Innovate2010

The Rational Software Conference

Let's build a smarter planet.

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Leveraging Cloud Computing to Transform Software Delivery

Disclaimer

CXOs are seeking alternatives such as Cloud Computing to reduce costs, improve service, and manage risks

- *Respond to uncertain change*
- *Innovate for competitive advantage*
- *Create Strategic alignment*

CEO

- *Improve growth*
- *Manage risk*
- *Gain control*

CFO

Cloud Computing is a key catalyst for these changes

CIO

- *Reduce costs*
- *Improve services*
- *Empower users*
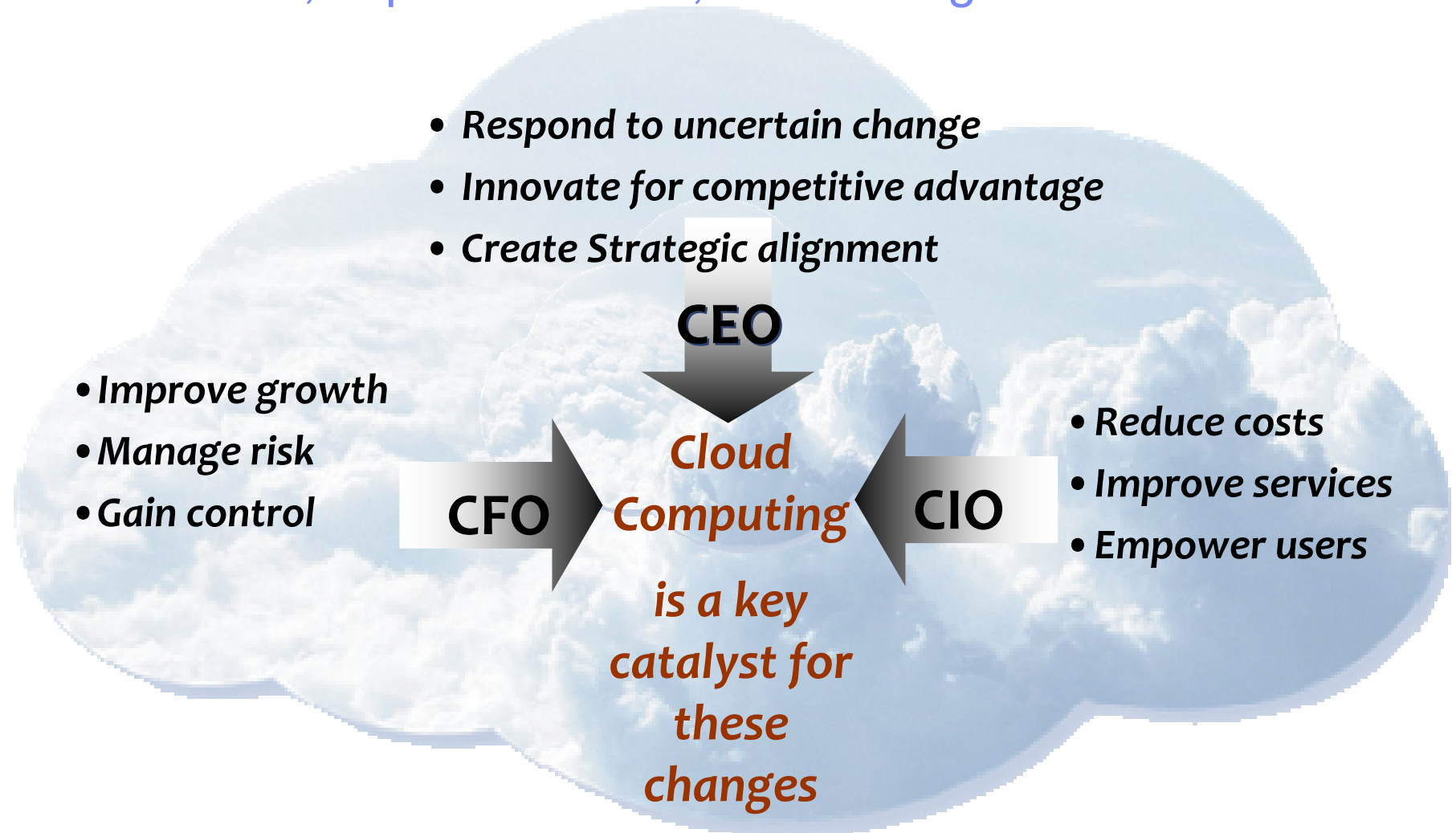
Why Cloud is relevant to software delivery?

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 wrongly configuration of dev/test environ.

*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

Cloud Computing - 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**
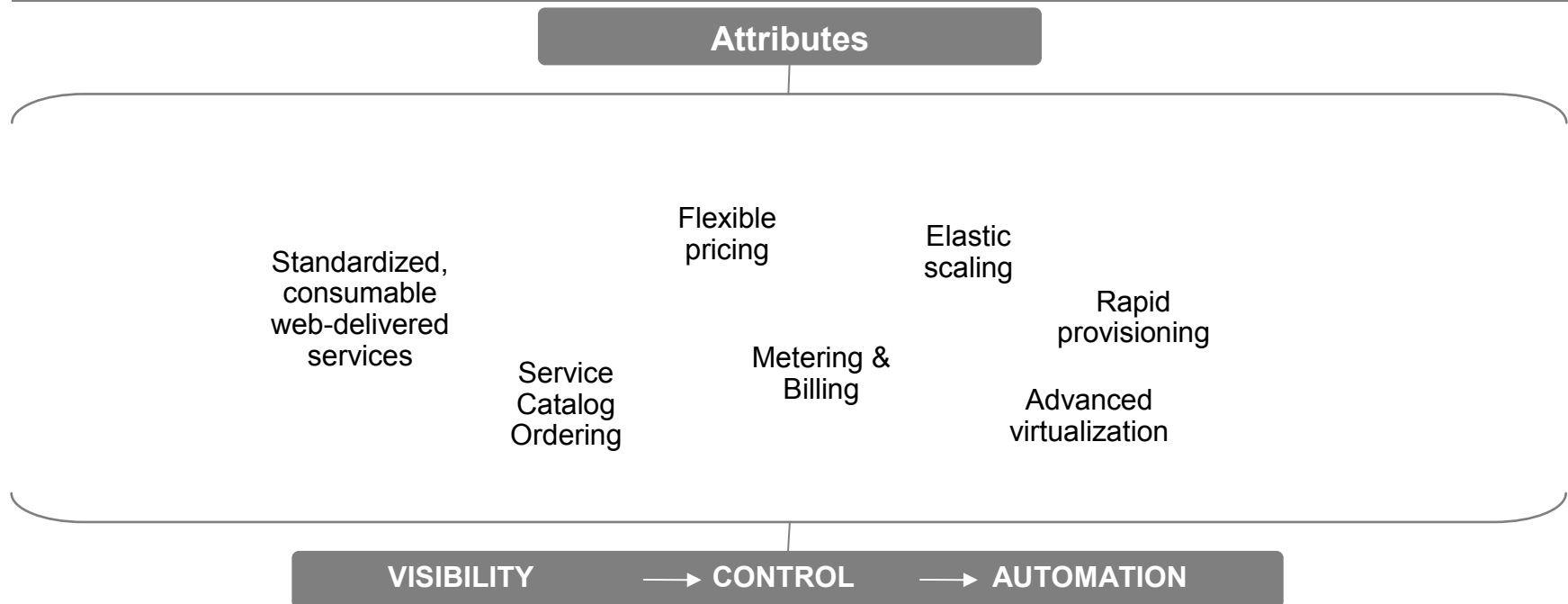
....business and IT valued perspectives

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
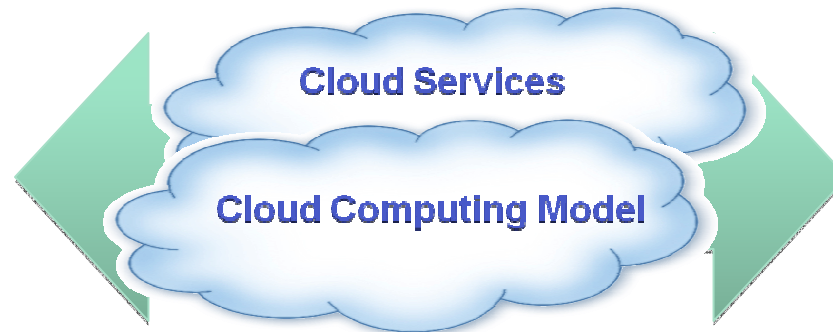
Hosted by a provider…

- 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*

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

Comparing Software as a Service (SaaS) and Cloud

Deployment Models

"Traditional"

AND / OR

"Cloud"

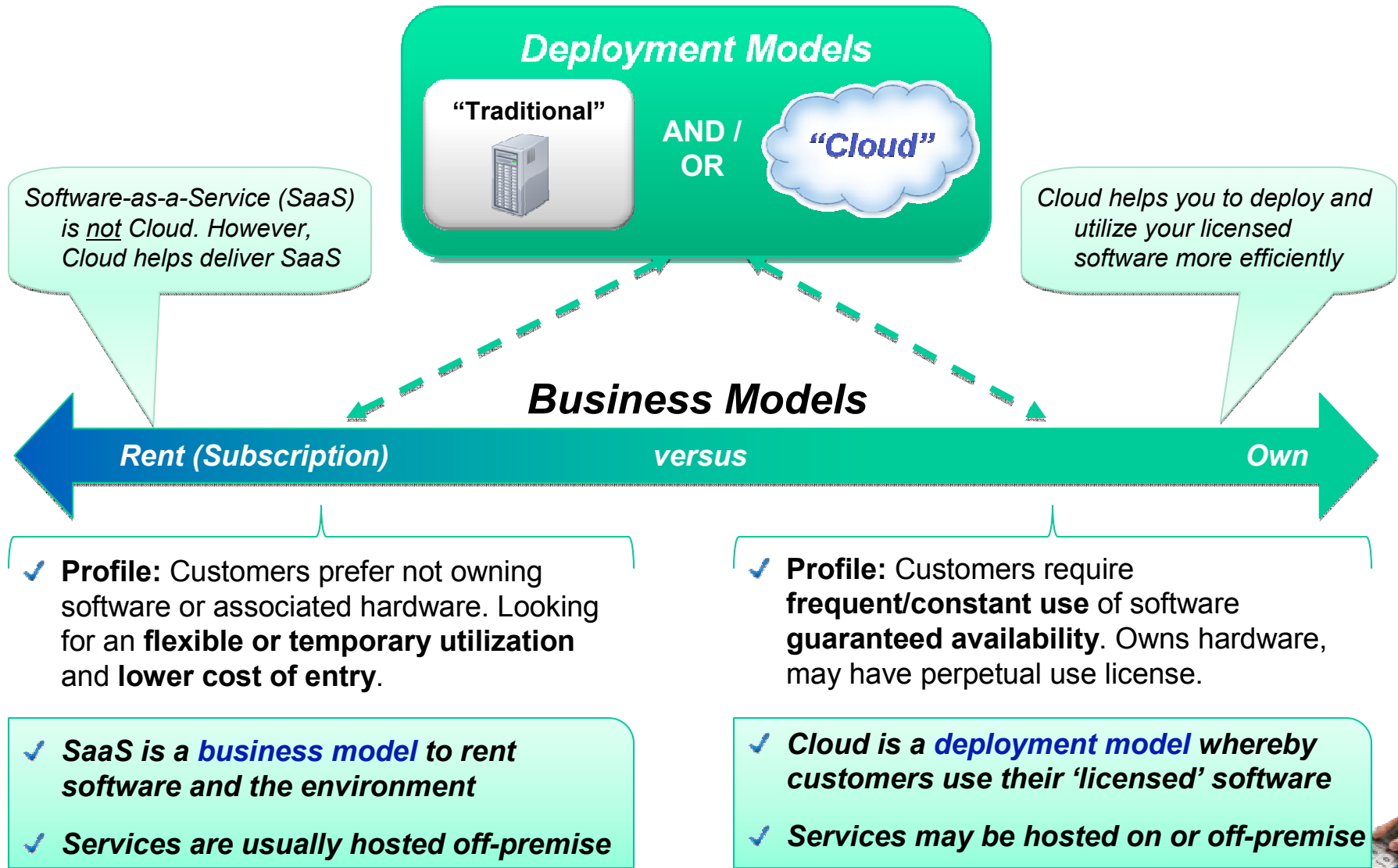*Software-as-a-Service (SaaS) is not Cloud. However, Cloud helps deliver SaaS*

Cloud helps you to deploy and utilize your licensed software more efficiently

Business Models

Rent (Subscription)   *versus*   **Own**

✔ **Profile:** Customers prefer not owning software or associated hardware. Looking for an **flexible or temporary utilization** and **lower cost of entry**.

✔ **Profile:** Customers require **frequent/constant use** of software **guaranteed availability**. Owns hardware, may have perpetual use license.

✔ *SaaS is a business model to rent software and the environment*

✔ *Services are usually hosted off-premise*

✔ *Cloud is a deployment model whereby customers use their 'licensed' software*

✔ *Services may be hosted on or off-premise*

How cloud is more than virtualization (which I have today)

- 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

Rational provides both Value and Capabilities at each step in the roadmap.

Shared

Virtualize

Simplified

Consolidate

Shifting your development and test capabilities to the cloud environment can drive key benefits.

Capability	From		To
Server/Storage Utilization	10-20%		70-90%
Self service	None		Unlimited
Test Provisioning	Weeks		Minutes
Change Management	Months		Days/Hours
Release Management	Weeks		Minutes
Metering/Billing	Fixed cost model		Term/value based
Payback period for new services	Years		Months

Cloud accelerates business value across a wide variety of domains.

Legacy environments ← → Cloud enabled enterprise

Why cloud computing is important for Development and Test and production 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

IBM has announced Cloud solution for different workloads, with multiple delivery choices

|	Analytics	Collaboration	Development and Test	Desktop and Devices	Infrastructure (compute / storage)	Business Services
Smart Business on the IBM Cloud Standardized services on the IBM Cloud		✓ Lotus Live	✓ Smart Business Development & Test on the IBM Cloud	✓ Smart Business Desktop on the IBM Cloud	✓ Information Protection Services; Computing on Demand	✓
Smart Business Cloud Private *cloud services*, *behind your firewall,* built and/or managed by IBM	✓ Smart Analytics System *Powered by Infosphere*		✓ Smart Business Development and Test Cloud	✓ Smart Business Desktop Cloud	✓ Scale out File Services	✓
Smart Business Systems Pre-integrated, workload optimized systems	✓ Smart Analytics Accelerator *Powered by Infosphere*		✓ IBM CloudBurst w/Quickstart Svcs		✓ IBM CloudBurst w/Quickstart Svces	✓ Smart Business for SMB (backed by the IBM cloud)

✓ Currently Available   ✓ Future offering

The Transformation Proposition
IBM Rational Software Delivery Services

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

Cloud

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Automate

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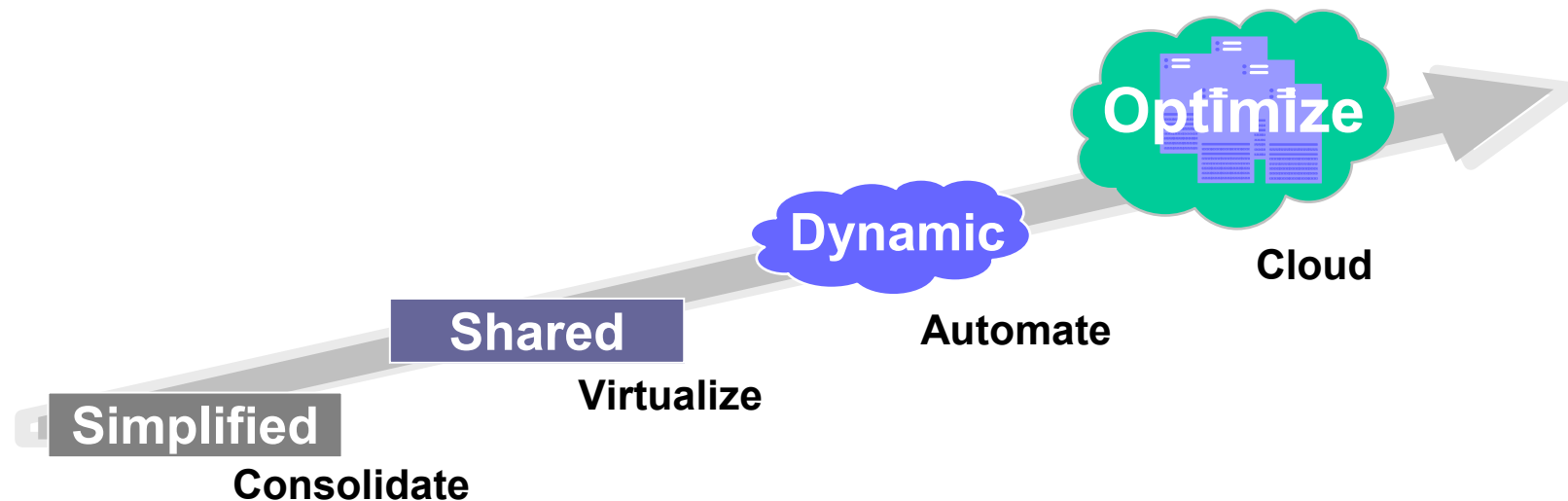
Successful transformations require a Secure, Collaborative and Integrated Software Delivery approach

IBM Software Delivery Services for Cloud Computing
The evolution of the Jazz platform for the 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
- **Benefits:**
    - Low total cost of ownership
    - Capital preservation
    - Improved productivity
    - Governance and Control

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
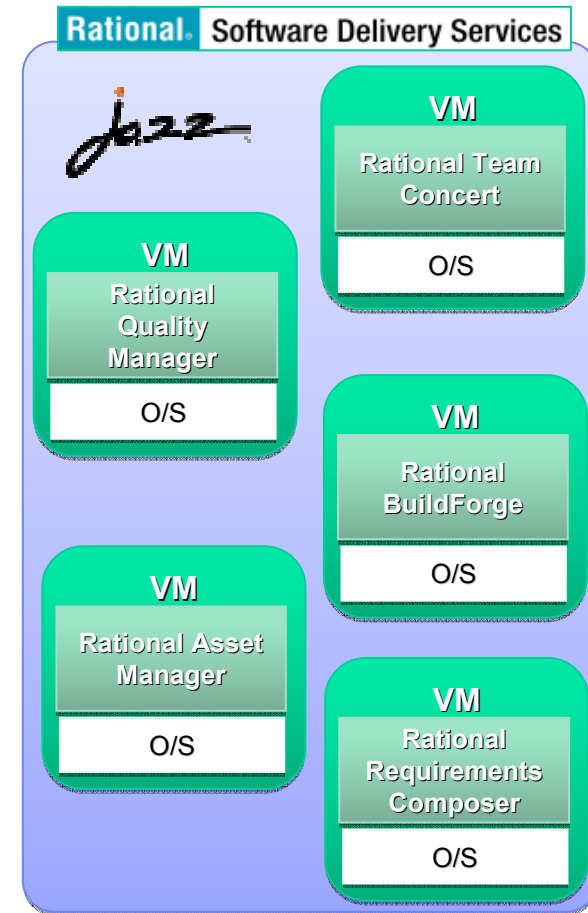
IBM Smart Business Development and Test Cloud – at a glance
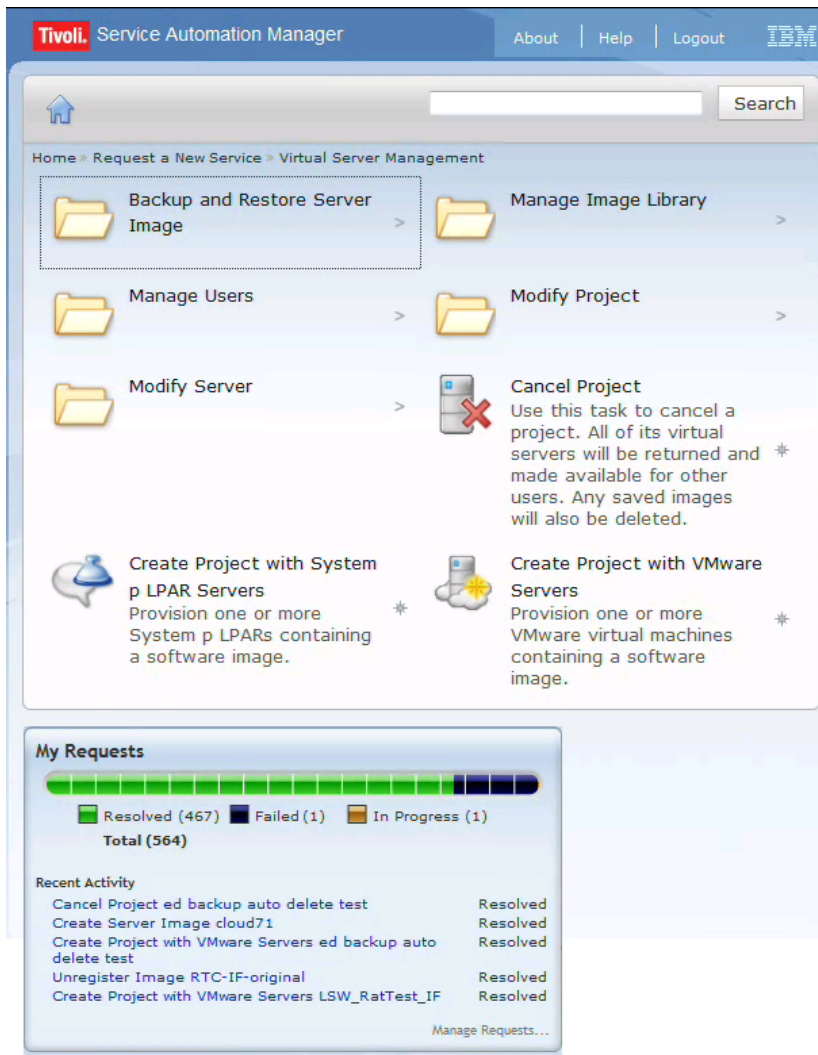
- **What is the service?**
  - ▶ Design and implementation of a private cloud for a test and development environment

- **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?**
  - ▶ Preconfigured software images for: Rational Team Concert, Rational Asset Manager, Rational Quality Manager, Build Forge

IBM Smart Business Development and Test on the IBM Cloud

www.ibm.com/cloud/enterprise

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 Application Lifecycle Management software
  - ▶ 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 *

* Availability date TBA

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

Choose the hardware and
usage configuration

Application provisioned
and ready to run

Step 1

Step 2

Step 3
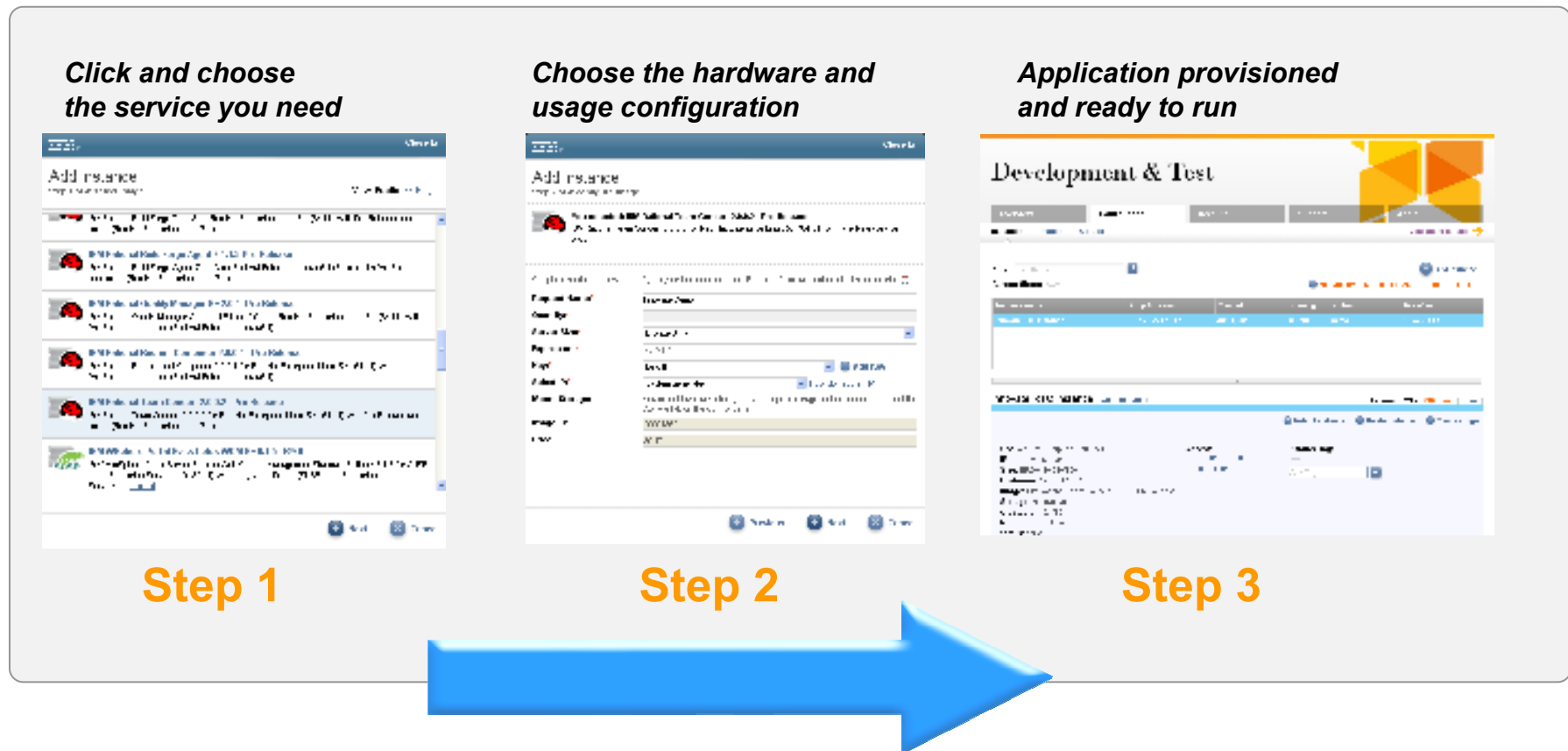
IBM leverages Smart Business Test Cloud services internally

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

Various services are available today with the IBM Smart Business Development and Test Cloud

Measured Capability Improvement
- ✓ Baseline your current effectiveness
- ✓ Improve your software delivery processes
- ✓ Measure the benefits
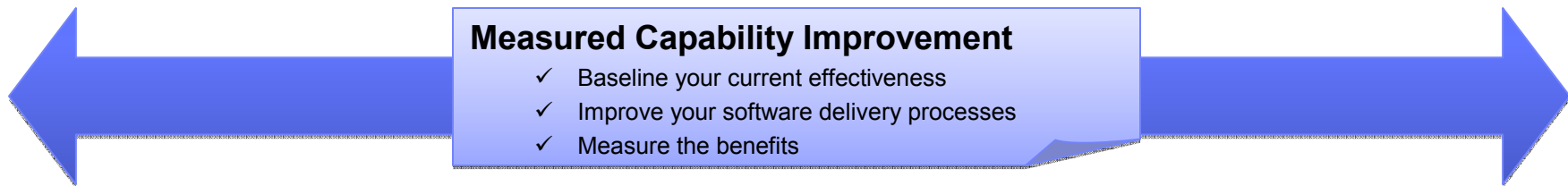
Migration Services
- ✓ Move your existing Rational environment to the cloud
- ✓ Adapt your usage patterns and processes as needed

Integration Services
- ✓ Integrate SDS offerings with your other tools
- ✓ Automate processes to reduce costs and time

Custom Image Development
- ✓ Tailor SDS images for your environment
- ✓ Create new images

Deployment
- ✓ Deploy SDS images in the Cloud
- ✓ Establish usage patterns around your processes

IBM

IBM Rational provides a comprehensive set of capabilities to accelerate your cloud journey
One size does not fit all

► ## 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
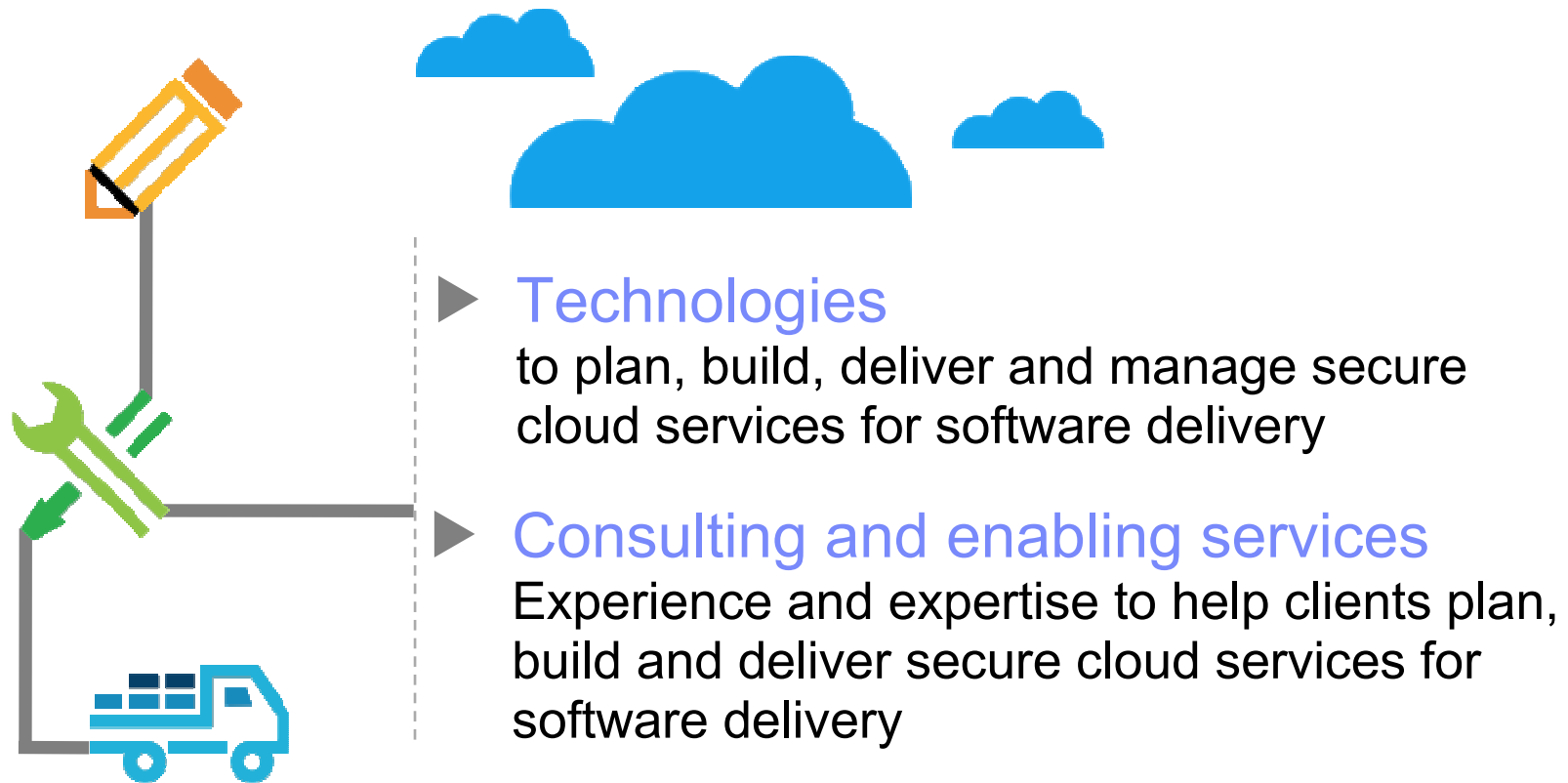
Actionable enterprise architecture guides successful transformation to cloud
Cloud planning and strategy, reduce risk in deployment

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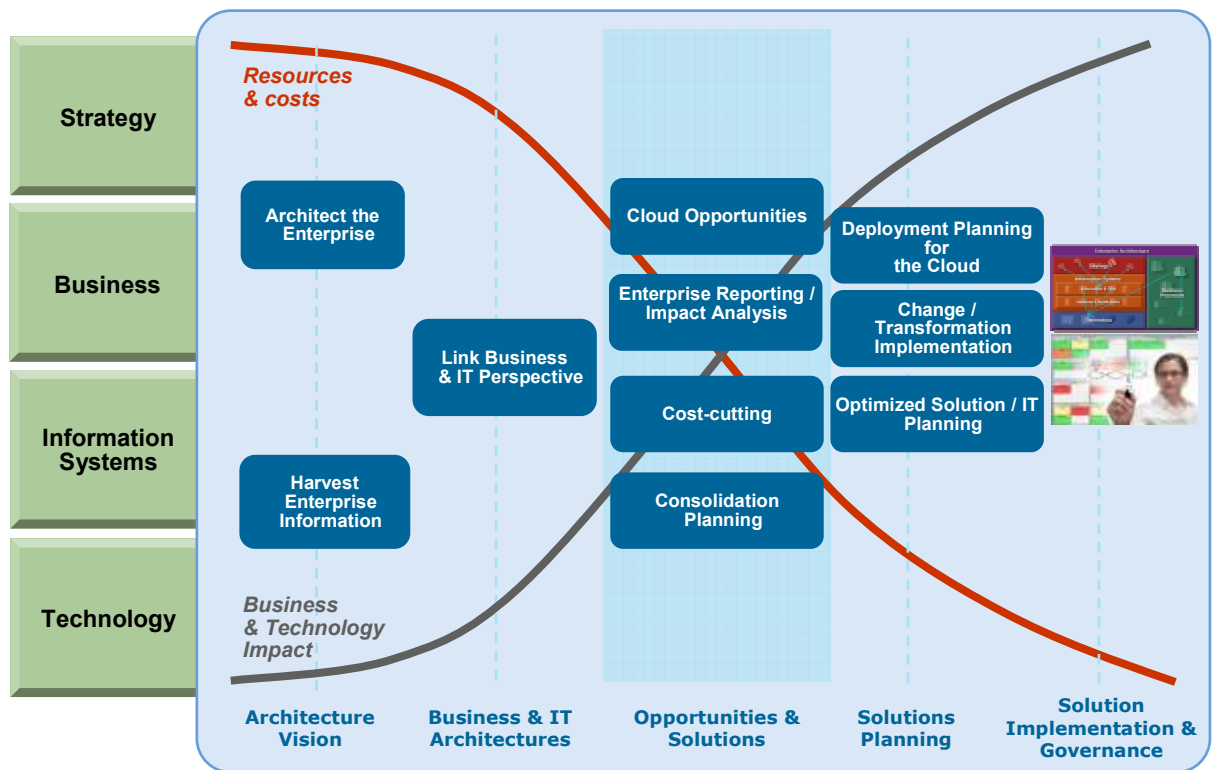
Security is among a top concern with cloud computing...
The IBM Security Framework provides a structure to address this concern

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

In addition to today's cloud service offerings, Rational sees potential for future transformation leveraging cloud computing

Software as a Service

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

Virtual Build and Test Farms

- Zero setup time for build systems
- Zero setup time for test environments
- Leveraging elasticity in build and 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

Testing moves towards the clouds

Traditional Hardware

- Large Capital Expense for each team
- Underutilized hardware
- Time consuming setup/teardown
- Misconfigurations lead to rework

Virtualized Labs

- Reduced CapEx, shared across a dept
- VM Images simplify setup
- VM Image sprawl – no image management
- Only provisions single images
- Multi-node configurations still manual
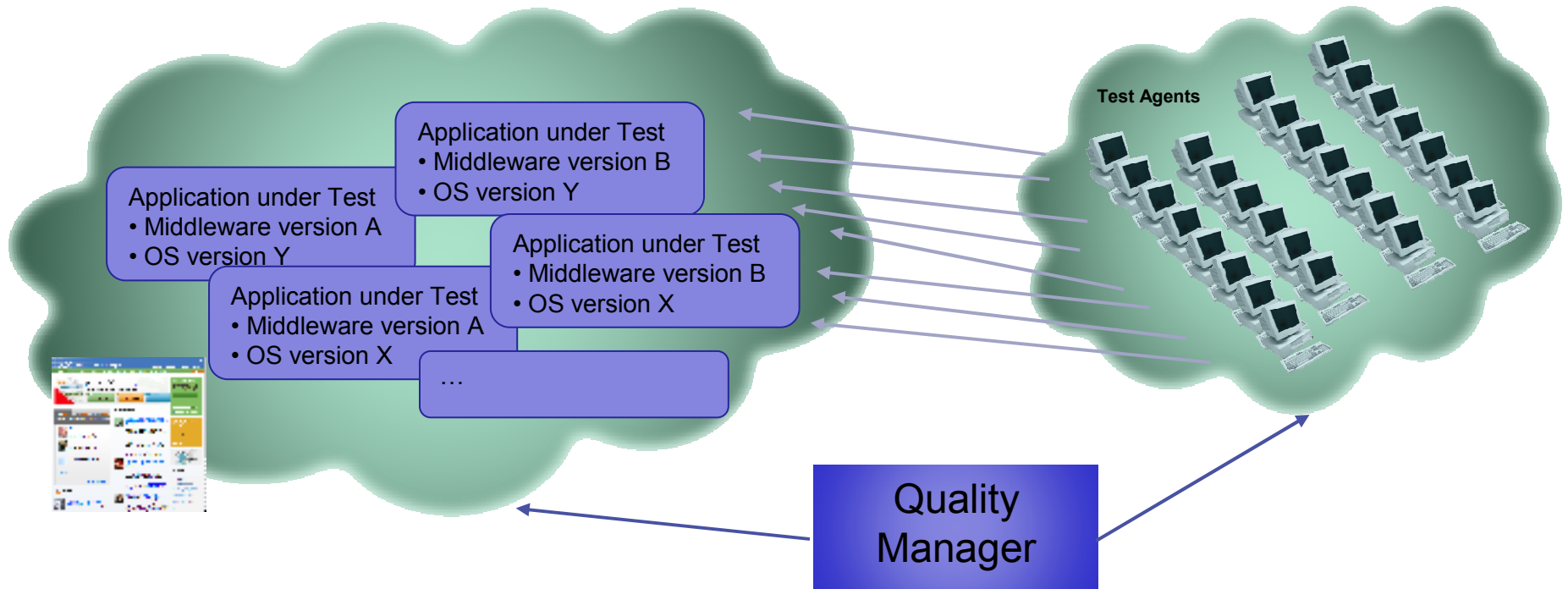- Misconfigurations lead to rework

Cloud-based Automated Labs

- Capital shared across divisions
- Integrated QM and Lab Management
- Modeled test environments map to cloud image "patterns"
- Infrastructure provisioned & configured
- Applications automatically deployed & configured
- Deployment info shared across dev, test, and ops
- Test tools also in the cloud

Virtual Test Labs

Test Agents

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

…

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

Automated Deployment to the Clouds

Traditional Deployments

- Free-form data
- Ad-hoc topology descriptions
- Many Manual Tasks
- Time consuming and error-prone setup

Model-Driven

- Deployment middleware captured as model
- Can be shared between development and operations
- Easily modified

Model-Driven Cloud Deployment

- Automatically provisions OS and Middleware
- Pushes code to deployment environment
- Automatically configures application

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 bring the potential of Cloud to life

- 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

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IBM

Thank You

www.ibm.com/software/rational

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