Cloud Computing:
Software Services and Applications

Lauren Farese, Sr. Director
Oracle Public Sector – State and Local Government
NASCIO Enterprise Architecture Committee, ITIL V3
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I've looked at clouds from both sides now,
From up and down, and still somehow
It's cloud illusions I recall.
I really don't know clouds at all.

Joni Mitchell - Both Sides Now
Live, 1970
Why Cloud? Why Should You Care?

• S&L Budget cuts forcing IT Consolidation
• Cloud Computing Is a NASCIO Priority [#4 2010]
• We are at the Peak of the Hype Cycle

“IT suppliers must position as leaders in IT cloud services or forfeit an ever-expanding portion of the industry’s growth” IDC

• Federal Government’s “Cloud First” policy
• By 2012, 44% of enterprises will be leveraging private cloud services
• Demand for new Web 2.0 services from citizens
Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model promotes availability and is composed of:

3 Service Models
- SaaS
- PaaS
- IaaS

4 Deployment Models
- Public Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

5 Essential Characteristics
- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

Source: NIST Definition of Cloud Computing v15
Private Clouds and Public Clouds

**Private Cloud**
- Exclusively used by a single organization
- Controlled and managed by in-house IT

**Public Clouds**
- Used by multiple tenants on a shared basis
- Hosted and managed by cloud service provider

**Trade-offs**
- Lower total costs vs. higher upfront costs
- Greater control over security, compliance, QoS vs. outsourced management
- CapEx & OpEx vs. OpEx

**SaaS**
**PaaS**
**IaaS**

**INTERNET**

Enterprises will adopt a mix of private and public clouds
Enterprise Evolution To Cloud

NIST Deployment Models

Public Cloud Evolution

Public Clouds

Hybrid

Virtual Private Cloud

Private Cloud Evolution

Silo’d
- Physical
- Dedicated
- Static
- Heterogeneous

Grid
- Virtual
- Shared services
- Dynamic
- Standardized appliances

Private Cloud
- Self-service
- Policy-based resource mgmt
- Chargeback
- Capacity planning

Hybrid
- Federation with public clouds
- Interoperability
- Cloud bursting
Oracle Cloud Computing Strategy

Oracle Applications

Private Clouds

SaaS

PaaS

IaaS

Public Clouds

SaaS

PaaS

IaaS

Oracle Applications OnDemand

Oracle Technology for Clouds

Users
Cloud – Current Trends

Data Center Consolidation is the new Private Cloud
  • Server Consolidation
  • Service Consolidation – Database as a Service

What are customers looking for?
  • Integrated Pre-Engineered Hardware-Software solutions
  • Improve manageability
  • Improved Security

Collaboration Services - Mail and Office

What are customers looking for?
  • How do I secure my “attachments” – Information Rights Management
  • How do I control users in an external system – Integrated/Federated Sign-On.
Private Cloud Momentum

“Cloud computing projects are still at an early stage at most companies, if they are happening at all. However, the overwhelming majority of IT executives have at least begun evaluating the benefits of cloud technology, with much of their focus on private clouds.”

Source: CIO Insights Q2 2010

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NASCIO Draft - Cloud Deployment for Government
A Sustainable IT Operating Model is the Foundation for Cloud Computing
IT Optimization: the Roadmap to Cloud

The 4 Principles of IT Optimization

1. Rationalization
2. Consolidation (& Virtualization)
3. Management Automation
4. Shared Services
Enterprise Architecture: The Process for Achieving Cloud

1. Align Business & IT
2. Focus on Future State
3. Governance Model
4. Repeatable, Iterative Approach
Cloud Service Adoption
Security Continues to be the #1 Concern

It could actually be a benefit.....

“So if you flip that apprehension on its head, there may be benefits in leveraging a cloud offering with the [security] focus and core competence that a cloud provider brings to the table.”

-Michael Pearl, PricewaterhouseCoopers

ICAM Workshop

• Requirements
  - Budget Constraints
  - Programs & Funding
  - Online vs. “In Line”
  - Portal Initiatives
  - Actions that require interaction
  - Proactive Citizen Services
  - Cloud

• Design & Architect
  - Building Interfaces
  - Leveraging Standards
  - Security Mandates
  - Trust Assurance
  - Identity Sharing/Federation
  - Data Security & Compliance in Shared Environments
Cloud Success Story – State Data Center
Database as a Service - Goals and Anticipated Benefits

• **Standardize**
  - Provisioning
  - Management and monitoring
  - Backup and recovery (BUR)
  - Cost recoupment

• **Resource Efficiency**
  - More efficient use of storage
  - Easier network management (firewall rules)

• **Increase Quality**
  - Rapid environment provisioning
  - Efficient use of development/test environments
  - Bolster capability to enforce security policies
NC Education Cloud Model
Some State Examples

• New Jersey Transit Authority
  - CRM (SaaS – Salesforce.com)
    • Response time dropped by 35%, productivity increased by 31%

• State of Connecticut
  - ERP (PeopleSoft Private cloud)
    • Financials and HR to all state agencies
    • Standardized shared service

• Commonwealth of VA
  - VITA Enterprise Application Development (Amazon EC2)
    • New applications with little upfront cost
Some References

• “Cloud Computing Bible” – Barrie Sosinsky
• “Cloud Computing and Government : Background, Benefits, Risks” – George I. Nikolov
• “The Cloud At Your Service” – Jothy Rosenberg, Arthur Mateos
• “Cloud Computing Explained” – John Rhoton
• NASCIO.org – new whitepaper(s) coming!