



IBM Rational Software Conference 2009
As Real as It Gets!



Quando l'unione fa la forza

Rational – Tivoli - WebSphere

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Oreste EGIDIO

Rational. software

Agenda ed Obiettivi



■ Agenda

- ▶ Test Performance & monitoring
- ▶ Definite Software Library
- ▶ Simplify, Automate, and Tame Your WebSphere Environments (RAFW)

Definitive Software Library

Cosa è la Definitive Software Library (DSL)?

DEFINIZIONE: La Definitive Software Library, è la libreria dove è conservata una copia di sicurezza di tutto il software usato dall'organizzazione. Solo il software autorizzato e testato va conservato in questa libreria

- E' il repository dal quale vengono prelevate le versioni autorizzate del SW
- Per gli operativi è il repository dove vengono acquisiti gli oggetti da rilasciare
- Per gli sviluppatori è il repository dal quale prendere le librerie da riutilizzare



Perchè

- Ridurre i rischi dello sviluppo
- Processo di controllo del rilascio software
- Rispetto e controllo del license agreement di librerie terze parti
- Garanzie che al mio SW sono stati effettuate tutti i test necessari
- Riutilizzo degli asset



Quali prodotti per avere una DSL?

Development Assets

- Asset Discovery
- Asset Lifecycle



Development Registries



Publish
Synchronize

Service Management

Change and Configuration
Management DB

- Operational Efficiency & Resilience
- Configuration Data Discovery
- Managing change

"IBM's federated metadata management strategy is visionary"

Gartner

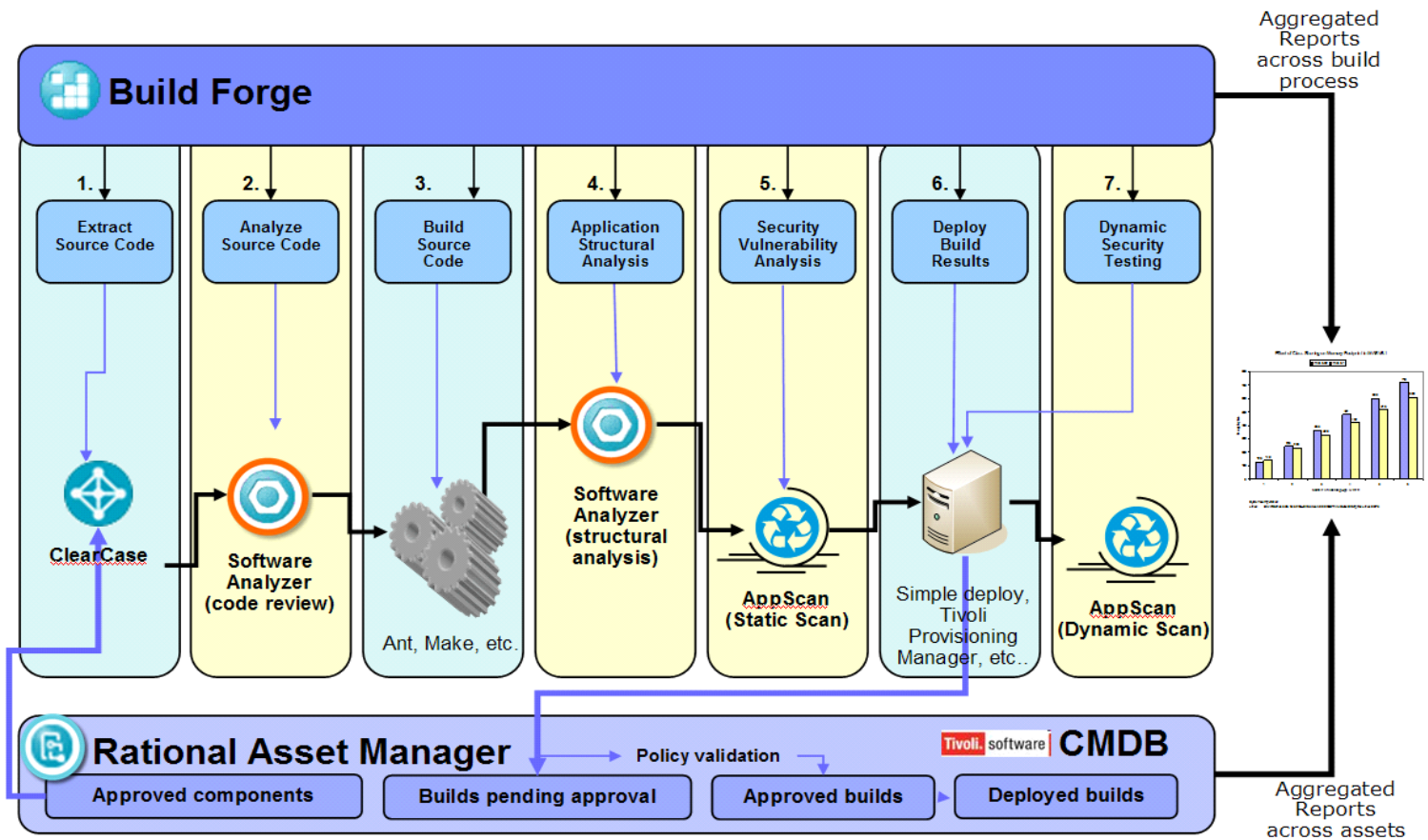
Rational Asset Manager

- ▶ gestisce le librerie approvate in un repository separato dal tool di versionamento
- ▶ Gestisce e velocizza il processo di approvazione dell'asset
- ▶ All'asset possono essere collegati le informazioni relative al processo di build e quality assurance
- ▶ Unico punto dove trovo documentazione, tutorial etc legato al mio asset

Tivoli Change and Configuration Management Database (CCMDB)

- Tiene traccia di dove il sw è stato rilasciato nell'ambiente IT
- Dettagli legati al rilascio (changes), prestazioni o uso delle licenze

Come popolare la libreria?



Rational BuildForge

- ▶ **Riduzione del costo di rilascio del software** – aumentando l'efficienza dello sviluppo riducendo di fatto i passi manuali e rilasciando un processo di maggior qualità utile per tutti i progetti.
- ▶ **Integrazione con altri ALM Software** – il framework di BuildForge mette a disposizione degli adaptor che si integrano facilmente con la maggior parte delle soluzioni di gestione delle versioni, e di tracciatura dei difetti.
- ▶ **Aumento della qualità del prodotto rilasciato** – rendendo più semplice il rilascio delle versioni del prodotto, dando subito un immediato riscontro allo sviluppatore sull'esito del nuovo rilascio. Dando le informazioni più importanti al gruppo di QA quali ad esempio i moduli cambiati ed i difetti tendenzialmente risolti.
- ▶ **Diminuzione del time to market** – aumentando i cicli di rilascio, potendo gestire operazioni in parallelo, gestendo pool di server, BuildForge può suddividere i progetti in tasks indipendenti, che possono essere eseguiti in parallelo su diversi servers.
- ▶ **Integrazione tra il supporto decisionale e conformità del processo** – generando in maniera automatica la documentazione, tracciando e salvando i dati relativi a tutte le build, BuildForge provvede a una storia completa e ad un audit trail per ogni attività di Build to Release.
- ▶ **Aumento della collaborazione** di gruppi distribuiti, – ciò avviene automatizzando le attività e condividendo le informazioni.

Quale valore per gli attori coinvolti?



■ CIO/CTO

- ▶ Assicurarsi che il business non incorra rischi



■ Development Director

- ▶ Visibilità dello stato di ogni release con la documentazione necessaria
- ▶ Efficienza nella comunicazione tra i teams che collaborano nella creazione di componenti/builds



■ Product/Release Manager

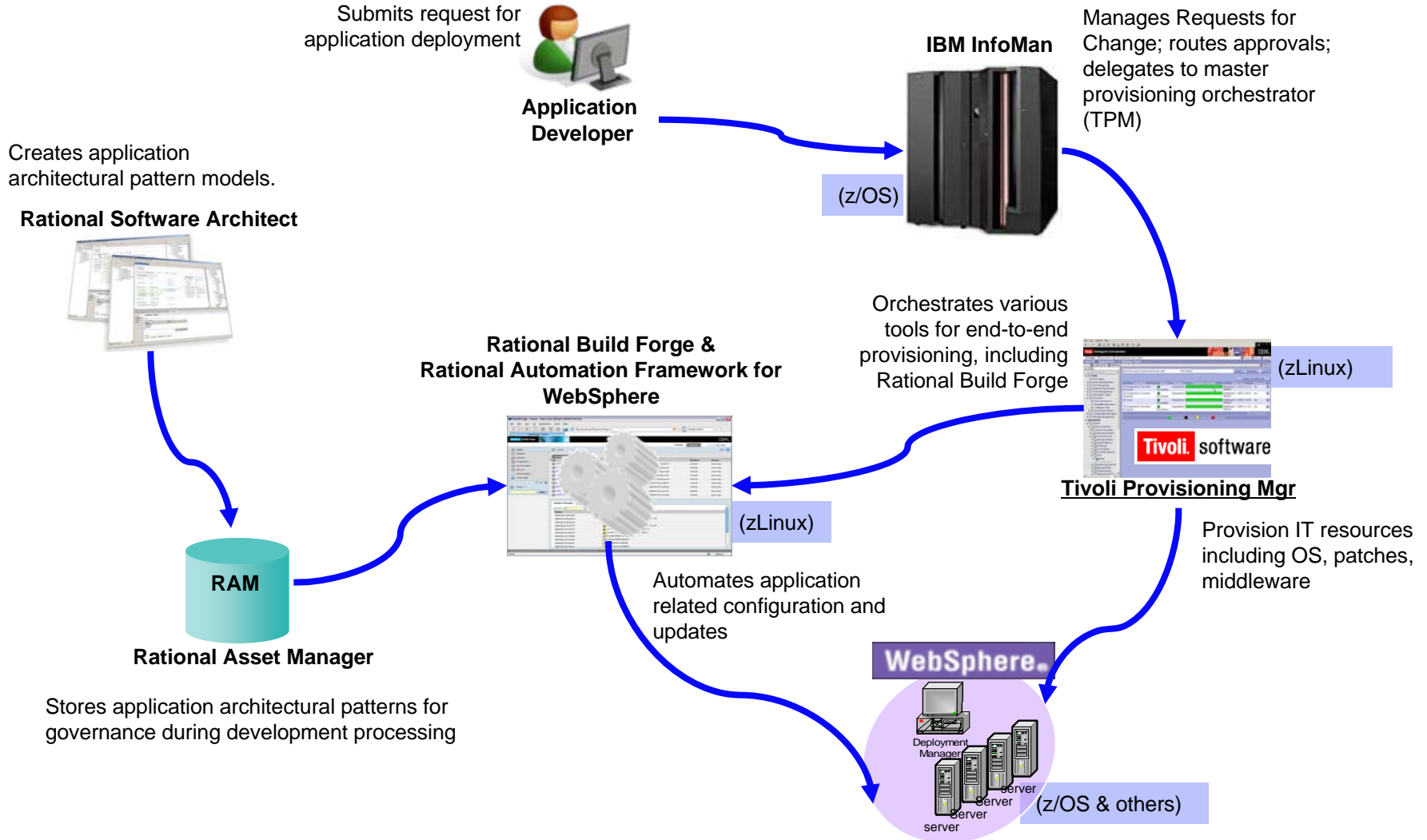
- ▶ Facile accesso alle informazioni necessarie per approvare la release



■ Developer

- ▶ Sodisfazione nel sapere che il proprio codice si attiene alle best practices
- ▶ Facilità nella soluzione degli errori e guida nel come evitarli in futuro

Use Case 4: Linking Development and Operations at Citi



Test Performance & monitoring

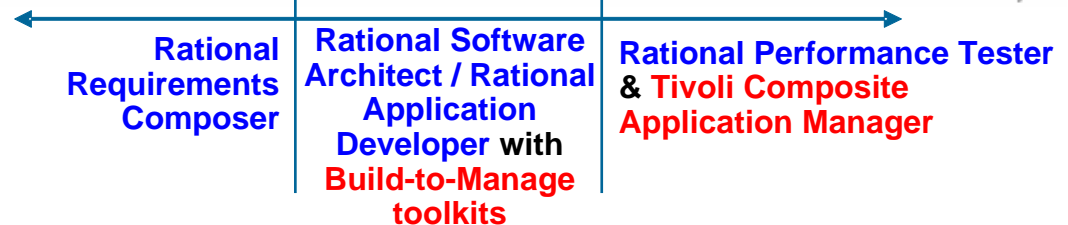
Why finding performance problems early matters

- Finding performance defects early can lower costs by a factor of 5
- Move from “firefighting” to “performance-driven development”
- Tivoli Build-to-Manage toolkits help developers build “uptime” into their services and applications
- Rational’s development tools take advantage of the Tivoli Build-to-Manage toolkits

Figure 4 Sample Economics Of A Move To Performance-Driven Development

Cost of problem resolution		Requirements	Design	Development	Testing	Production	Resolution cost for 100 defects at x = \$100
		1x	2x	10x	50x	100x	
Firefighting	% resolved	0%	0%	0%	0%	100%	\$1,000,000
	cost	\$0	\$0	\$0	\$0	\$1,000,000	
Performance verification	% resolved	10%	0%	0%	60%	30%	\$601,000
	cost	\$1,000	\$0	\$0	\$300,000	\$300,000	
Performance-driven development	% resolved	10%	40%	25%	20%	5%	\$184,000
	cost	\$1,000	\$8,000	\$25,000	\$100,000	\$50,000	

source: Forrester Research, Inc.



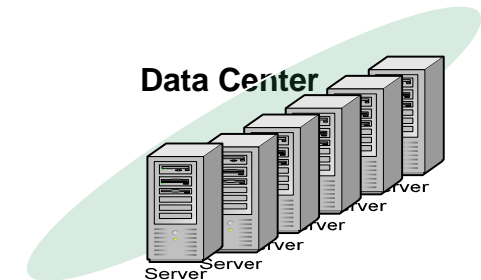
”, Forrester Research, Inc. February 2006

“Performance-Driven Software Development



Detect and resolve problems earlier in the lifecycle

- Use monitoring data from operations in application performance assessment, to understand resource capacity and optimize productivity
 - ▶ Re-using test scripts and monitoring data to validate applications for production
 - ▶ Minimizing risk by understanding performance characteristics prior to deployment



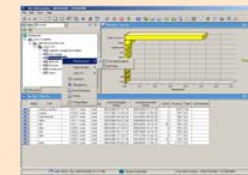
Development



Rational Quality Manager



Rational Performance Tester
and
Rational Service Tester
for SOA Quality



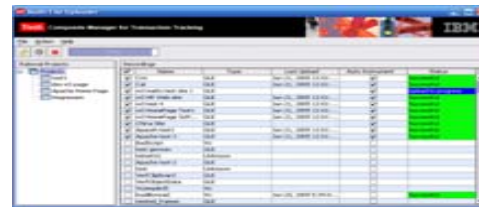
IBM Tivoli Monitoring
(ITM)

IBM Tivoli Composite
Application Manager
(ITCAM)

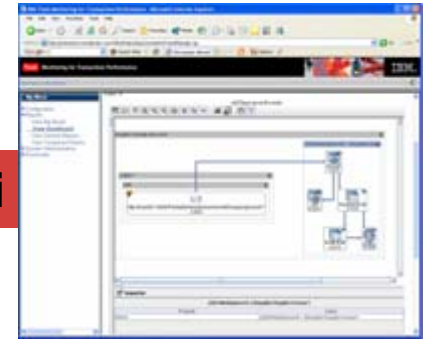
Operations

IBM Rational Performance Tester and IBM Tivoli Monitoring for enhanced application quality

- Bridge application development and operations
- Enhance governance and lifecycle integration
- Ensure critical applications are performing
- Improve team productivity through collaboration
- Increase efficiency with reuse of assets
- Faster deployment through effective problem diagnosis



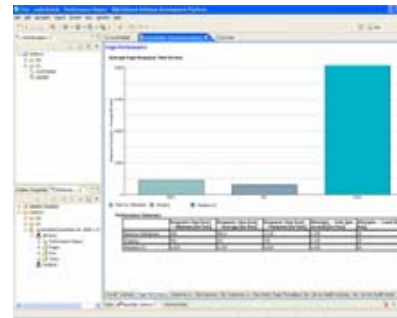
Tivoli



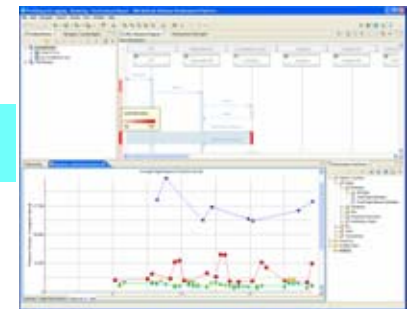
IBM Tivoli Monitoring (ITM)
IBM Tivoli Composite Application Manager (ITCAM)

Re-use test scripts and monitoring data to validate applications for production

Rational Performance Tester (RPT)



Rational



Monitoring systems to identify problems

The screenshot shows a dashboard with a table of events and a detailed view of a transaction performance graph. The table lists events for Texas, Arizona, and Arm, with status indicators (Warning, Normal) and violation counts. The detailed view shows a bar chart of transaction performance over time, with a legend indicating various violation types.

Policy Group	Status	Violating/Total Policies	Agent Availability	Performance Violation Events	Availability Violation Events	Response Time Violation Events	Total Transactions	Number of Performance Violations	Number of Availability Violations
Texas	Warning	2/2	100%	0	0	0	0	0	0
Arizona	Normal	0/1	100%	0	0	0	0	0	0
Arm	Normal	0/3	100%	0	0	0	0	0	0

Dashboard shows transactions with an availability or response time problem

- Identify
- Isolate
- Diagnose
- Assign
- Fix
- Test

IBM Tivoli Monitoring and IBM Tivoli Composite Application Manager (ITCAM)

Isolate the source of the problem

Identify

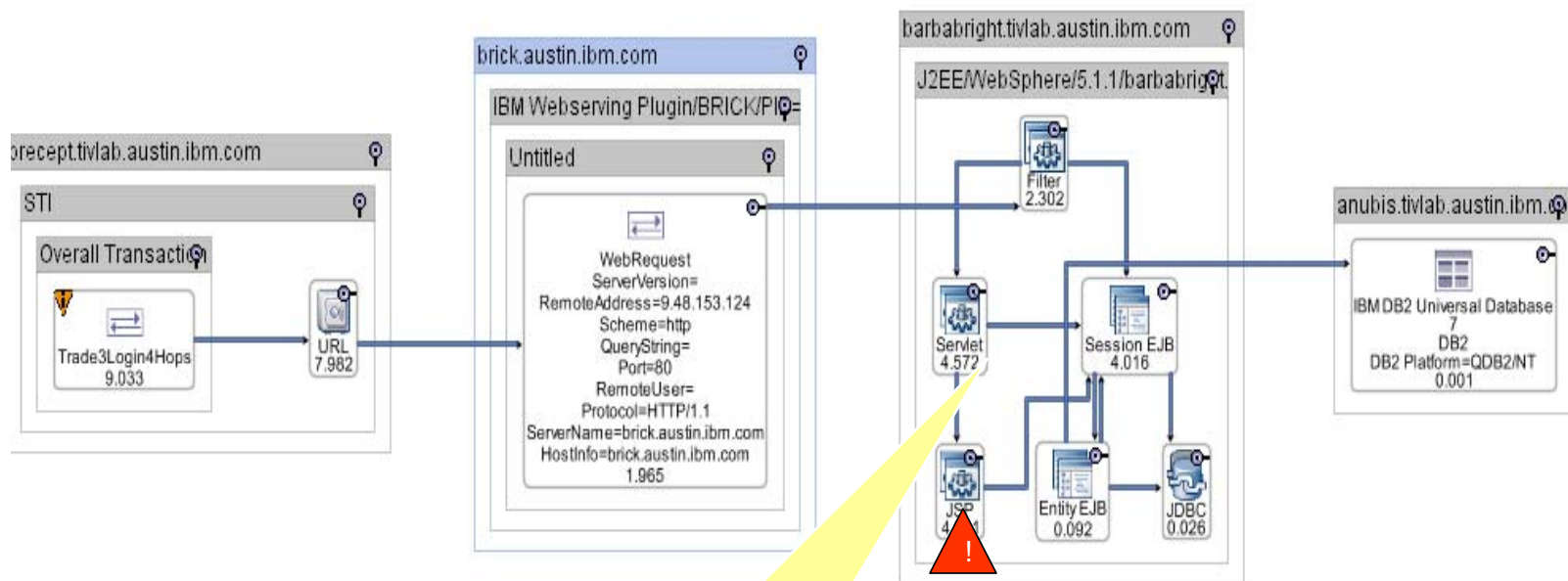
Isolate

Diagnose

Assign

Fix

Test



*Topology shows
problem system so that
it is assigned to correct
Subject Matter Expert*

Analyze and diagnoses the problem

Identify

Isolate

Diagnose

Assign

Fix

Test



- Are memory heap sizes indicating a leak?
- Is performance trending towards a failure?
- Can I easily identify if the problem is with Application Server or elsewhere?

Rational Application Developer Fixes the Problem

1. The transaction which has violated the policy is imported from the ITCAM WS server,

2. ...then visualized as a UML Transaction...

3. ...or as a call graph (well understood by the Developer)...

4. ...Where from the Developer can jump to the code that triggered the issue!

Identify

Isolate

Diagnose

Assign

Fix

Test

The screenshot displays the IBM Rational Software Development Platform interface. On the left, a vertical navigation bar contains buttons for 'Identify', 'Isolate', 'Diagnose', 'Assign', 'Fix', and 'Test'. The main workspace is divided into several panes:

- Import Policies Dialog:** A dialog box titled 'Import Policies' is open, showing a table of policies. The 'PlantsByWebSphere' policy is selected, and the 'ShoppingServlet' policy is checked. The 'Status' column shows 'Normal' for the selected policy and 'Warning' for the checked policy.
- UML Sequence Diagram:** A UML Sequence Diagram is displayed, showing interactions between objects like 'RPT', 'ShoppingServlet', and 'ImageServlet'. A performance call graph is overlaid on the diagram, showing a red bar representing a performance bottleneck with a value of 49967000.000us.
- Performance Call Graph:** A Performance Call Graph is shown, displaying a call tree for the 'Management Server at ...'.
- Java Source Code:** The source code for 'CatalogBean.java' is visible, showing a method 'getItemsByCategory' that includes a 'Thread.sleep(3000);' call, which is highlighted as the source of the issue.



Rational Performance Tester – Validate the fix

Identify

Isolate

Diagnose

Assign

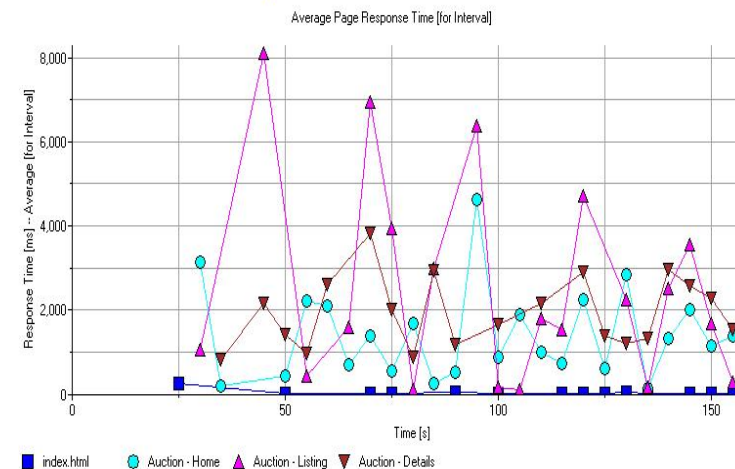
Fix

Test

- ▶ Reuse test scripts for production management
 - Use to proactively simulate conditions in production environment
 - Export RPT test scripts to ITCAM for Response Time
 - Schedule, deploy and run from RT dashboard
- ▶ Import Real-Time resource performance data
 - Get real-time resource performance gathering from ITM/ITCAM Agents into RPT during test execution
 - Collect many different OS and platform resources such as PerfMon or Imstat
 - Connect to a Tivoli Enterprise Monitoring server for a wide variety of resource statistics
- ▶ Import historical resource performance data
 - Aggregated resource data will be read from the Tivoli Data Warehouse
 - Import Transaction Break-down data to discover response degradation and perform Root Cause Analysis



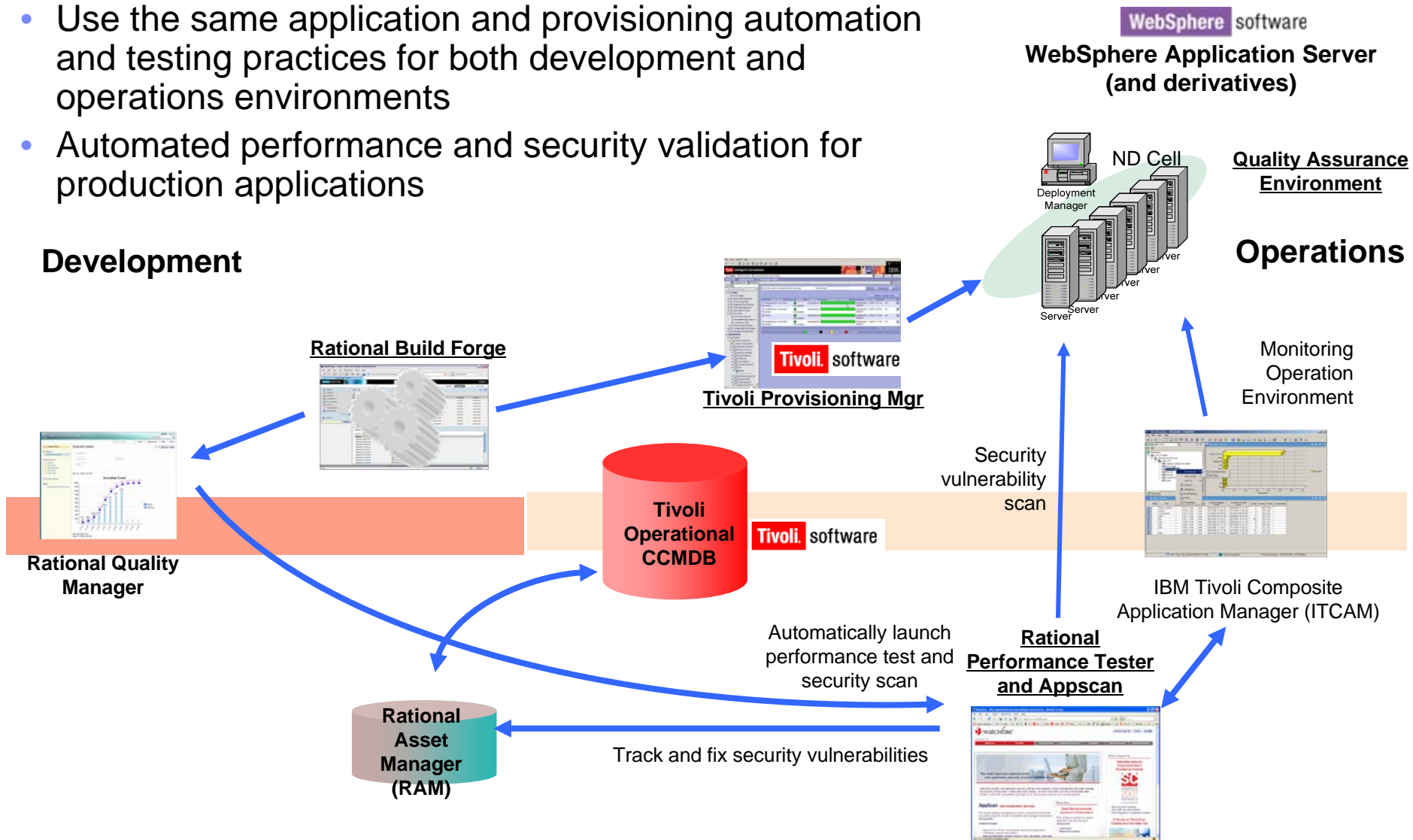
Response vs. Time Detail



Automate lifecycle process and testing

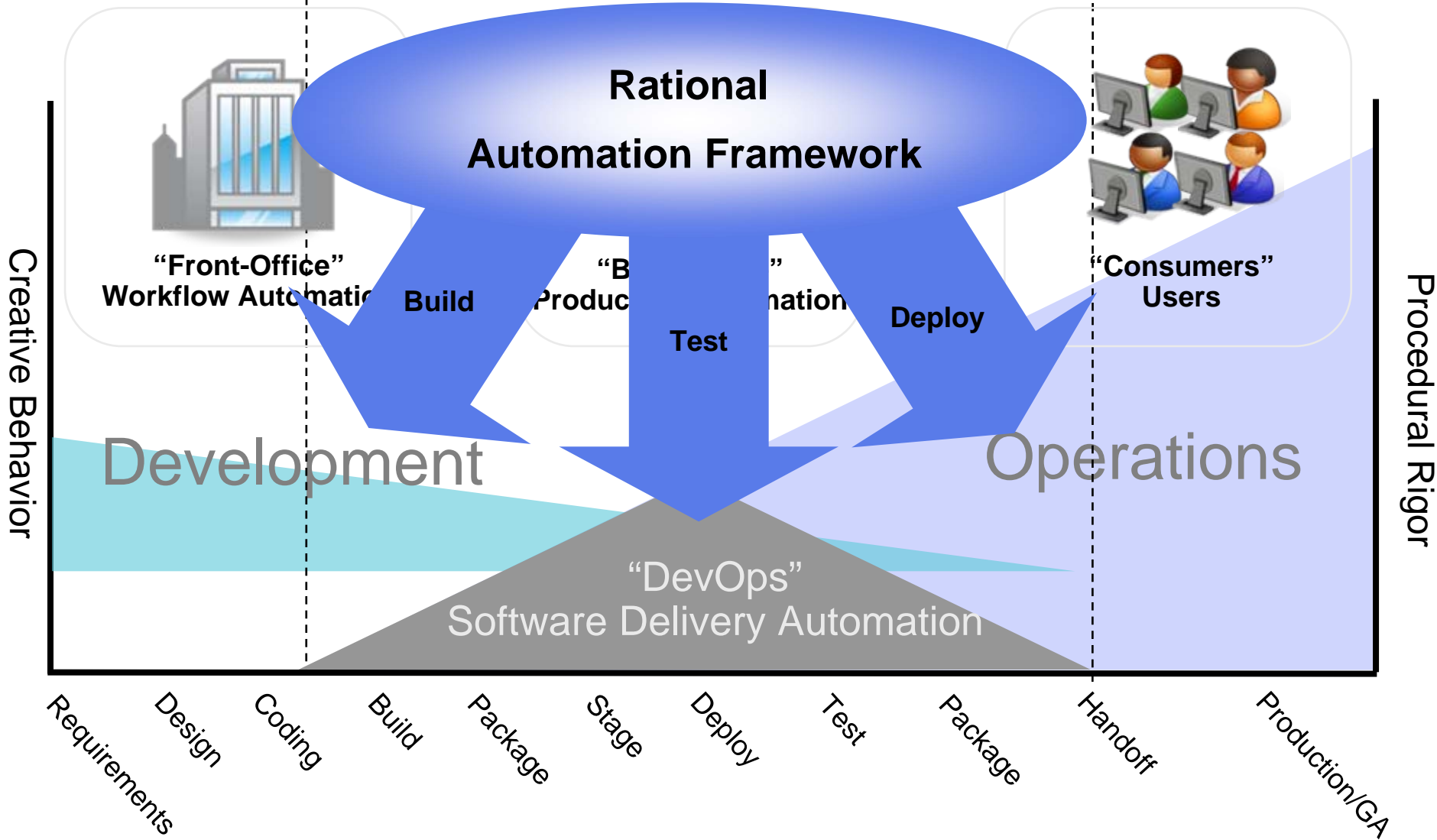
- Use the same application and provisioning automation and testing practices for both development and operations environments
- Automated performance and security validation for production applications

Development



Semplificare, Automatizzare e Addomesticare il proprio Ambiente WebSphere (RAFW)

Migliorare il valore con il coordinamento dello sviluppo



Rational Automation Framework for Websphere

Riduce il Tempo di Manutenzione

- Minor tempo di deploy/creazione di ambienti
- Creazione di ambienti in ore, non in giorni
- Deploy di codice in minuti, non in ore

Aumenta il Controllo dell'Ambiente

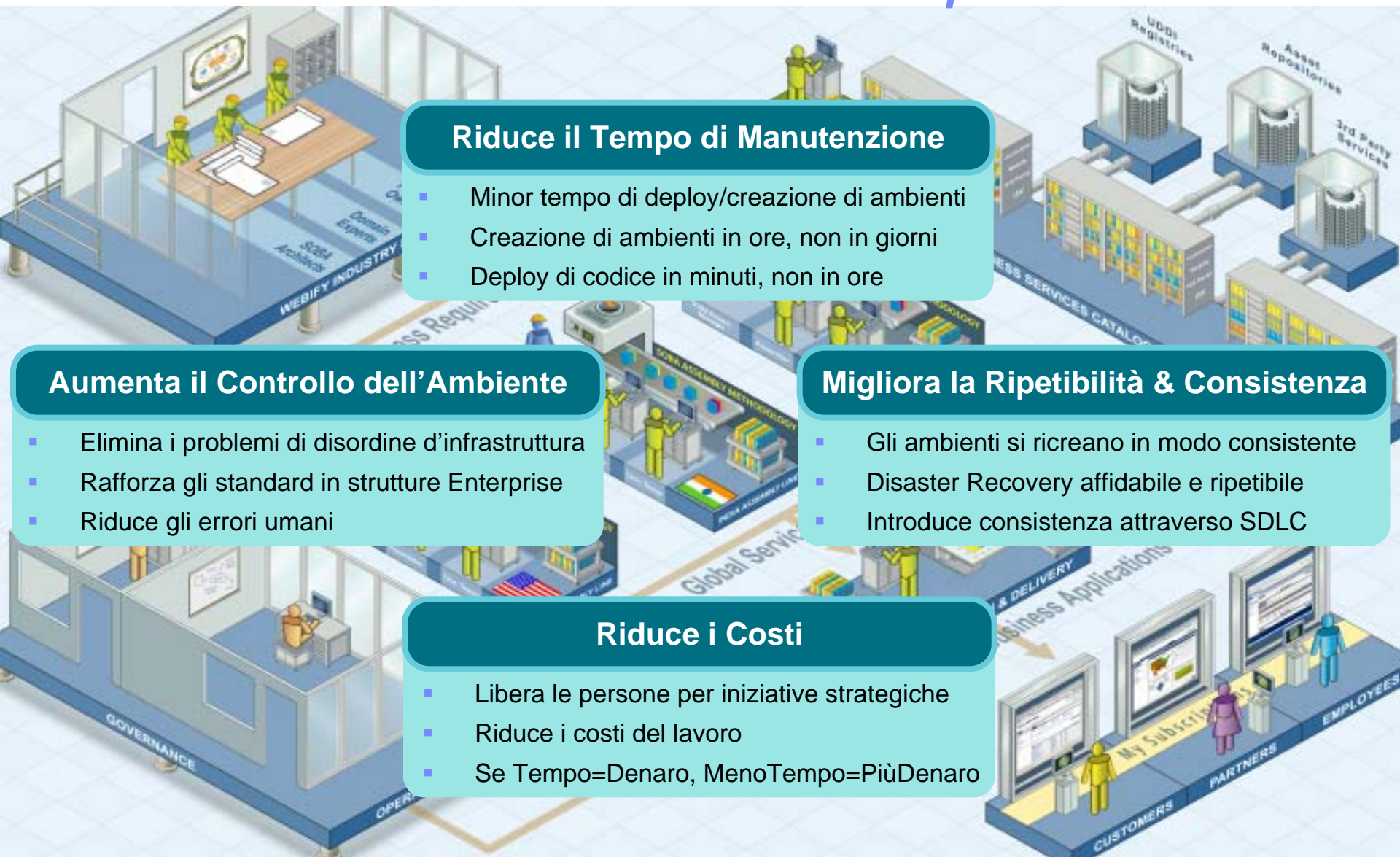
- Elimina i problemi di disordine d'infrastruttura
- Rafforza gli standard in strutture Enterprise
- Riduce gli errori umani

Migliora la Ripetibilità & Consistenza

- Gli ambienti si ricreano in modo consistente
- Disaster Recovery affidabile e ripetibile
- Introduce consistenza attraverso SDLC

Riduce i Costi

- Libera le persone per iniziative strategiche
- Riduce i costi del lavoro
- Se Tempo=Denaro, MenoTempo=PiùDenaro



Rational Automation Framework for WebSphere

- Framework personalizzabile, per il prodotti della famiglia WebSphere, con cui si realizzano:
 - ▶ Automazione di installazione e patching dei prodotti WebSphere
 - ▶ Gestione delle variazioni nella configurazione
 - ▶ Automazione nel deploy delle applicazioni

La forza del framework è...

▶ **Esattezza**



“Data Driven” - RAFW conserva i dati di configurazione normalizzati

▶ **Affidabilità**



Applica i giusti dati all'appropriato ambiente WebSphere

▶ **Consistenza**

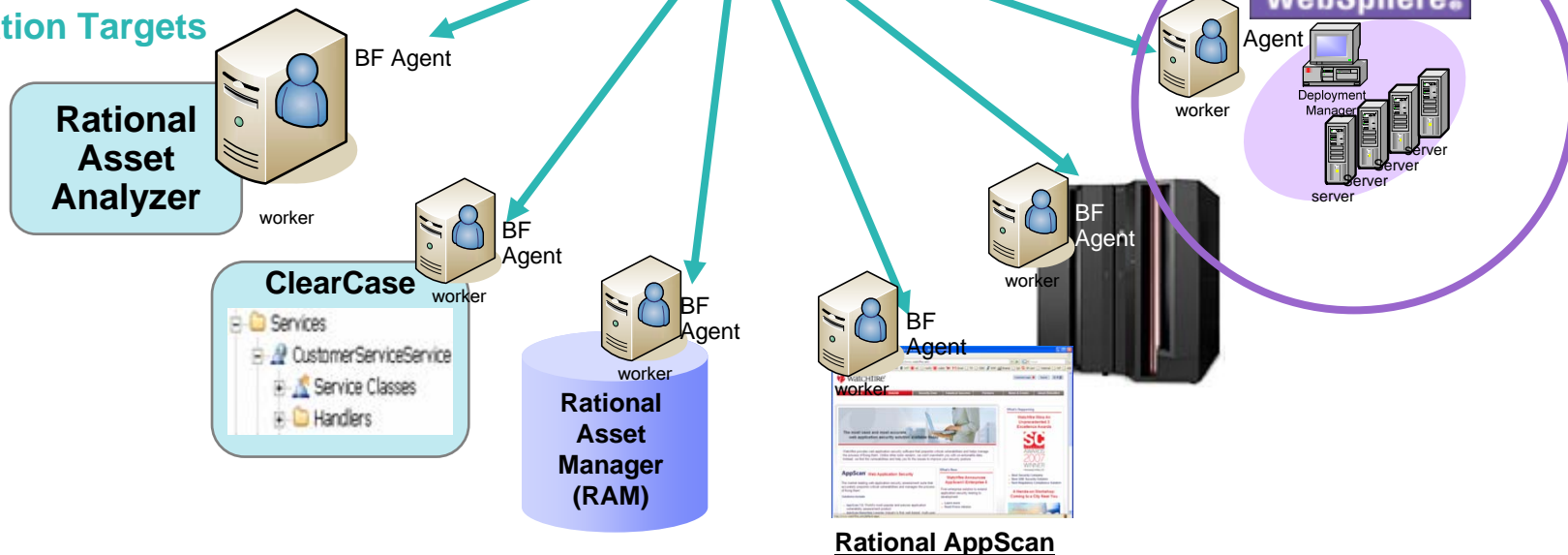


Applica i dati in modo ripetibile agli ambienti WebSphere

Rational Automation Framework

- Server di automazione centralizzato, orientato ai task di sviluppo software
- Sistema di automazione distribuito che supporta una gran varietà di piattaforme
 - Windows, Linux, Unix, Mac, z/OS, i5/OS, zLinux, Tandem, etc.
- Piattaforma di automazione provata a livello Enterprise

Automation Targets



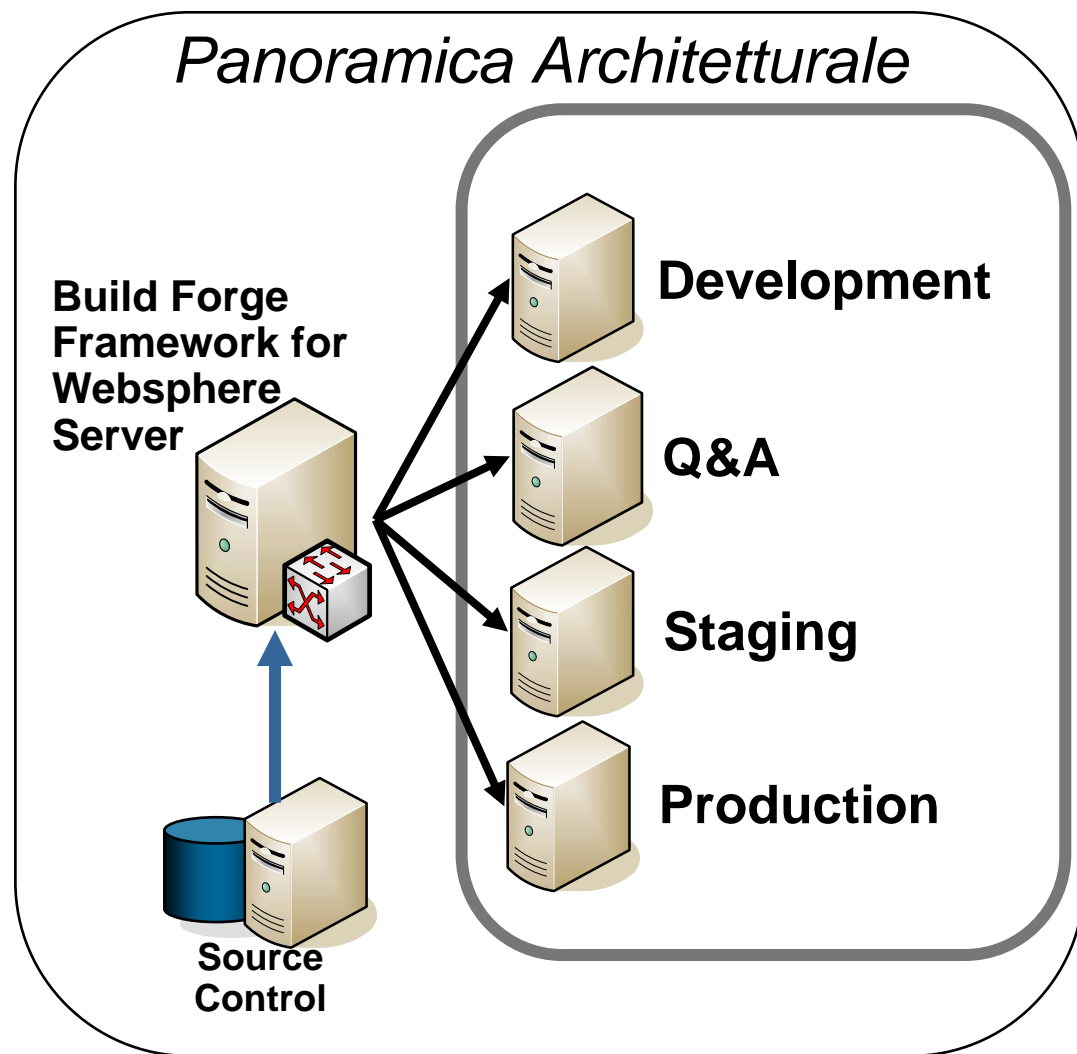
RAFW: Automazione di gestione WebSphere & Portal

■ Che cosa porta?

- ▶ Soluzione a livello Enterprise con supporto di molti sistemi operativi
- ▶ Automazione per ambienti WebSphere multi-cella
- ▶ **Oltre *300*** azioni pre-built, testate sul campo per WAS e Portal
 - In più oltre 100+ azioni specifiche per Portal

■ Scenari di uso comune

- ▶ Strumenti WebSphere multi-cella
- ▶ Creazione di ambienti
- ▶ Salvataggio di configurazione
- ▶ Deployment di applicazioni
- ▶ Gestione variazioni per la configurazione di WebSphere
- ▶ Confronto di configurazione



BuildForge framework: Panoramica Tecnica

SOFTWARE DELIVERY AUTOMATION FRAMEWORK

Management Console

Centralized Web-based, Collaborative Distributed Access, Role-Based Security

IDE Plug-Ins

Developer Self-Service, Role-Based Security

Control

Acceleration

Environment

Notification

Scheduling

Log Analysis

Tracking

Analysis

Automazione di Processo & Integrazione Continua

Automated, Repeatable Application Development Lifecycle

Business Requirements

Production

Dev

▶ Source Control

▶ Analyze Source

▶ Product Build

▶ Package

▶ Deploy

▶ Test

Languages

Java, C, C++, C#, etc.

Source Control

Continuous Integration and Interaction with Synergy

Source Analysis

Rational Software Analyzer, Logiscope, etc.

Build Tools

ObjectMake, ClearMake, Ant, Maven, etc.

Package Tools

Wise, Install Shield, RPM, JAR, WAR, etc.

Release

Simple deploy or Interaction with Tivoli, etc.

Test Tools

Test Manager, Robot, Functional, etc.

Platforms

UNIX, Windows Mac, Linux, zSeries, iSeries, RTOS, Virtualized

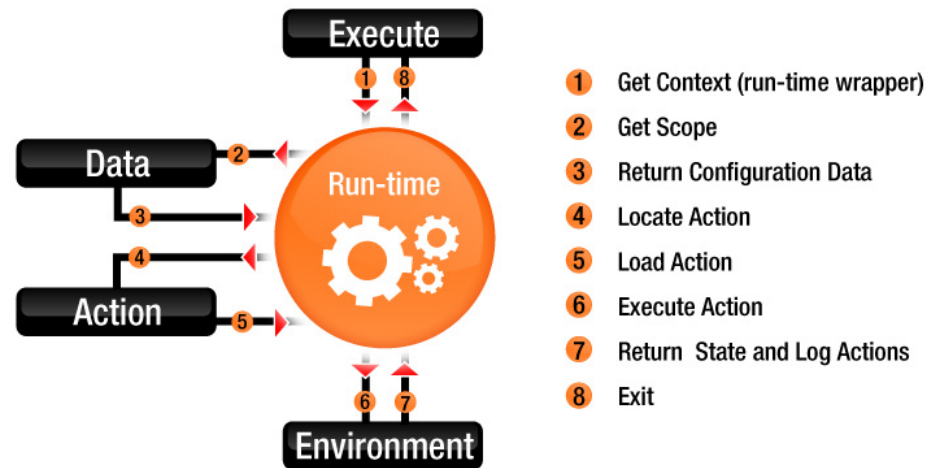


Usi comuni di RAFW:

- Amministrazione assistita e non assistita di WAS/WP
- Confronto e sincronizzazione degli ambienti (es. Produzione & DR)
- Auditing della configurazione, versionamento e roll-back
- Costruzione/spostamenti di Data Center
- Amministrazione autonoma di WAS/WP & deploy di applicazioni
- IBM Middleware Support:
 - WebSphere 6.0, 6.1, 7.0
 - WebSphere Portal 6.0, 6.1

Come lavora RAFW

Run-time Overview



Vantaggi:

- Raggruppamento di dati di configurazione, ambienti ed esecuzione di azioni relativi al contesto (“data-driven”)
- Raccolta comune di azioni riutilizzabili
- Passaggio di contesto fra le varie celle
- Possibilità di concatenare fra loro le azioni
- Contesto riflesso su WebSphere

Accelerate your results

With IBM professional services

IBM Services for Rational and cross brand

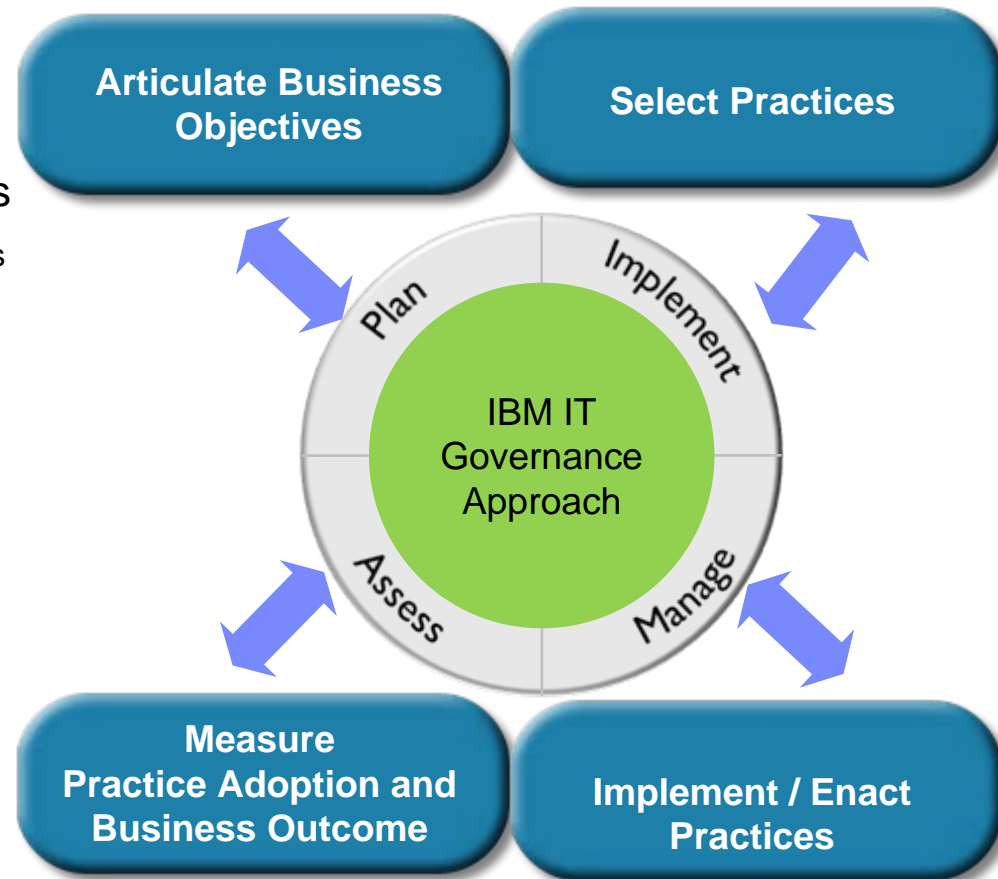
- ✓ IBM Rational-Tivoli Build Deploy Automation Service Offering
- ✓ IBM Rational-Tivoli Ensure System Performance Service Offering
- ✓ IBM Rational deployment service offerings
- ✓ IBM Tivoli QuickStart service offerings
- ✓ IBM Rational Measured Capability Improvement Framework Assessments and Health Checks



Measured Capability Improvement Framework



- Identify desired business objectives
 - ▶ Reduce time-to-market, improve quality, increase innovation, and so forth
- Identify and select target practices and tooling to drive desired business objectives
 - ▶ Leverage assessments and out-of-the-box business objectives to practices mappings
- Effectively deploy well-governed practices
 - ▶ Process guidance, training courses, enablement material, and so forth
 - ▶ Understand what aspects of which tools to adopt to effectively adopt practices
- Measure results and take corrective actions
 - ▶ Understand whether target practices are successfully adopted
 - ▶ Understand whether desired business outcomes are achieved or not



Questions

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