Hybrid Clouds Part 2: A Case Study on Building the Bridge between Private & Public Clouds

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SNIA TM
Cloud Storage Initiative
Today’s Presenter

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Agenda

Learning Objectives

- Understand the place of storage in cloud architectures
- Learn about specific storage requirements for cloud
- Identify the issues in using storage in a cloud architecture
The Theoretical ITU Model

diagram provided by ITU-T (N326)
Service Delivery Business Challenges

- The need for speed and innovation by business users creates a demand that is difficult to meet with the current IT model
  - Operating model can be constrained by IT’s need for consistency and standards
  - One-size-fits-all model which typically doesn’t “fit all sizes”
  - Prioritized against enterprise IT projects

- Technology has become more available
  - Commercial public cloud is available with the swipe of a credit card and equally easy to use

- End-users are finding other ways to procure resources and cloud becomes an enabler.

- These solutions have the potential to increase risk and cost to the business
  - Spawns applications with no integration to IT support or security, and typically with no business continuity
  - HW, SW, and resources are invested by the business in order to manage their needs; no economy of scale
Specific Business Scenarios

**Application #1**
- **Web-Community with Support for:**
  - Open-Source Tech
  - Account Handling
  - Dynamic Content
  - Public-Facing
- **IT?**
- **Jive?**
- **Prod Ops?**
- No Open-Source Support
  - High-Cost
- Missing Core Functionalities
- Limited Scaling
  - Not External
- TBD?

**Application #2**
- **Data Warehouse with Support for:**
  - Dynamic Scaling
  - AD Integration
  - Scripted Queries
  - Custom Reporting
- **IT?**
- **eBI?**
- **TESO**
- High Cost
  - Long Delivery Time
- Feature Gaps
- Limited Hosting Capability
- Doesn't Scale
  - No Support
  - High Capital Cost
- TBD: Launch as project in PPMO?
Approach

- Started fast with Cloud Service Provider which provided VPC (virtual private cloud)
  - Provided needed velocity to capability at lowest cost
  - Iterative approach to defining capabilities and mapping to business needs of the end-user
  - Demonstrate the simplicity and agility of a resource on-demand model
  - Prove application / workload compatibility
  - Illustrate how cloud fits as a component in the IT service management framework
- Iterate to refine service offering
- Continue business apps migration
- Drive toward private / hybrid cloud
Approach (cont.)

Application-Based Silos

Zones of Virtualization

Public Cloud

Private Cloud

Current State

Future State

Reduced Time to Capability
Capacity Management
Standard Image Library
Increased Security Posture
Business Scalability
Data Protection and Management
Resource Monitoring and Reporting
Lowered Capital Requirements
The Planning Process & Challenges

- Legal Considerations
- Culture
- Operations
- Governance
- Processes
- Security & Data Privacy
- Contracts & SLAs
- Best Practices
Legal Considerations

- Why and when you need a lawyer
- Transborder Data Flow
  - May generate legal obligations (sometimes conflicting) in multiple jurisdictions
  - “The Right To Be Forgotten”; many jurisdictions have such laws
  - Exporting data may be illegal
    - EU Data Protection Directive; does NOT permit transferring personal information to countries that do not provide EU protection levels; the USA is one such country
- Expectation of "Reasonable Security"
  - Security breaches leading to potential liability
  - Only as strong as weakest link
Legal Considerations (cont.)

- **Electronic evidence & e-discovery**
  - What constitutes evidence?
  - Multiple copies, digital signing, data fragmentation
  - Retrieval of data often complicated

- **Existing non-Cloud contracts insufficient**
  - License agreement vs service agreement
  - Ownership vs use of content

- **Mobile Devices**
  - The law applies where you are, and where your data is stored

- **Get Legal Involved**
  - Early and often; laws change
Key Challenges in Selecting/Using Cloud

❖ **Culture**
  ❖ Some groups are wary of clouds & those services that they cannot physically interact with
  ❖ Utility model (pay-as-you-go) takes time to be fully accepted by business users
  ❖ Shifting the mindset of the user: chargeback doesn’t always mitigate over-provisioning

❖ **Operations**
  ❖ Managing the service-provider!
  ❖ How to integrate off-premise services (and do so where the current model is in silos)
  ❖ Cloud education is essential – to understand the value of cloud to business users, and how it can help make more efficient
Key Challenges in Selecting/Using Cloud

Governance
- Governance is key in shaping the speed of adoption and success
- Companies must understand what they should put in the cloud and why
- Risk management is crucial - from vendor sourcing, to legal policy, to developing strong application patterns around cloud usage

Processes
- Clarity of processes for Cloud operations, governance and SLA
- Driving cloud brokerage into the service management framework
- Normalizing and federating data
Key Challenges in Selecting/Using Cloud

❖ Security & Data Privacy
  ◆ Enterprise CSP - offers a more secure environment than most IT datacenters
  ◆ Data privacy - threat of data holds & other legal matters can be potential risks
  ◆ Self-service can open the door without proper controls

❖ Contract & SLAs
  ◆ A strong contract helps mitigate risks and the key in cloud provider selection
  ◆ A well-structured SLA is essential to manage expectations and deliverables
  ◆ Exit strategy; how to cleanly terminate or move
Key Challenges in Selecting/Using Cloud

❖ Best Practices
  ❖ CSP selection process & risk management
  ❖ Modernization of applications - as they are the true consumer
  ❖ Pay-as-you-go, chargeback consumption model
Capabilities

- xCloud provides a method for end-users to provision and manage IT systems
- Service catalog of more than just simple infrastructure instances
- Many common web and database platforms are fully supported; from deployment through steady-state
- Core Services (SSO, LDAP, AD, DNS, etc) are available via blueprint catalog
What does xCloud do?
Value of xCloud

**Business Agility**
- Removes IT as a bottleneck
- Increased platform and application confidence

**Improved Security**
- Lowered risk of app compromise or data loss
- Reduced application downtime

**Measurable Benefits:**

<table>
<thead>
<tr>
<th>Value Opportunity</th>
<th>Quantitative Benefits</th>
<th>Qualitative Benefits</th>
</tr>
</thead>
</table>
| Improved Time to Capability| Up to 3000% decrease in time to deliver over traditional IT | • Acceleration of feature/function  
• Ability to repurpose resources |
| Enhanced Reliability       | 99.9+% availability                                         | • Less application downtime / Fewer P1/2’s  
• Improved application performance |
| Capacity Management        | 30% better capacity utilization                              | • More efficient use of resources  
• Fewer performance issues    |
| Expense Avoidance          | $3.5M estimated annual savings in HW, SW, and support       | • Reduced up-front costs with no long-term commit  
• Visibility into actual consumption |
## What can xCloud be used for?

<table>
<thead>
<tr>
<th>VALUE</th>
<th>COMPLEXITY</th>
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<tbody>
<tr>
<td>Field-Facing Applications</td>
<td>Good Fit</td>
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<td>Source Code Repositories</td>
<td>Good Fit</td>
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<td>Marketing Campaign Systems</td>
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<td>Core Competitive Process</td>
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<td>Financial Management Systems</td>
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<td>HR / Payroll Systems</td>
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<td>Procurement Systems</td>
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<td>ERP Systems</td>
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<td>MDM / Data Warehouses</td>
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<td>High Transaction Business</td>
<td>Not a Fit</td>
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<td>Business Systems</td>
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<td>Identity Management Systems</td>
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<td>Offer to Order Systems</td>
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<td>Business Analytics Systems</td>
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Decision Framework for Business and IT to know which lever to pull to solve the right business problems and drive cost optimization
# Service Delivery Current State

## Public SaaS
- SFDC
- Chatter
- DrawLoop
- Apptus
- Radian6

## xCloud
- Qubes
- Choice
- HR Web

## Datacenter
- SAP
- Exchange
- BIZ APPI

## Key Observations
- **Strong adoption of SaaS**
- **Mature enterprise operations**
- **xCloud**: Virtual Private Cloud
- **IT acts as Provider and Broker**
- **Operate in silos**
- **Immature cloud technology**
- **Lack of holistic governance**
- **Basic concept of chargeback**
# xCloud: Reference Model

## RAG

### Capabilities
- Self-Service
- Elastic
- Image Mgmt
- Orchestration
- Platform Svcs
- Backup
- Monitoring
- Reporting
- Multi-Tenant
- Resource Pooling

### Service Management
- Service Strategy
- Service Catalog
- Service Levels
- Service Delivery
- Operations Mgmt
- Support Mgmt
- Billing / Chargeback
- Problem Mgmt
- Vendor Mgmt
- Config Mgmt

### Governance
- Security
- Policy Definition
- Scope
- Roles
- Access Control

### Deployment
- Public
- Private
- Hybrid
- Community

### Business
- Scenarios
- Funding
- Sourcing
- Demand

### Roles
- General User
- Power User
- Org Manager
- Cloud Admin
- Cloud Manager
Technology

- Secure private network
- Monthly security auditing
- DDOS protection
- Intrusion protection

- Switches, blades & VMs

- Three copies of data across two data centers kept at all times
- Clustering and HA
- 5 /14 day backups
Topology

Cloud

- Compute Policy 1
- Compute Policy 2
- Storage Policy 1
- Storage Policy 2
- NetApp Policy
- Network Policy 1
- Catalog
- DFM Inputs
- vFilter Templates
- Resource Pool Management
- Protection Manager Policies
- Provisioning Manager Policies
- vDC 1
- vDC 2

Additional Clouds

Other Clouopia Clouds
xCLOUD Reference Architecture
Compare With the Theoretical ITU Model

diagram provided by ITU-T (N326)
Before & After

**Application #1**
- Web-Community with Support for:
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  - Account Handling
  - Dynamic Content
  - Public-Facing

**IT?**
- No Open-Source Support
- High-Cost

**Jive?**
- Missing Core Functionalities

**Prod Ops?**
- Limited Scaling
- Not External

**TBD?**

1 week

7-16 weeks

**Application #2**
- Data Warehouse with Support for:
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  - AD Integration
  - Scripted Queries
  - Custom Reporting

**IT?**
- High Cost
- Long Delivery Time

**eBI?**
- Feature Gaps

**TESO**
- Limited Hosting Capability

**TBD: Launch as project in PPMO?**

1 hour

1 day
Final thoughts

- There are significant differences in how cloud services are delivered to the various categories of users. The integration of these services with traditional IT operations will remain an important success factor but also a challenge for IT managers.

- The Cloud industry is still in its infancy. We can expect many more developments for IaaS, PaaS and SaaS solutions across business segments and verticals. It will become increasingly important to understand how such services can be combined in a secure and cost-efficient fashion.

- Mobile & virtualised use of data well suited to cloud. Embracing it now will prevent data proliferation on unsuitable services.
After This Webcast

➤ This webcast and a copy of the slides will be posted to the SNIA-C SI website and available on-demand
  - http://www.snia.org/forum/csi/knowledge/webcasts

➤ A full Q&A from this webcast, including answers to questions we couldn't get to today, will be posted to the SNIA Cloud blog
  - http://www.sniacloud.com/

➤ Follow us on Twitter @SNIACloud

➤ Google Groups:
  - http://groups.google.com/group/snia-cloud
Conclusion

Questions
Conclusion

Thank You