Transforming Development and Test with Cloud

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Let's **build** a smarter planet.

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Why Cloud is relevant to software delivery?

85% of computing capacity sits idle

30 to 50% of servers dedicated to test, test servers run < **10%** utilization

30% of all defects caused by wrong configuration of dev/test environment

Silos of people, process, and projects

Complex Infrastructure

  × Lengthy on-boarding
  × Acquiring, installing, configuring and managing environments

High Costs

  × Low utilization rates
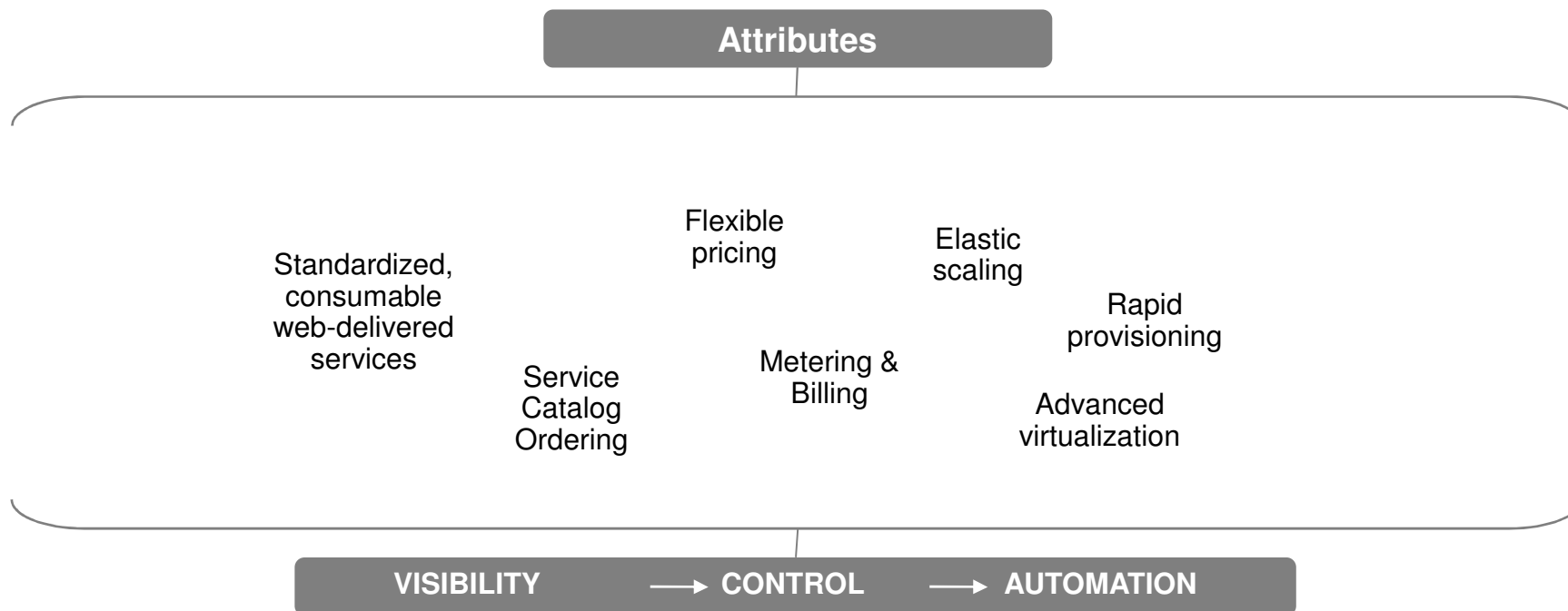 × Cost inefficiencies
  × Poor LoB oversight

Chaos

  × Weak project governance
  × Lack of domain expertise
  × Lack of standardized tools and processes

* "Industry Developments and Models – Global Testing Services: Coming of Age," IDC, 2008 and IBM Internal Reports

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Cloud - What is It?

> **"Cloud"** is an emerging consumption and delivery model for many IT-based services, in which the user sees only the service, and has no need to know anything about the technology or implementation

Attributes

Flexible
pricing

Elastic
scaling

Standardized,
consumable
web-delivered
services

Rapid
provisioning

Service
Catalog
Ordering

Metering &
Billing

Advanced
virtualization

VISIBILITY ⟶ **CONTROL** ⟶ **AUTOMATION**

New consumption and delivery models drive new sourcing options and business flexibility

Flexible Delivery Model

Private …

- On your own internal network
- Highly available
- Most secure and auditable
- Can integrate with legacy solutions

Cloud Services

Cloud Computing Model
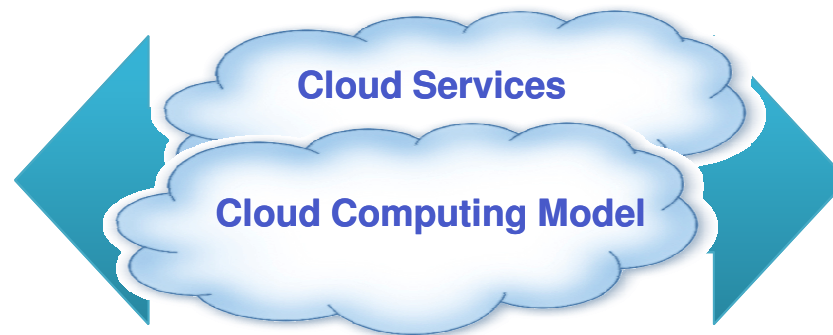
Hosted by a provider…

- Hosted and managed by service provider
- Delivers standardized services
- Flexible, pay-per-use basis
- Lowest cost of entry

Considerations …

- Flexibility
- Standardization
- Security, privacy, availability

*If **security**, **availability** and **integration** are critical, then look to private cloud*

*If **reduced overhead, flexibility** and **low entry cost** are important, then look to hosted cloud*

Why Cloud is important for Development and Test workloads

Traditional

High deployment costs to deliver software

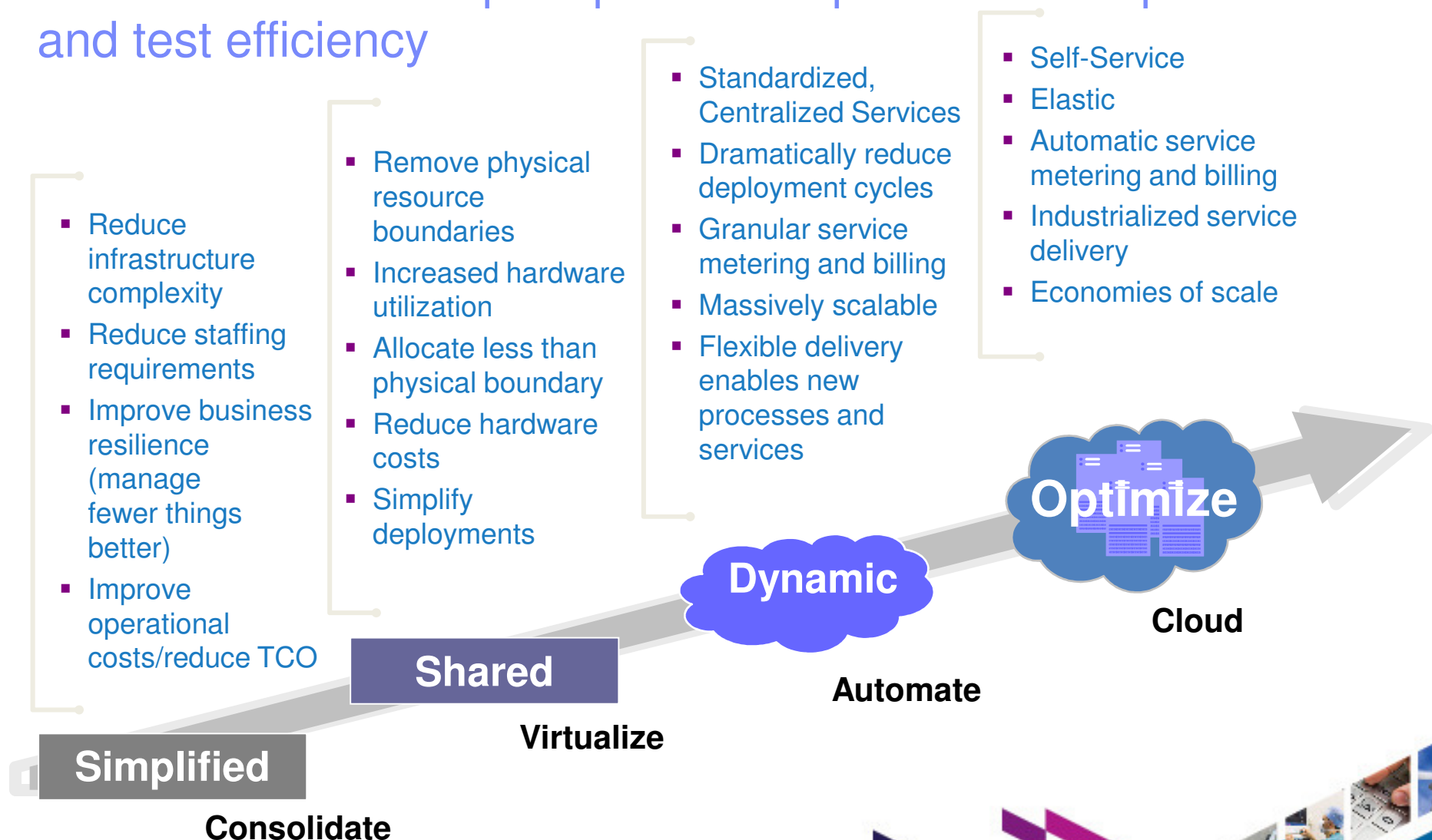Control and governance chaos in software processes

Onramp and on-boarding of teams reduces time to software delivery

- Reduced installation and administration costs
- Lower TCO by improved utilization of software assets

- Better governance through standardized delivery of services
- Preconfigured software embodying best practices

- Tools can be provisioned in minutes. No download, installation or setup.
- Self-administered portal to access to software resources for a globally distributed team

Cloud is the next step in quest for improved development and test efficiency

- Reduce infrastructure complexity
- Reduce staffing requirements
- Improve business resilience (manage fewer things better)
- Improve operational costs/reduce TCO

- Remove physical resource boundaries
- Increased hardware utilization
- Allocate less than physical boundary
- Reduce hardware costs
- Simplify deployments

- Standardized, Centralized Services
- Dramatically reduce deployment cycles
- Granular service metering and billing
- Massively scalable
- Flexible delivery enables new processes and services

- Self-Service
- Elastic
- Automatic service metering and billing
- Industrialized service delivery
- Economies of scale

Optimize

Cloud

Dynamic

Automate

Shared

Virtualize

Simplified

Consolidate

The Transformation Proposition

IBM Rational Software Delivery Services help organizations leverage software delivery principles through tailored combinations of **hardware, software, best practices and consulting** to create the best business value in each unique industry. Across the board, IBM Rational offers exceptional value for customers planning the transformation of their business.

Optimize

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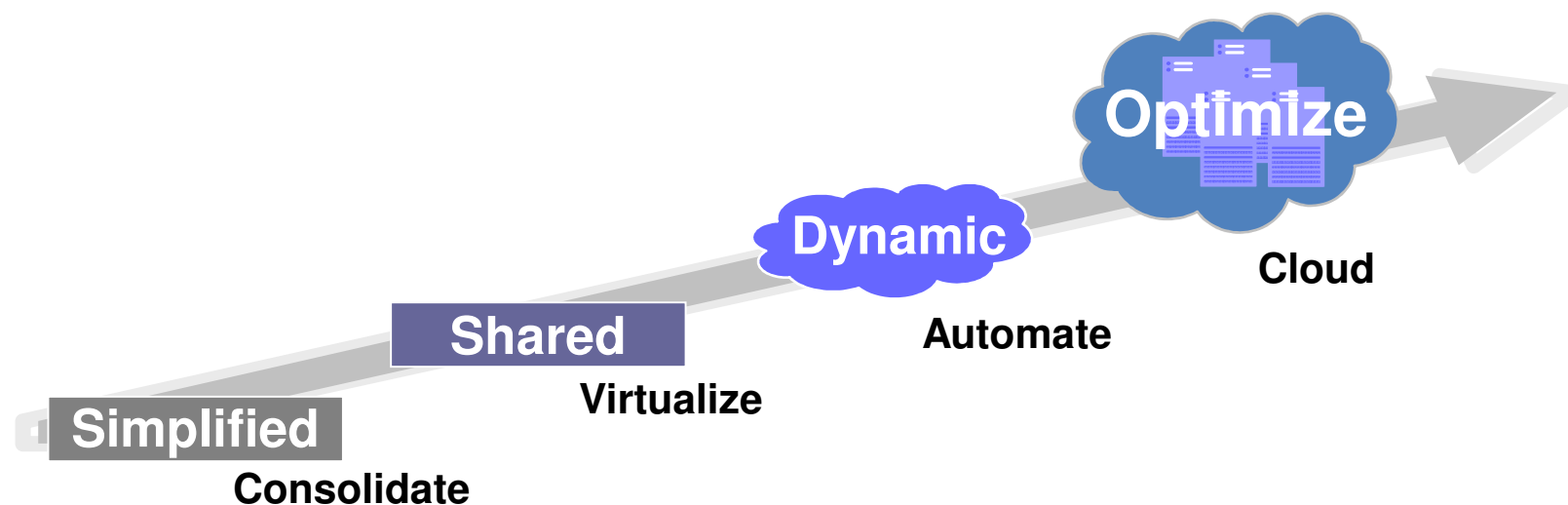
Successful transformations require a Secure, Collaborative and Integrated Software Delivery approach

Rational Software Delivery Services for Cloud

- A collection of Rational products and capabilities available in the cloud addressing the Software Delivery Lifecycle
    - **Agile Development Services**
        - *Rational Team Concert*
    - **Quality Management Services**
        - *Rational Quality Manager*
    - **Requirements management Services**
        - *Rational Requirements Composer*
    - **Build Automation Services**
        - *Rational Build Forge*
    - **Asset management Services**
        - *Rational Asset Manager*

- Self provisioning, access to hardware and infrastructure services on the cloud

Rational. Software Delivery Services

Jazz

VM
Rational Team Concert
O/S

VM
Rational Quality Manager
O/S

VM
Rational BuildForge
O/S

VM
Rational Asset Manager
O/S

VM
Rational Requirements Composer
O/S

IBM
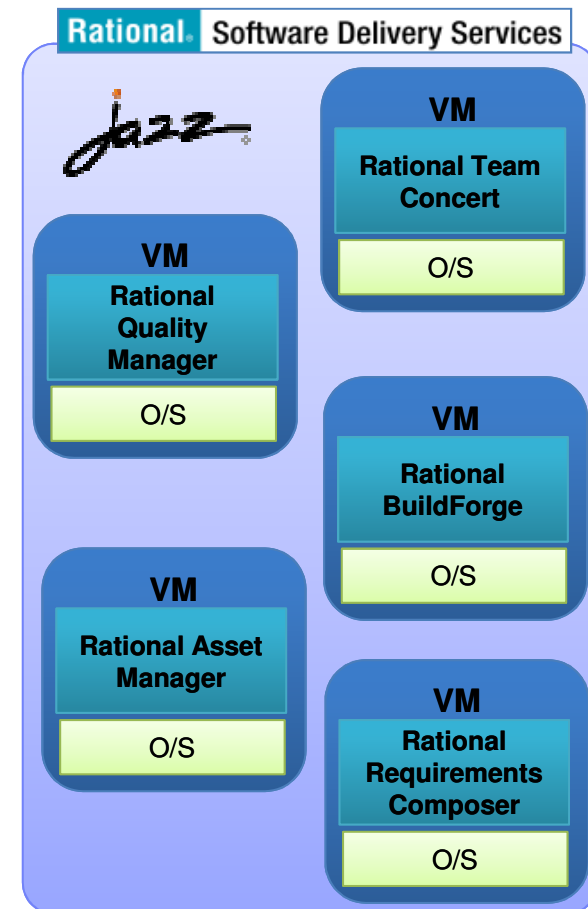
# IBM Smart Business Development and Test Cloud
*The design and implementation of a private cloud for test and development*
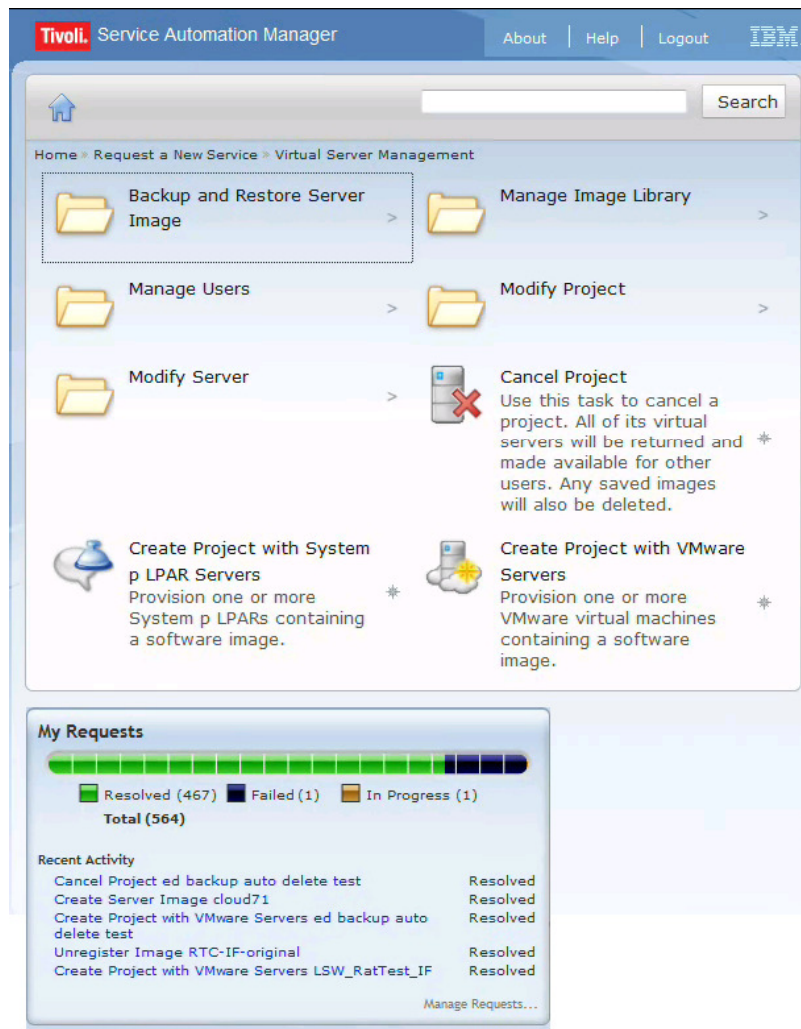
- **What is included?**
  - Self-service, catalog portal to request resources
  - Cloud management platform that combines service request management, automated provisioning and change and configuration management
- **What are the supported platforms and key features?**
  - Out of the box support for VMWare, KVM and PowerVM virtualized environments
  - Enhanced Cloud end-user GUI based on Web 2.0 technology
  - Image Management including save / restore
  - Usage Metering and Accounting with ITUAM
- **What development and test tools are included in the service catalog?**
  - Rational Software Delivery Services

Scenarios for development and test on the Cloud

Development Environment on Cloud Infrastructure

Provision Environment

Dev Lead

RTC *

Developers

Manage Project Content
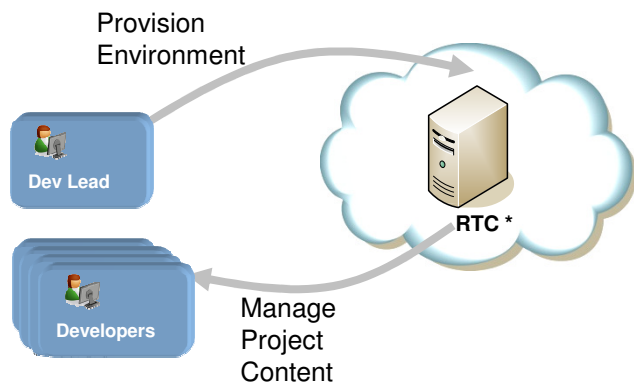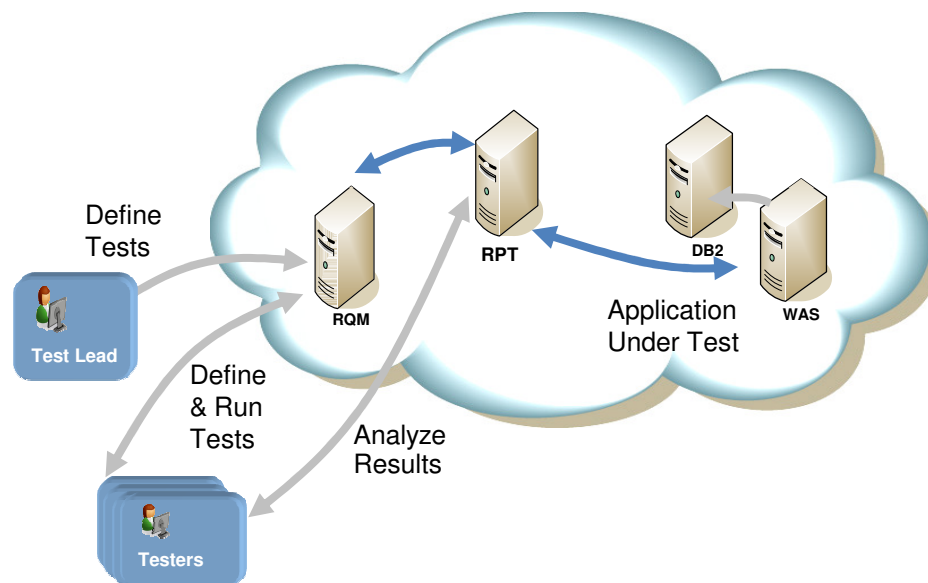
* Rational Team Concert (RTC) can be replaced with Rational Requirements Composer, Rational Quality Manager or Rational Asset Manager in this scenario for requirements, quality, or asset management, respectively

Test Environment on Cloud Infrastructure

Define Tests

Test Lead

RQM

RPT

DB2

WAS

Application Under Test

Define & Run Tests

Analyze Results

Testers

IBM CloudBurst – Smart Business System for Cloud Computing

A pre-packaged and self-contained service delivery platform that can be easily and quickly implemented in a data center environment

- **What is included?**
  - Integrated hardware and software platform complete with networking and storage
  - System x Blade Center technology
  - Pre-installed, fully integrated service management technology from Tivoli
  - Global Technology Services implementation support
- **What are the supported platforms and key features?**
  - Self-service portal interface for reservation of compute, storage, and networking resources, including virtualized resources
  - Automated provisioning and de-provisioning of resources
  - Real-time monitoring for elasticity
  - Integrated usage and accounting
  - Backup and recovery
- **What development and test tools are included in the service catalog?**
  - Rational Software Delivery Services

IBM Smart Business Development and Test on the IBM Cloud

IBM Smart Business — Register | Sign in

Development & Test on the IBM Cloud

| Overview | Control panel | Account | Support | About |

Interact with the Development and Test Cloud directly from IBM Rational tools to quickly create and manage complex IT topologies. Register or sign in to get started.

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Search

IBM cloud news
November 05, 2009
IBM Introduces New Offerings for Software Development in the Cloud
IBM today announced new solutions for developers to create and deliver software in both public and private cloud environments. E-mail this page Save to del.icio.us Digg this

November 04, 2009
IBM Advances Cloud Computing in Education; Unveils

In the cloud
November 04, 2009
Cloud Computing and Storage Management
www.ibm.com Milan Patel, of IBM, speaks about storage management within the cloud environment. Cloud computing is exciting for companies, as it allows them to focus on end-user experience without worrying about the individual pieces

Get started
Register or sign in to get started.
→ Register Now

Already a Member? [Sign in]

✓ **Currently available in North America and Europe**   ✓ **Future offering in Asia***

What is the service?

- A dynamic virtual development and test infrastructure service, designed for the enterprise, on the IBM Cloud

What are you buying?

- Choice of virtual server configurations
- Option to add persistent storage charged per usage
- Network bandwidth charged per usage
- Choice of pre-configured software images
  - ▸ Rational Software Delivery Services
  - ▸ Lotus, WebSphere, DB2 and Informix stacks

What payment options are available for Rational images?

- Bring your own license model
- Shared Reserved option

What support is available?

- Web-based forum for users to submit requests
- Premium support 24X7

With rapid, automated setup through a self-service portal that is designed for ease of use, you can deploy a service within minutes.

Click and choose the service you need

Step 1

Choose the hardware and usage configuration

Step 2

Application provisioned and ready to run

Step 3

IBM leverages Smart Business Test Cloud services internally

Business challenge

- IBM needed a self-service development and test environment to allow developers to deploy development and test server images more efficiently and cost-effectively
- In a traditional environment, the average test time provisioning was five days

Solution

- IBM deployed the IBM Smart Business Test Cloud solution, allowing developers to deploy the environment in a fraction of the time. The solution includes:
  - Provisioning of a configured security and architecture-compliant environment
  - Automated approval within preset monthly spend limits
  - Self-service purchase of optional support services

Benefits

- Provisioning of development and test servers in approximately one hour (versus five days)
- Significant reduction of labor associated with server provisioning, image setup, approvals and maintenance
- Higher machine utilization, fewer physical servers, less capital
- Automated usage metering and billing with better service to end-users
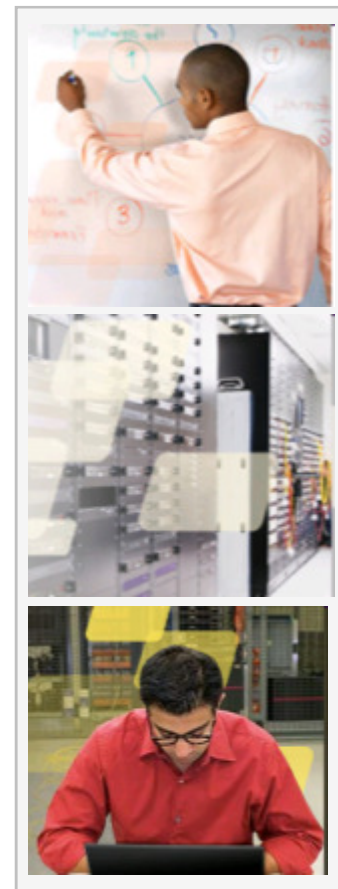
IBM Rational provides a comprehensive set of capabilities to accelerate your cloud journey
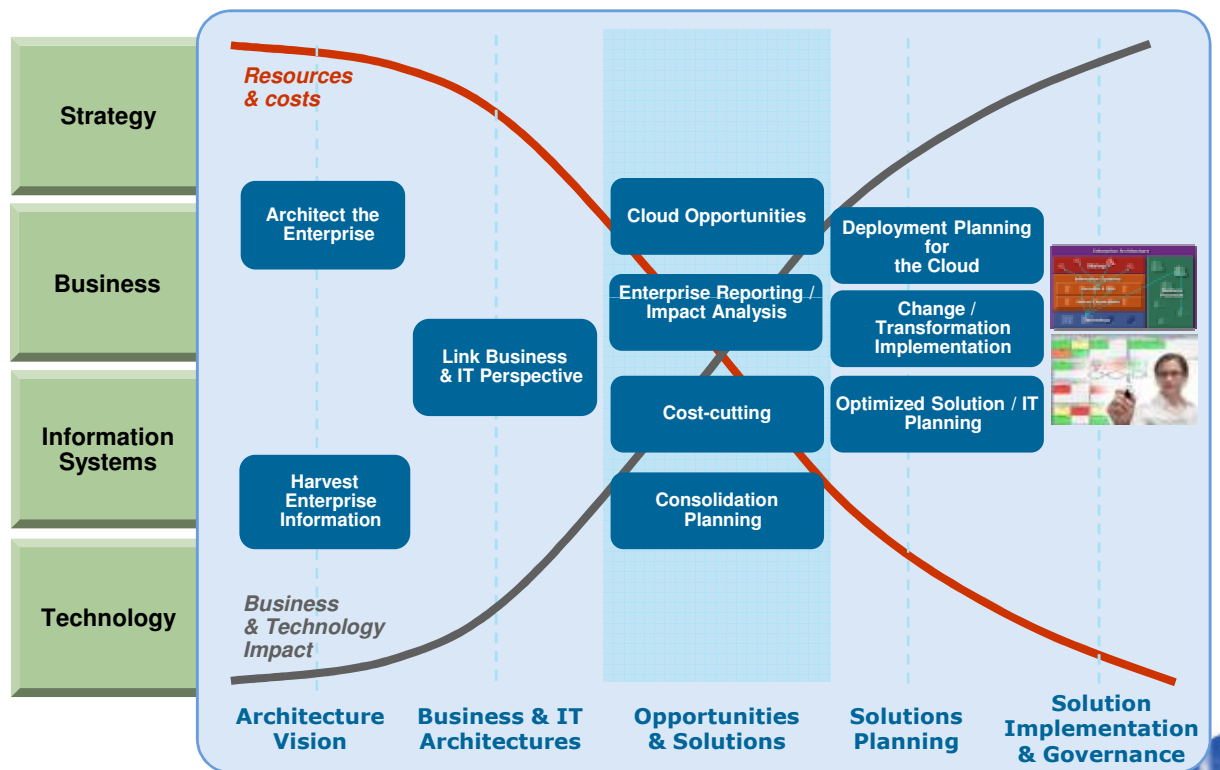
Technologies
to plan, build, deliver and manage secure cloud services for software delivery

Consulting and enabling services
Experience and expertise to help clients plan, build and deliver secure cloud services for software delivery

Actionable enterprise architecture guides successful transformation to cloud

Analyze, decide and plan how and when to leverage cloud – risk vs. reward

- Connect business needs to cloud strategy and deployment

- Use unified cloud analysis & reporting platform

- Understand dependencies (cloud/non-cloud services)

- Create roadmaps for cloud transition

- Connect cloud targets and templates to solution delivery

- Identify services for reuse

Strategy

Business

Information Systems

Technology

Resources & costs

Architect the Enterprise

Cloud Opportunities

Deployment Planning for the Cloud

Enterprise Reporting / Impact Analysis

Change / Transformation Implementation

Link Business & IT Perspective

Cost-cutting

Optimized Solution / IT Planning

Harvest Enterprise Information

Consolidation Planning

Business & Technology Impact

Architecture Vision | **Business & IT Architectures** | **Opportunities & Solutions** | **Solutions Planning** | **Solution Implementation & Governance**

Security is among a top concern with cloud computing...
The IBM Security Framework provides a structure to address this concern

People and identity
Mitigate the risks associated with user access to corporate resources

Data and information
Understand, deploy and properly test controls for access to and usage of sensitive data

Application and process
Help keep applications secure, protected from malicious or fraudulent use, and hardened against failure

Network, server and end point
Optimize service availability by mitigating risks to network components

Physical infrastructure
Provide actionable intelligence on the desired state of physical infrastructure security and make improvements

▸ IBM Rational AppScan
▸ IBM Rational Policy Tester
▸ IBM Rational Functional Tester

Rational Services for Cloud Computing
Services to get your cloud up and running quickly

- **Deployment Services**
  - Deploy Rational images in the Cloud
  - Establish usage patterns around your processes
- **Integration Services**
  - Integrate Rational offerings with your other tools
  - Automate processes to reduce costs and time
  - to integrate products in the cloud with other products applications both inside and outside the cloud
- **Migration Services**
  - Move your existing Rational environment to the cloud
  - Adapt your usage patterns and processes as needed
- **Custom Image Development Services**
  - Tailor Rational images for your environment
  - Create new images
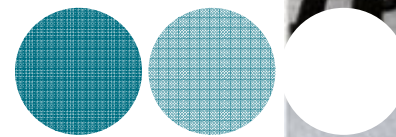
In addition to today's cloud offerings, Rational sees potential for future opportunities around cloud

Software as a Service

- Business Partner Program support
- For desktop- and server-based tools
- Dramatically reduce TCO
- Zero startup time and cost

✓

Virtual Test Farms

- Zero setup time for test environments
- Leveraging elasticity in test
- Improved hardware utilization
- Virtual Test Lab management
- Overflow workloads on public cloud

✓

Modeling and Automated Deployment

- Design applications using standard middleware configurations
- Automate application deployment onto the cloud
- Create cloud assets (self-describing images and components)
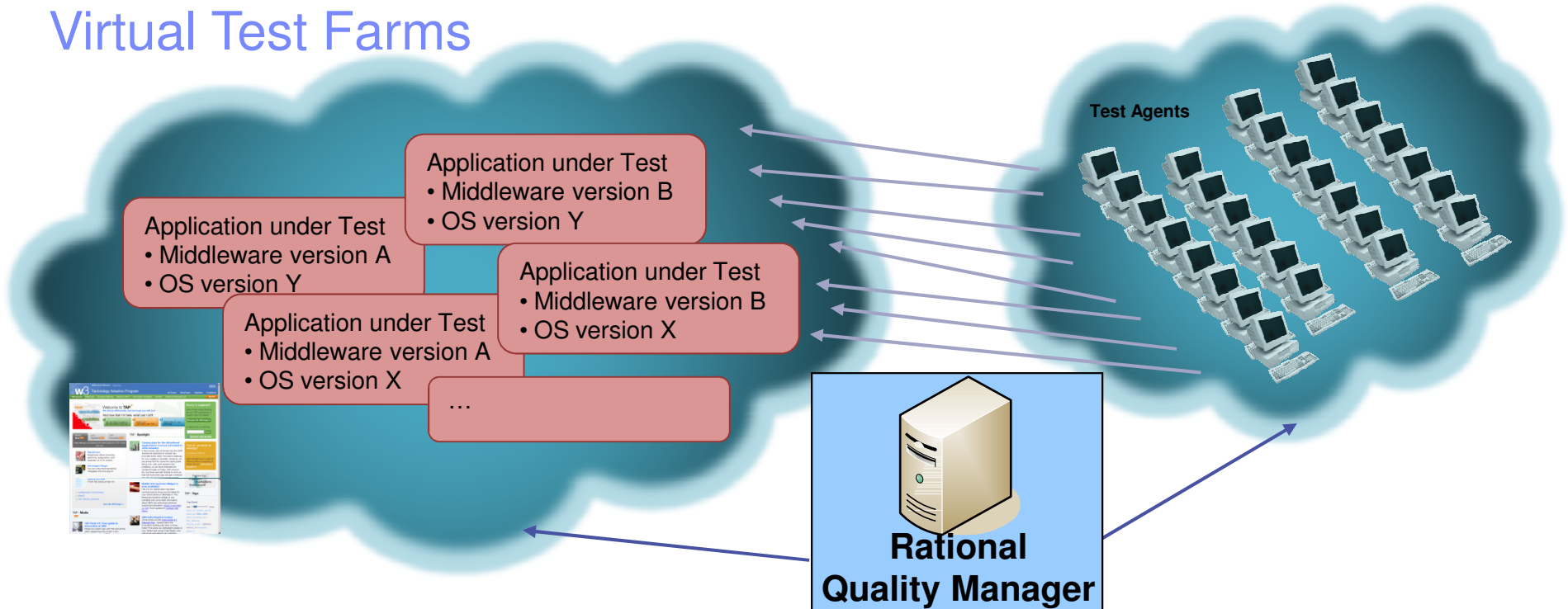- Compose assets into deployable solutions

✓

✓ **Currently available** ✓ **Future offering**

Virtual Test Farms

Application under Test
- Middleware version B
- OS version Y

Application under Test
- Middleware version A
- OS version Y

Application under Test
- Middleware version B
- OS version X

Application under Test
- Middleware version A
- OS version X

…

Test Agents

Rational Quality Manager

- Create test plans considering time and resources across many dimensions

- Dynamically provision systems under test
  - Improve utilization of lab resources
  - Improve efficiency of test team

- Standard OS/Middleware configurations in preconfigured images

- Easily setup regression tests against varying OS and middleware combinations

- Large scale performance testing
  - Dynamically provision RPT load generators

- Improve efficiency/coverage of regression tests
  - Dynamically provision test agents (RFT)
  - Test against multiple OS/Browser config

- Preconfigured Cloud Images with test agents

- Support multiple cloud platforms

Modeling and Automated Deployment

- Complicated application deployments are expensive, error-prone
  - Development, test and ops each have to deploy the application
  - Manual, time-consuming, error-prone
  - No shared understanding of deployment
  - No shared automations
  - Configuration errors cause defects
- This problem will need to be addressed to drive real value in the move to Cloud
- Solution:
  - Model the deployment, leveraging patterns
  - Dynamically provision infrastructure on the cloud
  - Generate deployment workflow from the models
  - Execute the deployment workflow
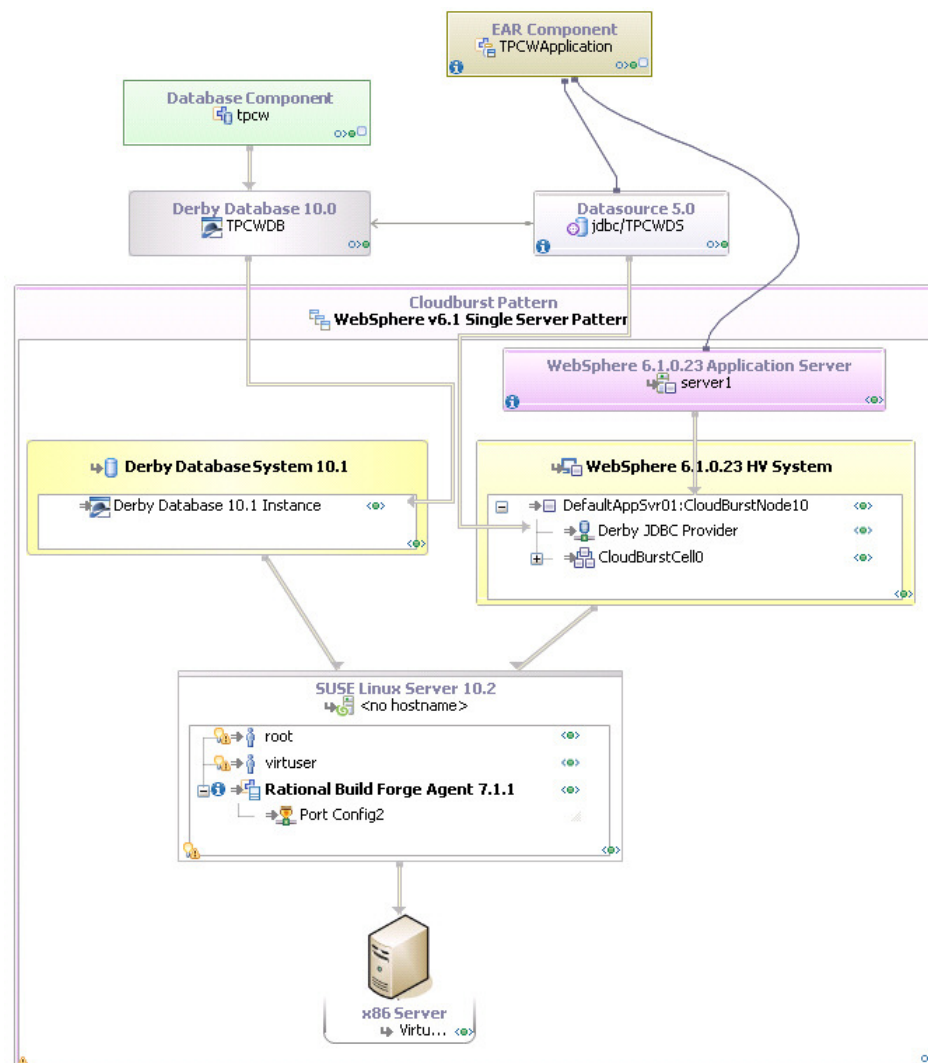
Summary

- Cloud has the potential to radically change how we build software:
  - Lower costs
  - Increased productivity
  - Faster product delivery

- IBM and Rational are making significant investments to deliver Cloud solutions to our clients

- First products to be available for the private cloud and on the IBM Cloud include:
  - Rational Team Concert
  - Rational Quality Manager
  - Rational Build Forge
  - Rational Requirement Composer
  - Rational Asset Manager

- More to come in 2010 and beyond

Thank You