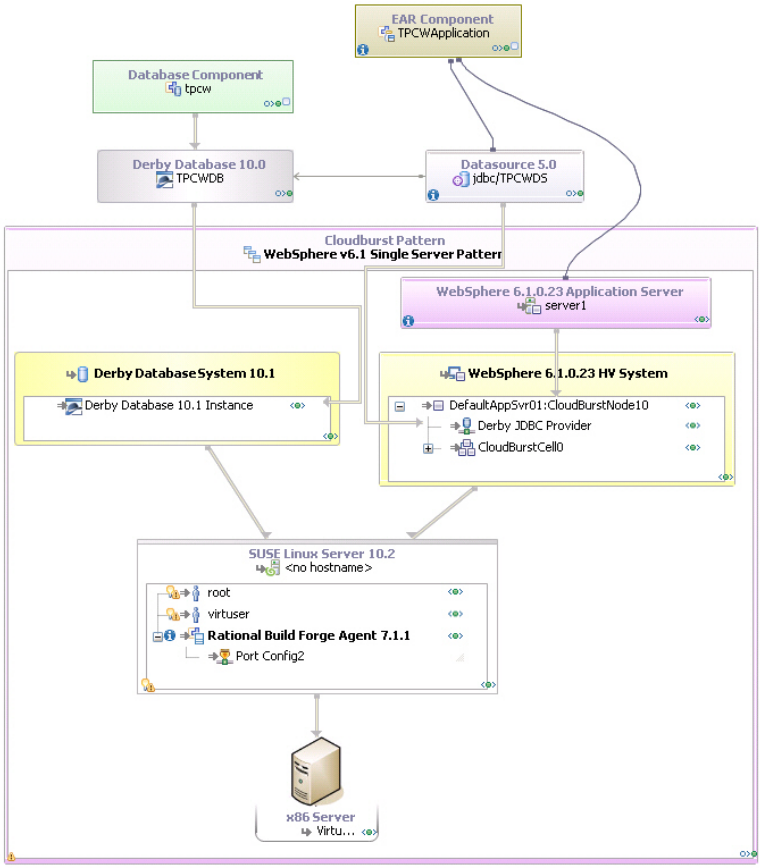


Rational Asset Manager (RAM)

Automate deployment using approved components from the governed catalog

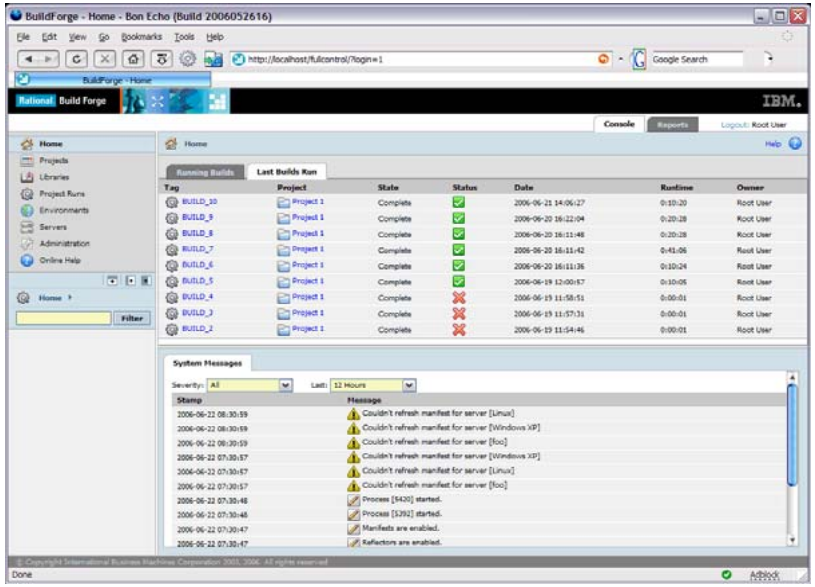
IBM Deployment Planning and Automation lifecycle

- **Rational Software Architect (RSA)** allows you to plan and validate deployment of applications and infrastructure as well as generate and publish workflows to drive automation and the creation of service templates.

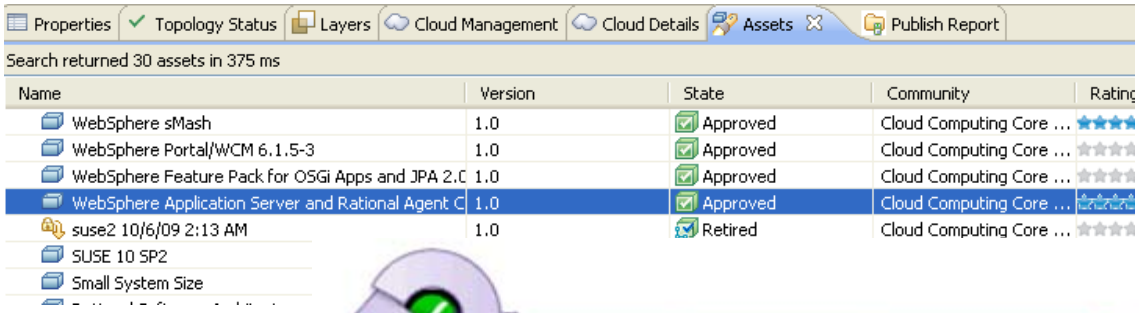


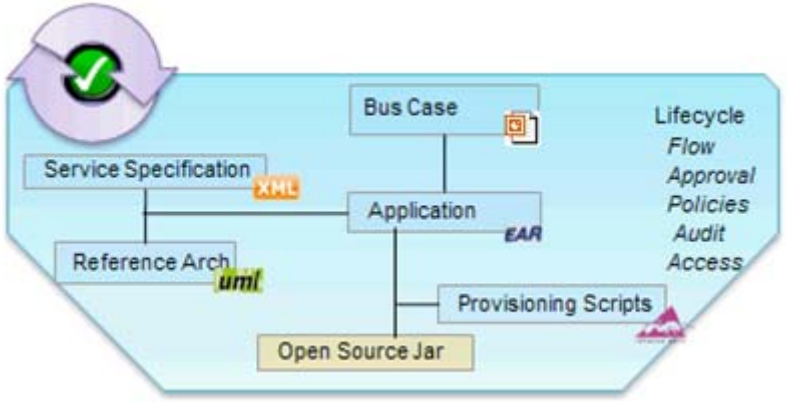
IBM Deployment Planning and Automation lifecycle

- Within **Rational Automation Framework (RAF),** you can work from the published deployment workflow from RSA, refine it as required, and save it as an asset. The RAF automation engine will then perform automation activities to configure the middleware and deploy the application.



IBM Deployment Planning and Automation lifecycle

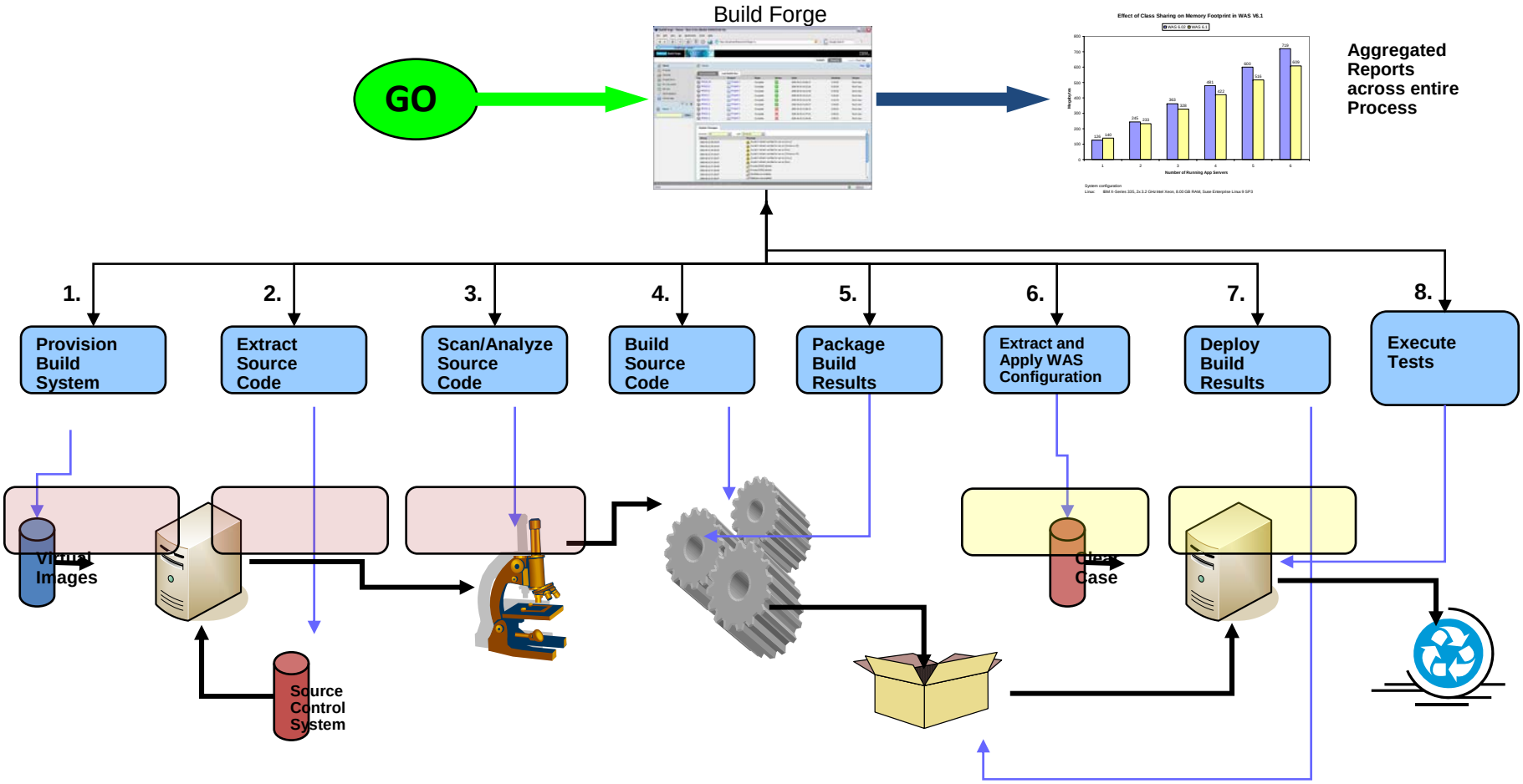




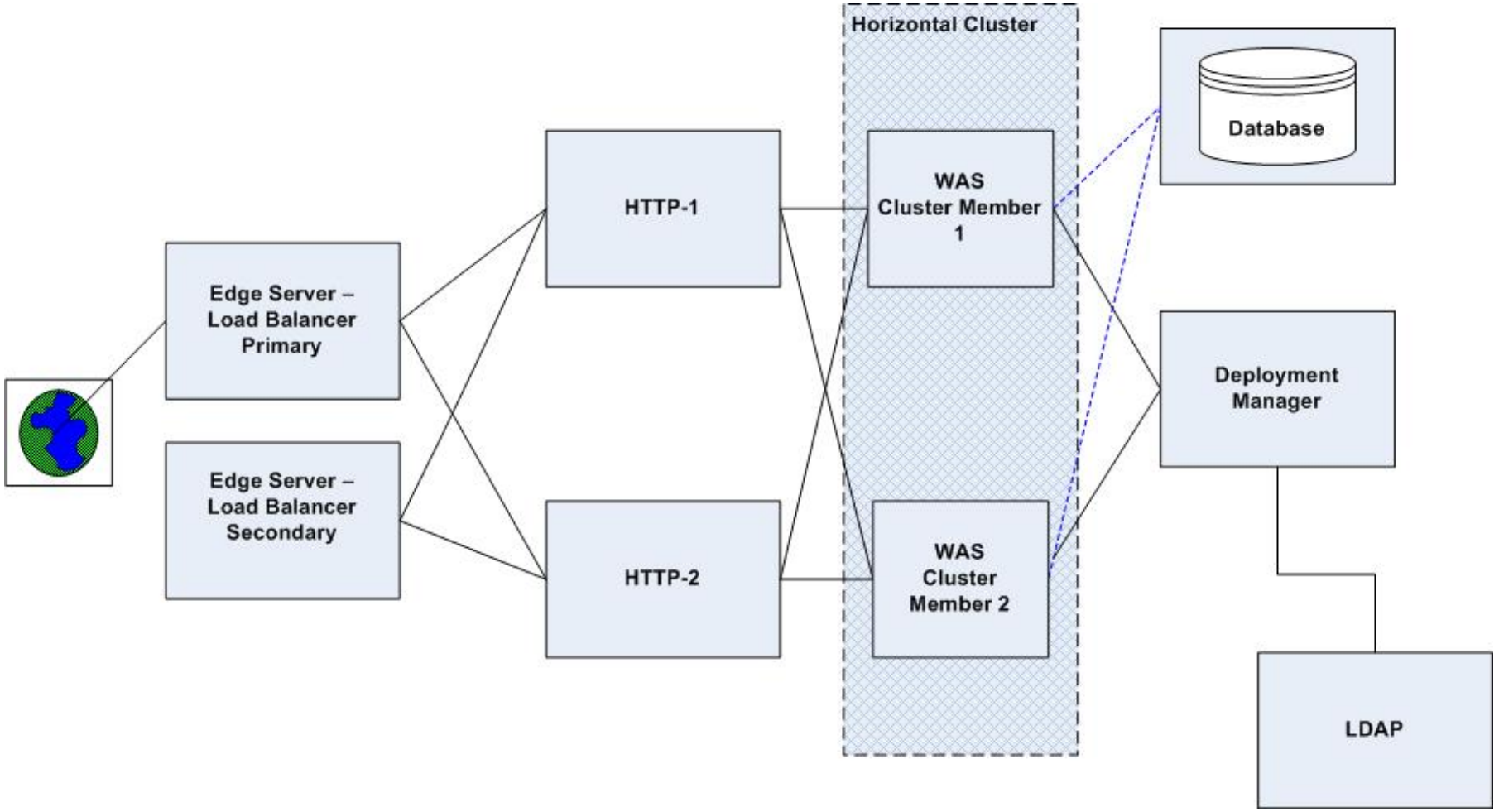
Catalog, Govern and Share assets

- **Rational Asset Manager (RAM)** provides a definitive library for your assets enabling strategic reuse:
  - **Catalog** enables effective search and availability of assets
  - **Govern** assets using automated reviews and policies
  - **Share** assets easily using web, rich client or integrations

Example: Automation with RAF



Why RAF Matters? Set up a simple WAS cluster

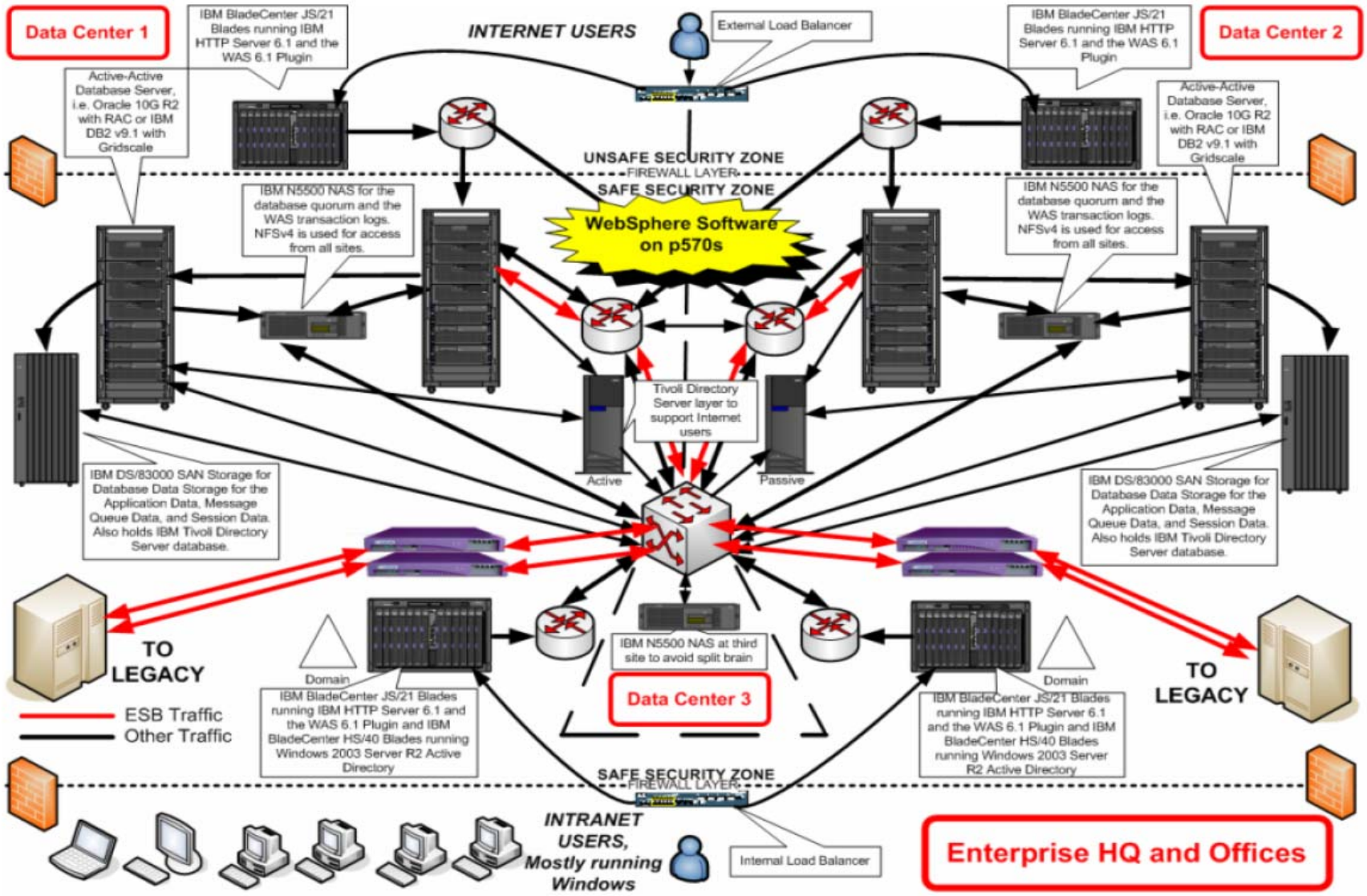


Why RAF Matters? Behind the scenes

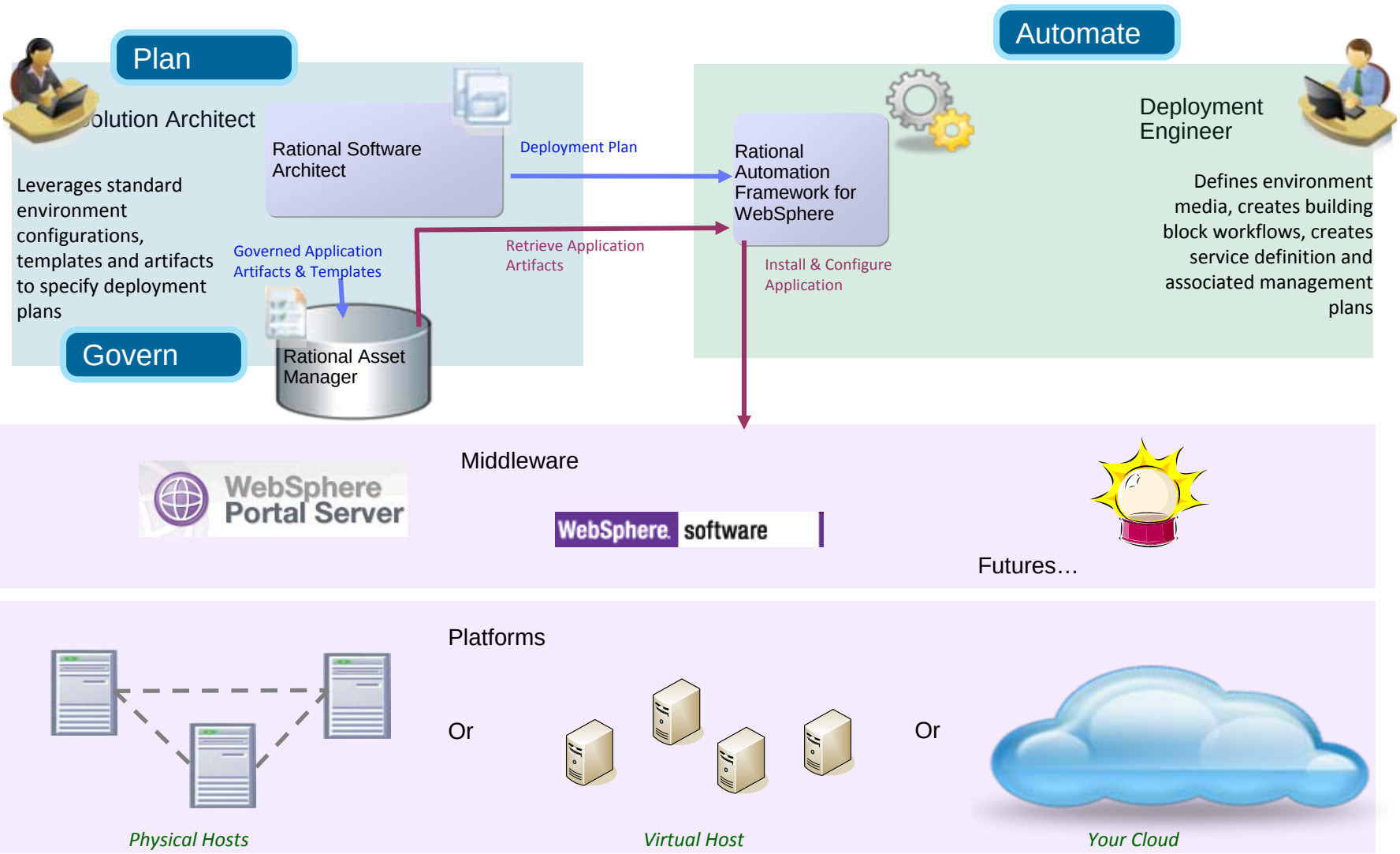
Total Steps = 150+

- Perform pre-installation tasks (05 steps)
- Create, configure, and verify deployment manager profile (20 steps)
- Create, configure, and verify application server profile (12 steps)
- Create, configure, and verify custom profile (10 steps)
- Federate nodes (both app server and custom profiles) (14 steps)
- Install, configure, and verify IBM HTTP server (14 steps)
- Install the distributed remote plug-in (20 steps)
- Create and configure the horizontal cluster (High Availability) (17 steps)
- Enable and configure HA persistent service (09 steps)
- Configure HTTP session persistence (41 steps)
  - Memory-to-memory (20 steps)
  - Database (21 steps)
- Create and configure SIBus and messaging engine (5 steps)

Why RAF Matter? consider something more complex, but typical….!

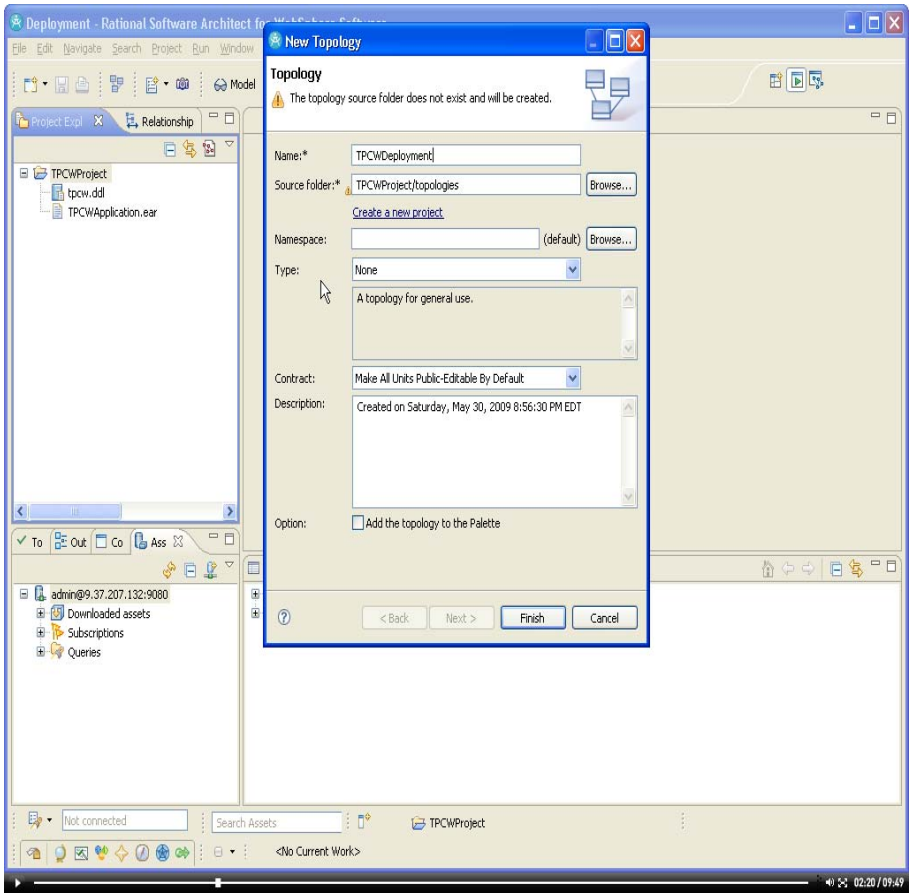


Deployment Planning & Automation Scenario Flow



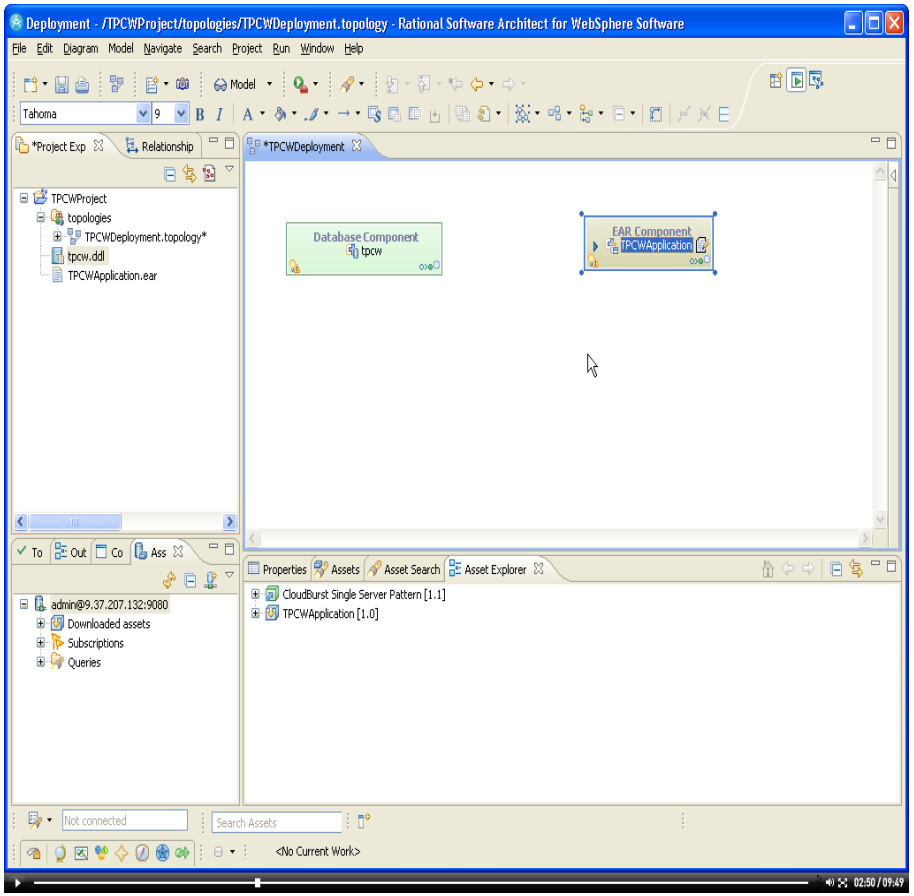
Demo - Deployment Planning & Automation

- User creates a new deployment topology in Rational Software Architect
- The topology will be used to capture
  - Software to be installed
  - Target virtual environment
  - Configurations necessary for the software



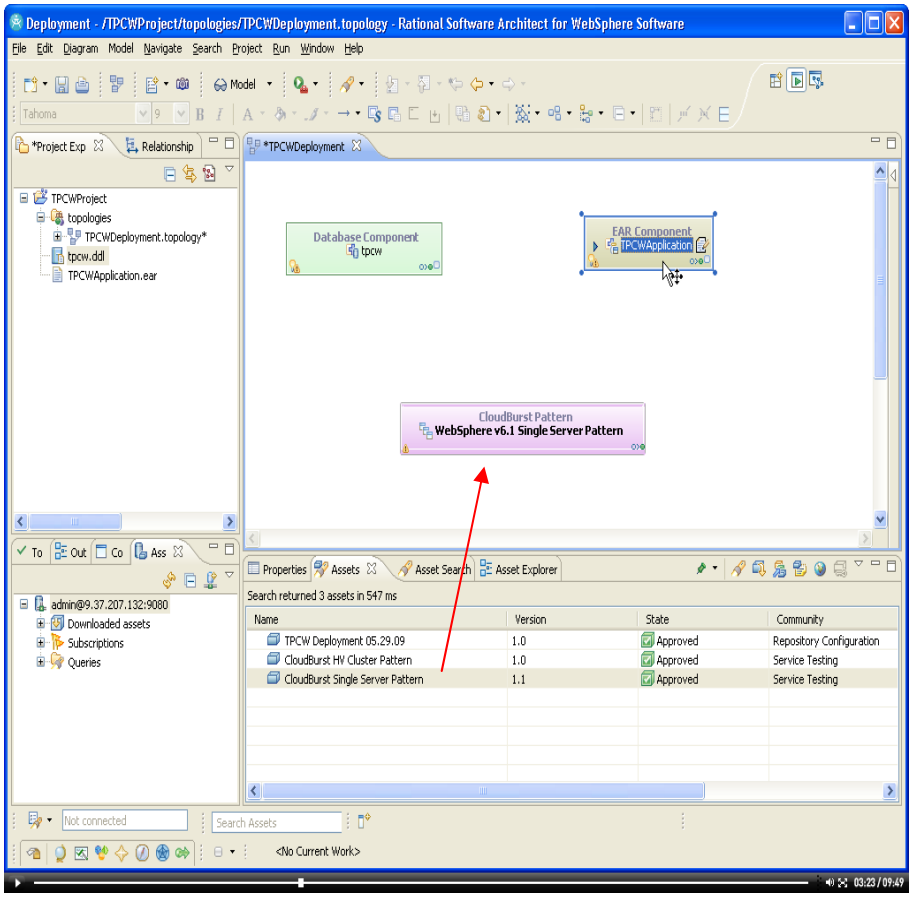
Demo - Deployment Planning & Automation

- User drags application components from the Project Explorer onto the topology
  - Applications may be retrieved from a Rational Asset Management repository
  - Structure and deployment requirements are discovered for JEE applications and database files



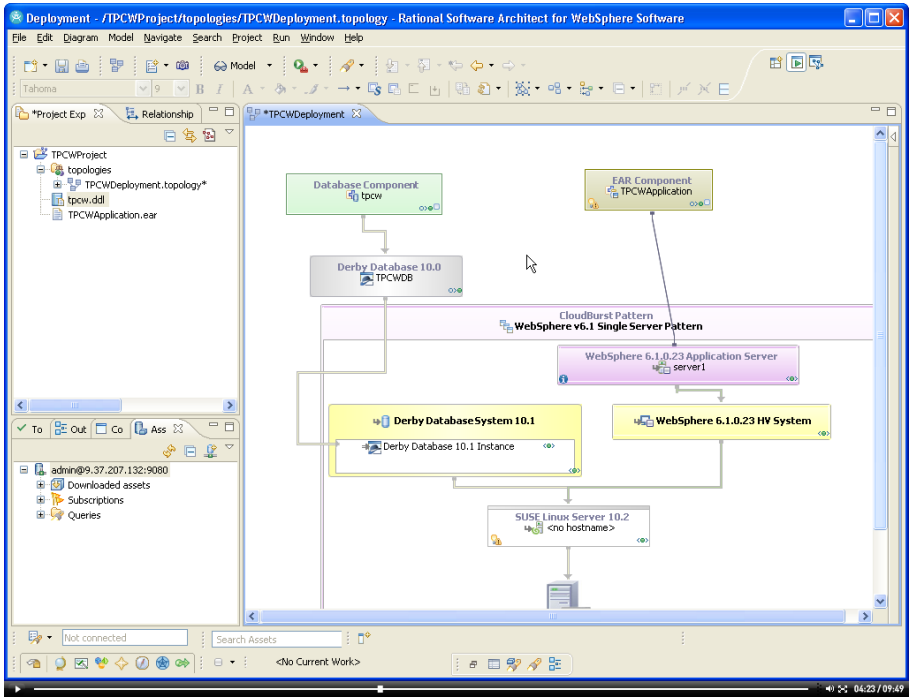
Demo - Deployment Planning & Automation

- Target virtual images can be defined as templates in the RAM repository
- Users can search for available image templates and drag them onto the topology
  - Image structure is rendered on the topology
  - All formatting is preserved from the template asset



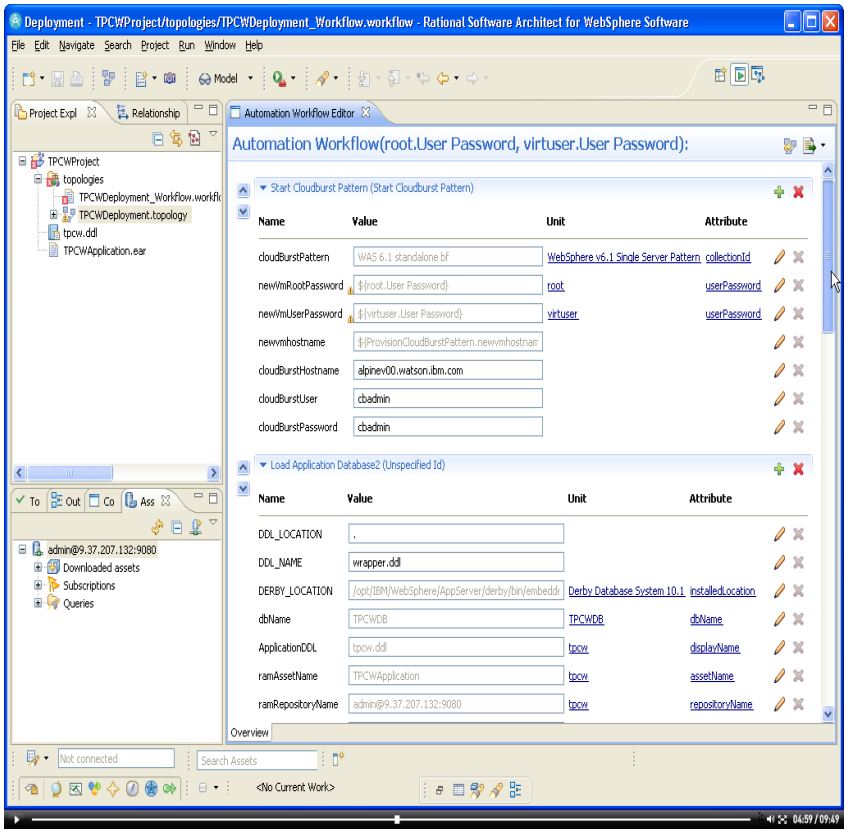
Demo - Deployment Planning & Automation

- Using constraints, resolutions, and/or link creation tools the user is able to define where the software components will be installed in the image
  - Note, the image has semantic data defining its contents
- Additional configuration information is defined
  - User is guided by validation messages within the topology



Demo - Deployment Planning & Automation

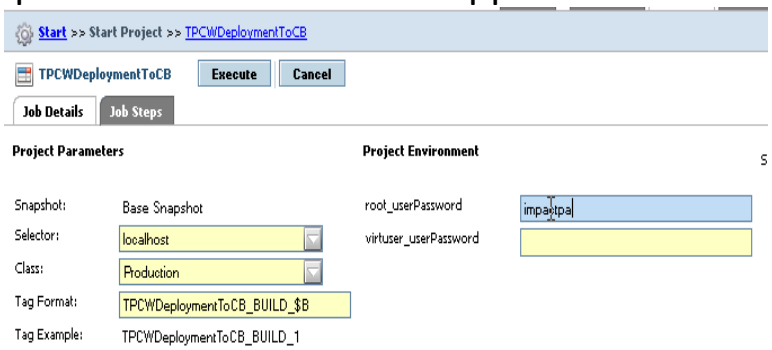
- Leveraging pre-defined automation signatures, the user can generate an Automation Workflow
  - The workflow analysis uses pattern matching to select automation workflows from the pool of available automation signatures
- The Automation Workflow does
  - Select automation signatures for units having a state change
  - Order automation signatures based on semantics in the topology
  - Automatically maps automation signature parameter values to properties defined in the topology
- Users can manually add more signatures, reorder signatures, change values, add parameters, and switch actors
  - Actors define which server and user will be used to run the automation step
- The workflow can be refreshed as property values change in the topology

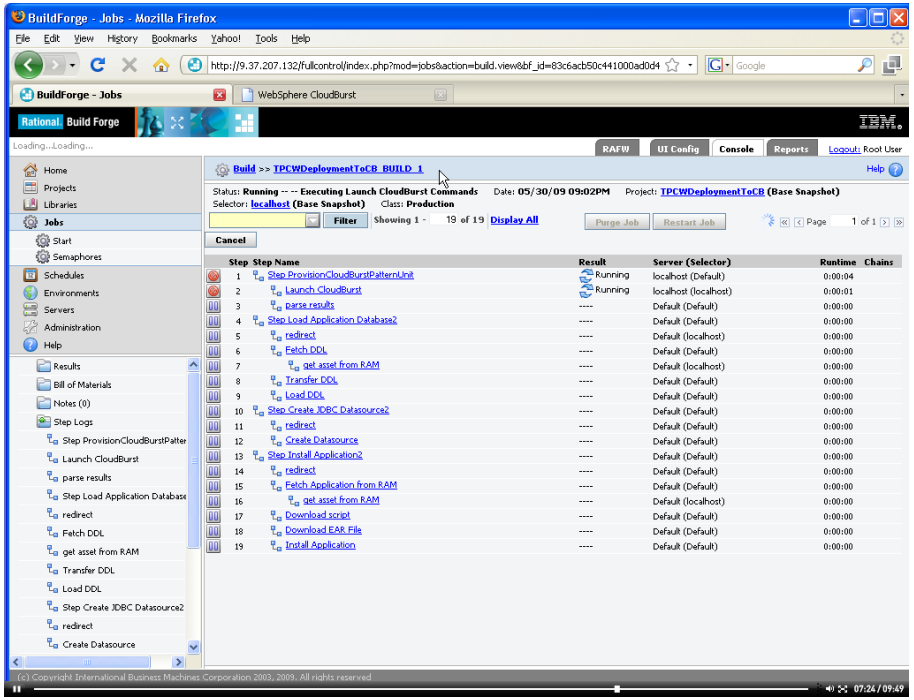


Demo - Deployment Planning & Automation

- The project may now be executed which starts the provisioning process
  - Integration with RQM will allow this project to be invoked by a tester from within the test management solution

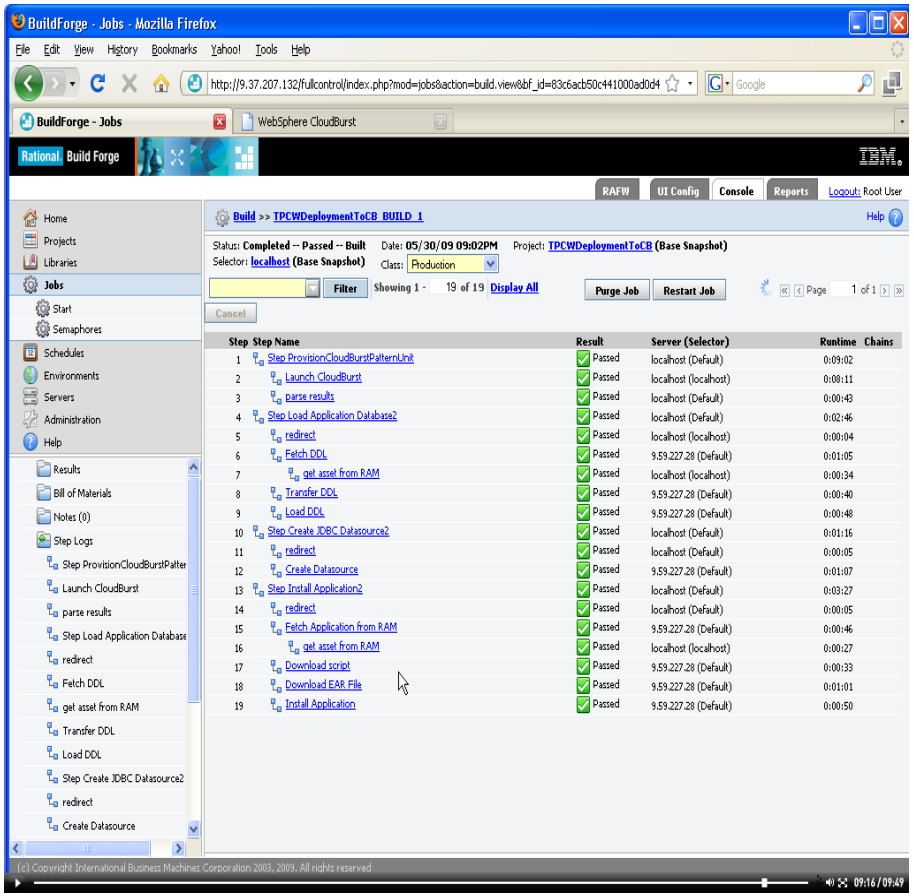
- Any workflow parameters are now shown as parameters that can be supplied when





Demo - Deployment Planning & Automation

- The remaining steps execute and now the environment with the software is running and ready to use

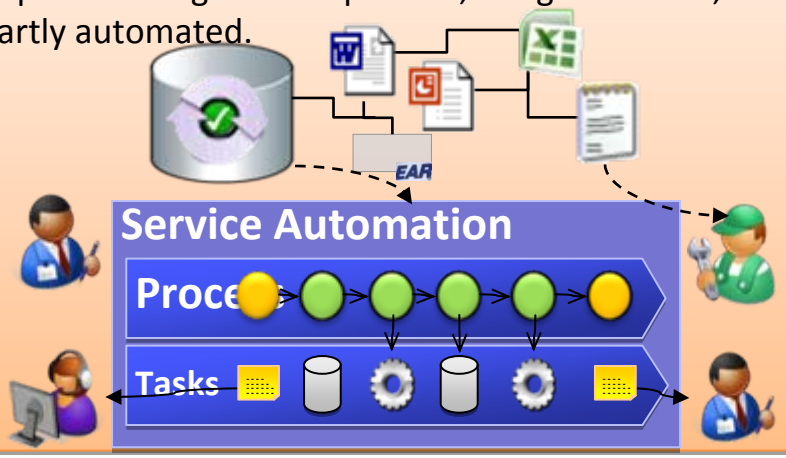


Deployment Planning & Automation Incremental Value

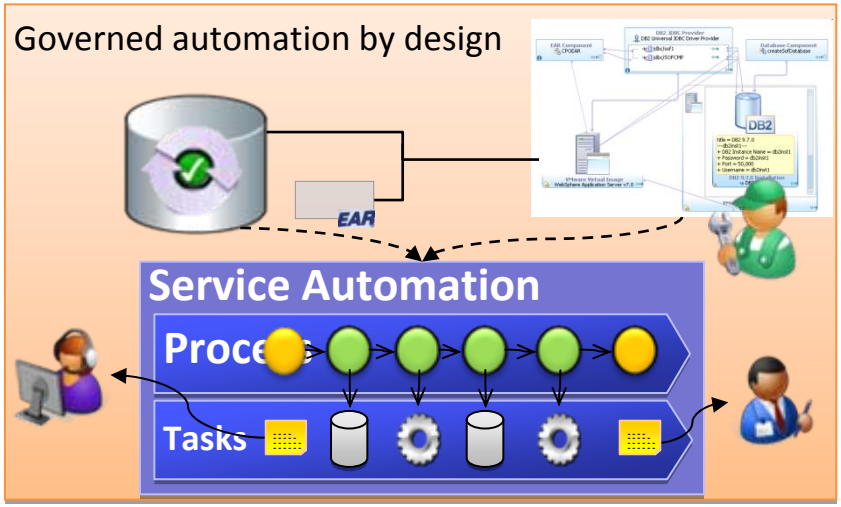
Governed Automation

Governed Planning

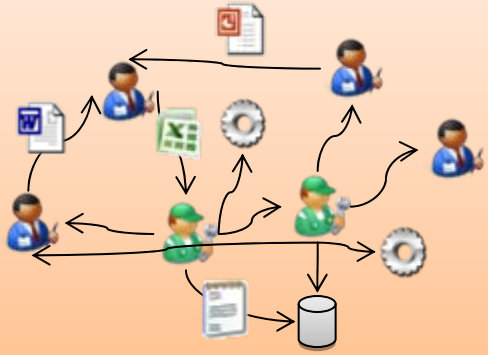
Implemented governed process, integrated data, partly automated.



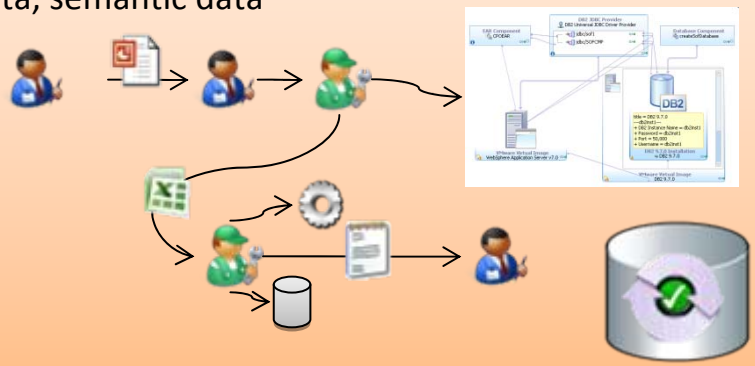
Governed automation by design



Non-governed process, free-form data



Governed process, asset management, free-form data, semantic data



IBM
See
Touch
Feel
IBM Technical Exploration Center
2010
2011
SINGAPORE - MALAYSIA - THAILAND - PHILIPPINES - INDONES
Instrumented
Interconnected
Intelligent
www.ibm.com

Mobile App Question

- Which are the **three** areas of deployment does the IBM Rational Deployment Planning and Automation Solution address?

  A) Design, Develop and Deploy

  B) Plan, Automate and Governance

  C) Collaborate, Develop and Automate

Mobile App Question

- Which are the **three** areas of deployment does the IBM Rational Deployment Planning and Automation Solution address?

A) Design, Develop and Deploy

B) Plan, Automate and Governance

C) Collaborate, Develop and Automate

www.ibm.com/software/rational

www.ibm.com/software/rational

© Copyright IBM Corporation 2011. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, Rational, the Rational logo, Telelogic, the Telelogic logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.