



IBM Rational Software Conference 2009  
As Real as It Gets!

IBM

# Cloud Computing – Transforming Software Delivery & Development

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**Rational.** software

# A Crisis of Complexity. Progress is Clear



## 1.5x

Explosion of information driving 54% growth in storage shipments every year.

## 70¢ per \$1

70% on average is spent on maintaining current IT infrastructures versus adding new capabilities.

## 85% idle

In distributed computing environments, up to 85% of computing capacity sits idle.

# What is Cloud Computing?



*Cloud computing is an emerging style of standardized, elastic, scalable, commodity based IT capability delivered dynamically as a service*



*Smart service  
delivery model*

- **Access anywhere**
- **Always available**
- **Automatically scalable to demand**
- **Customer self service**

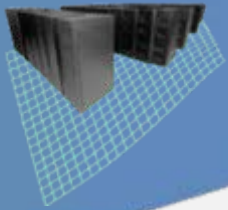


***“Clouds will transform the information technology (IT) industry... profoundly change the way people work and companies operate.”***

**The  
Economist**

- ***For the consumer:***  
***Flexibility, Ease of Use, New Economics***
- ***For the provider:***  
***Self-Service, Economies of Scale,  
Hybrid Delivery***

Grid Computing



Utility Computing



Software as a Service

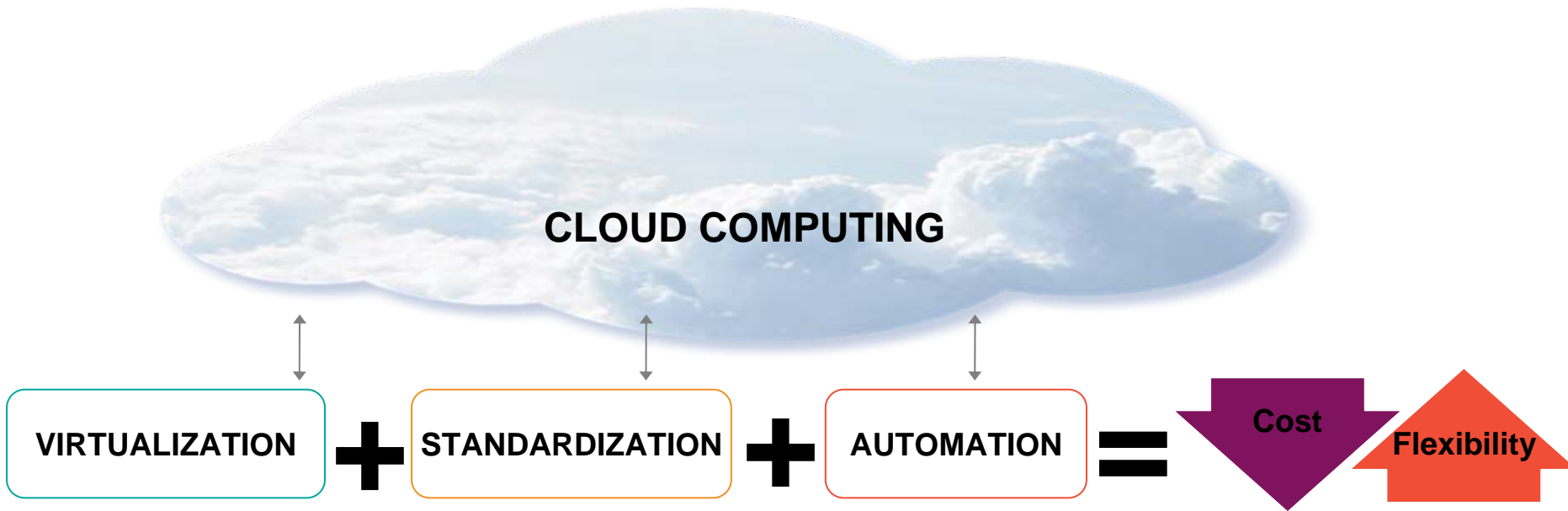


Cloud Computing



***Enabled by Dynamic Infrastructure***

## An Effective Cloud Deployment is Built on a Dynamic Infrastructure ....



...leveraging **virtualization, standardization and automation** to free up operational budget for new investment.

# Cloud Drives New Sourcing Options

## Private ...

Client owned and managed.

Access defined by client.

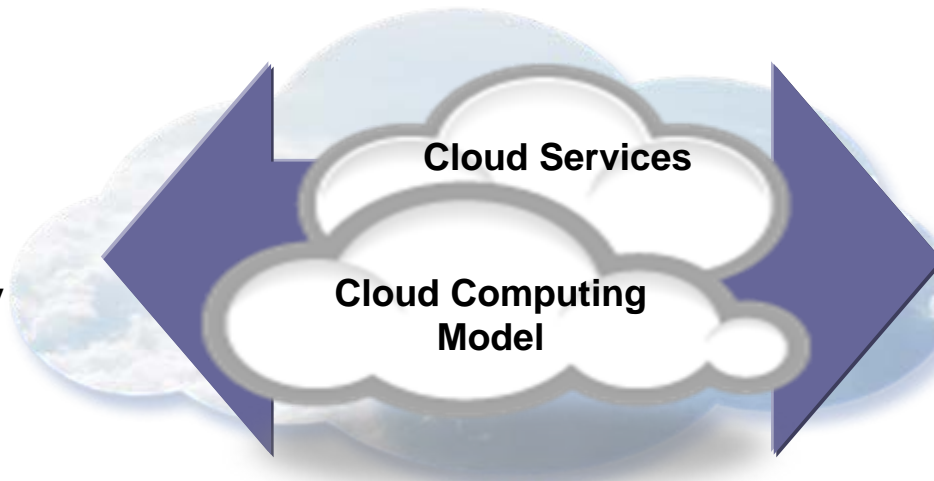
.... Customization, efficiency, resiliency, security and privacy

## Public ...

Service provider owned and managed.

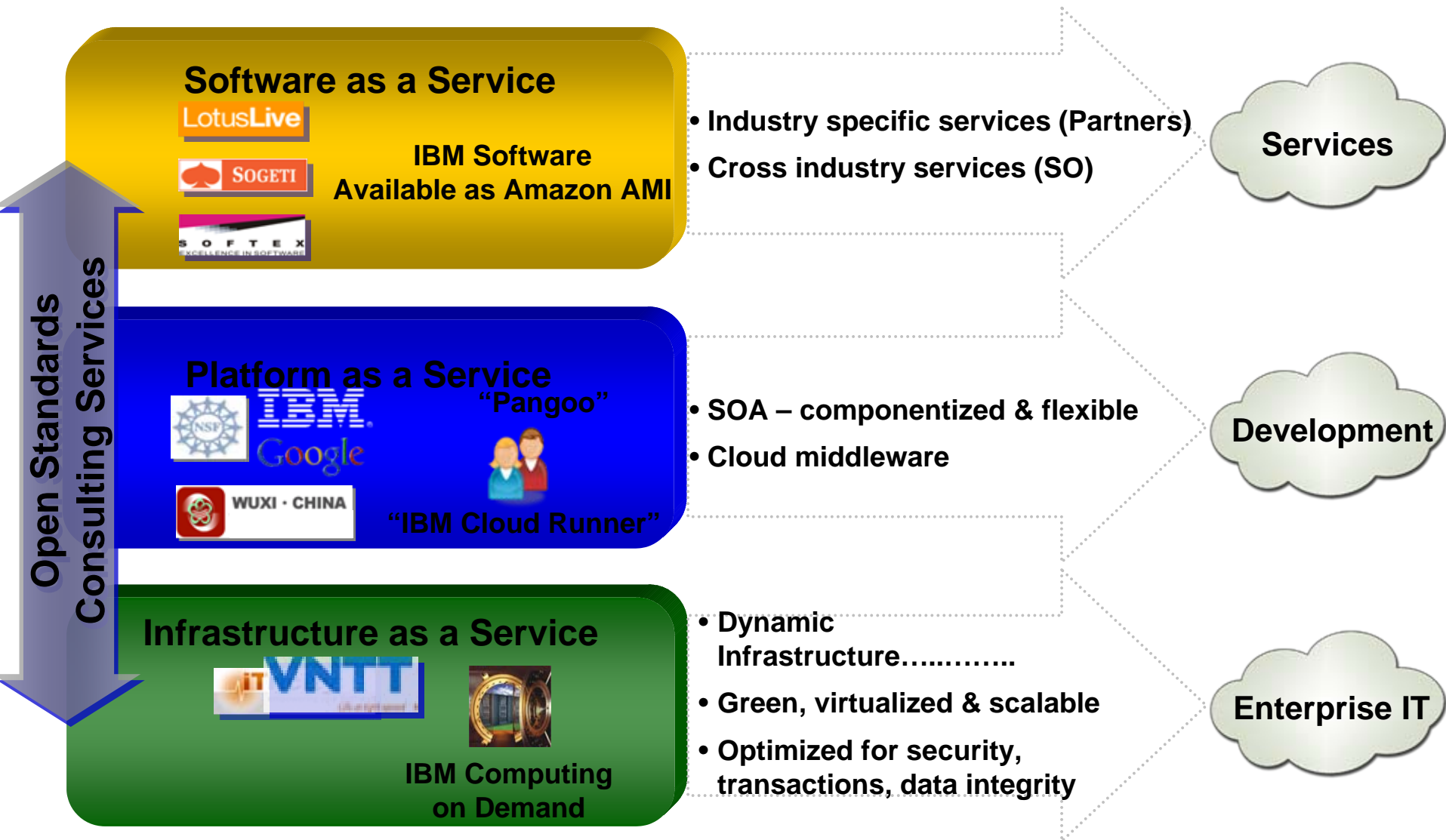
Access by subscription.

.... Standardization, capital preservation, flexibility and time-to-deploy



**GOVERNANCE**

# On-ramps to Cloud Computing Services

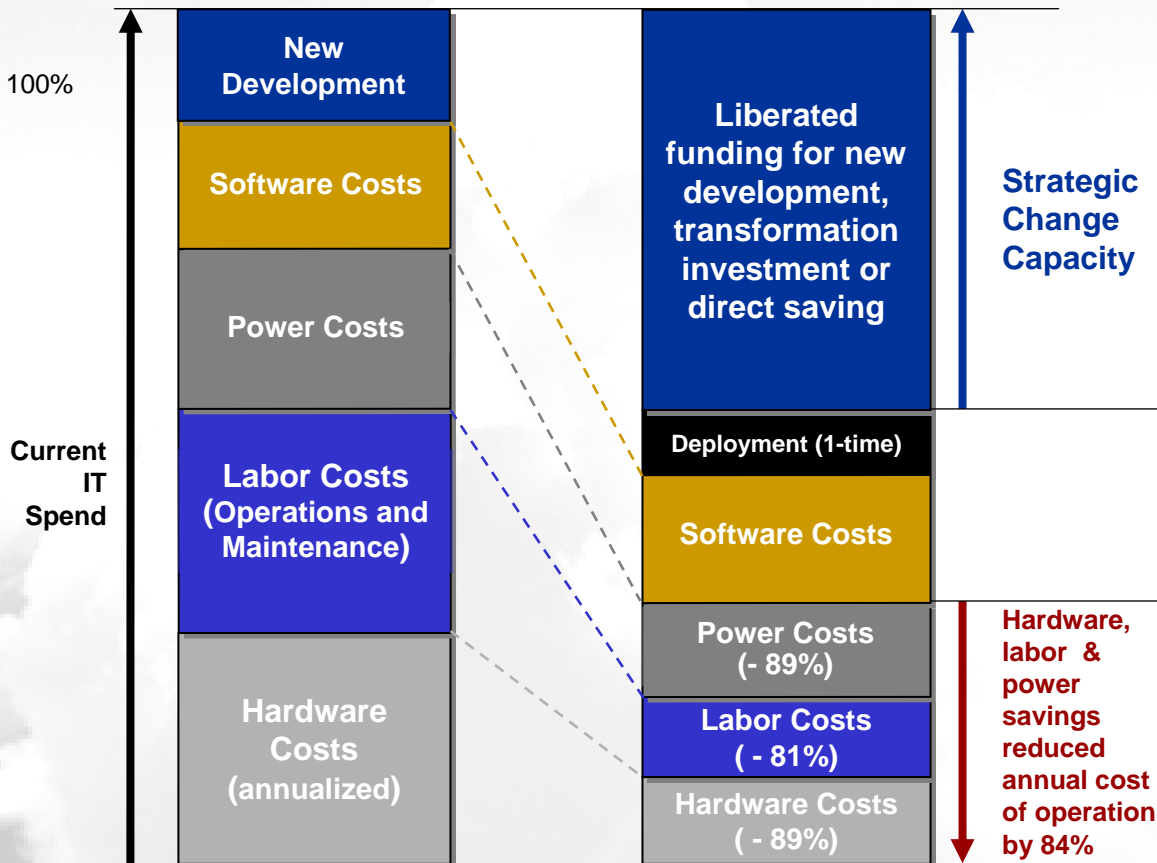


# Benefits of Cloud Exploitation

Based on IBM's Technology Adoption Program (TAP)

This "collaboration innovation cloud" has over 80,000 participants within IBM working together to develop new innovations

## Without Cloud      With Cloud



*Reduced Capital Expenditure*

*Reduced Operations Expenditure*

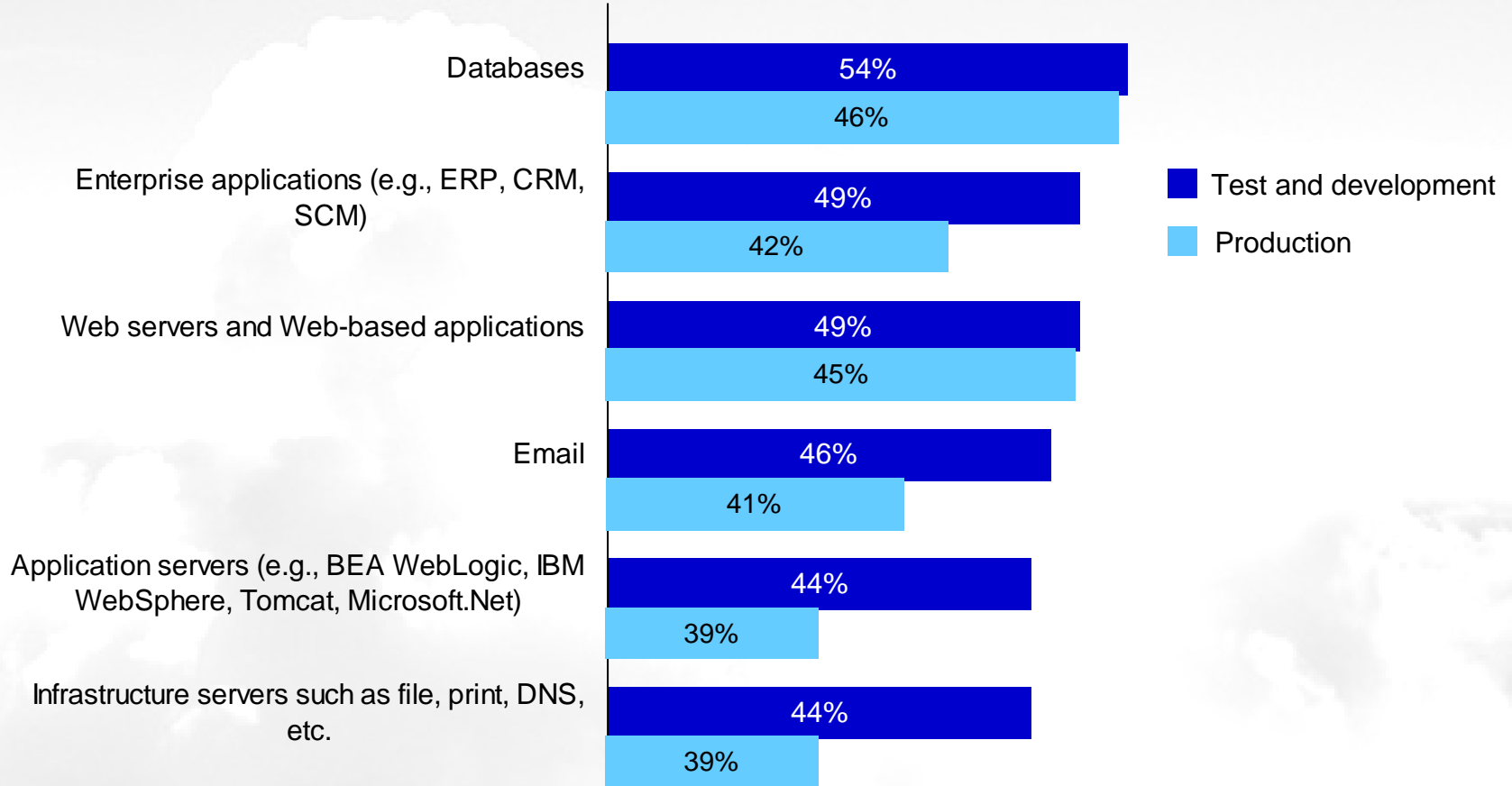
### *Additional Benefits*

Reduced risk, less idle time, more efficient use of energy, acceleration of innovation projects, enhanced customer service



# Enterprises are more comfortable with test and development “in the cloud” than production use

“For each of the following workloads, what is your company’s type of use or expected type of use for pay-per-use hosting of virtual servers?”

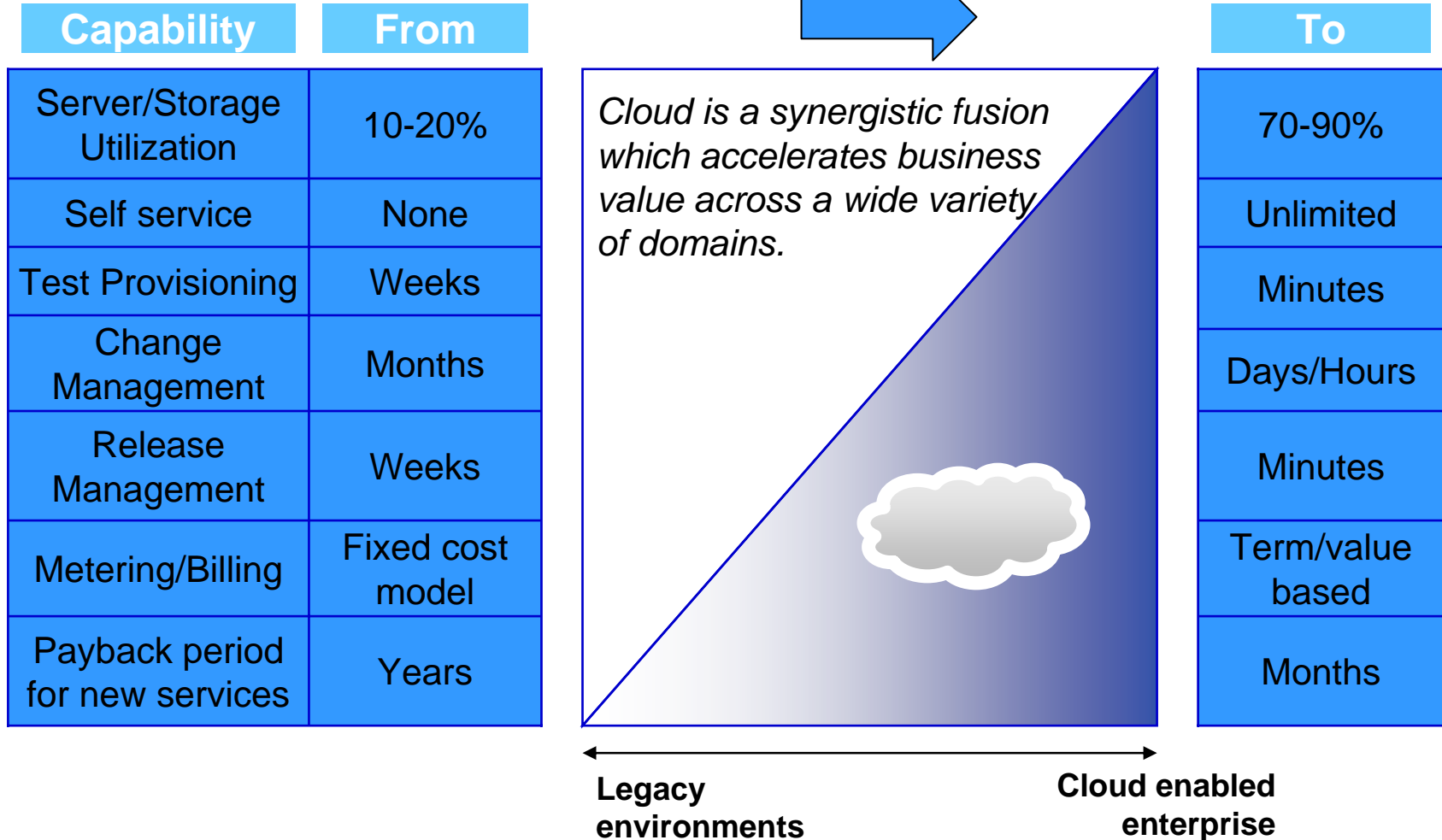


Base: 439 North American and European hardware decision-makers at enterprises with interest in or implementation of pay-per-use hosting of virtual servers

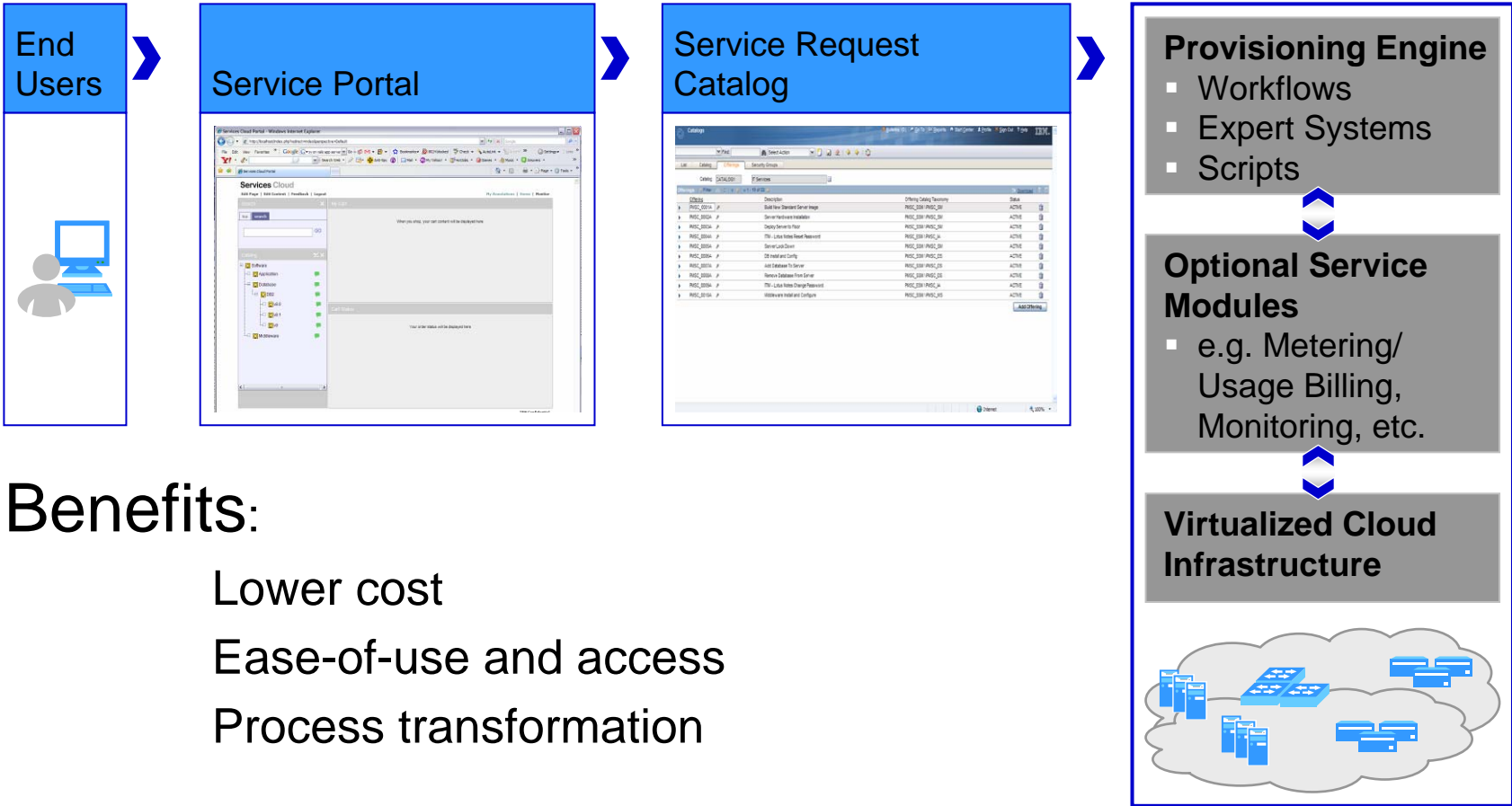
Source: Enterprise And SMB Hardware Survey, North America And Europe, Q3 2008



# Software Delivery specific cloud benefits: Real improvements from customer implementations



# “Self-service” Drives Process Standardization

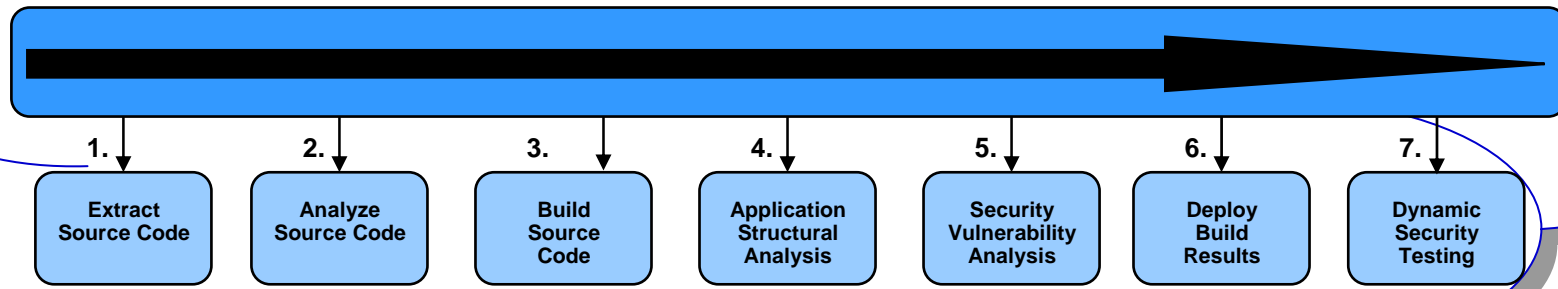


## Benefits:

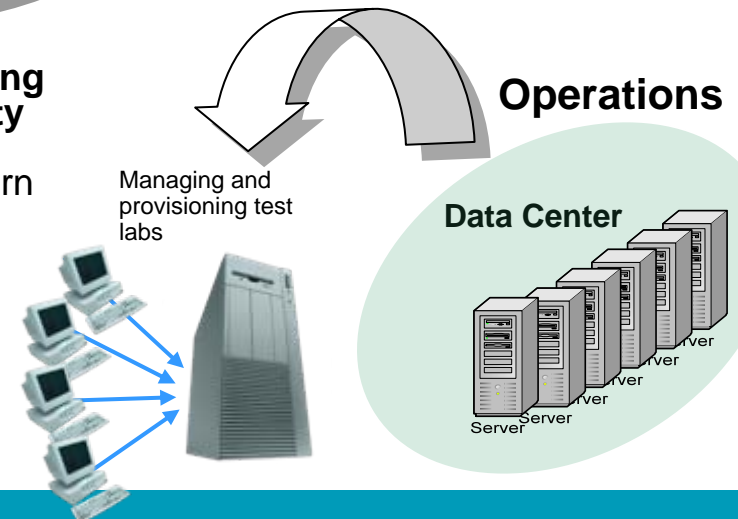
- Lower cost
- Ease-of-use and access
- Process transformation

# Reduce Software Delivery Costs through Clouds

Dynamically obtain and use IT resources from the Cloud to execute automated software development tasks



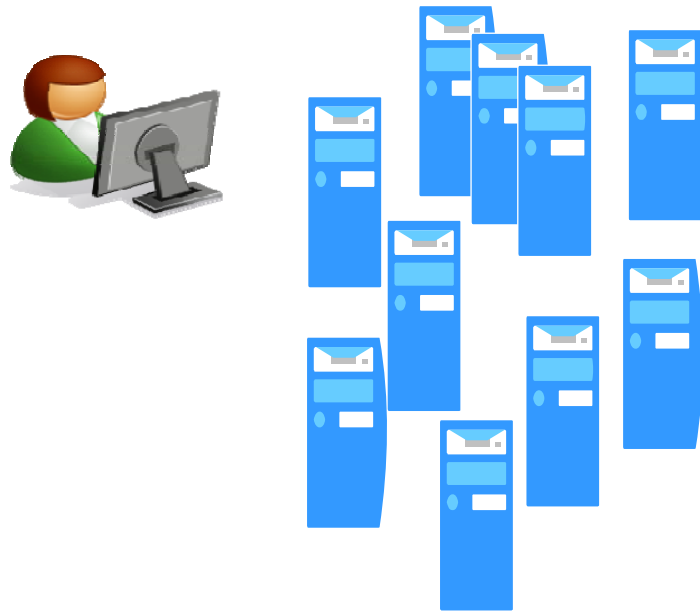
- Seamlessly automate across the software delivery cycle **exploiting cloud resources for on-demand development and test activity**
- Only pay for what you need - provision cloud resources then return resources to the cloud
  - Use for build, package, deploy, and test activities
- Automate performance and security validation against cloud resources



# Making current test environments more productive, agile and dynamic

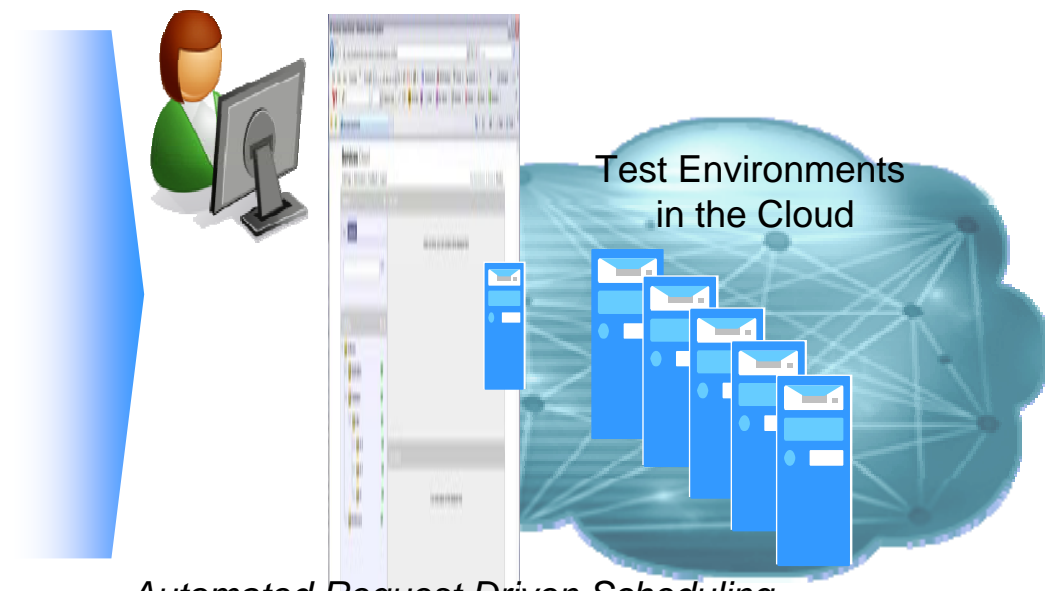
*Current typical test environment with large number of test servers, little virtualization, and primarily manual allocation and configuration of individual test environments*

## Current



*Manual Scheduling, Provisioning & Configuration*

## Service Request Portal To Be



*Automated Request Driven Scheduling, Provisioning & Configuration of HW, OS, Middleware and Apps. Automated Tracking, Monitoring and De-provisioning. Virtualization Management, Capacity, and Image Management*

**Capital & Operational Expense Reduction, Defect Reduction, Increased Productivity & Innovation**

## IBM services for cloud computing – Design and implementation for test environments



### Key Features

- Assessment of current test environment to project savings and ROI
- Strategy, planning, design and implementation services of the solution
- Create self-service portal with catalog of services
- Integrated platform combining service request management, provisioning / de-provisioning and change and configuration management

### Benefits

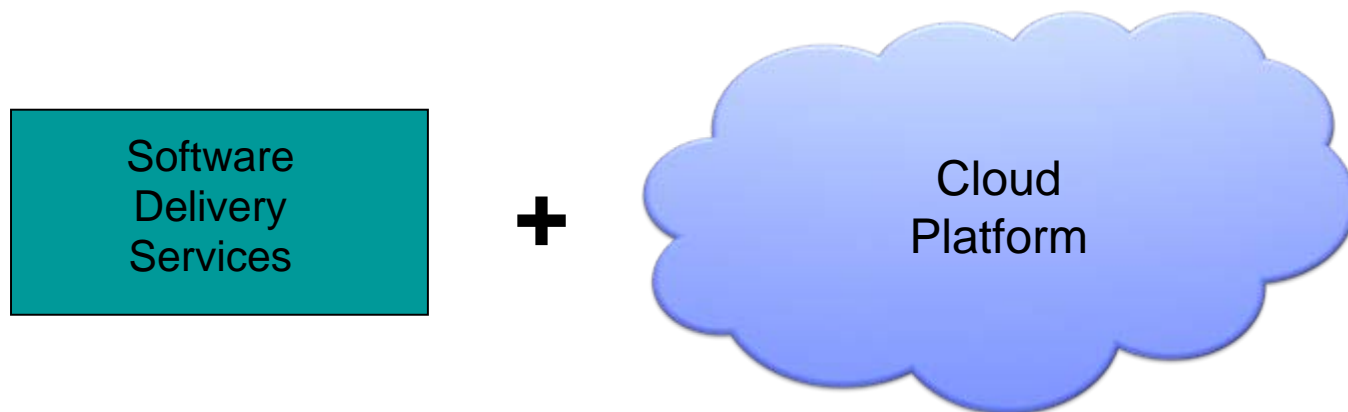
- **Reduce IT labor cost by 50% +** - reduce labor for configuration, operations, management and monitoring of the test environment
- **75% + Capital utilization improvement;** Significant license cost reduction
- **Reduce Test Provisioning cycle times from weeks to minutes**
- **Improve Quality-** eliminate 30% + of all defects that come from faulty configurations.

## What is the Developer Cloud?

- The Developer Cloud is the integration of
  - **Software Delivery Services** for the cloud including both IBM tools hosted in the cloud and new capabilities of existing IBM tools to exploit cloud resources

*and*

  - a **Cloud Platform** providing the infrastructure services to host and deliver the Software Delivery Services



# IBM Software Delivery Services (SDS) for the Cloud

## *Offerings:*

### 1. Tools in the cloud

- Software delivery tools that can easily be provisioned as services in the cloud. Customers can 'rent' services from public cloud or buy licenses for services in private cloud

### 2. Tools for the cloud

- Offline tools with functions to design and provision cloud resources and 'exploit' those resources to perform development or testing work, e.g. running tests or running builds in the cloud.

## *Examples:*

- **Rational Jazz server products such as Team Concert, Quality Manager or Requirements Composer instantly provisioned and hosted in the Cloud.**
- **Rational Quality Manager performing tests in the cloud or Build Forge conducting builds in the cloud. RSA designing applications while considering cloud deployment.**



## Common POC or test project experience

- Pre cloud
  - Time to value gated by physical acquisition and deployment
  - Software and hardware selection requires capital budgeting and planning
    - Balanced against other priority projects for \$s, space, and deployment staffing
  - Serialized process prevents short term efforts from even being viable or long term reservations are made.
- With cloud
  - Virtualized assets are supplied on demand
    - If software acquisition is required, a preconfigured image is purchased
  - Operational expense is often used and budgeted for only the life of the POC or test
    - Only actual use is billed
  - This aspect of the project is no longer a gating factor and more projects can be considered

# “Instant on” collaborative Application Lifecycle Management

## *Introducing the evolution of Jazz offerings in the Cloud*



### IBM Rational Software Delivery Services for Cloud

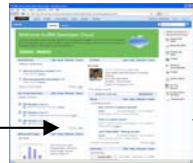
- **Technology preview available now; Trial subscription available soon**
  - Comprehensive collaborative ALM Solution
  - Integrated capabilities of Rational Insight, Requirements Composer, Team Concert, Build Forge, Quality Manager, more!
- **Flexible deployment options**
  - Hosted Public Cloud Offerings
  - Hosted Private Cloud Offerings
  - Integrates with GTS Test Services for Cloud
  - **New capabilities will be added over time**

# Developer Cloud

## Provisioning an unmanaged tool service (RTC) in the cloud



1. User logs in the developer cloud through the cloud logging portal.



2. User selects the virtual image for the tool required in the RAM catalog and agrees with T&Cs



3. User selects and rents the server and storage required for the service based on his/her needs



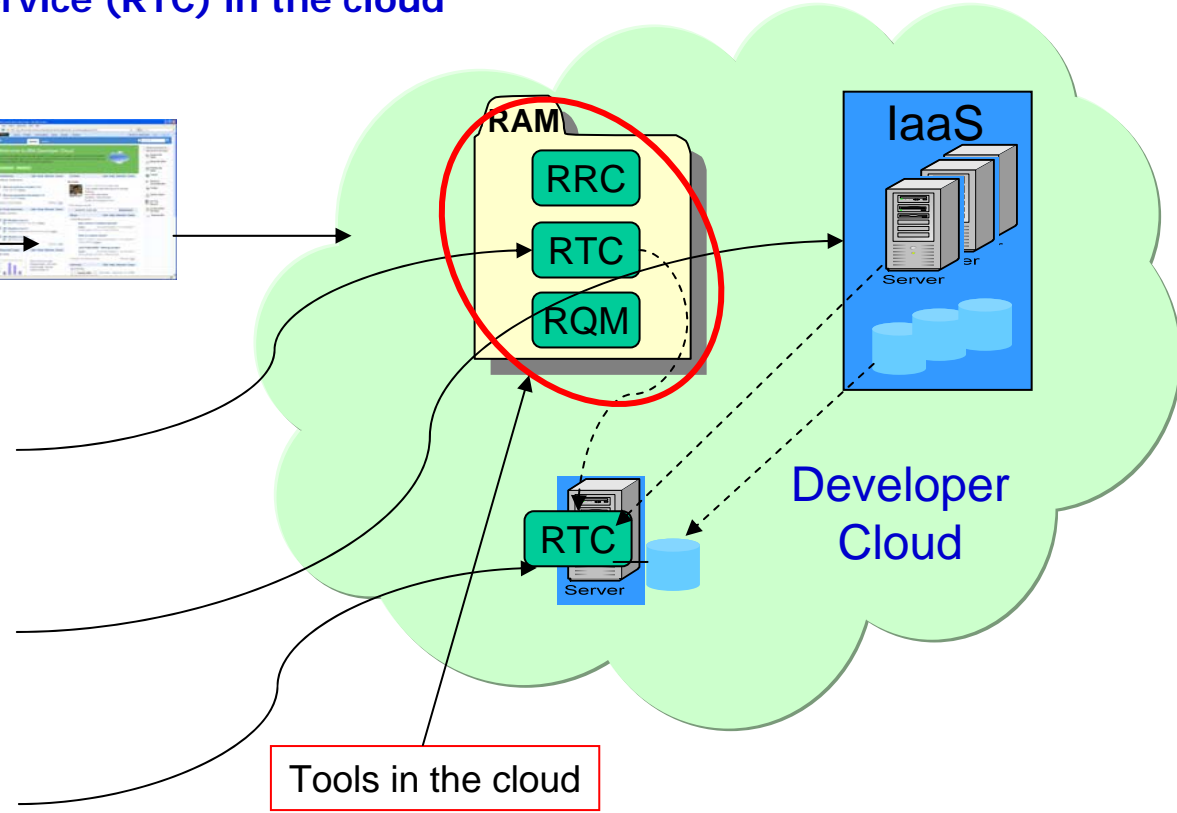
4. User requests the provisioning of the selected tool on the selected HW in the cloud



5. User can use tools to simplify, automate and govern software delivery for his development team



6. When service is completed, user deprovisions the service, returning the HW for other users



**Instant Access**

**Best Practices encapsulated in the virtual image**

# Deploy a Service with a few mouse clicks

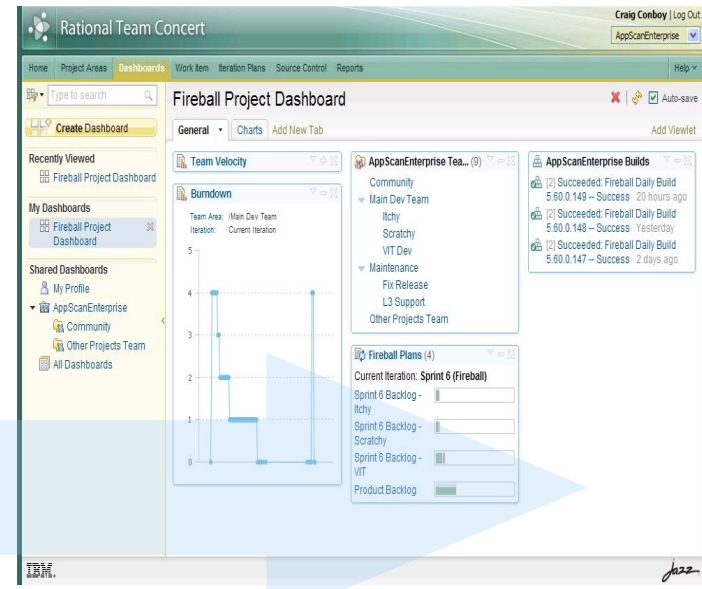
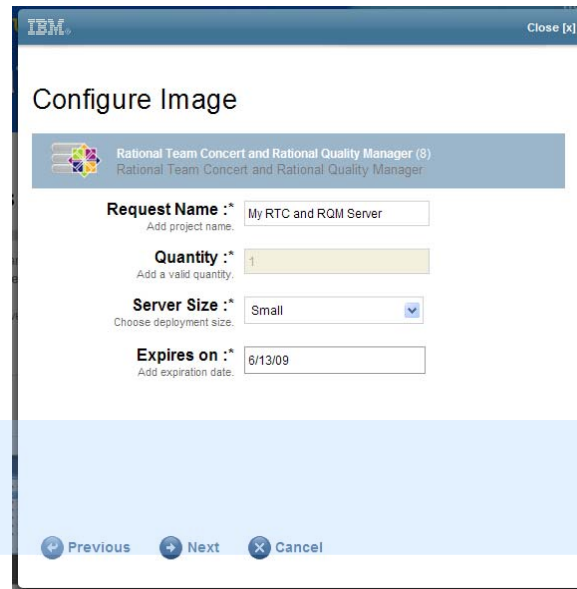
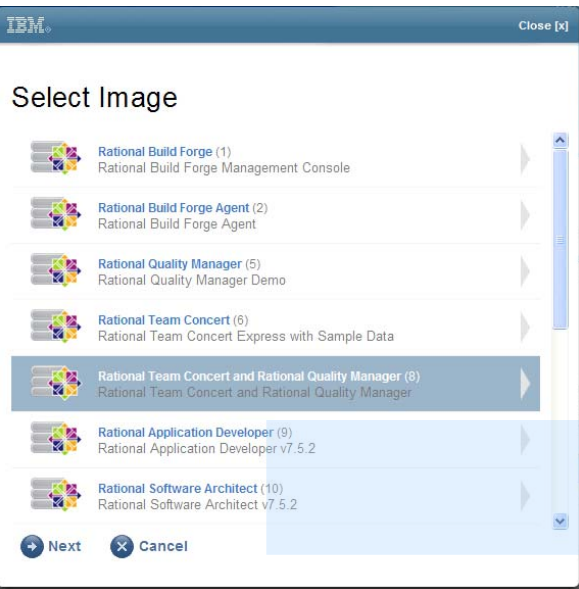


## Rational Team Concert running in 5 minutes on the cloud

**Step 1** Click and Choose the service you need

**Step 2** Choose the hardware and usage configuration

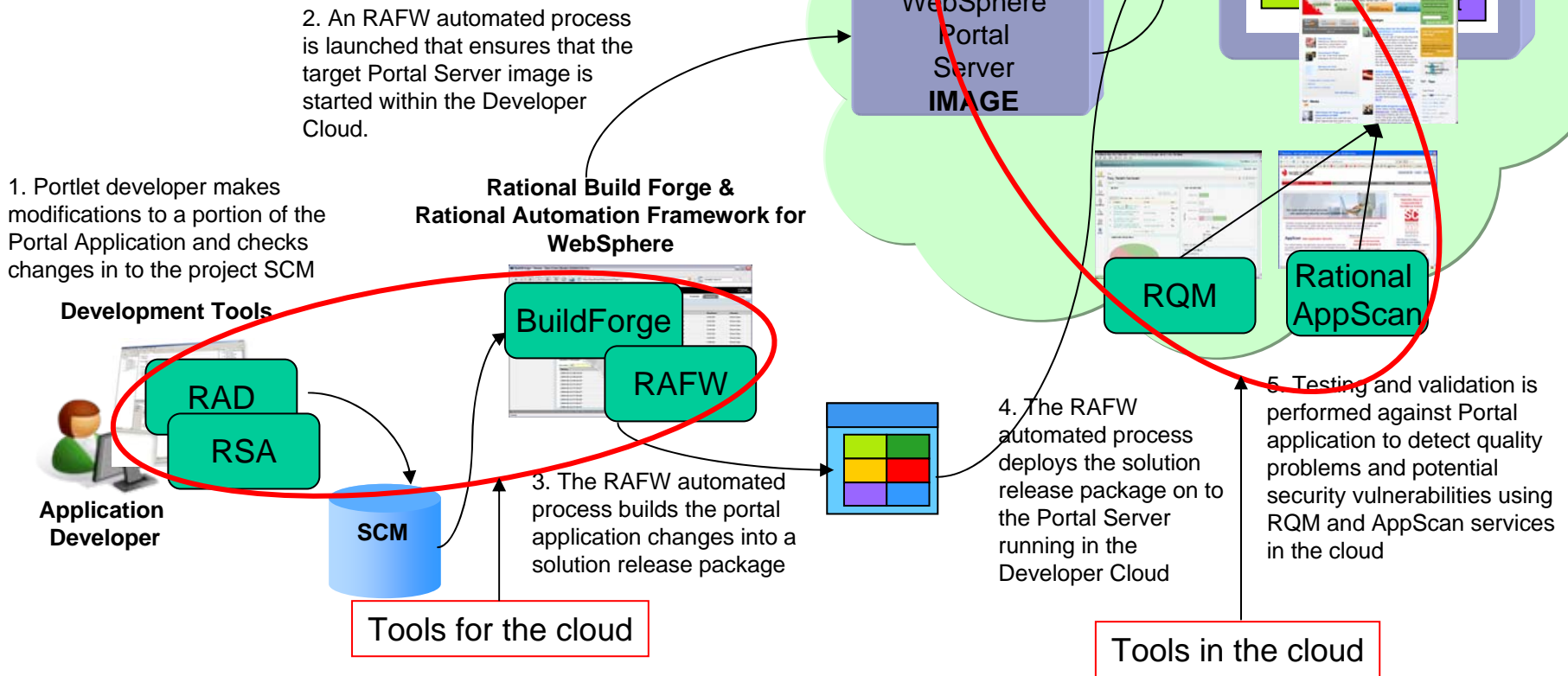
**Step 3** Application provisioned and ready to run



# Developer Cloud

## Developing and testing Portal Applets in the Developer Cloud

- The Developer Cloud includes an image for Portal Server indexed in RAM 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 Developer Cloud



From weeks to less than one day....

# IBM Cloud Offerings

# *Rational SDS Cloud User Stories*

## On The Cloud

- “I want Rational to run my development infrastructure for me.”
  - **SaaS customer**
- “I need to quickly setup a development infrastructure for a project. We’ll use it for the duration of the project.”
  - **Consulting Firm**

## For The Cloud

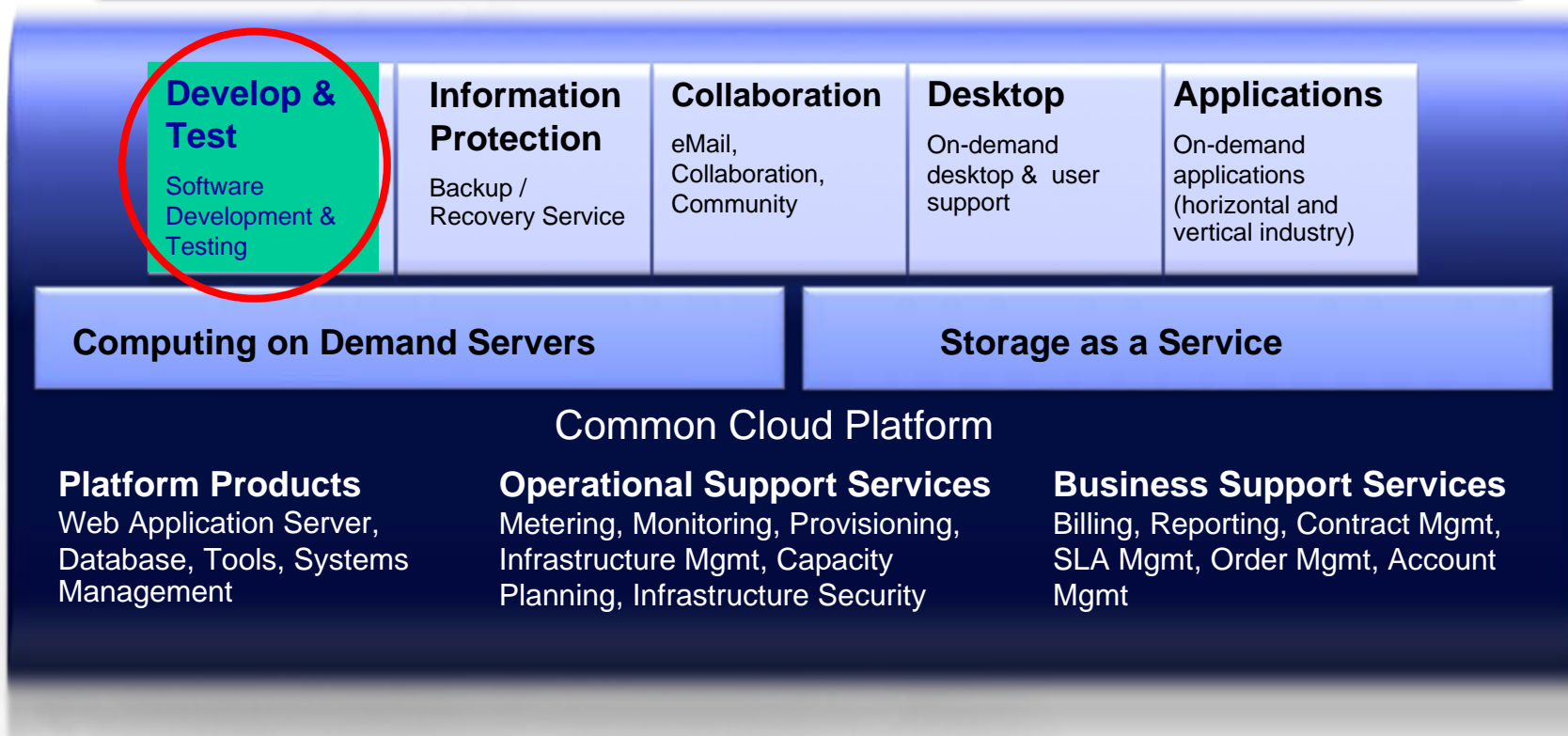
- “I want to leverage elastic compute capability of cloud to make my builds/tests faster and more cost effective.”
  - **Software Development Manager**
- “The application I’m developing targets the Cloud and I want my Rational development tools to help me work in that environment”
  - **Cloud Application Developer**
- “I want to my Rational tools to help me catalog, manage and deploy cloud assets”
  - **IT Architect**

# Software Delivery Services for the Cloud

IBM has embarked on a vision of delivering a comprehensive solution for **Cloud Computing**

SDS demonstrates and leverages IBM's portfolio of offerings and services to provide a complete environment for software development, test, and delivery

Common Cloud User Experience – “The IBM Cloud” Portal





# IBM Smart Business Test Cloud

*A secure, private cloud environment clients can use to test applications before sending them to production*

- Creates a more efficient test environment that improves productivity and reduces costs
- Includes an operating system, middleware, storage, network and virtual images, along with pre-integrated set of services, from planning through implementation
- Clients can leverage their existing systems or IBM's new CloudBurst

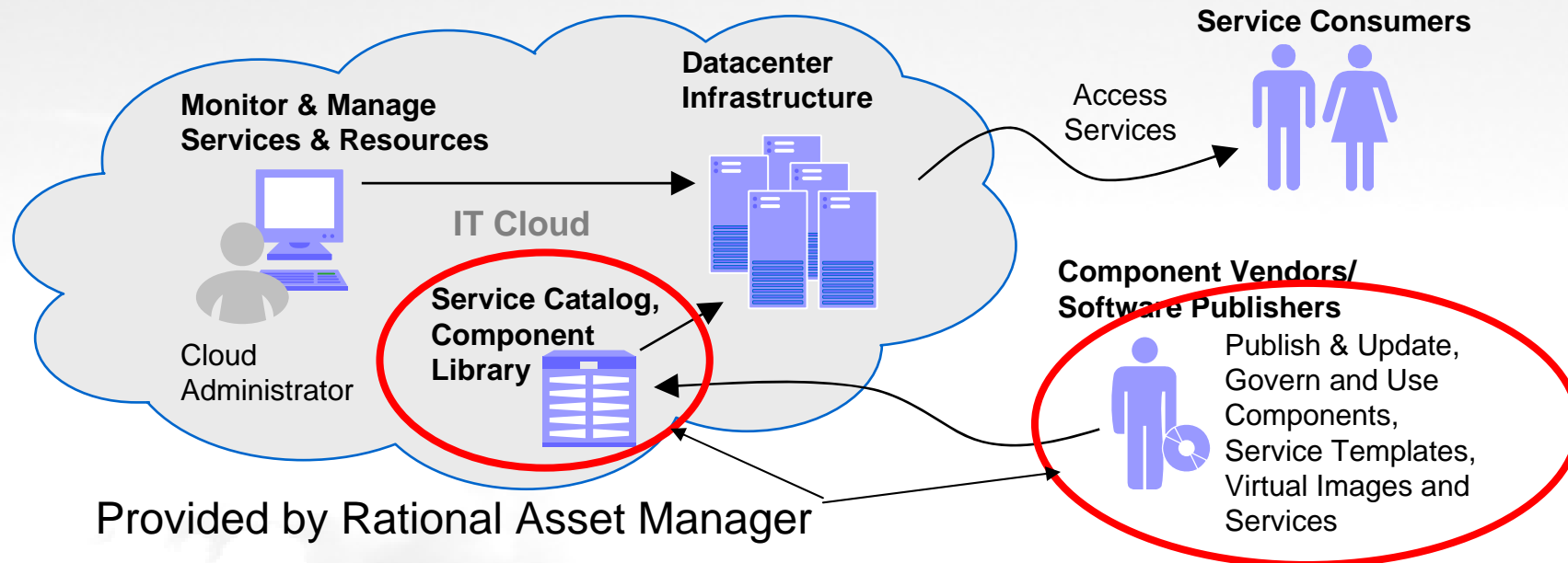


## **Customer Benefits:**

- **Reduce IT labor cost by 50% +**  
- reduce labor for configuration, operations, management and monitoring of the test environment
- **75% + Capital utilization improvement; Significant license cost reduction**
- **Reduce Test Provisioning cycle times from weeks to minutes**
- **Reduce risk and improve Quality- eliminate 30% + of all defects that come from faulty configurations.**

# Rational Services for the Cloud

# Rational Asset Manager & the Cloud



## Provides the Catalog of available Cloud Components and Services

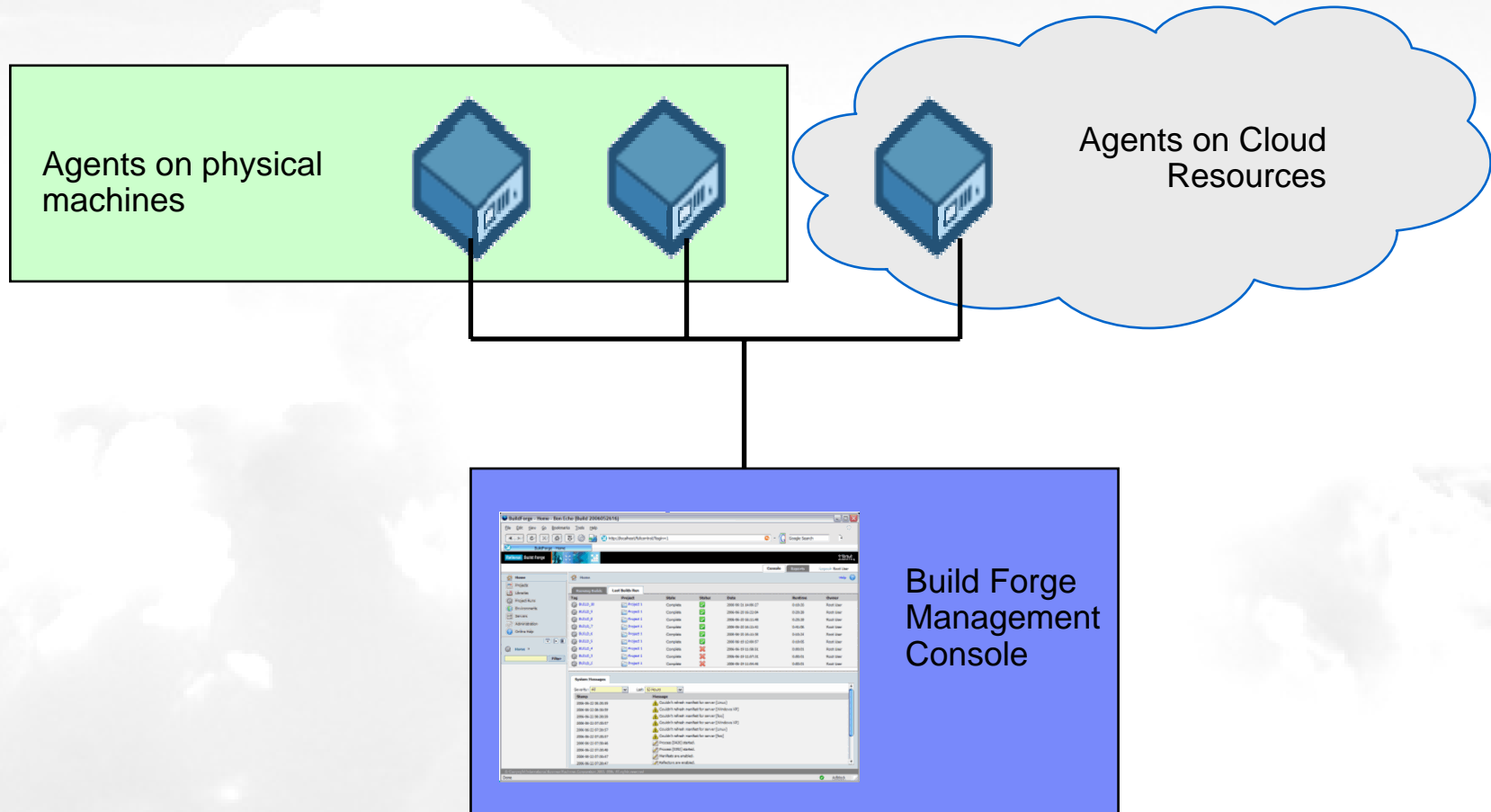
- Cloud computing requires a mechanism to catalog and display the resources that are available to Cloud service consumers. For the IBM Rational Software Delivery Services for the Cloud, RAM is that catalog.

## Supports Cloud Image Providers and Software Contributors

- Rational Asset Manager exposes interfaces for Image Providers to add, modify, and document the images for resources available in the Cloud.

# Automation Services For the Cloud – Rational Build Forge

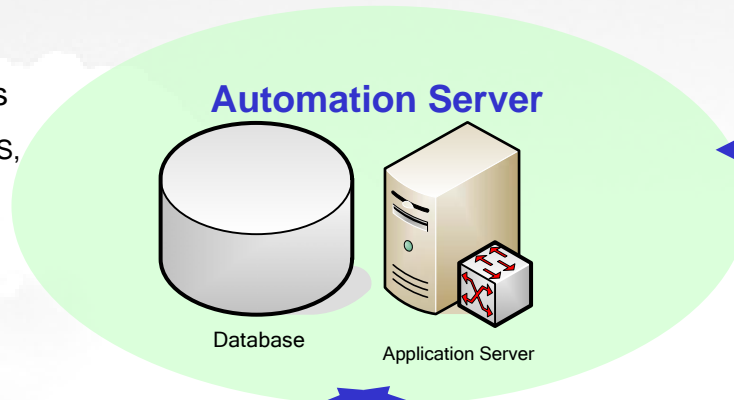
- Leverage Cloud resources on the network as “worker machines”



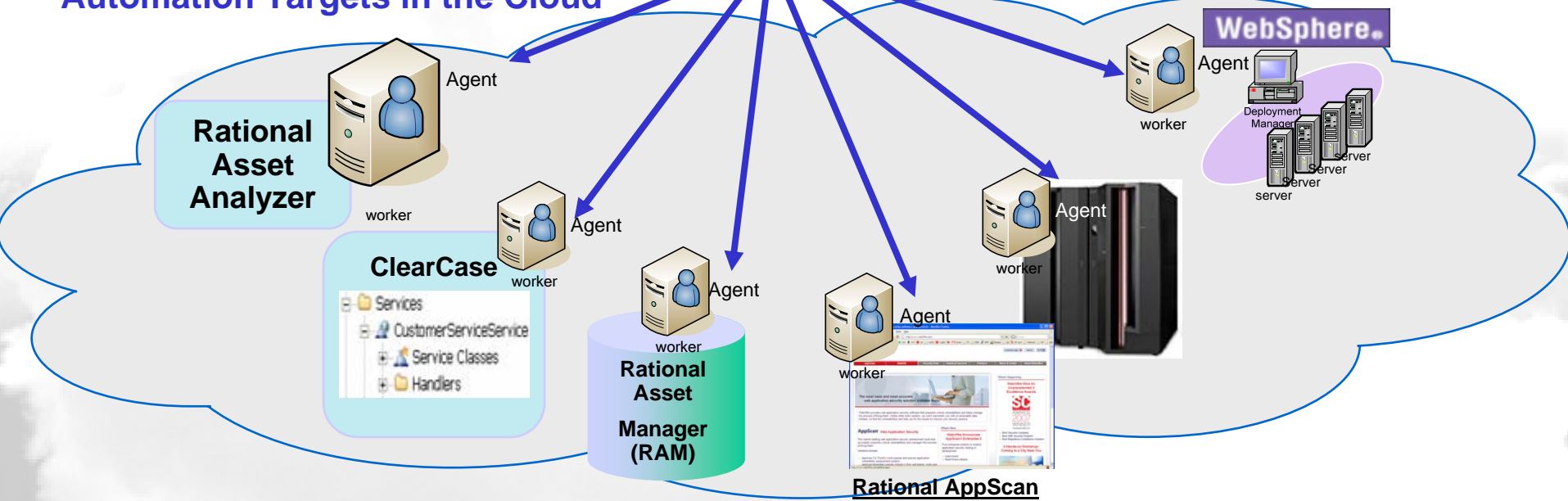
# The Build Forge Automation Server System

- 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

Clients



## Automation Targets in the Cloud



# Use Case for Portal in a Development Cloud

- The SDS 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

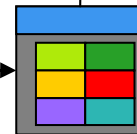


SCM

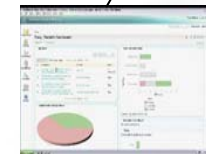
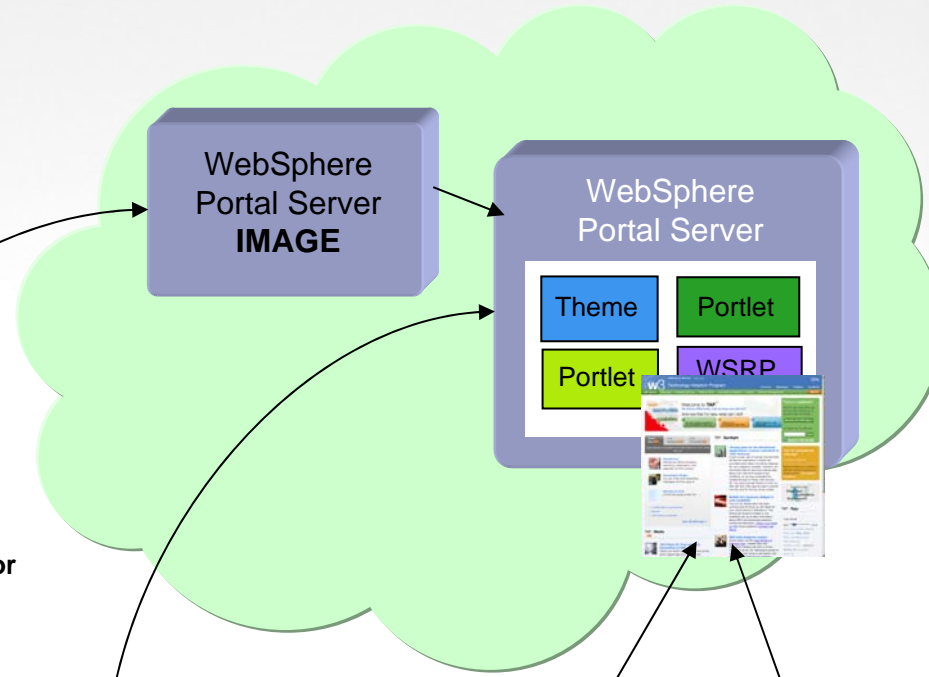
### Rational Build Forge & Rational Automation Framework for WebSphere



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 quality problems and potential security vulnerabilities

# Deployment Automation Plan

- Automatically generate deployment automation plan
- Use pattern-based matching to select automation tasks
- Map automation task attributes to topology properties
- Publish automation plan to be executed with Build Forge/ RAFW

Automation Workflow Editor

Automation Workflow(SUSE Linux Server 10.2.Hostname):

Load Application Database (Load Application Database)

Create JDBC Datasource (Unspecified Id)

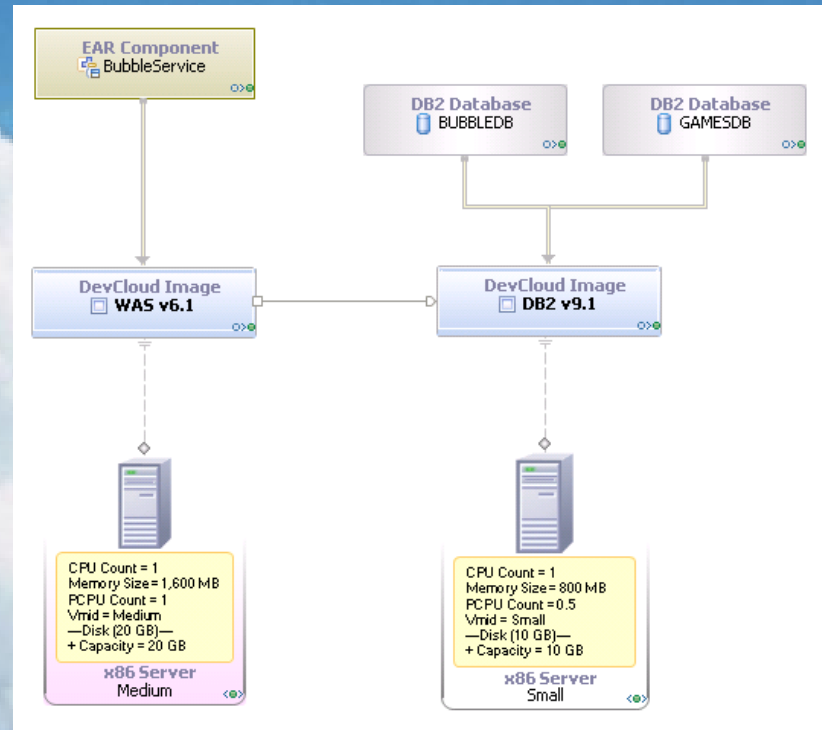
Name	Value	Unit	Attribute
helperClass	com.ibm.websphere.r		
serverName	server1	server1	serverName
cellName	CloudBurstCell0	CloudBurstCell0	cellName
nodeName	CloudBurstNode10	DefaultAppSvr01:CloudBurstNode10	nodeName
jndiName	jdbc/TPCWDS	jdbc/TPCWDS	jndiName
dbName	TPCWDB	jdbc/TPCWDS	dbName
providerName	Derby JDBC Provider	Derby JDBC Provider	providerName
wasHome	/opt/IBM/WebSphere,	WebSphere 6.1.0.23 HV System	wasHome
hostName	#{SUSE Linux Server	jdbc/TPCWDS	hostname
port		jdbc/TPCWDS	port
j2cAlias		jdbc/TPCWDS	j2cAuthAlias

Install Application (Install Application)

Name	Value	Unit	Attribute
earFileName	TPCWApplic	TPCWApplication	moduleName
cellName	CloudBurst	CloudBurstCell0	cellName
serverName	server1	server1	serverName
nodeName	CloudBurst	DefaultAppSvr01:CloudBurstNode10	nodeName
wasHome	/opt/IBM/w	WebSphere 6.1.0.23 HV System	wasHome
appName	TPCWApplic	TPCWApplication	id

# Deployment to the Cloud

- Design Cloud Deployments
- Query and use Cloud Templates
- Publish directly to the Cloud
- Automate Cloud Deployments

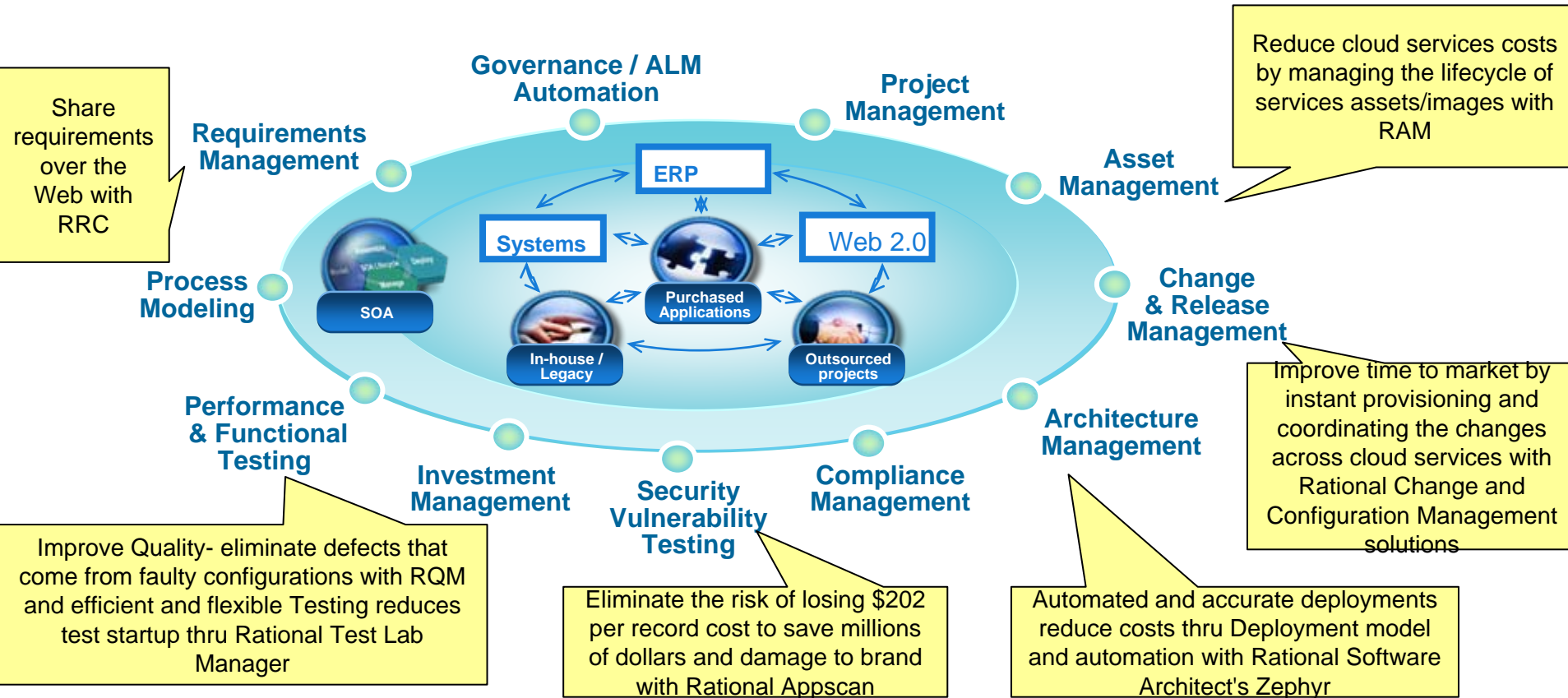


Check out Rational Labs for more information!



# Summary: ALM: Benefits from the Cloud

## Software Development and Delivery Supply Chain



**In addition to pain points for specific processes, many challenges are in coordinating efforts across companies' software development and delivery value chains:**

- Reduce IT labor costs for installation, configuration, operations, management with Rational ALM services
- Globally distributed development teams can reduce costs by collaborating in context, integrating social computing and real time reporting with Rational Jazz Platform, Team Concert, RQM, RRC and Insight
- Cut legacy integration and modernization costs with Rational SA, EM portfolio

# Questions

Thank You

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