Planning a Cloud Implementation

Presenter’s Name
Presenter’s Title
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Cloud Business Case

Cloud Computing Capabilities
Cloud Computing Effectiveness
Cloud Computing Roadmap
What is Your Cloud Business Case?

Top Private Cloud Challenges Reported: 2010 IOUG Survey*

Creating the business case & funding model

- Adequately provisioning server capacity
- Implementing process, policy and role changes
- Gaining cross-organization support or participation
- Building awareness of available services
- Adequately provisioning Storage capacity
- Loss of visibility / control

* IOUG ResearchWire member study on Cloud Computing, conducted in August-September 2010.
Cloud Drivers

- Reduce time to Market
- Green
- Reduce Complexity
- Change IT Cost Structure
- Scale on Demand
- Strategic
- Tactical
- Virtualization
- Optimizing dev / test environments
- Metering and Chargeback
Cost Reduction? Business Agility? ...Both?
IDC Cloud Service Survey Results

From 2008 to 2009 ‘Pay for use’ passes ‘Easy to deploy’ as top benefit.

Consider …

- What specific benefits are you trying to achieve? (be selective)
- Where do you fall on cost savings vs business agility? (just one or both and if both, what priority?)

Benefits

Q: Rate the benefits commonly ascribed to the 'cloud'/on-demand model
(Scale: 1 = Not at all important 5 = Very Important)

- Pay only for what you use: 77.9%
- Easy/fast to deploy to end-users: 77.7%
- Monthly payments: 75.3%
- Encourages standard systems: 68.5%
- Requires less in-house IT staff, costs: 67.0%
- Always offers latest functionality: 64.6%
- Sharing systems with partners simpler: 63.9%
- Seems like the way of the future: 54.0%

‘Enterprise’ Private Clouds are Different

• NIST identifies 5 essential cloud characteristics
  - On-demand self-service, Resource pooling, elasticity, Measured service, Broad network access

• But private clouds are different from public clouds...
  - E.g., On-demand self service
    • Public developer cloud – unrestricted resources provisioned in minutes, but with no controls or corporate governance
    • Enterprise private cloud – need provisioning controls, standards enforcement, prioritization, approvals, etc.
  - I.e., Enterprise cloud faster to deploy than traditional IT, but probably slower that public cloud

• There are other criteria with similar differences
  - Security, governance, high availability, global access ….
Why Choose Private Cloud vs. Public?
Results from IOUG Survey

Respondents cite Security, QoS & Long-term Cost as key reasons to choose a Private Cloud over Public Clouds.

Why choose private cloud?
- Security concerns
- QoS concerns
- Long-term cost
- Services already exist
- Compliance concerns
- Difficulty to customize
- Difficult to integrate
- Lock-in concerns
- Other

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Cloud Business Case

**Cloud Computing Capabilities**

Cloud Computing Effectiveness

Cloud Computing Roadmap
Profile Applications & Workloads
First Inventory Your Applications

**Suitable for cloud now**
- Time based
- Very parallel (i.e. batch)
- Spiky traffic
- Capital intensive (especially startup)
- Proof of Concept
- Low utilization
- Less deployment costs
- High bandwidth costs / high real estate

**Not as suitable for cloud**
- Vertically scaled applications
- Consistent load levels
- Latency sensitive applications
- Insecure applications
- Hardware device dependent (e.g. fax server, SNA gateway)
- ISV unsupported
- Per CPU licensed applications
What Do You Want the Cloud to Do?  
Start with Common Use Cases

Augmentation (Elastic scaling)

Shared Services

Development and Test

Resource sharing (consolidation)

Most enterprises are trying
• Shared development and test environments
• Hardware & Services consolidation
Shared Services – Many Possibilities

Shared Functions
- Sharing Applications across org
- Enabled by SOA, BPM

Java PaaS
- Build & deploy to common platform
- Enterprise Private Cloud

Shared SOA
- Application services integration

Shared Security
- Centralized authorization for all apps

DBaaS
- Rapid access to all enterprise data
- Parallel Processing of Transactions
Shared Services – Private PaaS Example

Credit Suisse

- Hosts 220 applications on 400 servers
- Replaced 2800 servers
- Standardized operating process
- Only 3 platform releases in parallel

Credit Suisse
Private Database Cloud Architectures

Common Building Blocks are Shared Server & Storage Pools

**Server**
- Deploy in dedicated VMs
- Server virtualization

**Operating System**
- Share server pool
- Real Application Clusters

**Database**
- Share database instance
- Real Application Clusters
## Which Apps for Which DB Cloud?
Each Architecture Serves Different Workloads

<table>
<thead>
<tr>
<th>Workload Type</th>
<th>Optimal Cloud Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission or Business Critical Deployment</td>
<td>Operating System</td>
</tr>
<tr>
<td>Packaged Applications</td>
<td>Operating System</td>
</tr>
<tr>
<td>Data Warehouse Applications</td>
<td>Operating System</td>
</tr>
<tr>
<td>Standardized environment</td>
<td>Operating System or Database</td>
</tr>
<tr>
<td>Internal Applications</td>
<td>Database</td>
</tr>
<tr>
<td>Rapid provisioning (i.e. Test and Dev)</td>
<td>Database or Server</td>
</tr>
<tr>
<td>Mixed workload consolidation</td>
<td>Database</td>
</tr>
<tr>
<td>As-Is consolidation</td>
<td>Database</td>
</tr>
</tbody>
</table>
Database Cloud Planning

Identification of Applications to Migrate

- New applications are deployed to the Cloud
- Existing applications are migrated based on:
  - Difficulty
  - ROI
  - Suitability
- The benefits and difficulties of consolidating existing applications in the Cloud will vary
  - Applications with highly varying peaks will show greatest benefit
- The “lowest hanging fruit” should be migrated to the Cloud first
Build from Scratch vs. Exadata
Commonwealth Bank of Australia

- **Build From Scratch with Components**
  - Testing and Validation
  - Installation and configuration
  - Acquisition of components
  - Pre-implementation
    - System sizing
  - Weeks to Months

- **Reference Configurations**
  - Testing and Validation
  - Installation and configuration
  - Acquisition of components
  - Weeks to Months

- **Oracle Exadata Database Machine**
  - Testing and Validation
  - Configuration
    - Take delivery of Oracle Database Machine
  - < 1 Week after Delivery

- ✔ Server Pool pre-configured
- ✔ Faster deployment
- ✔ Lower Risk

- **DB deployment time reduced from 3 months to < 1 week**
Cloud Business Case
Cloud Computing Capabilities
**Cloud Computing Effectiveness**
Cloud Computing Roadmap
Cloud Computing Effectiveness
An Evolution of IT Consolidation

• Use basic ROI model for improved cost efficiency?

• May be organizational issues in measuring other costs
  • Who ‘owns’ licensing, power, financing, support, etc.?

• Biggest benefit could be business agility
  • Is there an existing model of TTD (time to deploy)?

• Are IT culture shifts required to achieve benefits?
  • E.g., New development process to achieve self-service goal
Consider Direct, Indirect & Intrinsic ROI
Some Are Harder to Measure

• Direct cost savings
  - Reduced cost of consolidated HW is obvious…
  - But savings on operations costs can be 5X the HW savings

• Service level improvement
  - Increased uptime from shared services
  - Plus reduction in faults from standardization

• Business agility
  - Basic time to deploy reductions
  - Biggest win may be new business application possibilities
ROI Example – U.S. State Government

Major Savings in Staffing & Software

Annual Cost Savings - Database as a Service vs. Business as Usual

- Year 1
- Year 2
- Year 3
- Year 4
- Year 5

Cost Breakdown:
- Staffing
- Software
- Hardware
- Environmental
Private Cloud Pricing Models

• **Cost +**
  share out the amortized cost to internal tenants
  - Maybe a minimum floor price since there is an ultimate fixed cost of internal assets

• **Market Rate**
  Match the open market rate e.g. compare with AWS

• **Market rate+**
  since private cloud offers added benefits e.g. security

• **Value+**
  What is estimated value to the internal customer?
  - Provides additional tax/profit to pay for platform investment
  - May lose out to external competition
Cloud Business Case
Cloud Computing Capabilities
Cloud Computing Effectiveness

Cloud Computing Roadmap
Cloud Computing Readiness May Require Diverse Business Changes

- Consider, for example, IT governance & risk management, information modeling & ownership, operations & service management.

- How are these areas managed today?
  - identified responsibilities, documented processes, etc.

- Do you have a mechanism for assessing capabilities in each area?

- How will you identify needs for changes or improvements to support cloud computing?
Example Cloud Capabilities by Domain Areas Important to Cloud Readiness

- To succeed at Cloud services adoption, an organization must adequately progress in all the appropriate domains.

- **Architecture**
  - Reference architecture
  - Standards

- **Business & Strategy**
  - Business & IT drives
  - Costs & Benefits

- **Organization**
  - Executive sponsorship
  - Roles & responsibilities

- **Governance**
  - Risk management
  - Cloud change management

- **Services**
  - Services portfolio management
  - Services engineering approach

- **Infrastructure**
  - Model templates
  - Data ownership

- **Information**
  - Model packaging
  - Service monitoring

- **Operations**
  - Capacity management
  - Operational tools & processes

- **Reference architecture**
- **Standards**
- **Model templates**
- **Data ownership**
- **Model packaging**
- **Service monitoring**
- **Capacity management**
- **Operational tools & processes**
Cloud Computing Roadmap
How Will Your Cloud Be Introduced?

Cloud computing efforts range from small ‘experiment’ projects to major strategic initiatives.

Most companies have multiple projects underway or anticipated.

• Separate from the new architecture, is there a plan for how the new model will be rolled out?
  • E.g., by application, by business unit, by geography…

• Is cloud viewed as a limited tactical deployment, major strategic initiative, or both?
Focused Implementation Vs. Wide Diffusion

- **Strategic** – Complete migration for a given architecture/application, often focusing on revenue enhancement
- **Tactical** – Wide deployment of a limited technology (e.g. virtualization), often focusing on cost reduction
Key Business/IT Transformations

**Current Approach**

- IT Architecture designed up front (early binding)
- IT operations developed and performed by the IT department
- Systems and application management was specific to select systems and applications

**Cloud Approach**

- Build out infrastructure up-front, expand later
- IT will move to building up-front operational functions for a self-service model.
- The cloud ‘control plane’ has to be architected as a general service
Key Logical Abstractions to Consider
Clouds Require New ‘Models’

- **Separation of roles** (e.g., Cloud Provider vs Service Developer)

- **Deployable Entities** (aka VDCs) include Service Templates and Service Context (e.g. – OVAB ‘Assemblies’)

- **Logical resource ‘pools’** abstraction of physical resources
Roadmap to Cloud
Multi-Dimensional Journey

1. Standardize
   - Define a single solution for a given problem

2. Consolidate
   - Reduce the footprint of deployed applications

3. Automate
   - Reduce the manual tasks for managing IT

4. Optimize
   - Achieve new operational models & greatest efficiency

*Individual enterprises or applications may join the roadmap at different points*
Cloud is a Multi-Year Journey

Northern Trust PaaS Example

- Each release of an architecture platform evolves into what the industry now calls PaaS
  - JavaArch1.x – Web SSO Security
  - Web2000 – Co-Hosting applications, enterprise logging, templated environment, scripted builds
  - JavaArch8 – Messaging API’s, scripted deployments, app metrics, monitoring
  - JavaArch11 – Virtualized, automated creation, on-demand resources, end-to-end experience

PaaS has allowed the business to invest in developing new capabilities rather than Infrastructure
Some Final Thoughts....
Planning Your Cloud – Summary

- Decide what kind of cloud is under consideration
  - Infrastructure, Platform… , Private, Hybrid….
- Identify measurable benefits
- Use appropriate ROI models
- Evaluate organizational readiness
- Develop a clear roadmap for deployment
- Identify key IT and business transformations
Oracle Insight For Data Center Technology
A Structured Approach To Address Improvements

1. Typical Data Center Challenges

- How to manage the increased demand?
- How to improve data center operations?
- How to optimize technology?
- What is the business case (ROI)?

2. Tailored Process

- Data Center Technology Perspective
- Discovery
- Solution Design
- Solution Presentation

3. Impactful Deliverables

A. DC PERFORMANCE IMPROVEMENTS
B. DC ECONOMICS
C. DC TECHNOLOGY ROADMAP
D. WORKLOAD ANALYSIS

Oracle Insight for Data Center Technology aims to resolve these challenges and create impactful deliverables using a tailored process
http://www.oracle.com/insight
For More Information….

oracle.com/cloud
Hardware and Software

Engineered to Work Together