Cloud Computing

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Agenda

- Cloud Computing
  - Service and Business Aspects
  - Delivery Models

- IBM Solutions Portfolio
  - Architectural Model
  - New Announcements

- IBM Public Cloud & Initiatives
Cloud Computing is an emerging style of computing in which applications, data, collaboration, business processes, and IT resources are provided as services to users over the web...

...they are made available by **highly efficient virtualized compute resources** that can be **rapidly scaled up** and **down in a flexible yet secure** way to deliver a **high quality of service**.

**New innovative models:**
- Acquisition – Service
- Business – Pay for use
- Access – Standard network (eg. Internet)
- Technical – Scalable, Elastic, Shareable
Cloud Computing services stack

- **Business Process as a Service (BaaS)**
  - Businesses can easily experiment with new services
  - Time-to-value of new services greatly decreased

- **Software as a Service (SaaS)**
  - Improved consumability via Web delivery of apps and service
  - Web-resident development, deployment, update, app management
  - Easy app composition reduces development costs

- **Platform as a Service (PaaS)**
  - Deployment technologies uncouple service deployment from hardware.
  - Optimized middleware – application servers, database servers, etc.

- **Infrastructure as a Service (IaaS)**
  - Ensembles simplify hardware (server / storage / network) management.
  - Virtual image management contains scaling costs of update, etc.
  - Power and heat management reduce energy costs / emissions

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Cloud Computing in the market

Business Process as a Service (BaaS)

Software as a Service (SaaS)

Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)

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Cloud Computing in IBM

- Business Process as a Service (BaaS)
- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

Service Providers

General Businesses

Internet/Intranet

SO Customers

Enterprises

Tivoli TSAM

Cloud Ecosystem Consulting Services (including OSS, BSS)

Consulting Services

 Including OSS, BSS

MBPS Offerings

IBM BPM BlueWorks

LotusLive

Rational AppScan

DB2, WebSphere, AMI

WebSphere Cloudburst

Rational Telelogic

Virtual Cloud Storage

Public Desktop Cloud

Security Cloud Services

Test Cloud

Computing On Demand

www.ibm.com/ibm/cloud/ibm_cloud

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Cloud computing delivery models

The emerging forms of “Private” and “Public” Cloud delivery are generating the opportunity as workloads are migrating accordingly. For example:

- Mission Critical
- Packaged Apps
- High Compliancy
- Test Systems
- Pre-production
- Developer Platform
- Variable Storage
- Software as a Service
- Web Hosting
IBM Cloud delivery capabilities

- IT transformation consulting services
- Project-based implementation services and operation services

- Business Process-as-a-Service
- Software-as-a-Service
- Platform-as-a-Service
- Infrastructure-as-a-Service

Key Services Channels

Cloud Consulting & Implementation Services

Public Cloud Services

Strategic Outsourcing Cloud Services

Service Management

Service Request Manager

Service Lifecycle Manager *

Service Provisioning

Service Availability

Service Security

Cloud Services Built On
Blue Cloud Architecture

Image Library

System Virtualization & Platform Management

Virtualization Manager

Ensemble Manager *

Virtualized Resource Pools

STG / Partner Technologies

Tivoli Technologies

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Architectural model for Cloud Computing

Service Request & Operations

End User Requests & Operators

IT Infrastructure & Application Provider

GBS/GTS

Green

Service Creation and Planning

Service Planner / Creator

Rational RSA 7.5

Design & Build

Image Creation & Capture

Visualized Infrastructure

Virtual Resources & Aggregations


System Resources

SMP Servers  Blades  Storage Servers  Storage  Network Hardware

Cloud Service Management

User Request Management

Service Automation Management

Image Lifecycle Mgmt.  Provisioning  Performance Mgmt.  Availability/Backup/Restore

Security: Identity, Integrity, Isolation, Compliance  Usage Accounting  License Mgmt.

TSAM

WebSphere Cloudburst / Virtual Enterprise

Image Mgmt

STG Ensembles

Optimized Middleware

(enhanced, integrated security, workload mgmt., high-availability)
New announcements to exploit Cloud Computing

**Infrastructure conditioning**

**IT Optimization Business Value Roadmap**

New services offering to develop structured blueprint for enhanced alignment of IT to business objectives.

Prioritizes optimization options based on measurable ROI and business impact.

Provides clear roadmap to establish foundation for a dynamic infrastructure.

**Networking for clouds**

IBM Networking Optimization Services for Consolidation and Virtualization – planning, design and implementation services to optimize networks in virtualized IT environments.

IBM Network Integration Services – data and storage network convergence – offers design & implementation services to optimize data center network convergence.

IBM Ethernet Routers and Switches – new options in IBM’s extensive range of choices for network connectivity technology.

**Cloud enablement**

**New software to build clouds**

IBM Telelogic System Architect Enhancements helps develop a roadmap for developing cloud services, integrated with SOA lifecycle views.

IBM WebSphere Cloudburst – a secure appliance that provides speed and repeatability for deploying WebSphere environments into a private cloud.

**IBM Service Mgmt Center for clouds**

Launched in February 2009; enables rapid, automated deployment of applications and services.

Enhanced with three new security bundles to address cloud security concerns.

- Tivoli Identity and Access Assurance
- Tivoli Data and Application Security
- Tivoli Security Management for z/OS

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Infrastructure Strategy and Planning for Cloud Computing

*Determine the best organizational value from a cloud delivery model*

**Description**
Helps IT leaders determine how their organization can best benefit from a cloud delivery model. Leverages and executive workshop to answer two key questions: Where will cloud work for me? What kind of returns will I achieve?

**Reasons to perform it**
- Our workshop methodology is a low impact high return to ensure your cloud investments are optimized
- We provide you with both near-term business case assistance and also a roadmap to reach longer term objectives
- A complementary suite of cloud services to support consulting design, implementation and ongoing management of cloud environments based on our clients and our own experiences

**Customer Benefits:**
- Project the potential *cost reductions* cloud offers your organization
- Provide a business case for how cloud will *improve service delivery*
- *Identify the risks* and develop mitigation strategies within an implementation roadmap
IBM Implementation Services for Cloud Computing design and implementation for test environments

Features:
- Assessment of current test environment to project savings and ROI
- Design and implementation services of the solution and create self-service portal with catalog of services
- Integrated platform combining service request management, provisioning / de-provisioning and change and configuration management
- Cloudburst support

The test cloud services is designed to:
- Cut capital and operational costs
- Presents an opportunity to improve solution quality
- Provide a request driven delivery of test environment infrastructure and associated services including operating system, middleware, storage, etc…

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
- Improve Quality- eliminate 30% + of all defects that come from faulty configurations.
IBM software and hardware enables private test Cloud solutions

**Workloads**
- Test and Pre-Production
- Software Development

**Service Management**
- WPS or TSAM
  - Request UI
  - Operations UI
- TSAM
  - Service Catalog & Automation
- TPM & TPC
  - Provisioning
- ITM & TUAM
  - Monitoring & Metering
- LDAP
  - Security
- TSLA & TBSM
  - SLA Mgmt
- PaCES
  - Capacity Planning

**Virtualization**
- Virtual Servers
- Virtual Storage
- Virtual Networks
- Virtual Applications & Middleware
- Virtual Clients

**Physical Layer**
- Non-IBM Servers
- IBM System z Power Systems
- System x, BladeCenter
- IBM & Other Storage
- Networking

**Products:**
- WPS: WebSphere Portal
- TSAM: Tivoli Service Automation Manager
- TPM: Tivoli Provisioning Manager
- ITM: IBM Tivoli Monitoring
- TUAM: Tivoli Usage and Accounting Manager
- TPC: TotalStorage Productivity Center
- TSLA: Tivoli Service Level Advisor
- TBSM: Tivoli Business Service Manager

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IBM LotusLive Software as-a-Service

• Provide essential business services every workgroup needs in a way that is simple to acquire and easy to use
• Integrated collaborative & social networking services
• Seamlessly work with people – outside or inside your company
• Create a business network of connected businesses

IBM LotusLive 2009 Offerings

Web Conferencing
LotusLive Meetings
LotusLive Events

Collaboration
LotusLive Engage
LotusLive Connections

Information

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China Cloud Computing Center

- Built by IBM for municipal government of Wuxi, China
- Eleven parks to be created across China for software development
- Accelerates transformation to a service-led economy

Enabling Features

- Public cloud: Access through internet or secure connection
- Promotes software start-up company growth
- Accelerates development and test cycles through quick resource on-boarding
- Offers secure, network isolated environments
- Delivers backup/restore capabilities to protect customer assets

“The China Cloud Computing Center represents a milestone in service-oriented computing,” said T. W. Liu, the chairman and CEO of iSoftStone. “It will allow companies in the Wuxi Software Park to leapfrog to the newest computing models and will provide an efficient IT platform for software development.”
IBM worldwide support centers for Cloud Computing

- Cloud is the natural evolution of virtualization and provisioning

- New Dynamic Infrastructure pilot solution on many customers

- Cloud environment for PoC located in Cagliari

- WebSphere Cloudburst demo environments in Rome, Milan and Madrid

- GTS Cloud Center of Excellence cooperates with worldwide team leveraging on Boeblingen, Montpellier and Raleigh laboratories
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Thank you