Deployment Planning and Automation:

Aligning Business, IT and Operations with a Model-Driven Approach

Daniel Berg
Senior Technical Staff Member
danberg@us.ibm.com

David Brauneis
Senior Technical Staff Member
brauneis@us.ibm.com

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Pain Points

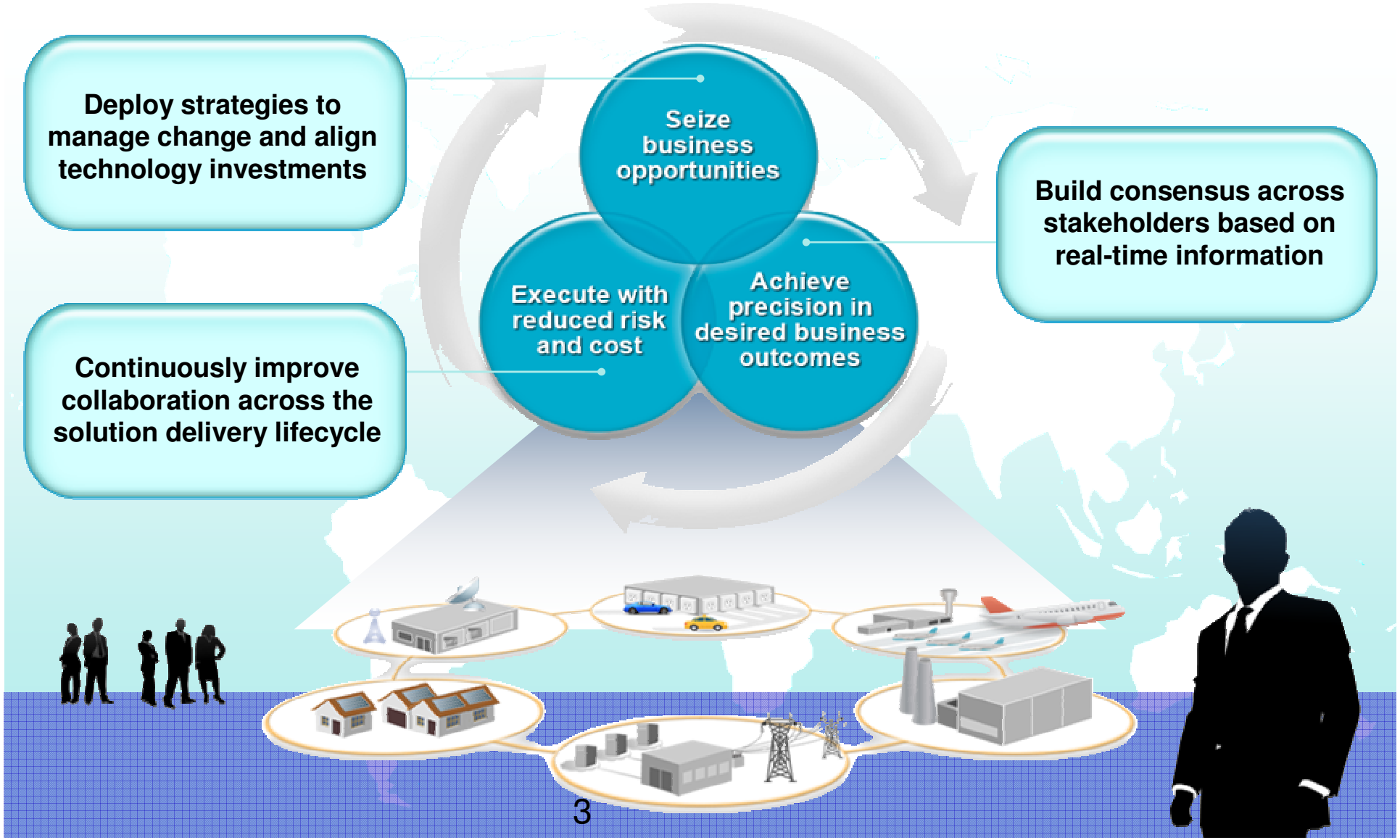
- It's both a *Business* Problem and a *Technical* Problem

- It's expensive
  - Development, Test and Production Environments are complicated and consume a lot of resources to manage
  - New capabilities such as mobile support drive costs up exponentially
  - Fix packs that affect many types of service nodes can take months to deploy

- It's complicated
  - Architects, Developers, and Operations Managers live in different worlds
  - Change to environments are not handled consistently across the enterprise

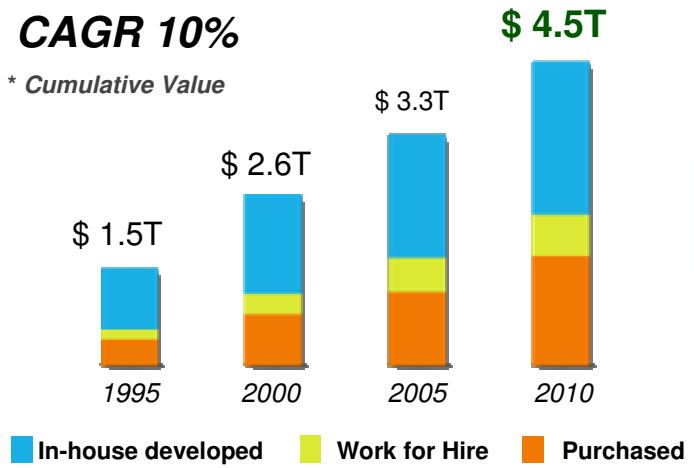
- It's the Wild Wild West
  - "Management" is often found in the deployment script writer's and SysAdmin's desktop(s)
  - A first step in governing the environment might be everyone runs the same scripts

The Software-Driven "Innovation Agenda" is upon us!



Most businesses are *concerned* about their ability to deliver sustained innovation while controlling cost and risk

Investment



Challenge

- **70%** budget locked in maintenance
- **50%** IT projects rolled back
- **30%** of project costs due to rework
- **37%** of projects go over budget

Design & Development Processes

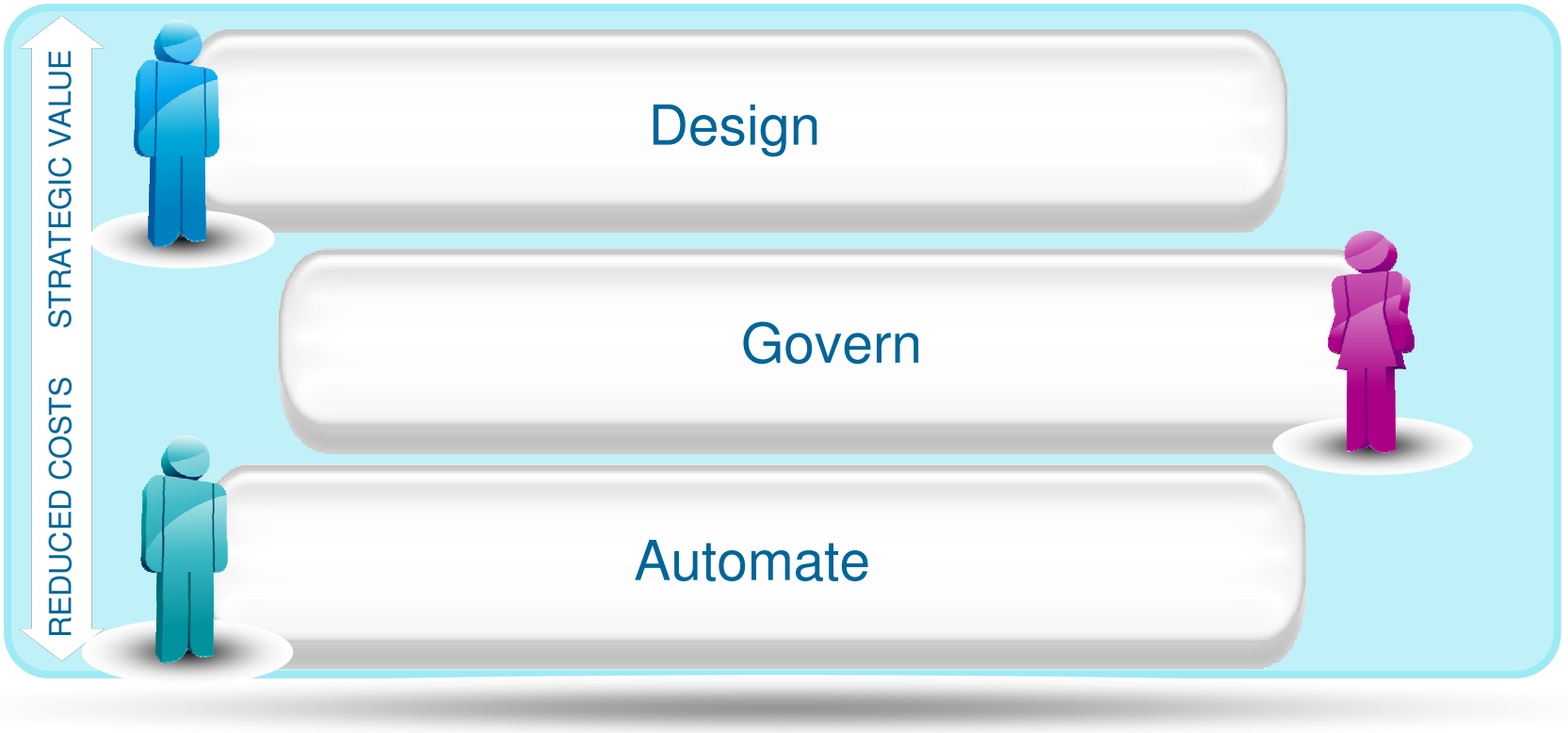
Service Delivery, Support & Operational Processes

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)*

Three steps to improve the software release and deployment process



Software release management and deployment

Development teams

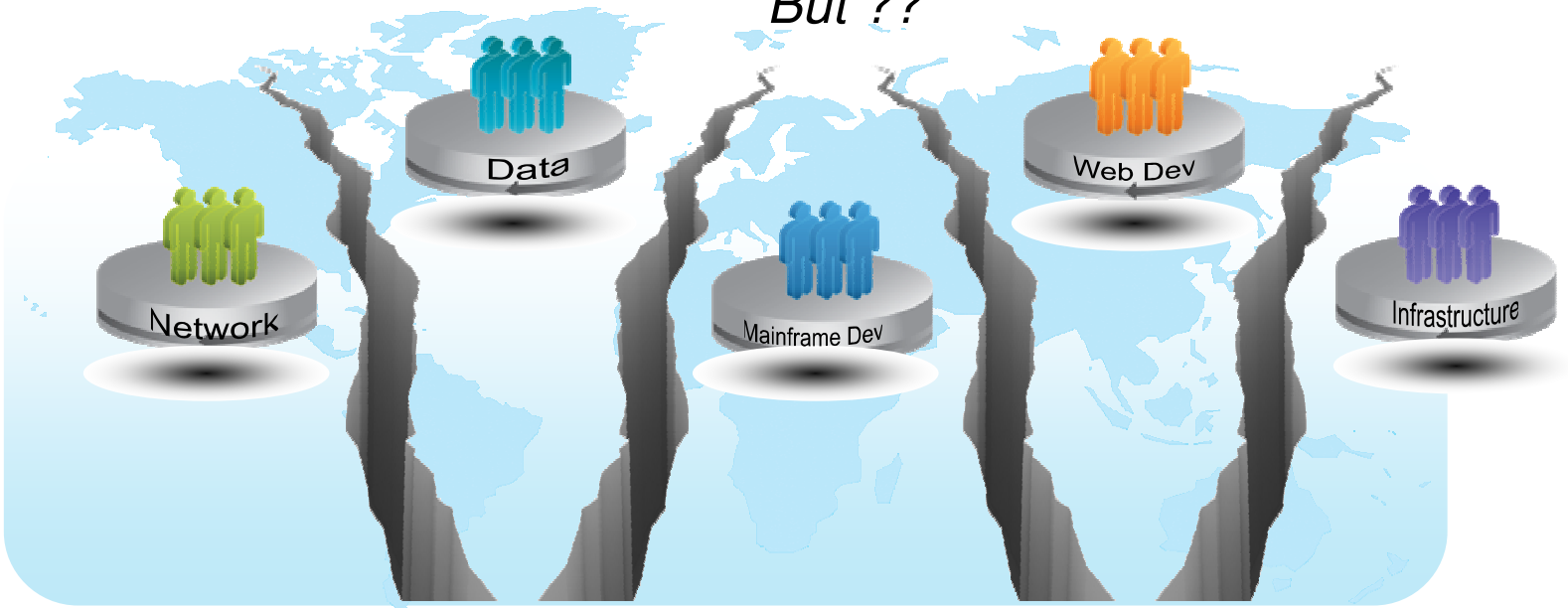
Want to be agile, creative, cool new stuff

But ??

Operations teams

Want to be secure, reliable, predictive

But ??



Architecture teams

Want to enable technical consistency, governance, productivity

But??

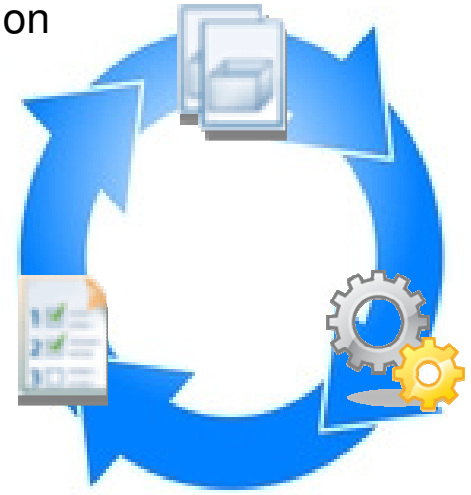
IBM Deployment Planning and Automation

Improving collaboration between Development and Operations teams

Design your desired deployment using discovered resources and standard configuration templates

Design

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



Automate infrastructure provisioning, middleware configuration, and application installation

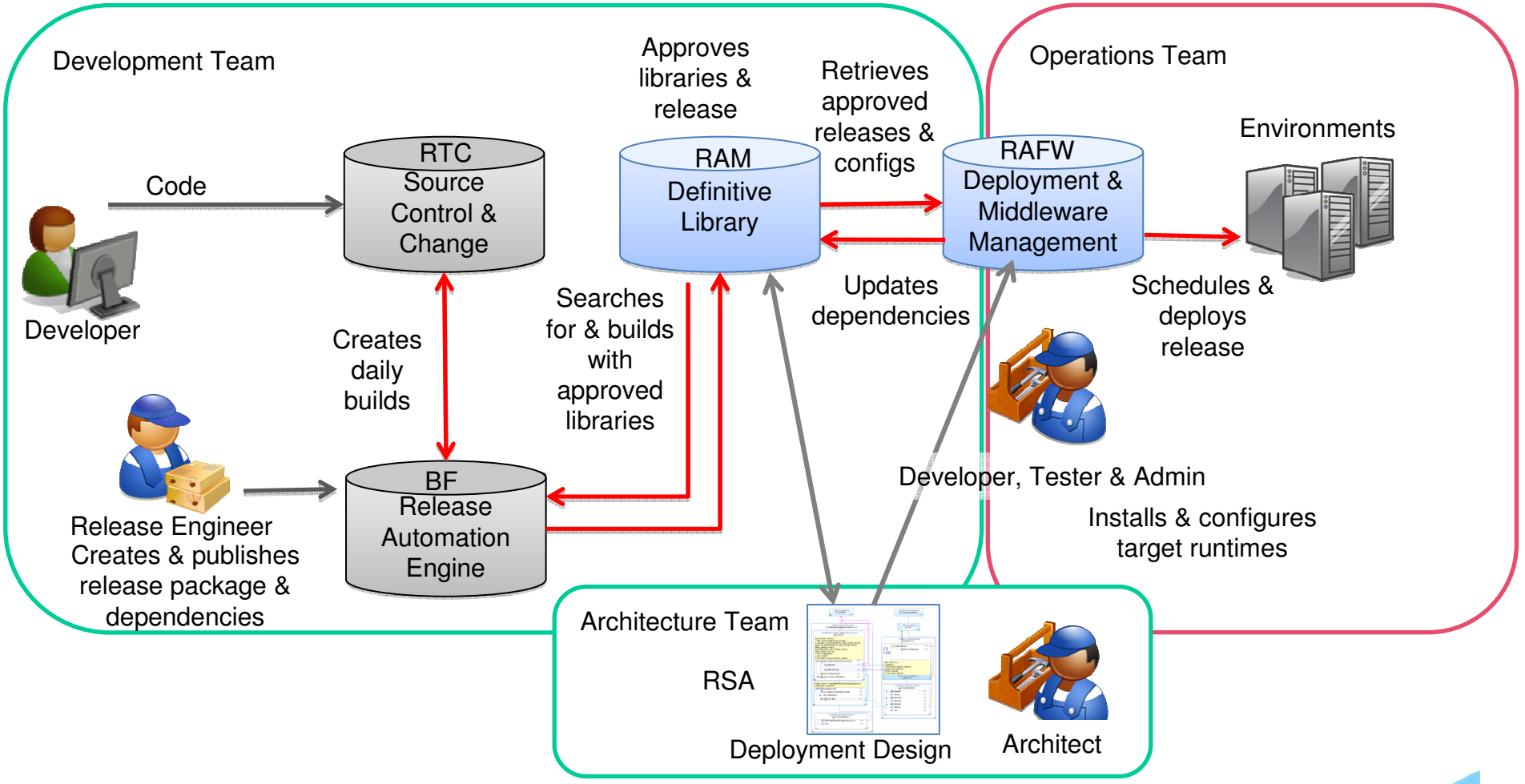
Govern

Automate

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

IBM's software release management solution

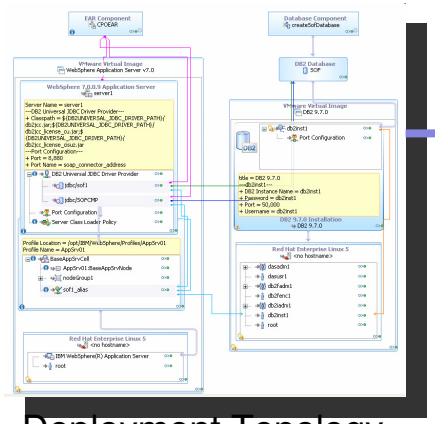
Software automation, deployment, and management



Deployment Design

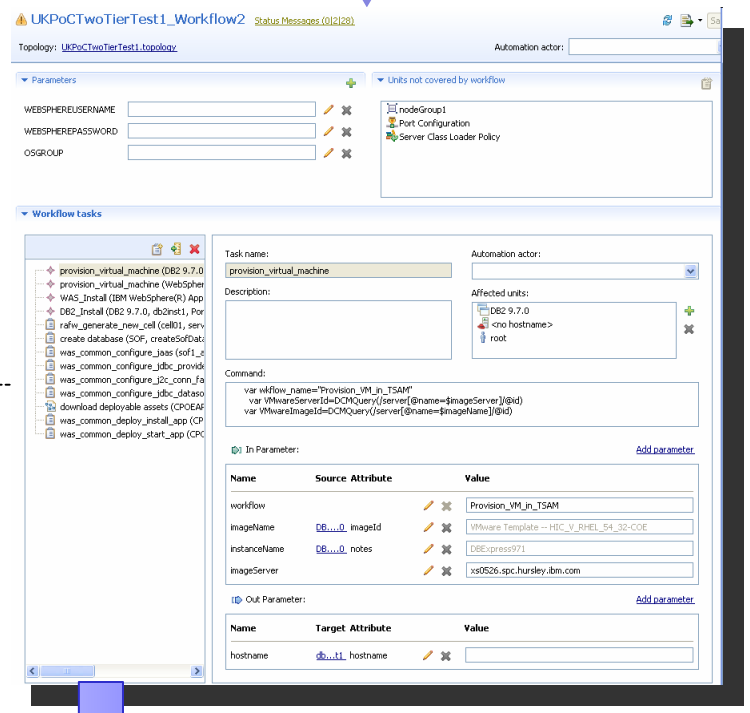
- **Smarter Deployment Design**
  - Communicate and validate IT deployments to avoid costly problems late in the application lifecycle
- **Deployment Template Design and Reuse**
  - Capture and reuse organizational standards to quickly and easily plan deployments
- **Datacenter Discovery**
  - Quickly construct a topology describing what you have in your infrastructure
- **Integrated Automation Generation**
  - Generate standard deployment automations from approved designs

Rational Software Architect Extension for Deployment Planning



Deployment Topology

Analyze & Generate



Automation Plan

Reference

Rational Automation Framework

publish

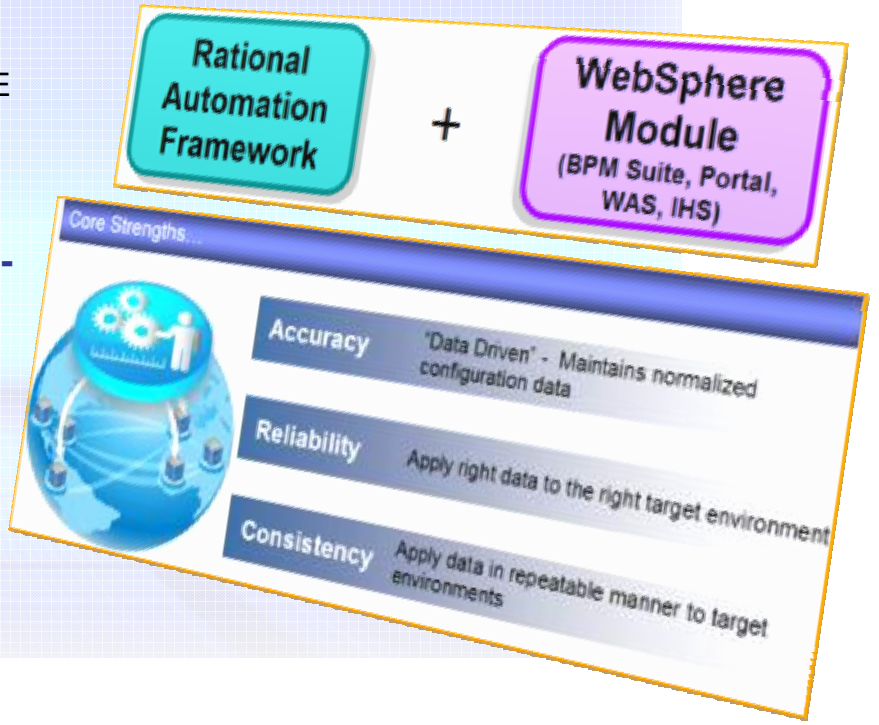
Rational Automation Framework for WebSphere

A robust, extensible, and customizable framework that provides:

- *Deployment automation*
- *Configuration management automation*
- *Installation, patch, and fix automation*

- *Increase staff productivity*
- *Improve speed, consistency and accuracy*
- *Reduce costs of compliance and IT governance*
- *Improve Disaster Recovery readiness*

- **Over 900 out-of-the-box automation actions for:**
  - WebSphere Foundation: WAS, ND, IHS, WAS FEPs, WVE
  - WebSphere BPM Suite: WPS, WESB, WSRR
  - WebSphere Portal
- **Ensure configuration consistency & facilitate team-based administration and QOSs** for:
  - Scheduling
  - Unattended execution
  - Notifications
  - Role-based security
  - Audit logging
- **Speedy delivery of virtual patterns** with WebSphere CloudBurst Appliance (WCA)
- **Workflow management and control in enterprise data center environments** via integration with:
  - RAM, RSA
  - TSAM, TPM, and



Accelerate time to value in virtualized environments

IBM Workload Deployer

- Secure cloud management appliance
- Reduce setup time for virtual environments
- Codify your infrastructure for reduced risk
- Simplified maintenance and management
- Dispenses IBM Hypervisor Edition software or IBM Application Patterns

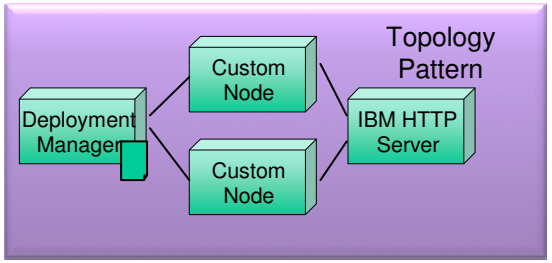
IBM Hypervisor Edition Products and Application Solutions

- Editions of products and solution patterns optimized for virtualized environments
- Pre-configured, ready to run on a hypervisor
- Virtual image software supported and maintained by IBM

IBM Workload Deployer and RAFW

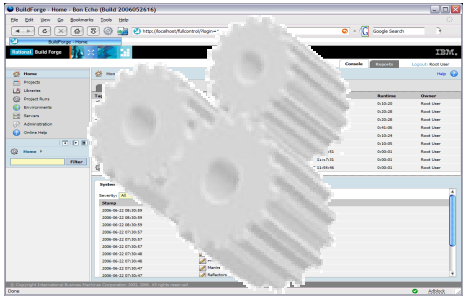
Provides

- Cloud infrastructure management
- Software license management
- Intelligent system placement
- Software maintenance capabilities
- Predefined WebSphere topologies



Encapsulates

-"Installation" of binaries
- Creation of profiles
- Construction of cell
- Construction of application server clusters
- Configuration of IHS



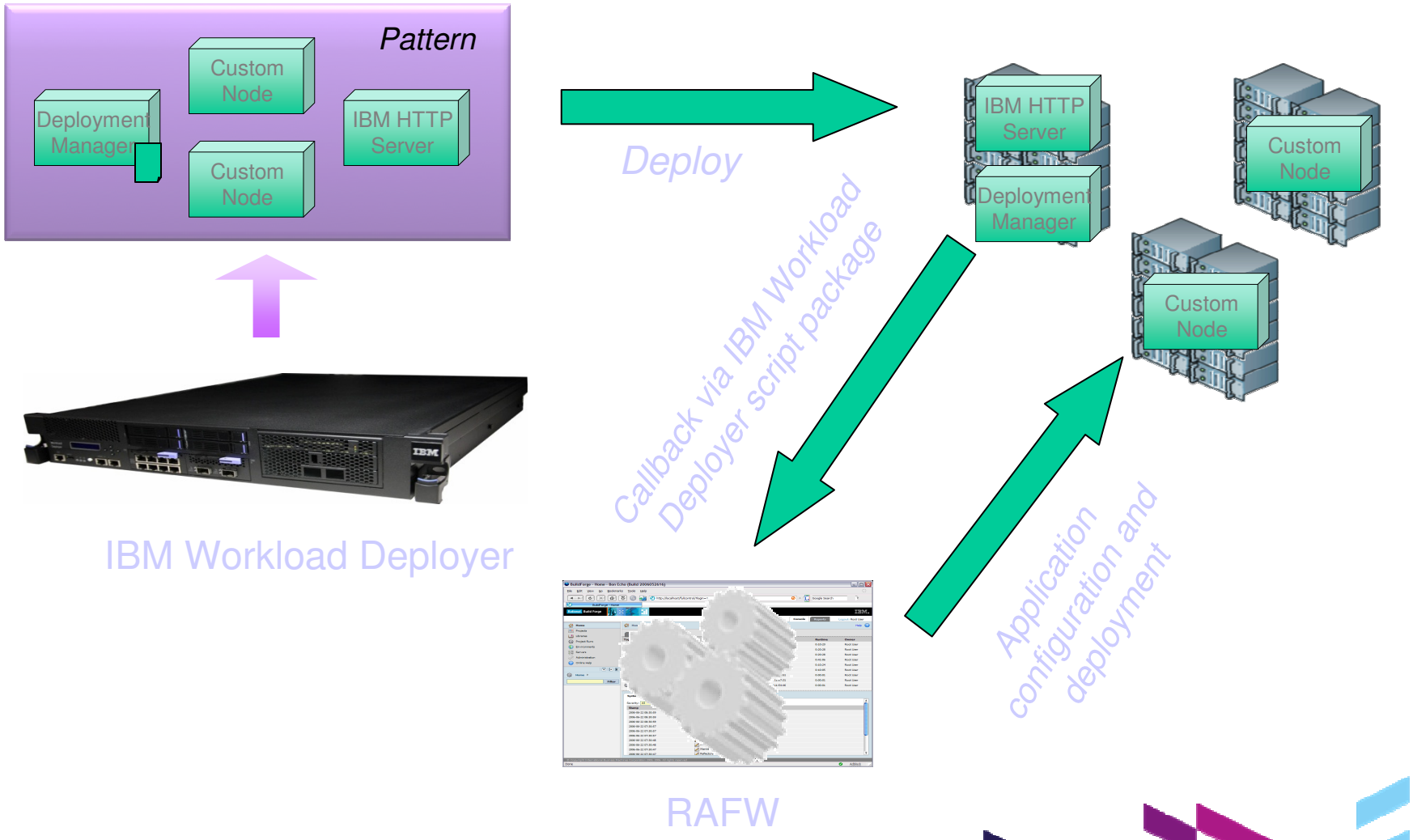
RAFW

Encapsulates

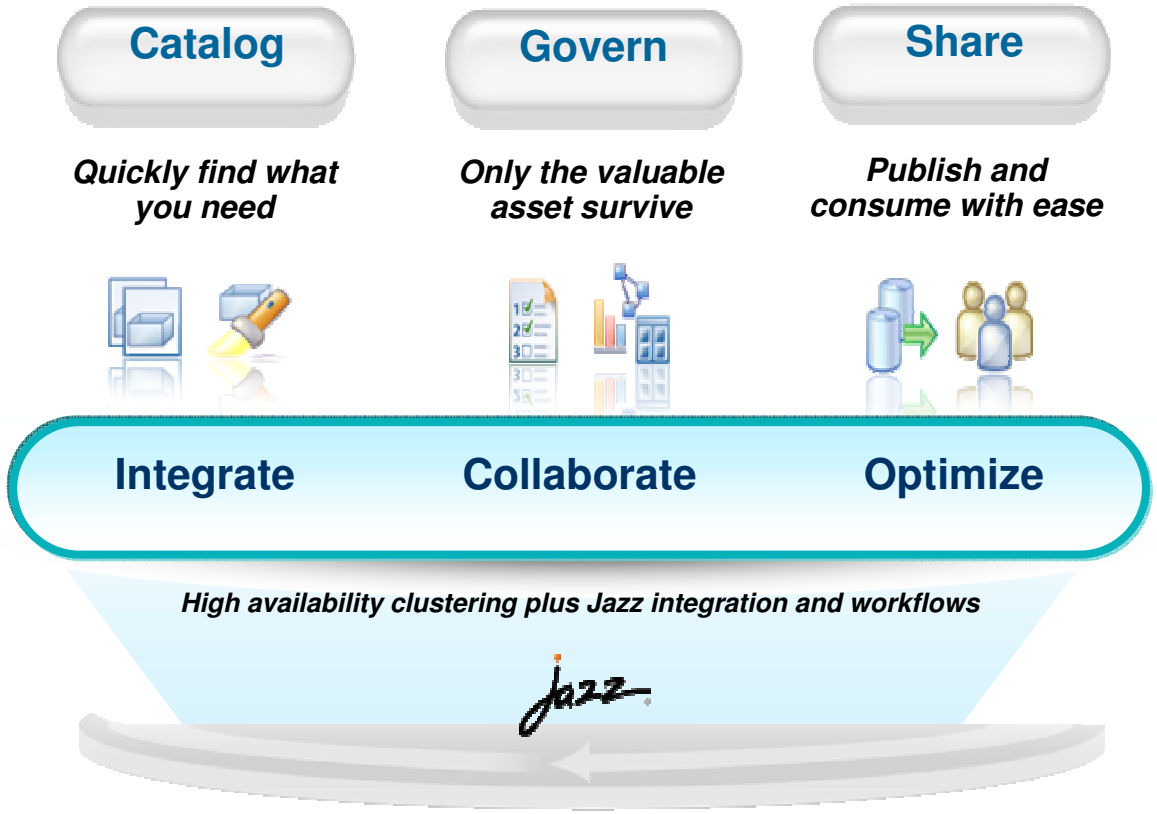
- Configuration of application resources (JDBC, JMS, cache, etc.)
- Configuration of containers (servers, web, ejb)
- Deployment of application

No user-supplied scripting!

Overview of IBM Workload Deployer & RAFW



Asset Reuse and Management



- Catalogue, organize, use, reuse, manage and report on assets
- Deliver high-quality software solutions faster to market
- Reduce implementation and maintenance costs

Capabilities

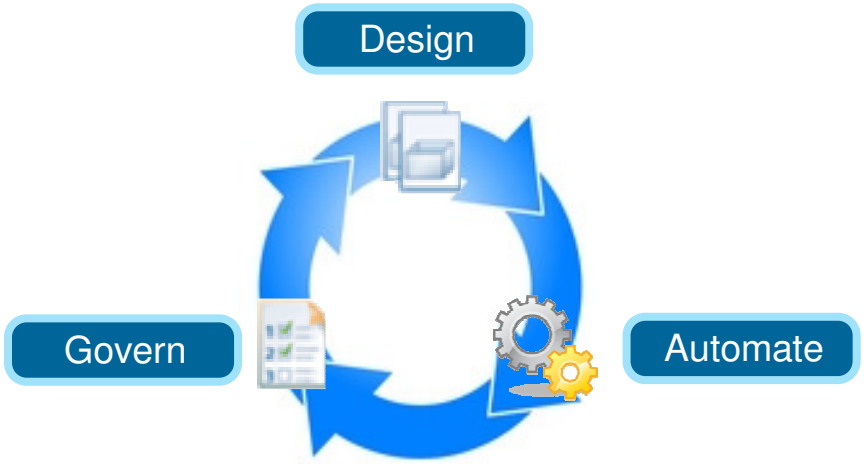
Application Portfolio Management

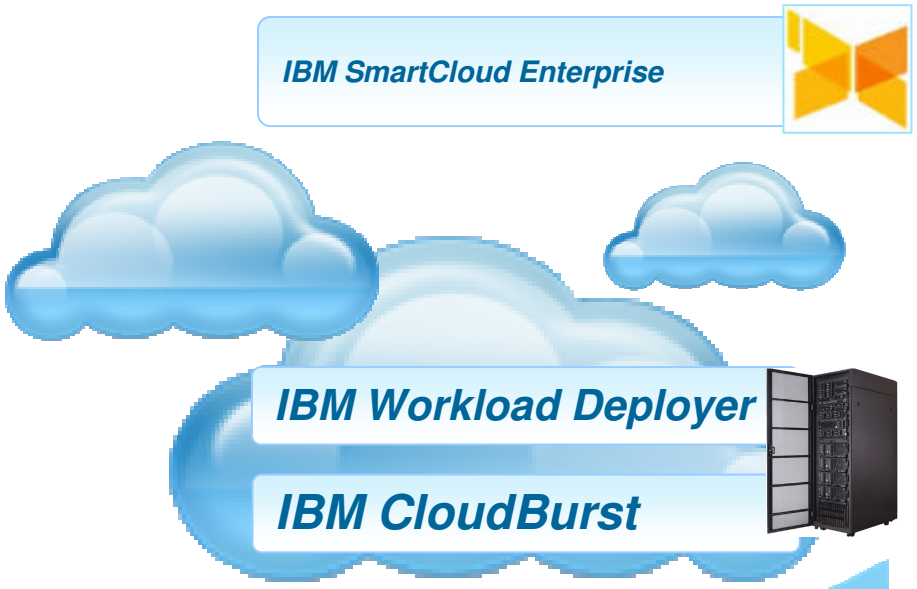
Design & Development

IBM Offerings

Rational Asset Manager

IBM Deployment Planning and Automation integrated with Cloud

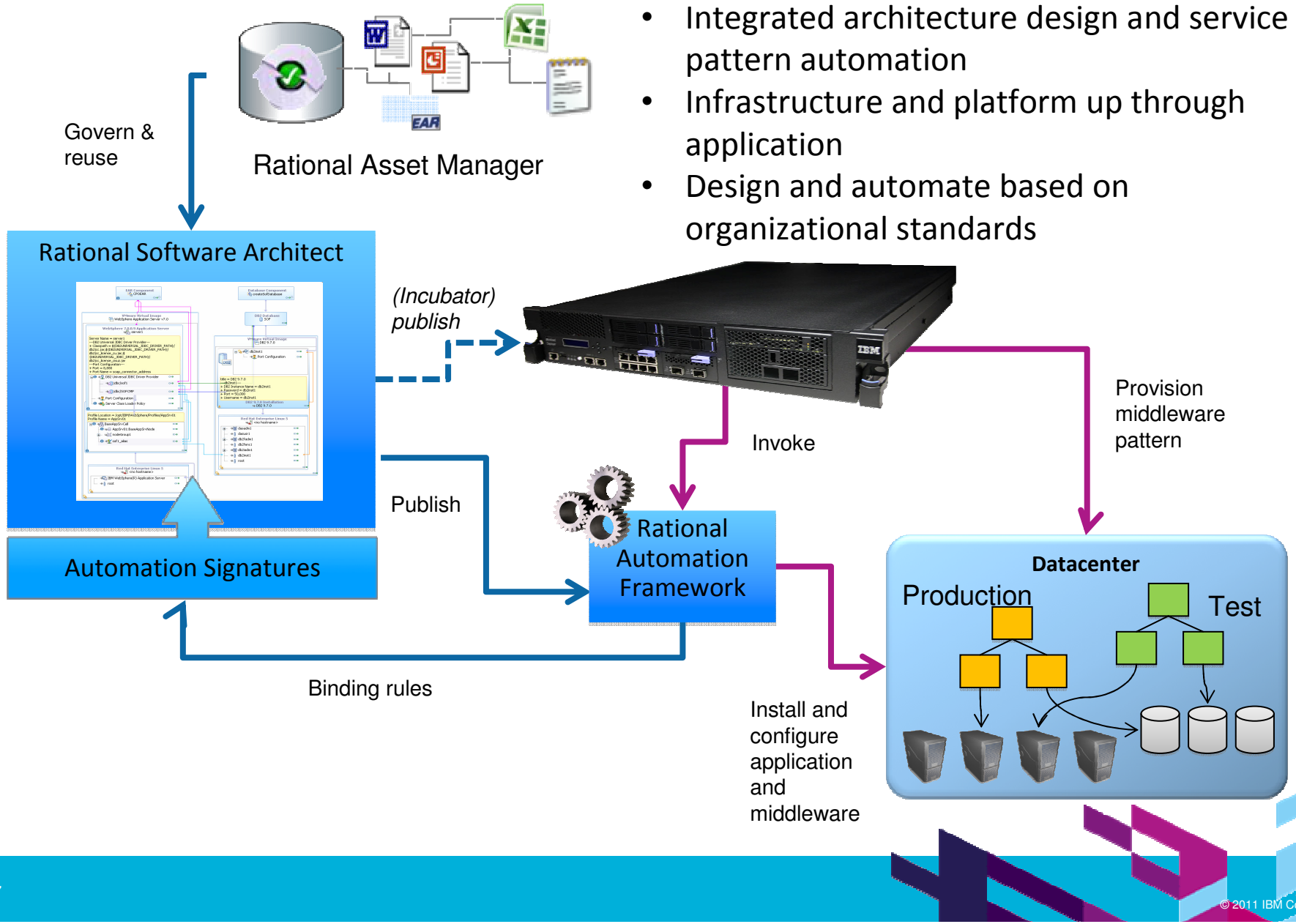




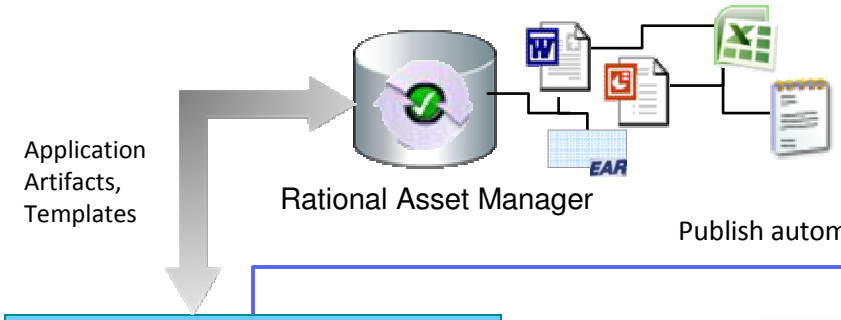
Design, **Govern**, and **Automate** deployment of Cloud resources and applications within the Cloud.

DP&A with IBM Workload Deployer

- Integrated architecture design and service pattern automation
- Infrastructure and platform up through application
- Design and automate based on organizational standards

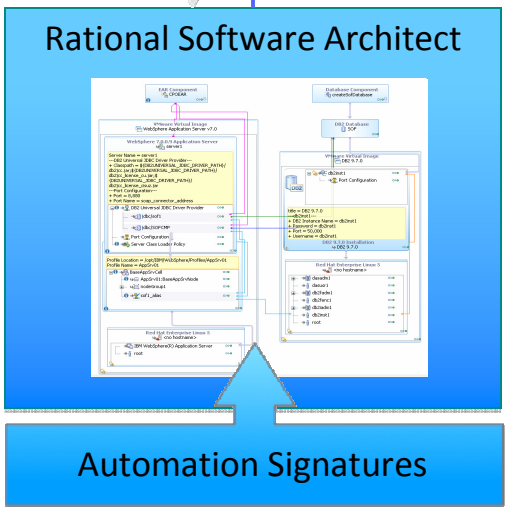


DP&A with IBM CloudBurst

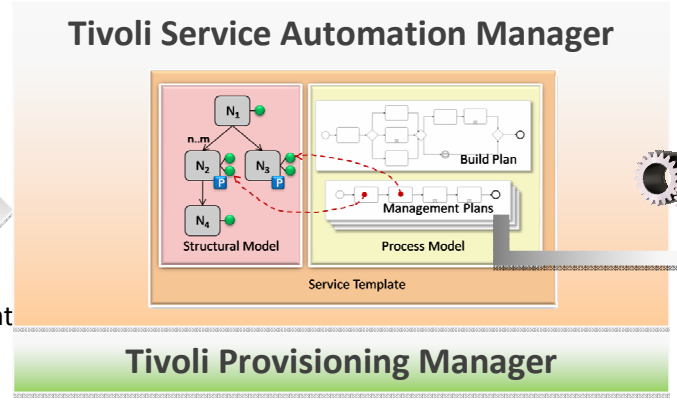


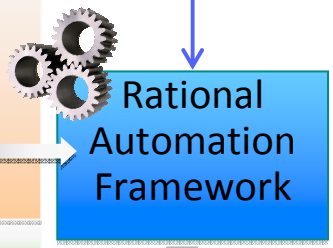
IBM Deployment Planning and Automation for Cloud package available on Integrated Service Management Library to integrate TPM workflows with RAF workflows

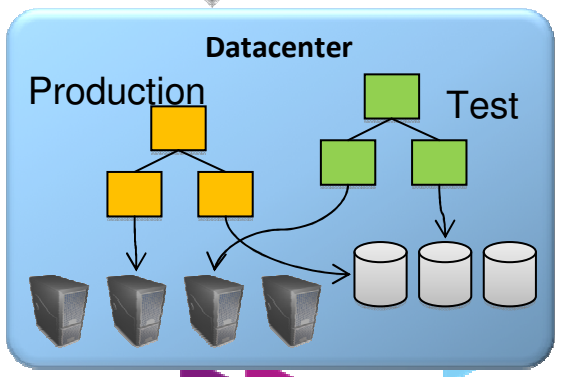
Publish automation project and configuration files

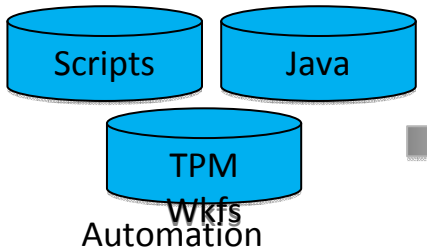


Publish Topology Template and Mgmt Plans in common format





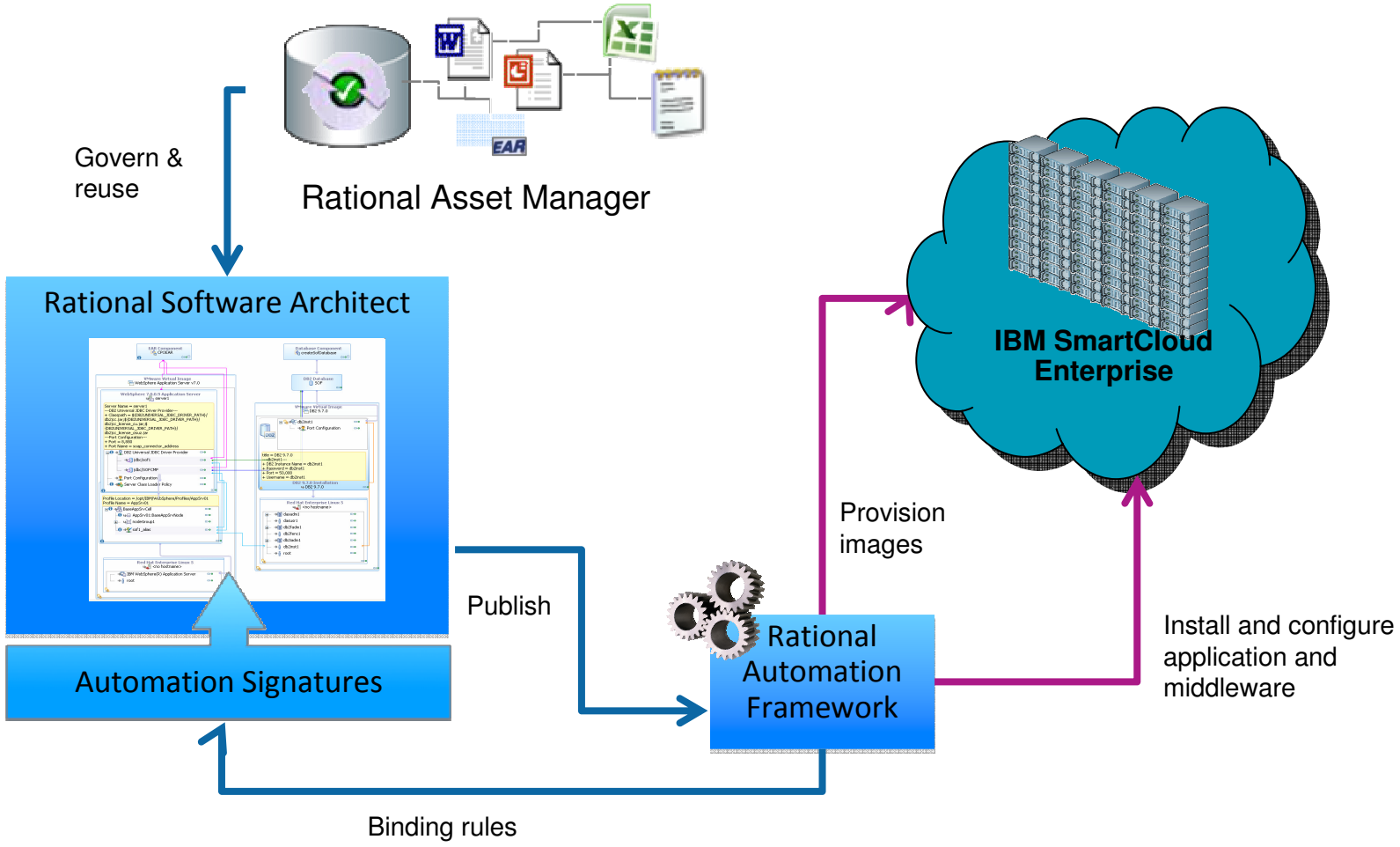




Automation Assets

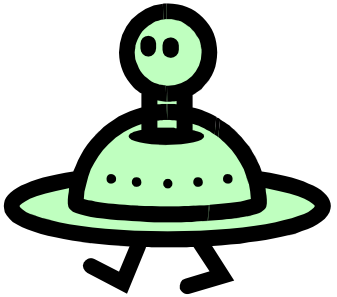
Automation tasks made available as Automation Signatures

DP&A with IBM SmartCloud Enterprise



Client Scenarios

- *This is a work of fiction. Names, characters, places and incidents either are products of the author's imagination or are used fictitiously. Any resemblance to actual events or locales or persons, living or dead, is entirely coincidental.*
  - Okay, not really, but some of the case studies represent several customer experiences
  - Yes, that means they are "composite characters"
  - We wanted to illustrate a 'class' of problems and how you can solve them
  - More realistic than "little green men" – real problems and real solutions



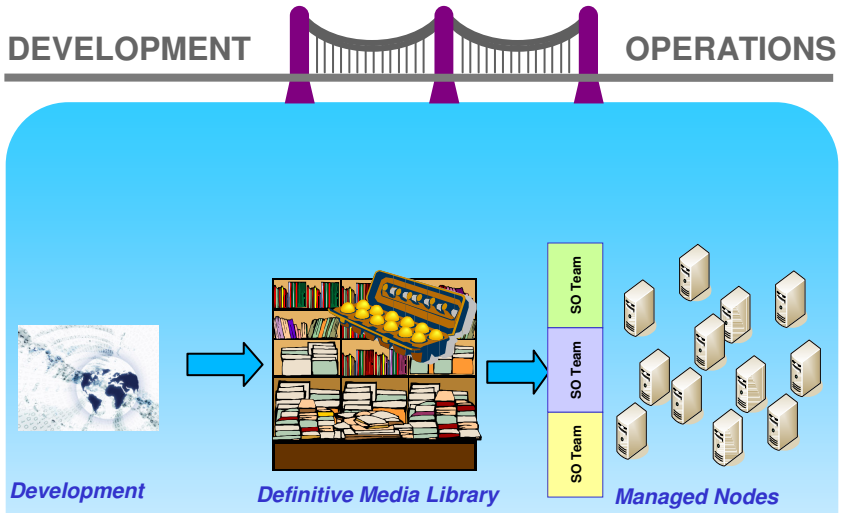
Definitive Media Library

Situation

- Manual infrastructure management
- Strategic Outsourcing teams managed as black boxes
- Service requests require manual actions for each step in the process, and are handled differently for each SO team

Solution

- Collaborate development, deployment and operations in a single governed management environment
- Begin collaboration early in the development lifecycle
- Ensure governance processes are used across on & off shore teams
- Improve visibility for auditing and then impact analysis



Results

- ✓ DML implemented within existing enterprise
- ✓ 100% of DML external interfaces automated
- ✓ Reduced errors with manual management tasks replaced with tool governance

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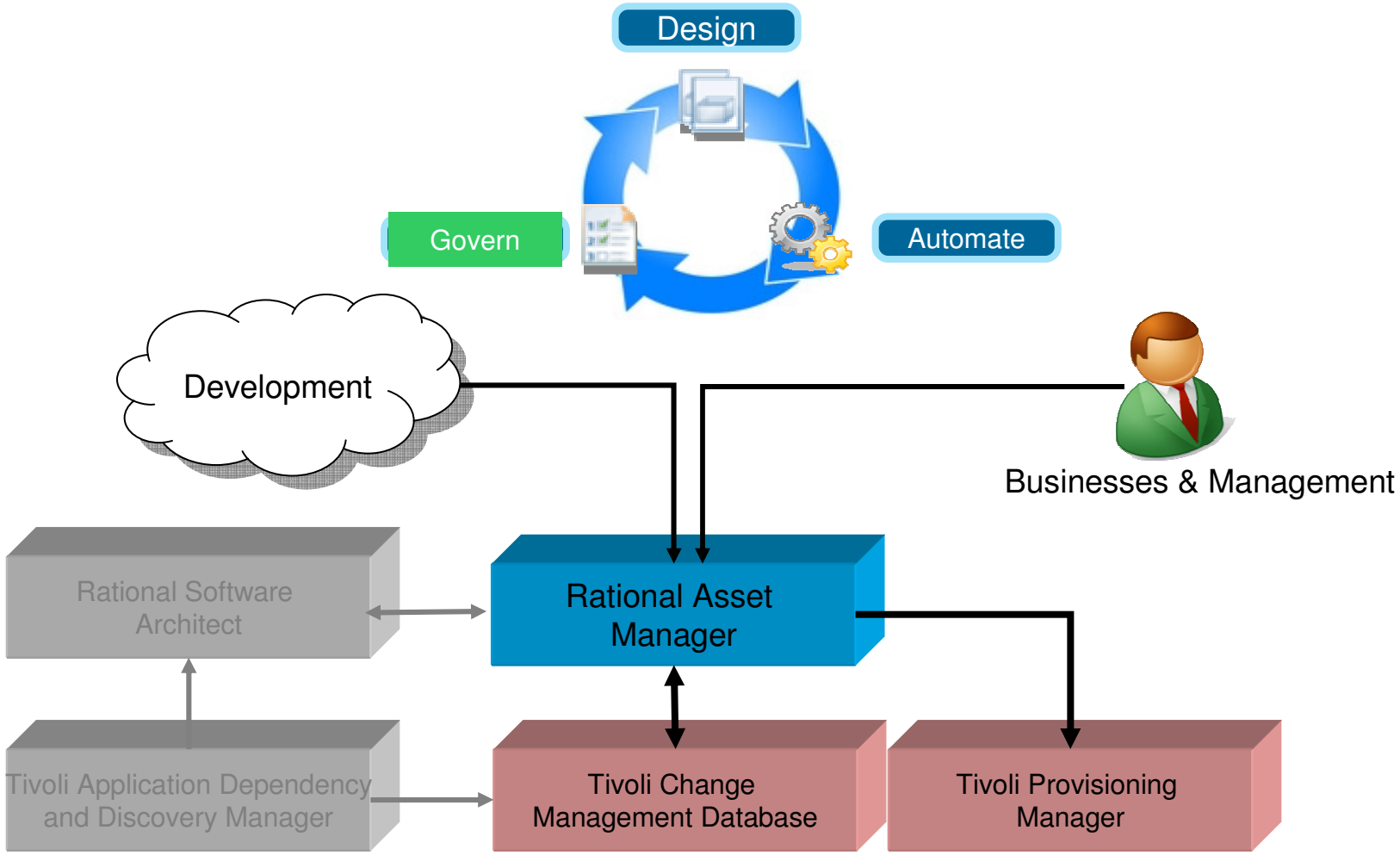
Definitive Media Library : Solution



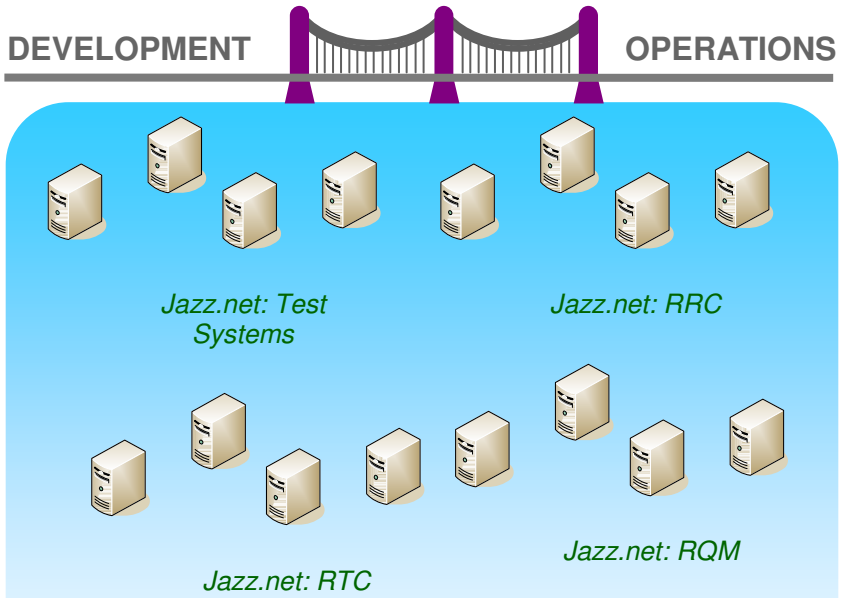
Internal *jazz.net* Deployment

Situation

- Team needs to deploy builds to support In-house development releases for jazz.net
- Manual deployment of the application takes at least 30 mins per system
- Internally hosted production systems supporting many IBM teams that require partially manual upgrades

Solution

- Use Rational Automation Framework for Websphere to create automation that deploys the new WAR files
  - Add custom steps where necessary
- Consolidate the existing automation with the new automation into an automation project
  - Team can run everything from a single interface



Results

✓ Manual time saved is well over 100 hours

✓ But system down time (impacting entire development teams) in the 1000's of hours

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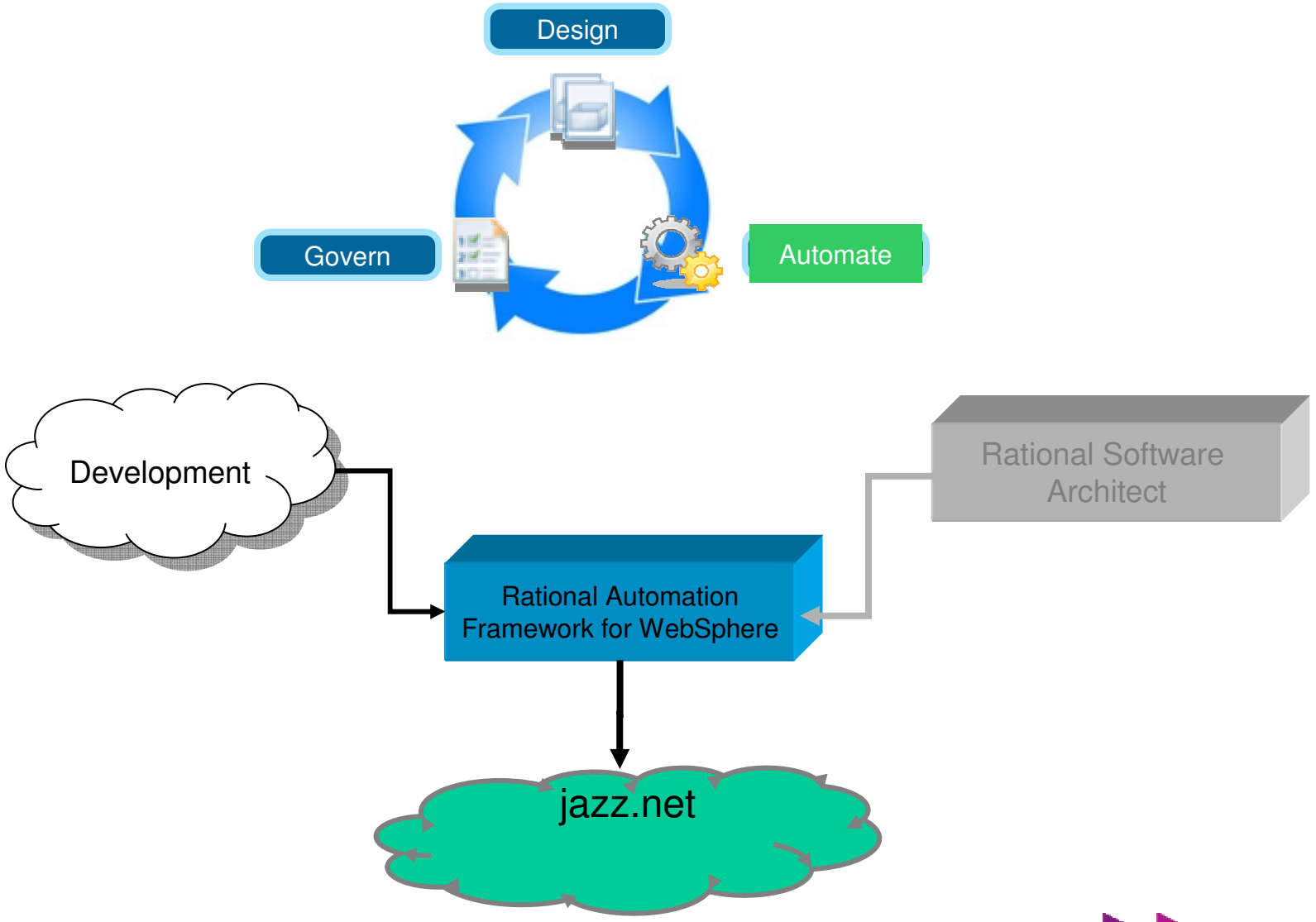
Deploying to *jazz.net*: Solution



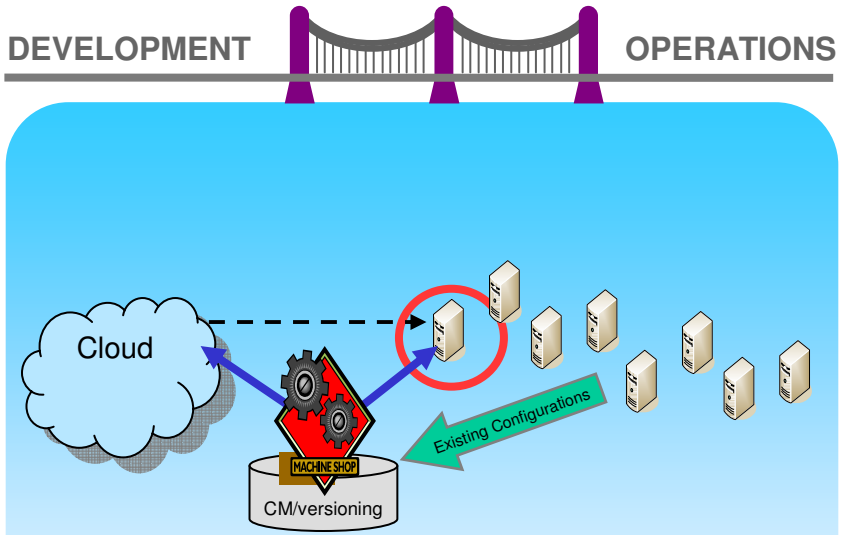
Integrated Cloud Solution

Situation

- Application architectures are implemented over multiple infrastructure tiers
- Configurations that drive the capabilities are non-standard and drive costs
- Consumers of the technology have less tolerance for Application failures, missed SLAs, understanding the infrastructure complexity

Solution

- Standardize the infrastructure patterns for deployed applications and reduce complexity
- Leverage WebSphere Cloudburst for platform deployments
- Leverage Rational Automation Framework for deploying and managing WebSphere configurations
- Future extensions to including deployment design and governance



Results

✓Technical POC and ownership within 1-2 months

✓ 90-100% of Manual deployment/replication activities automated (from months to days)

✓ Reduced deployment times due to standardization.

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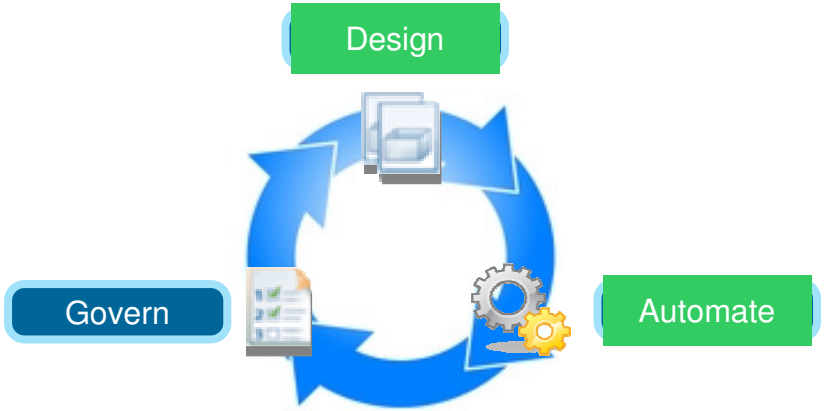
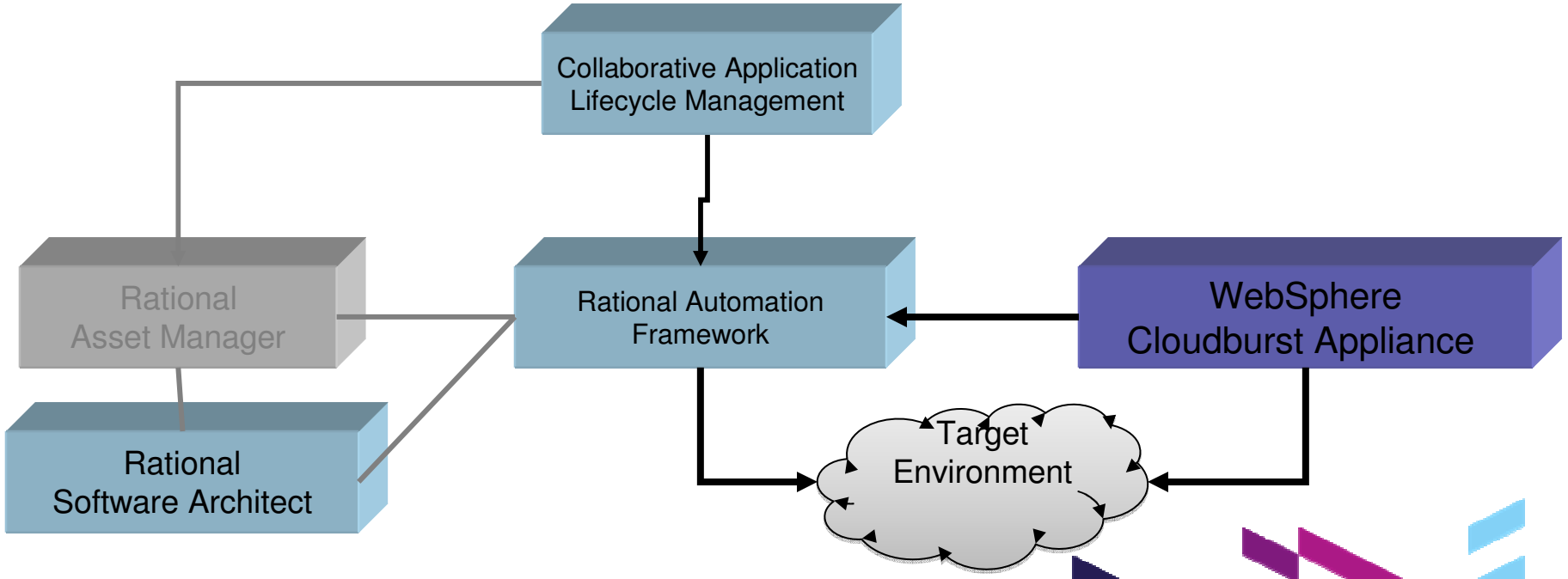
Integrated Cloud Solution: Solution





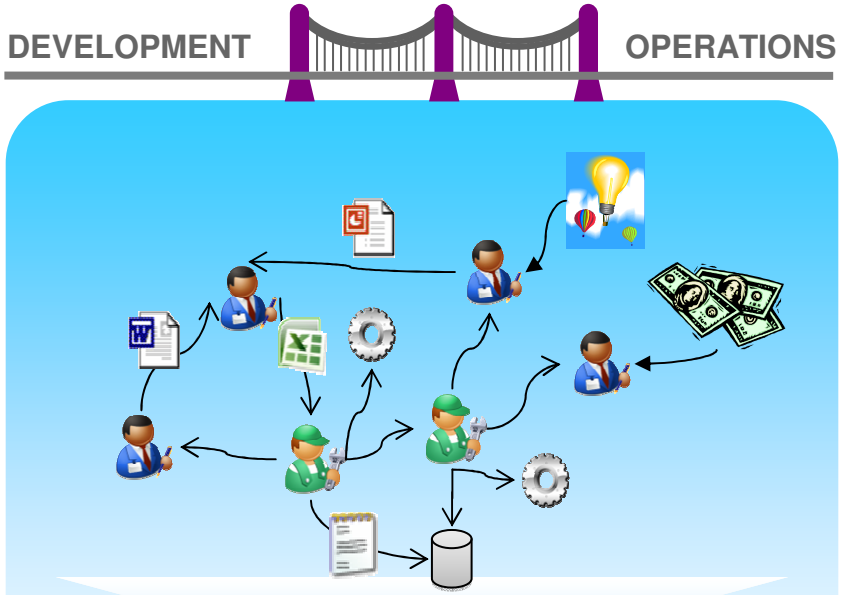
Integrated Architecture Planning

Situation

- New Business Capabilities are established incrementally world wide with little to no reuse or replication for new programs
- Poor management of IT information across the organization
- Inability to harvest and communicate deployment patterns to achieve efficient and automated reuse

Solution

- Move away from “soft” data formats to domain specific models
- Leverage asset library to govern patterns and architecture
- Implement an integrated lifecycle process to capture the essence of the architecture
- Use Agile methods to iteratively develop patterns



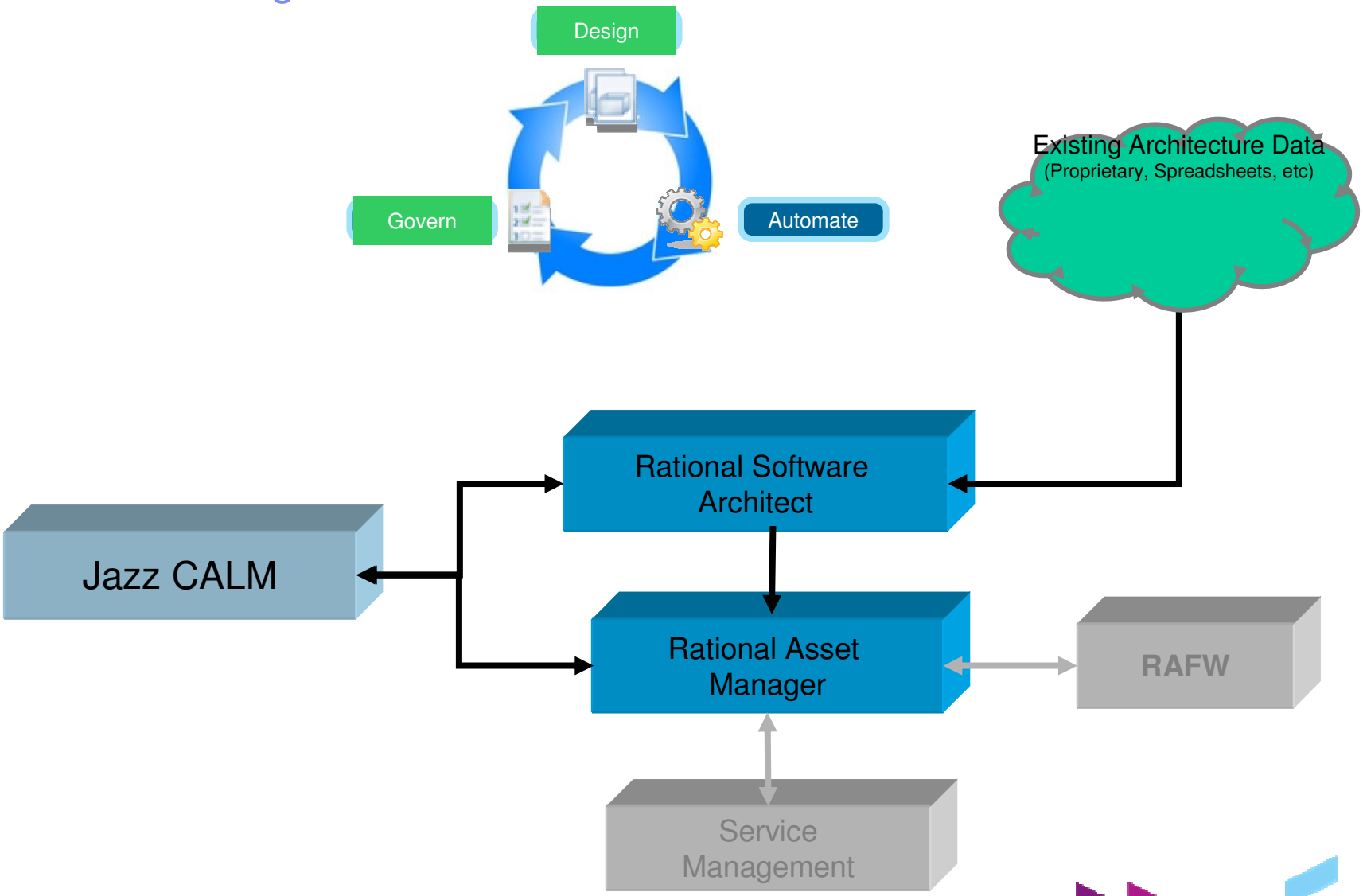
Results

✓Improved efficiency to create architectures by 30%

✓Reduced architectural change cycle from several weeks to 1 – 2 days

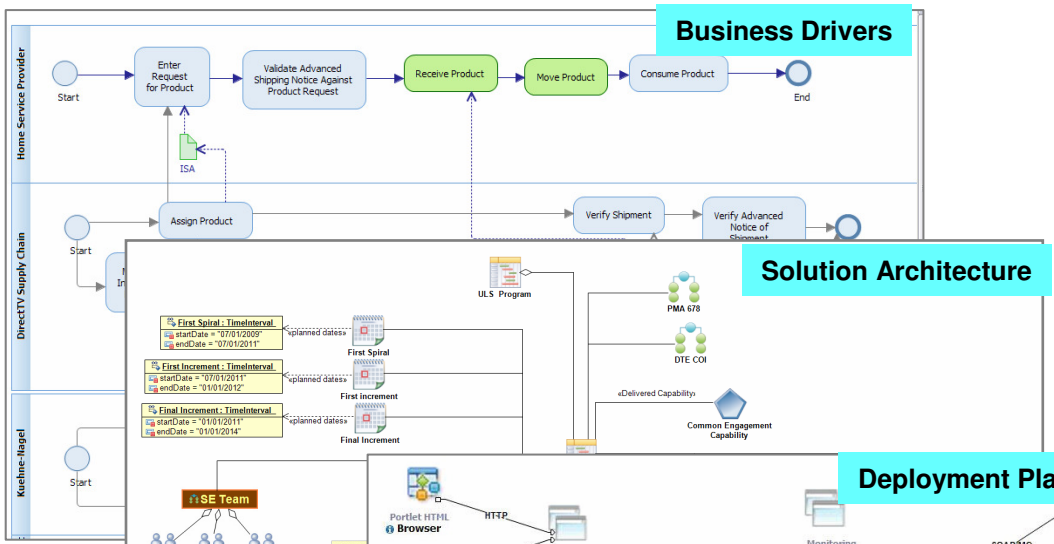
✓Lifecycle tracing and business intelligence reporting improved impact analysis by 30%

Architecture Planning: Solution

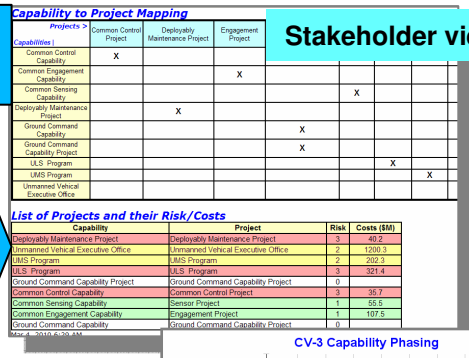


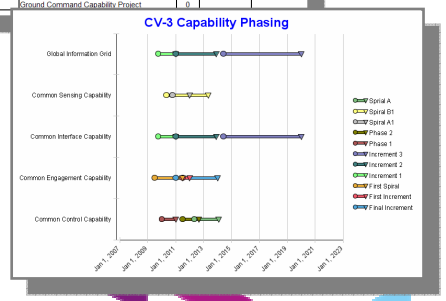
Integrated Architecture & Planning
Approach

- Visibility through models
- Single Architect workbench
  - Simplify skills
- CALM integrations
  - Lifecycle management and asset reviews
- Impact and analytical Reporting
  - Content based perspectives
- Extensions for data import/migrated
- MDA transform for automation

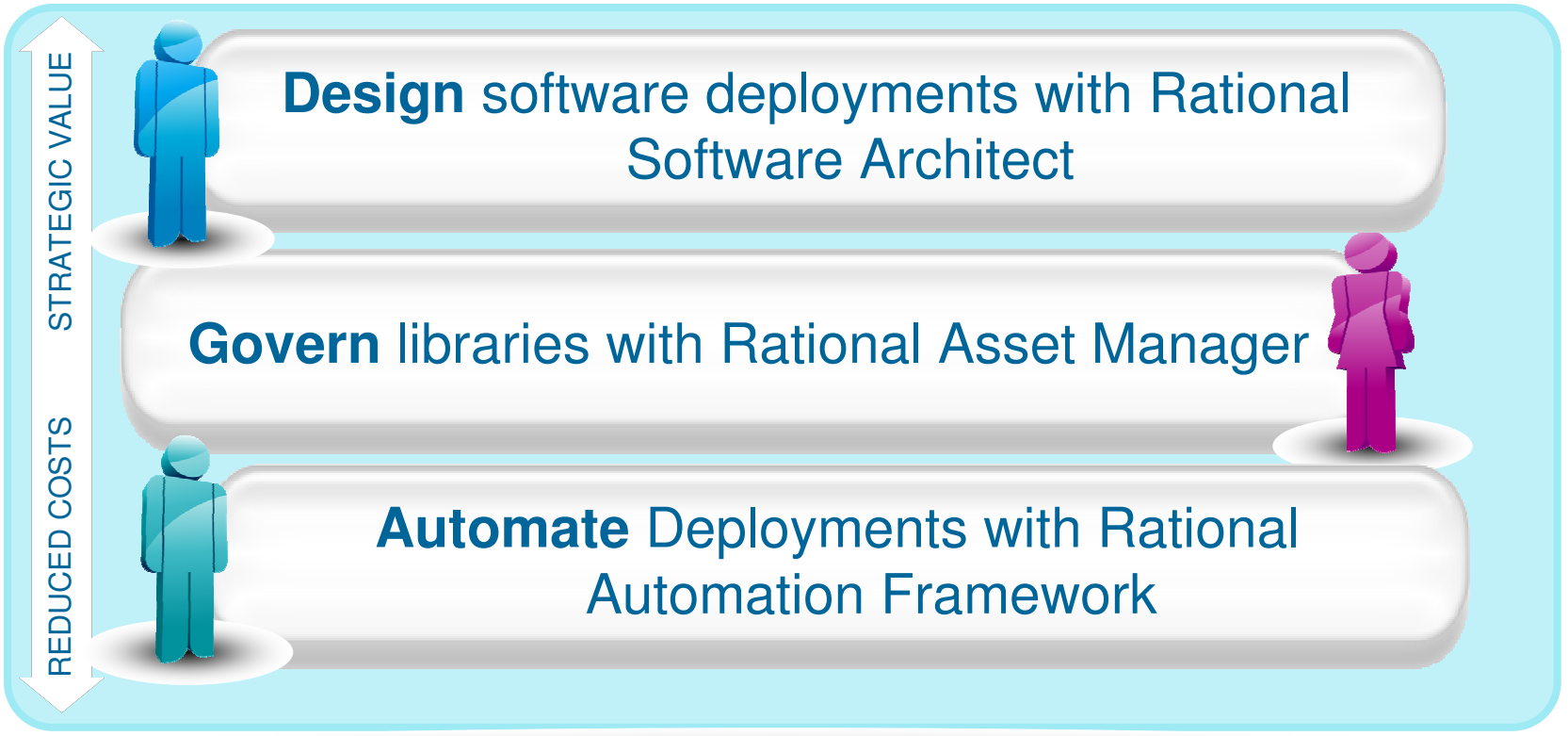


Stakeholder views





Summary - Three steps to improve the software release and deployment process



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