

Deployment Planning and Automation Solution from Rational and Tivoli

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PCTY2011 

Pulse Comes to You

Optimising the World's Infrastructure

Please note:

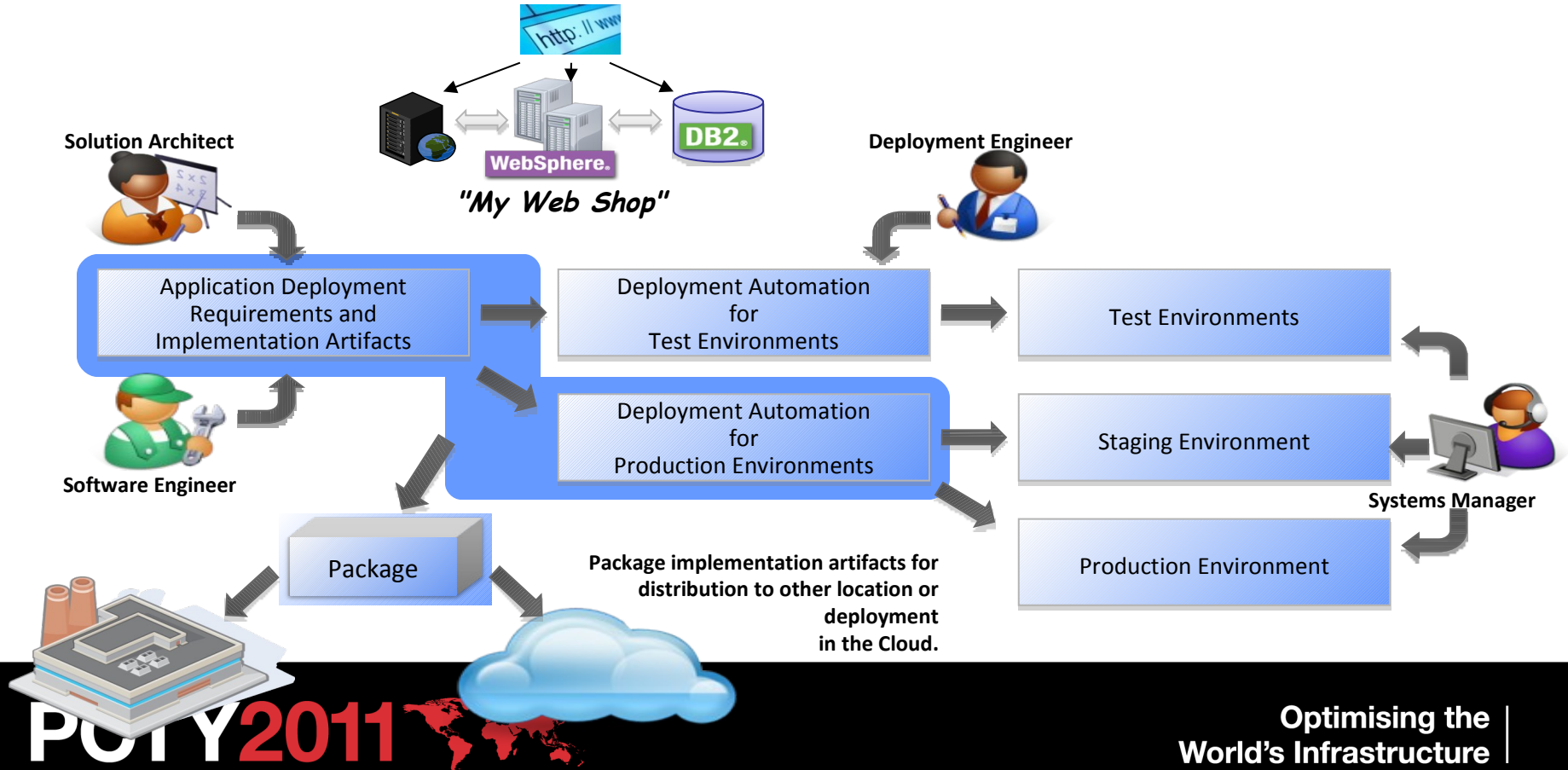
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Agenda

- The Problem
- The IBM Solution
- Demo
- Summary



Example Scenario



Deployment is a Complex Problem

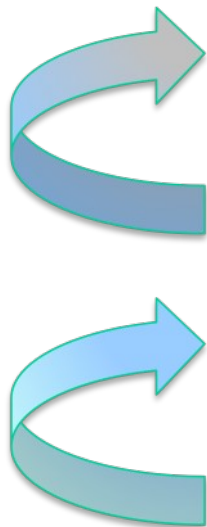
- **Development and Operations teams collaboration challenges**
 - Hand-off from development teams is inconsistent and manual
 - Application component requirements do not match IT infrastructure
- **Deployment requirements are difficult to validate**
 - Enterprise, Software & IT architects all use different 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*)

Variability During Development Lifecycle

Standardize & Simplify



Quickly Changing Stuff

- Example: The component(s) under development
- Impossible to standardize the bits
- Desirable to standardize the deployment automations

Stuff with unknown change rates

- Example: OS, Middleware, dependent components
- Reasonably easy to automatically deploy
- High variability hinders automated deployment *of the next level*

Slowly Changing Stuff

- Example: the processor architecture
- Easy to standardize
- Easy to automatically deploy
- Because this is standard, it is easy to automate deployment *of the next level*

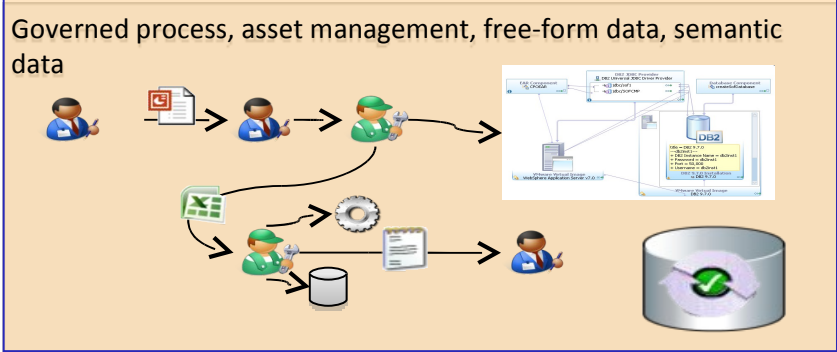
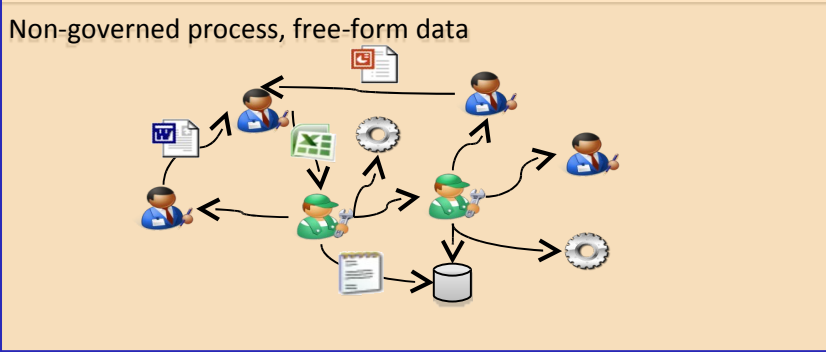
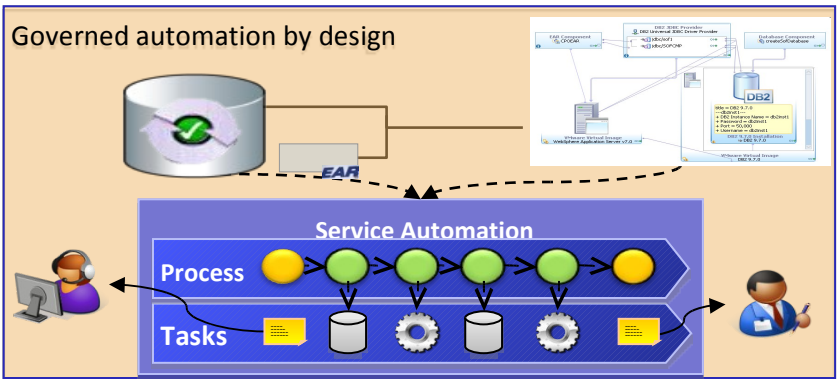
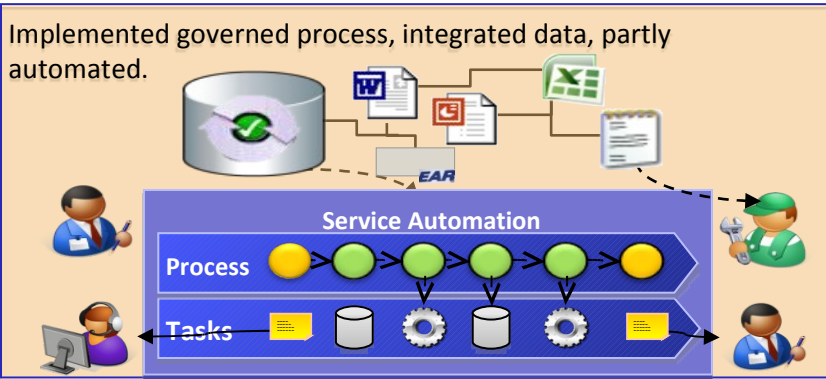


The IBM Solution

Integrated Rational and Tivoli tools

Introduction of Service Automation is an Evolutionary Process

derr evo G



Governed Planning

IBM Deployment Planning and Automation

An Integrated Solution

- **Plan** composite application deployments using organizational standards
 - Reduce time and errors
 - Improve communication
- **Automate** infrastructure provisioning, middleware configuration, and application installation
 - Repeatedly setup standardized environments
 - Remove costly manual errors
 - Reduce provisioning times
- **Govern** and application artifacts, standards, and deployed resources
 - Adhere to organizational standards



Scenario



Application Architect

Describe the topology that captures the deployment requirements for a composite application.

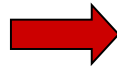
Would love to

- Reuse known good plans and assets
- Discover existing resources vs guess

Deployment Plan



Application Artifacts and Templates



Plan and create workflows



Provision platform and install/configure application

Deployment Engineer



Defines environment media, creates building block workflows, creates service definition and associated management plans

Deployment Environments



Physical Hosts

Or



Rational



Portal



DB2



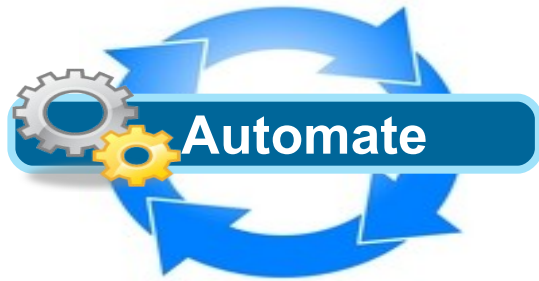
WAS

Virtual Host

Or



Cloud

Two screenshots of software interfaces. The top one is IBM Build Forge showing a table of build jobs. The bottom one is Tivoli Service Automation Manager showing a dashboard with various management options.

Tag	Project	Status	Message	Date	Runtime	Owner
BUILD_10	Project 1	Complete	✓	2006-06-20 14:06:27	0:05:20	Root User
BUILD_9	Project 1	Complete	✓	2006-06-20 16:20:24	0:26:28	Root User
BUILD_8	Project 1	Complete	✓	2006-06-20 16:11:48	0:26:28	Root User
BUILD_7	Project 1	Complete	✓	2006-06-20 16:11:42	0:41:46	Root User
BUILD_6	Project 1	Complete	✓	2006-06-20 16:11:24	0:15:24	Root User
BUILD_5	Project 1	Complete	✓	2006-06-19 12:09:57	0:03:05	Root User
BUILD_4	Project 1	Complete	✓	2006-06-19 11:58:51	0:00:01	Root User
BUILD_3	Project 1	Complete	✓	2006-06-19 11:57:31	0:00:01	Root User
BUILD_2	Project 1	Complete	✓	2006-06-19 11:54:46	0:00:01	Root User

Tivoli Service Automation Manager's Approach for IT- and Cloud Service Management

Roles and Responsibilities

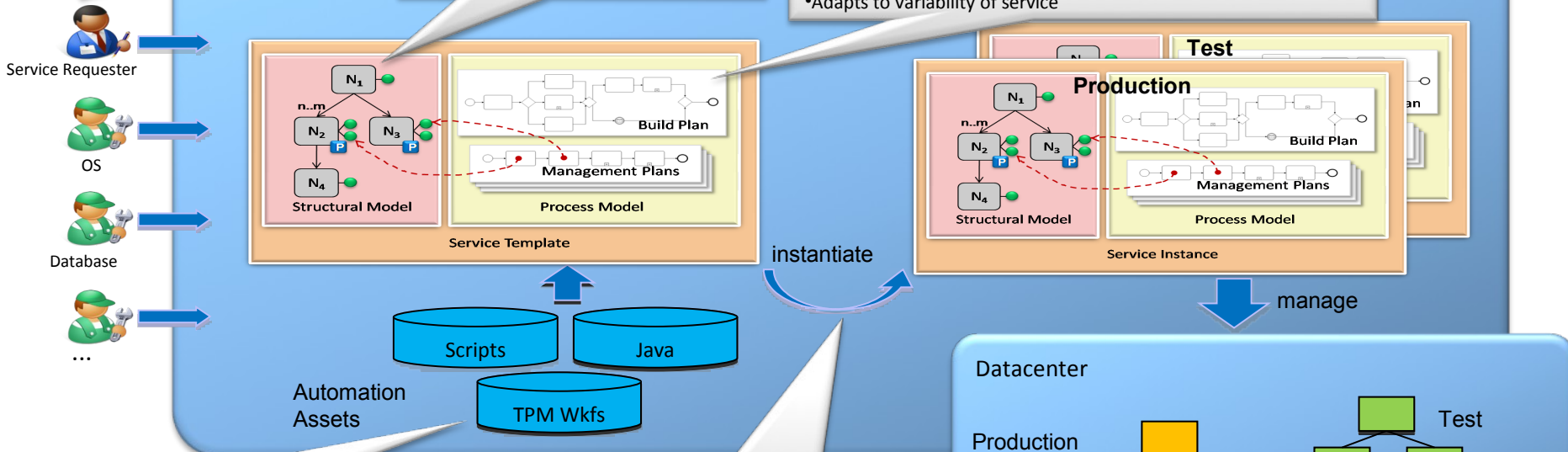
- Role-based access to model
- Role-based tasks

Service Templates

- Structural model and management process model
- Including points of variability

Management Plans

- Best-practices process model for instantiating, managing and terminating services
- Defines process and data flow
- Adapts to variability of service

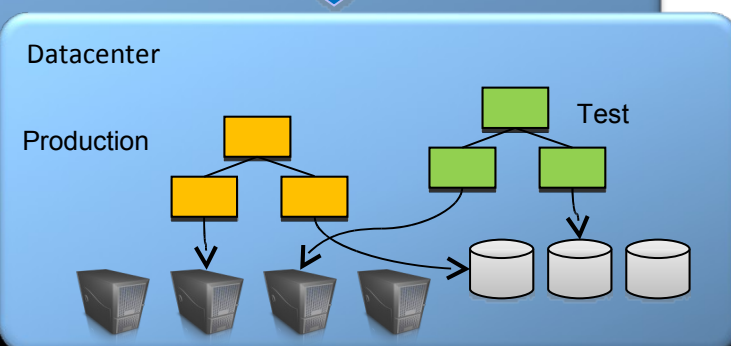


Automation Assets

- Plugged into management plans
- Integration with TPAe-internal automation tools (e.g. TPM)
- Integration of custom scripts

Parameterized Instantiation

- Fill in points of variability
- Select options
- Bind to concrete resources



Tivoli Service Automation Manager implements a holistic Model for Service Lifecycle Management

(1) Service topology templates capture IT- and Cloud Service reference architectures

- Service as a composition of its components, and their relationships and dependencies
- Configuration templates and allowed variations
- Including non-functional aspects and policies



(2) Integrate structural and management process models enable architecture-compliant automation

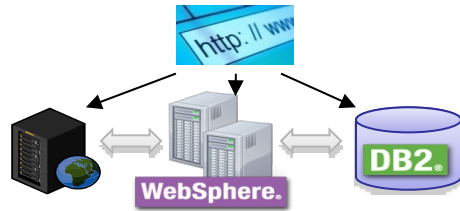
- Management processes as an orchestration over service components, invoking operations on service components
- Including integration into surrounding enterprise processes



(3) Service lifecycle management

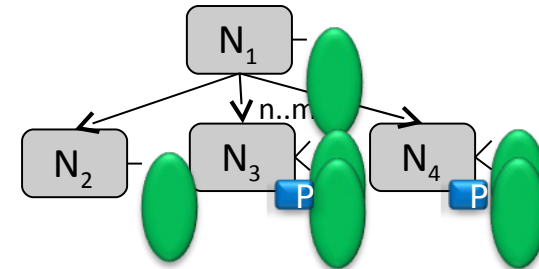
- Initial deployment of services
- Operational management of services

The IT Service Lifecycle Supported by Our Concepts

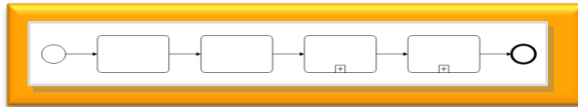


IT service to be managed with specific solution- and deployment architecture

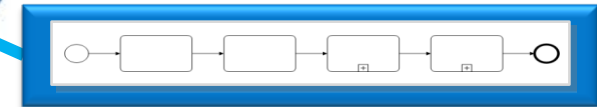
Design guidelines and programming models, integrated platform tooling



Service Template executable by service management runtime, capturing solution- and deployment architecture including variation options

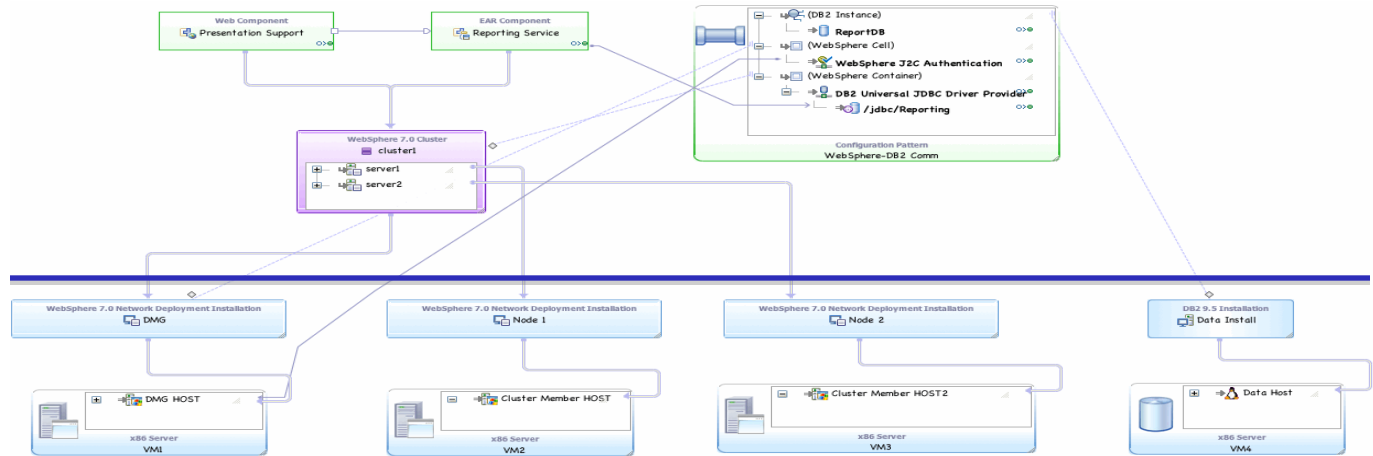
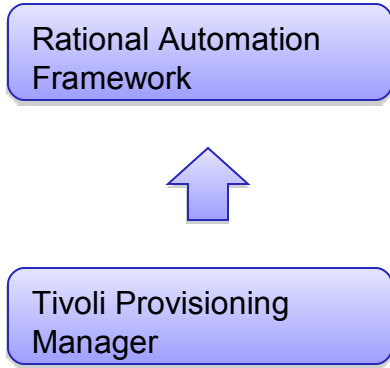


Management process model for the operational management of deployed service instances



Management process model for the template-based instantiation of service deployments

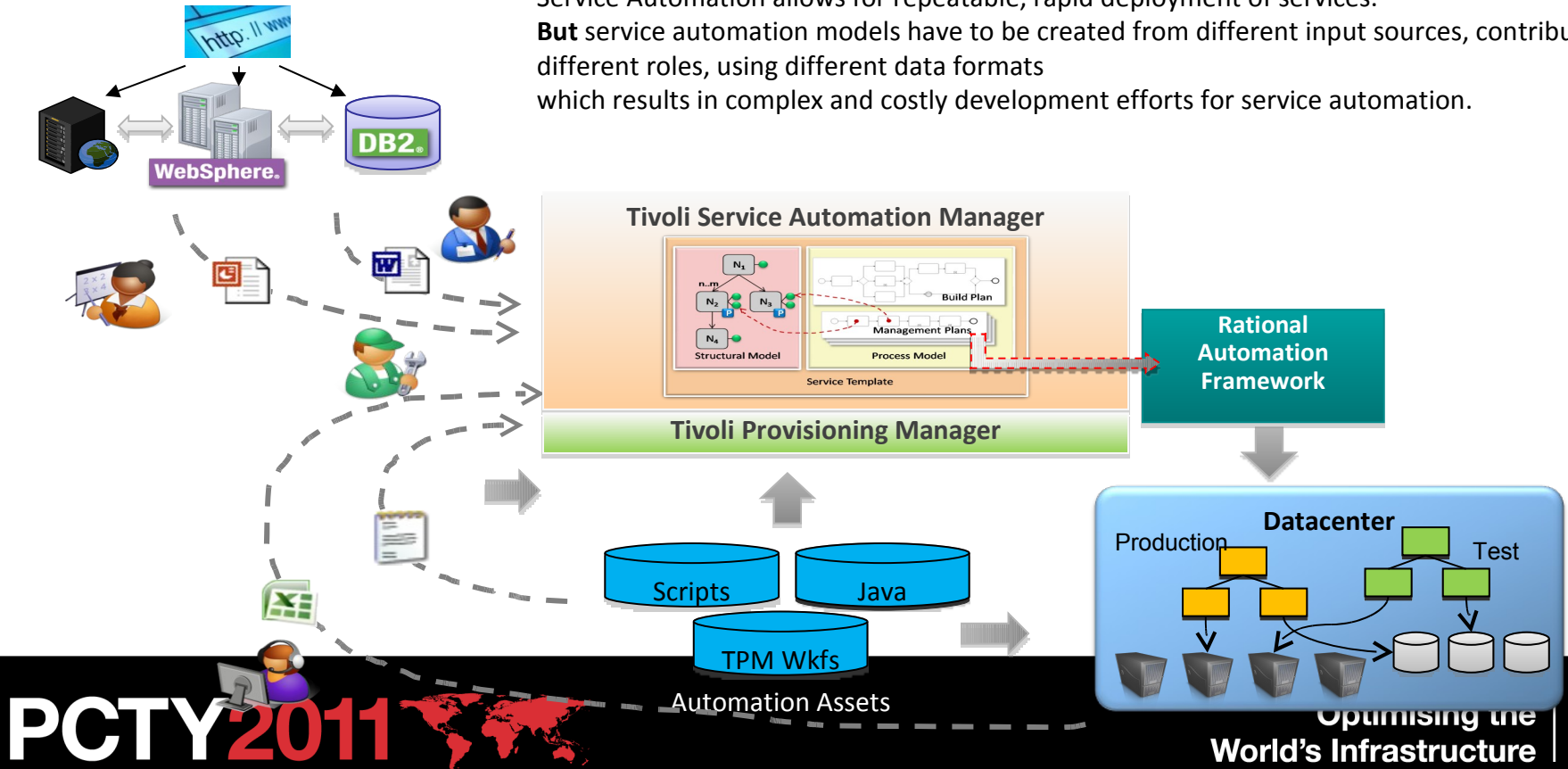
Tivoli Provisioning Manager and Rational Automation Framework Positioning



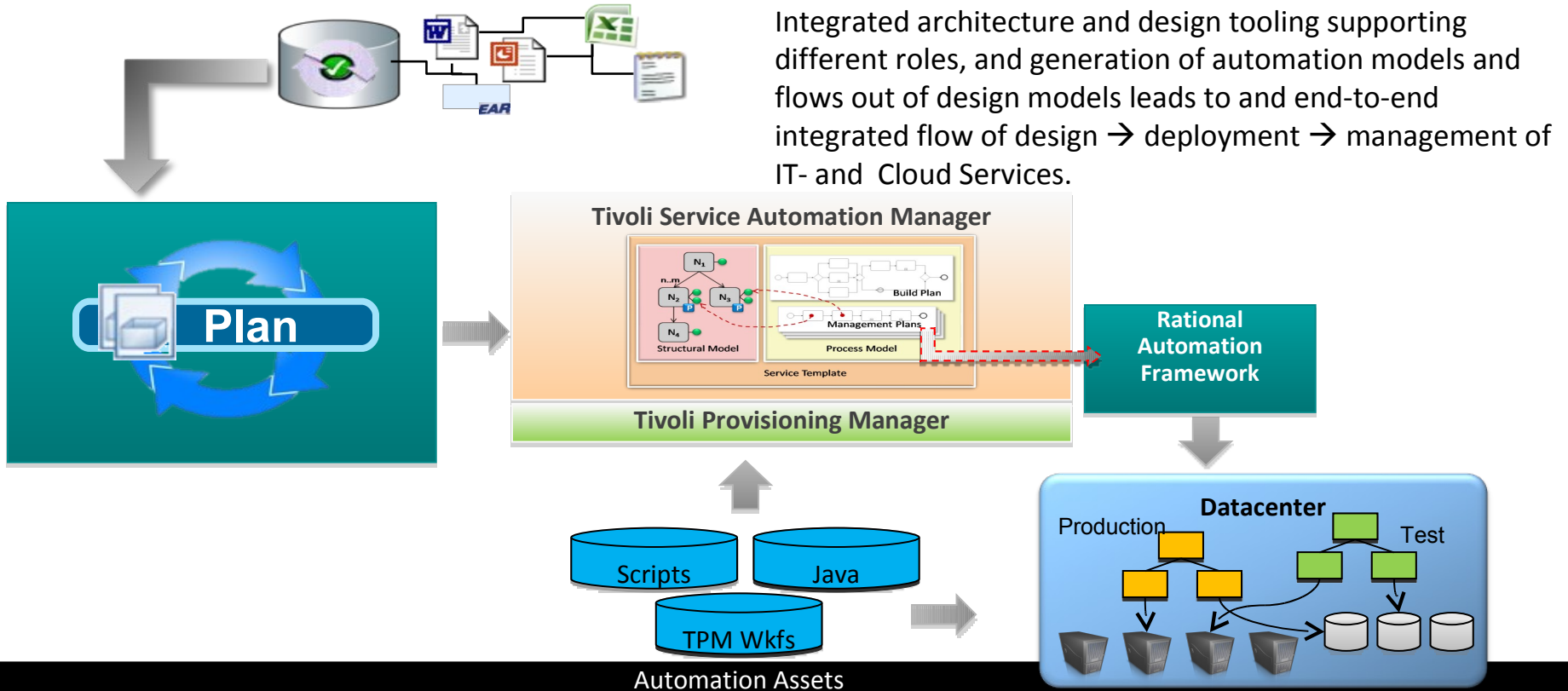
Rational Automaton Framework package available on Integrated Service Management Library to integrate TPM workflows with RAF workflows

The Remaining Challenge...

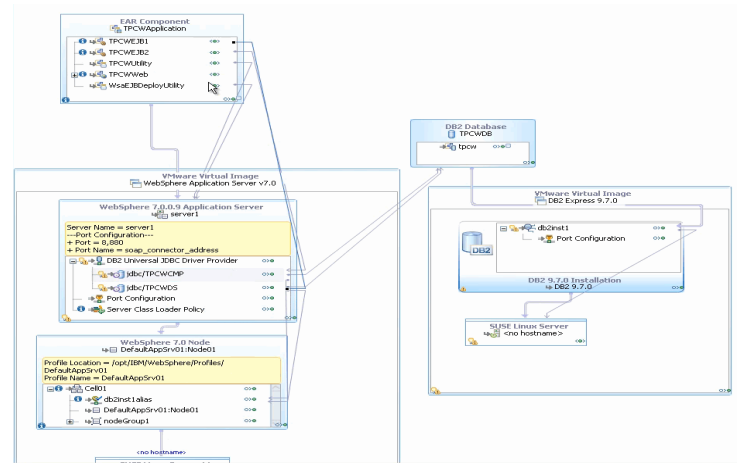
Service Automation allows for repeatable, rapid deployment of services. **But** service automation models have to be created from different input sources, contributed by different roles, using different data formats which results in complex and costly development efforts for service automation.



Automation by Design as the Next Step



Integrated architecture and design tooling supporting different roles, and generation of automation models and flows out of design models leads to an end-to-end integrated flow of design → deployment → management of IT- and Cloud Services.



Rational Software Architect

• Smarter IT Deployment Planning

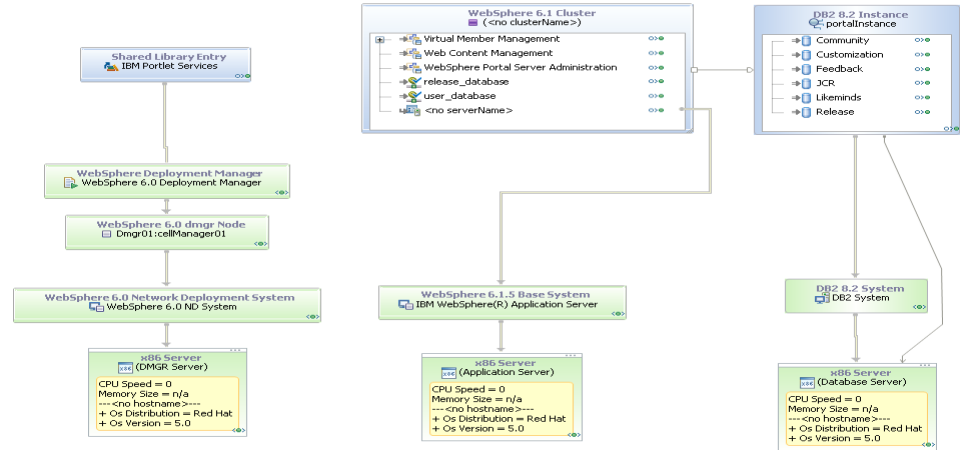
- Communicate and validate IT deployments to avoid costly problems late in the application lifecycle

• Deployment Template Design and Reuse

- Capture and reuse organizational standards to quickly and easily plan deployments

• Datacenter Discovery

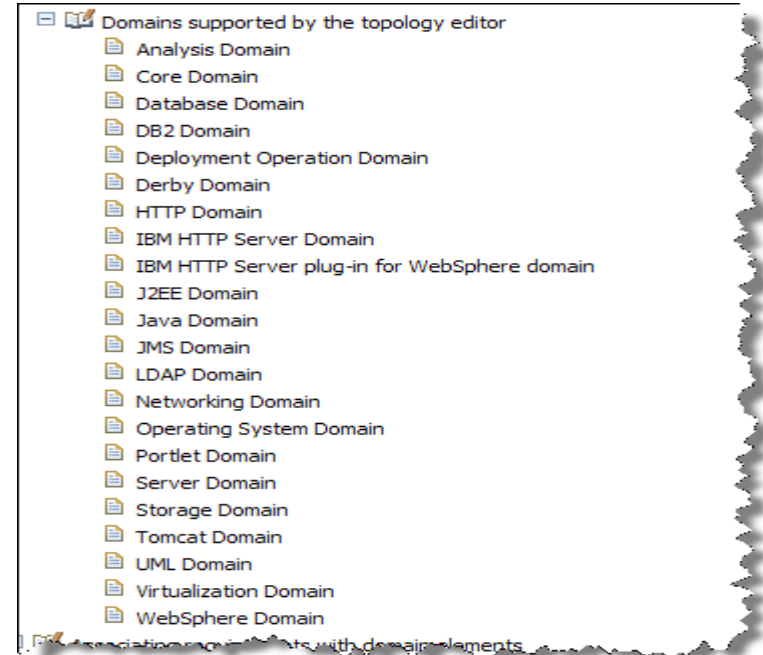
- Quickly construct a topology describing what you have in your infrastructure



RSA Extension for Deployment Planning

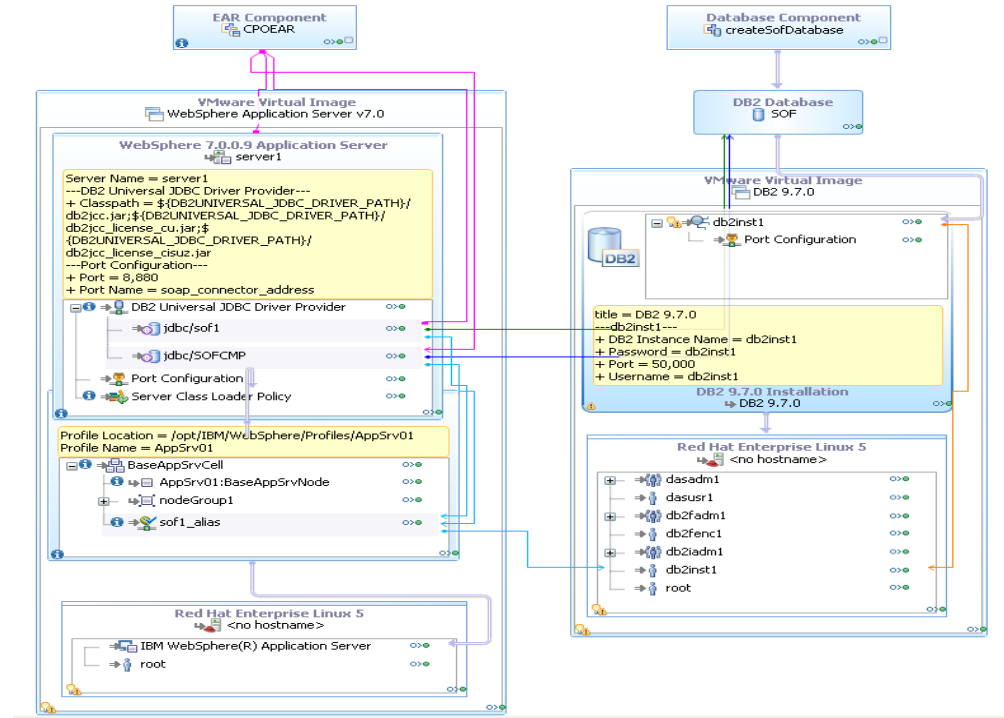
Deployment Planning Capabilities

- **Rich UI Diagramming**
 - Multiple views over the same data
 - Layers and re-usable appearances
 - Validation feedback in diagrams
 - Flexible representations
- **Backed by a rich semantic model**
 - Simple Extensible XML format
 - Dynamic extensions as well as static supported by a simple to use SDK
 - Technology domains (over 25 domains and growing)
 - Model changes reflected automatically in all diagrams
 - Constraints and validation with Quick Fix resolutions
- **Which can be reported upon**
 - BIRT report templates



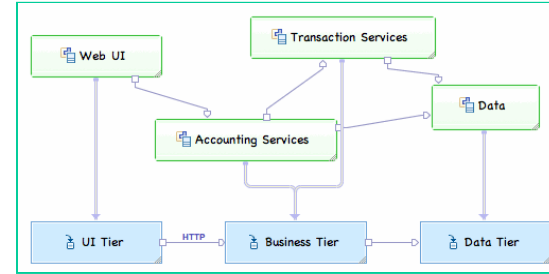
Automation By Design Focuses on Topology

- Specify resources to satisfy application needs such as datasources and authentication
- Incorporate assumptions about middleware such as version
- Describe dependencies between separate nodes in the Topology

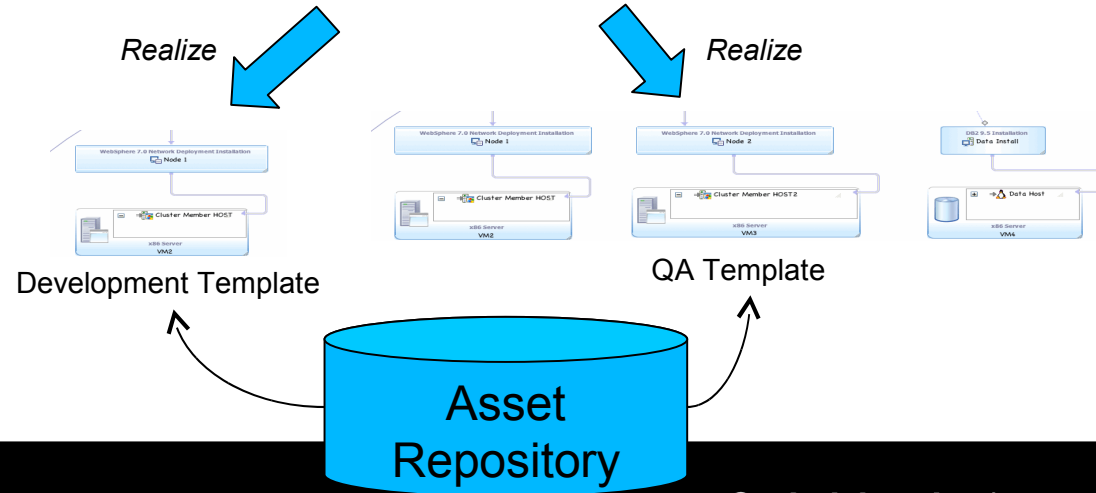


Standardize with Deployment Templates

- Define and capture organizational **standards** with deployment templates
- **Govern** using an asset repository
- **Reuse** to guide deployment placement and implementation choices
- Ideal for capturing **standard environment patterns** and configurations



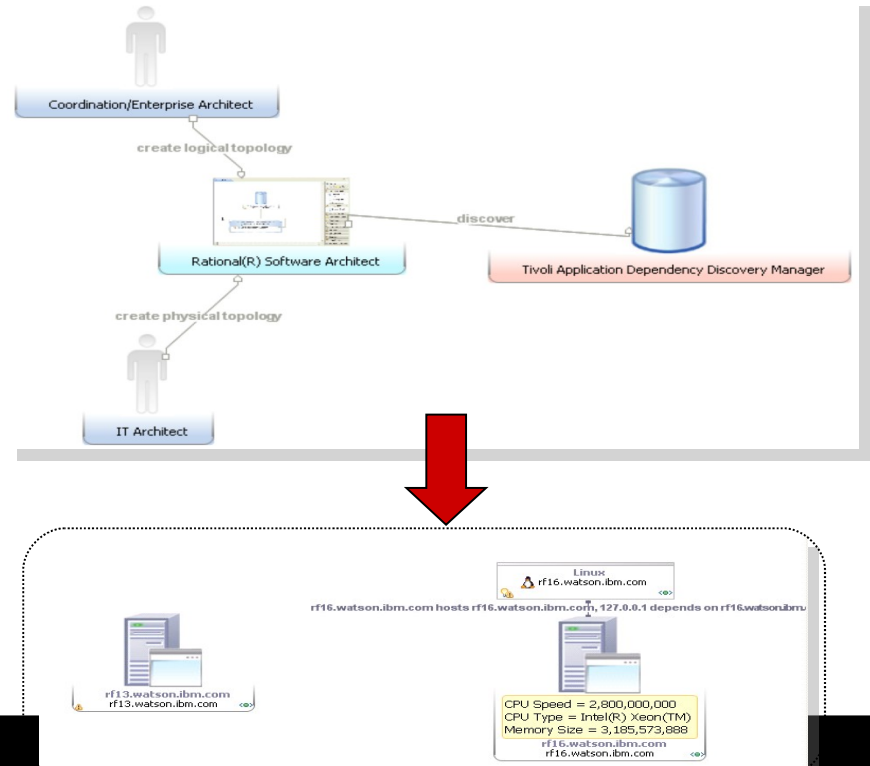
Application Topology



Datacenter Discovery

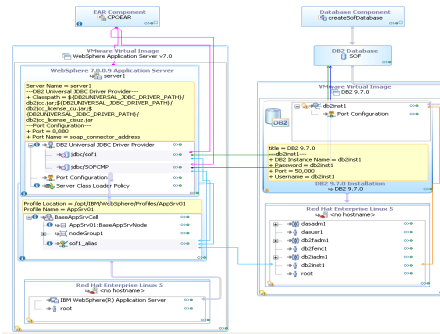
Leverage discovered operational data to expedite new designs & updates

- Reduce manual creation of topologies representing the current state of the datacenter
- Quickly understand structure of an existing datacenter
- Starting point for defining datacenter changes
- Import data from manually defined spreadsheets.



Plan Automation from Deployment Topology

- Parameters and configuration files derive their values from the model
- Single source of truth provides pre-deployment validation and problem identification
- Allows post-generation adjustments as needed



Deployment Topology

Reference

Analyze & Generate

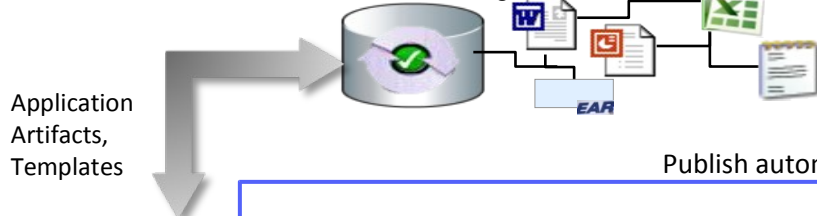
Name	Source	Attribute	Value
workflow			Provision_VM_in_TSAM
imageName	DB2_9.7.0	imageId	VMware Template - HBC_V_RHEL_S4_32-COE
instanceName	DB2_9.7.0	notes	DB2express971
imageServer			xs0526.spc.hursley.ibm.com

Name	Target	Attribute	Value
hostname	dbinst1	hostname	

Automation Plan

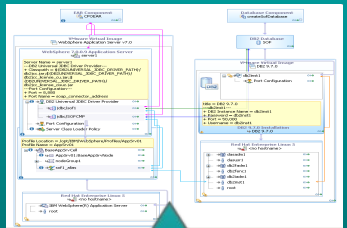
IBM Deployment Planning and Automation Architecture

Rational Asset Manager



IBM Deployment Planning and Automation for Cloud package available on Integrated Service Management Library to integrate TPM workflows with RAF workflows

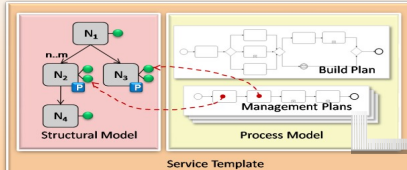
Rational Software Architect



Automation Signatures

Publish Topology Template and Mgmt Plans in common format

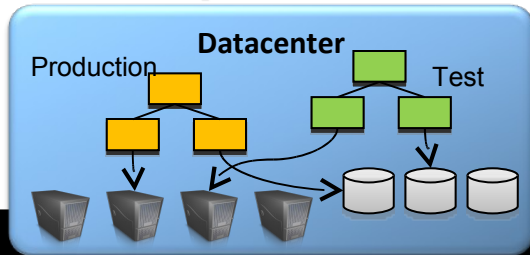
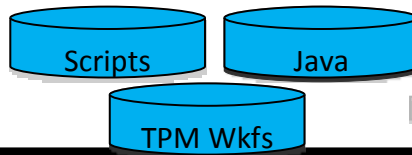
Tivoli Service Automation Manager



Tivoli Provisioning Manager

Rational Automation Framework

Automation tasks made available as



Optimising the World's Infrastructure



Properties Topology Status Layers Cloud Management Cloud Details Assets Publish Report

Search returned 30 assets in 375 ms

Name	Version	State	Community	Rating
WebSphere sMash	1.0	Approved	Cloud Computing Core ...	★★★★
WebSphere Portal/WCM 6.1.5-3	1.0	Approved	Cloud Computing Core ...	★★★★
WebSphere Feature Pack for OSGI Apps and JPA 2.0 1.0		Approved	Cloud Computing Core ...	★★★★
WebSphere Application Server and ...				
suse2_10/6/09 2:13 AM				
SUSE 10 SP2				
Small System Size				

Rational Asset Manager

Home My Dashboard Communities Assets Administration

Search My Dashboard Submit Administration

Welcome to IBM Rational Asset Manager Version 7.5

Rational Asset Manager is a collaborative environment for creating and governing assets. You can download assets, submit and manage your assets, and review, rate, and discuss assets. Administrators configure the repository with asset types, category schemas, review processes, and user roles. Use the links on this page to get started or learn more.

Announcements
There are currently no announcements.

What's New

- Add OpenSocial gadgets to assets**
Eclipse MySocial gadgets get the General Details page of an asset or put Rational Asset Manager gadgets on other containers. [Read more](#)
- Share forums between communities**
To better collaborate with other teams, you can now share a forum across multiple communities. [Read more](#)
- Generate OAuth consumer keys for other applications**
You can now generate OAuth consumer keys and secrets so that other applications can access information on this repository. [Read more](#)
- Integrate with Lotus Connections**
View Profiles business cards for users and add an iWidget to a Lotus Connections community. [Read more](#)
- Rational Team Concert™, Rational Quality Manager, and Rational Requirements Composer**
Create links to resources in IBM Rational Quality Manager and IBM Rational Requirements Composer, in addition to IBM Rational Team

Learn

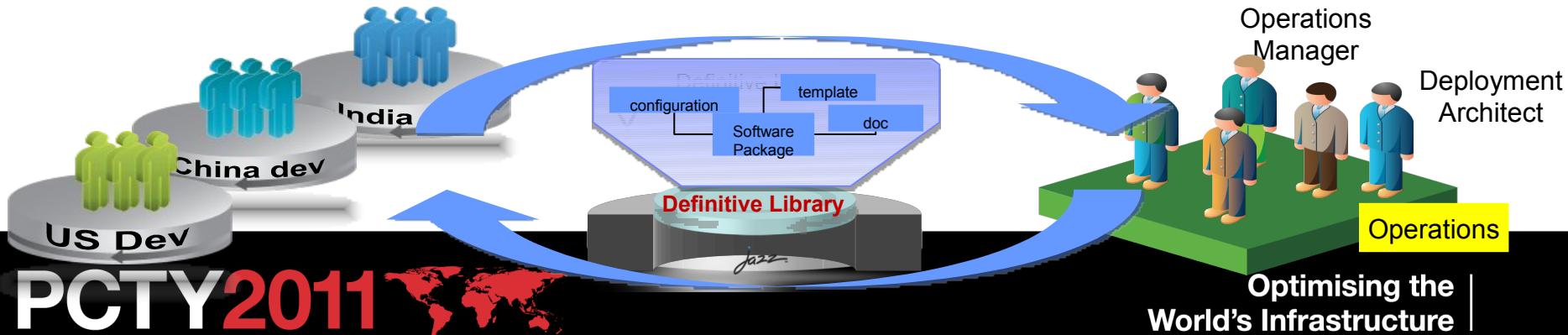
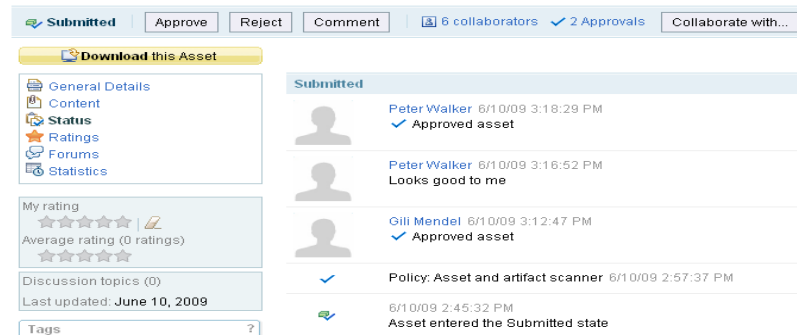
- Tours**
Tour the Web client
Tour the Visual Eclipse feature
Tour the Eclipse client
- Tutorials**
Define a category schema
- Help**
Introduction to Rational Asset Manager
What is an asset?
What is a community?
Finding and downloading assets
What are roles and permissions?
Submitting assets
Working with assets
- Web resources**
Rational Asset Manager home page
Software support

Govern your deployments using a definitive library

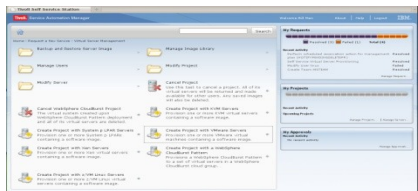
Deploy the right deliverables, with the right plan, using the right automation

Gain control over the:

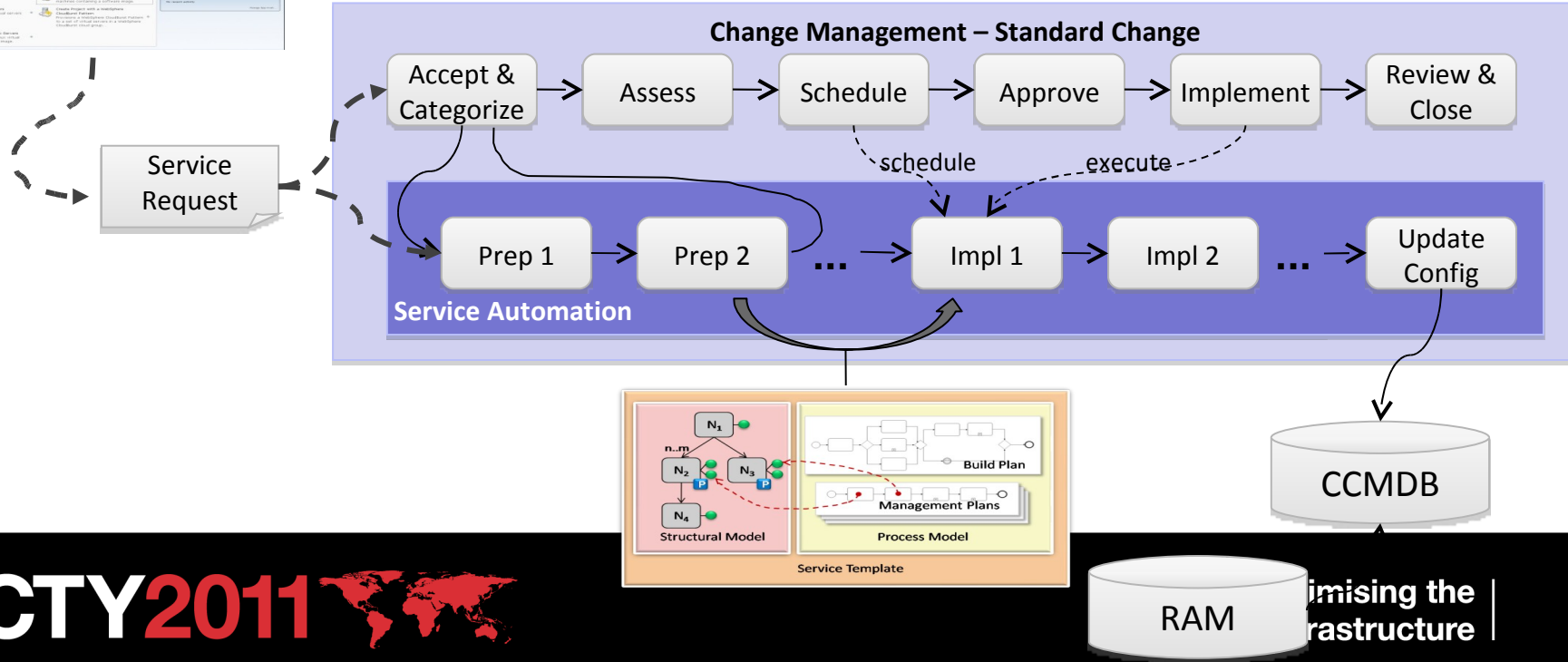
- **People** who are stakeholders in the decision making
- **Workflow** to manage sharing
- **Policies** to enforce rules
- **Access permissions** to control access
- **Traceability and auditing** for plans and automations



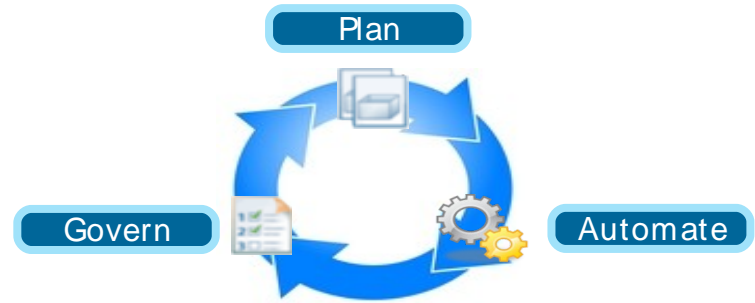
Integrated Service Automation, Change and Configuration Management



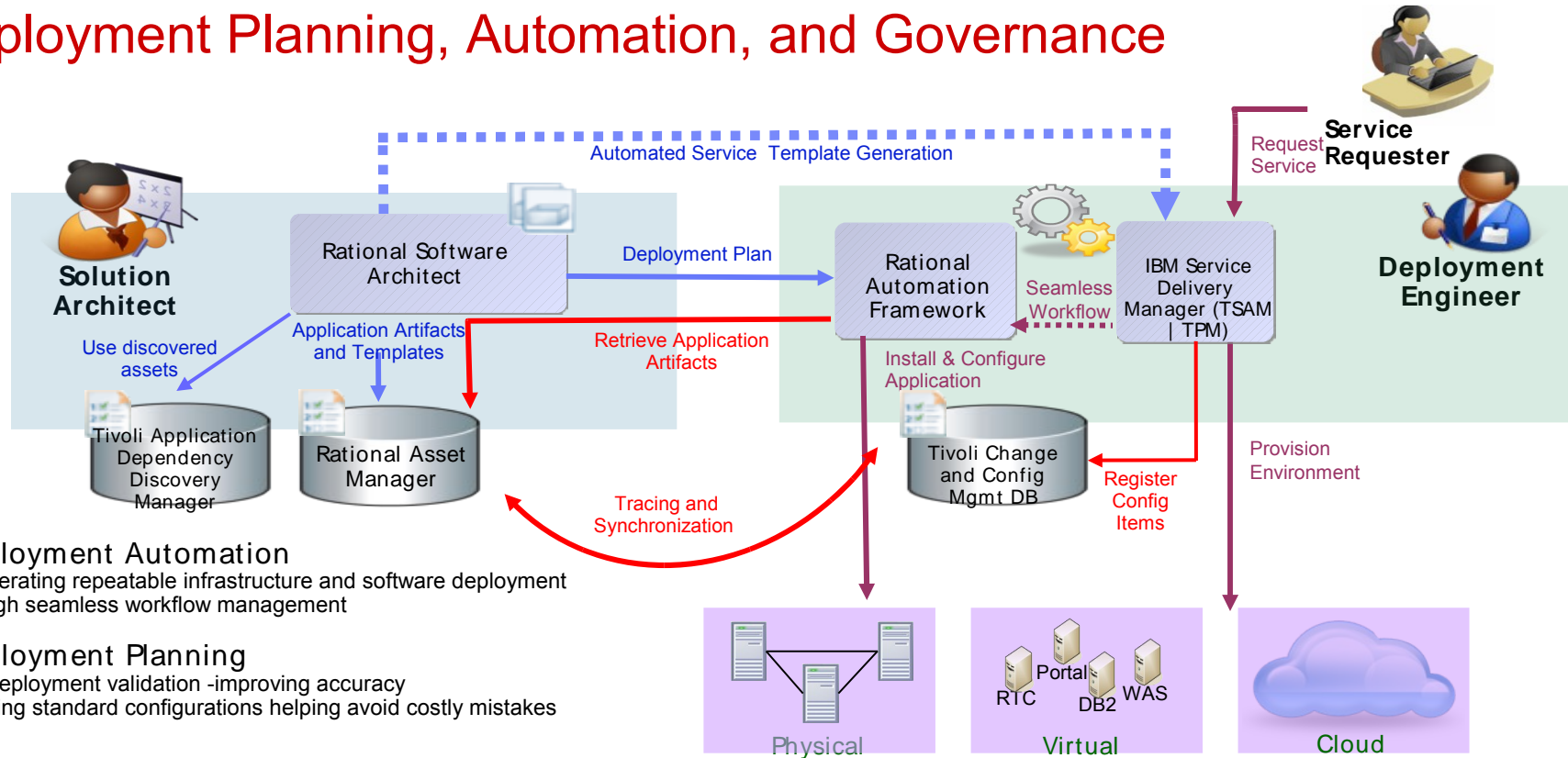
Service automation can be used stand-alone for lean and rapid service management or it can be configured to integrate with change management to have ITIL-aligned governance over the IT environment, including automated configuration updates



Understanding the Flow - Demo



Deployment Planning, Automation, and Governance



- **Deployment Automation**
Accelerating repeatable infrastructure and software deployment through seamless workflow management
- **Deployment Planning**
Pre-deployment validation -improving accuracy
Reusing standard configurations helping avoid costly mistakes

Summary

- Cloud Computing provides **virtualization, standardization and automation** to **increase flexibility and reduce costs** for software delivery
- IBM Deployment Planning and Automation **speeds the delivery of high quality applications** to the cloud
- We have **services offerings** to help you **plan, manage and secure** your IT transformation onto cloud



For more information:
<http://www.ibm.com/rational/cloud>



QUESTIONS?