Cloud Computing and Standards

Heather Kreger
CTO International Standards, IBM
kreger@us.ibm.com
Technology will play the key role in success …

Factors impacting organizations:

1. **Technology factors**
2. People skills
3. Market factors
4. Macro-economic factors
5. Regulatory concerns
6. Globalization
7. Socio-economic factors
8. Environmental issues
9. Geopolitical factors

IBM Global CEO Study

Speed Value

90%

view cloud as critical to their plans

Extended Reach

1 Billion

Smartphones and 1.2 billion mobile employees by 2014

Responsiveness

20B+

Intelligent business assets

New Insights

2.7ZB

of digital content in 2012, up 50% from 2011
But organizations must transform IT from cost centers driving on-going operations to *strategic centers* of business innovation.
Leveraging the Transformational Power of Cloud Computing …

- Improves the agility & dexterity of business
- Delivers IT without boundaries
- Lowers Complexity & Changes the Economics of IT
- Enables new business models & client relationships
- Speeds delivery of product & service innovation

Using Services
Cloud Service Delivery Models - enabled by open standards

Flexible business service delivery and consumption models

- **Private Clouds**
- **Hybrid**
- **Public Clouds**

**Already using Services (SOA) is a jumpstart**

**Evolve existing infrastructure to Cloud**
Progressive implementation roadmaps using Cloud enablement components

**Speed delivery using private cloud and public cloud services**
Using both private cloud and some approved public cloud services

**Immediate access to a managed platform with flexible cost**
Externally hosted Cloud services platform with enterprise QoS

Common Cloud platform built on an open standards reference model

Standards in progress
Open Group, JTC1/ITUT

Cloud Service Delivery Models - enabled by open standards
Cloud Service Models for the Industry – the *aaS resources

- **Infrastructure as a Service (IaaS)**
  - Using someone else’s resources – utilities – compute, storage, networks to run your service
  - Networked storage - Drop box, Grid - SETI, Virtual Machine Images

- **Platform as a Service (PaaS)**
  - Run your services on someone else’s platform
  - Middleware - Application servers, DBaaS, …

- **Software as a Service (SaaS)**
  - Use someone else’s applications as a service
  - Email, customer management, web meetings, BPaaS

Standards in progress at Open Group, JTC1/ITUT
Opportunities for Standards - Capabilities for every service model

Network accessible, scalable, elastic, measured, on demand

Cloud Enablement Technologies
Enables private/hybrid cloud service delivery and management

Managed Cloud Services
Secure and scalable cloud managed services platform

Cloud Business Services
Pre-built Cloud SaaS applications

Supporting Portability of Services and Data

Common Open Standards Technology and Industry Ecosystem
Cloud open standards are rapidly emerging

Driving the definition of a comprehensive, open reference platform for Cloud Computing

- Driven by collaboration among users, Cloud standards-defining bodies and Cloud vendors
- Developing use cases, requirements, best practices, gap analysis and recommendations
- Driving use cases and requirements into Standards Organizations

350+ global companies are participating

Half operate outside the IT realm in the business domain

Interoperable | Flexible | Customer-driven
The Cloud Standards Journey

Support client choice and flexibility through open cloud standards and open source

- Leveraging virtualization standards & service management standards from DMTF
- Building on SOA and Cloud Architecture standards from The Open Group
  - International standards under development

Kinds of standards we need

- Making sure we are speaking the same language – terminology, reference architectures
- Supporting interoperability, service portability and data portability… and service agreements
- Cloud is enabling Big Data, Grid Computing, Internet of Things, so requirements evolving
Cloud enablement capabilities

Platform as a Service Technologies
An integrated pool of abstracted application services to **build & run** Cloud services

Infrastructure as a Service Technologies
A policy-based, scalable environment for **managing** the delivery of computing resources and Cloud services “on demand”

- **Lifecycle**
  - Rapidly activate team-based development environments

- **Resources**
  - Shared resources to simplify the development, delivery of applications

- **Environments**
  - Pre-defined environments of common application patterns / best practices

- **Management**
  - Management capabilities tuned to the specific application requirements

- **Integration**
  - Integrate your cloud-delivered applications with other applications

- **Infrastructure**
  - Technology dexterity to handle broad spectrum of workloads and characteristics

- **Management**
  - Enterprise-class governance, administration and management control

- **Performance**
  - Broad spectrum of QoS options, with Business-Level SLA and Terms

- **Security**
  - Security and isolation options built into the virtual infrastructure and network

- **Usage**
  - Flexible payment terms aligned to usage, platform and services
Cloud adoption patterns have emerged backed by proven best practices

- Cloud Enabled Data Center
  - Cut IT expense, risk & complexity

- Cloud Platform Services
  - Accelerate time-to-market with new workloads

- Business Solution on the Cloud
  - Gain immediate access to applications

- Cloud Service Providers
  - Deliver innovative business Models
Definition of cloud services (NIST)

Cloud solutions require support for

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured Service

Which implies solutions that need

- Dynamic provisioning
- Multi-tenancy
- Automated Management
- Virtualization
- Business support – Subscription, Usage, Billing

Therefore Services need...

- Automated delivery of cloud service
- Automated Management of Cloud service offering
- Virtualization of resources to support the cloud service
- Business support – Subscription, Usage, Billing of cloud service and offering
- Cloud service instances as the unit of delivery