Migrating Enterprise Applications to the Cloud

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About Me

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Agenda

• Challenges & Opportunity
• Risk vs. Reward
• Migration Strategies
• Cloud Assessment
What Are We Talking About?

Cloud Computing
“a style of computing where scalable and elastic IT-enabled capabilities are delivered as a service using Internet technologies. First and foremost is the concept of delivering services (that is, results as opposed to components).” (Gartner)
Challenges

Pain Points

• Budget pressures
• Data center agility
• Capacity vs. demand
• Business agility
Growth and Strategic Impact

- 70% of budget and employee time allocated to “Lights On” operations.
- Competitive advantage?
Now is the Time

One of top 10 strategic technologies for 2012 (Gartner, October 18 2011)

By 2012, 80% of Fortune 1000 enterprises will be using some cloud computing services, 20% of businesses will own no IT assets. (Gartner)
Understanding

CLOUD RISK VS. REWARD
Risks

- Technology Alignment
- Employee Skillset
- Data Storage
- Identity Management
- Deployment
- Production Support / Monitoring
- Reliability
- Security
Reward

- Financial
- Scalability
- Accessibility
- Agility & Flexibility
- Simplified IT
- New Technology
Opportunity

Early adopters are finding serious benefits, meaning that cloud computing is real and warrants your scrutiny as a new set of platforms for business applications. (Forrester)
Cloud Adoption

STRATEGIES
vNext

- Re-architect for the cloud
- Potentially heavy up-front investment
- Long term benefit
Hybrid

- Not everything has to move
- Determine what to keep private and what aligns well with the public cloud.
- More complex architecture
- Custom solution – may change from application to application
- Destined to be the most popular?

* Cloud Computing Use Cases White Paper 2009
Dual Operations

• One version on-premises, another in the cloud
• Potentially expensive
  – Code maintenance
  – Release & production support
• May satisfy customers that are skeptical of “the cloud”
Walkthrough of a

CLOUD ASSESSMENT
Cloud Computing Assessment

- Clearer picture of the cloud suitability of your application(s) / Provide focus
- What is your cloud strategy?
- Single application or portfolio?
Keys to a Cloud Assessment

• What?
  – Benefits for *me*?
  – Identify opportunities & the ROI
  – What belongs and what does not?

• Create an Application Profile
  – Capture essential application characteristics
  – Business & technical context

• Calculate the Application Suitability Score
Current Application Scenario

• “Mayhem Auto Insurance” policy management web application

Problem area
  – CIO feels IT is slow to respond to business need
  – Pressure to cut IT costs

Technology
  – Windows Server 2003 (2 web servers, clustered)
  – DB2
    • in-line SQL statements
    • 100s GB total
    • Old data
    • Subset used for website
    • Data used by many other back office applications
  – SQL Server 2008 (ASP.NET session management only)
  – File system (SAN) for policy documents (PDFs, hundreds of GB of data)
Current Application Architecture

- Load Balancer
  - Web Server 1
    - Windows Server 2003
    - ASP.NET
  - Web Server 2
    - Windows Server 2003
    - ASP.NET
  - Firewall
  - DB2
  - File Storage (SAN)
## Application Profile

<table>
<thead>
<tr>
<th>Name</th>
<th>Mayhem Insurance Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who Uses It</td>
<td>Customers</td>
</tr>
<tr>
<td>Business Value</td>
<td>Strategic (main customer interaction)</td>
</tr>
<tr>
<td>Point in Lifetime</td>
<td>Enhancement</td>
</tr>
<tr>
<td>Lifetime Remaining</td>
<td>Foreseeable future</td>
</tr>
<tr>
<td># of Users</td>
<td>25,000</td>
</tr>
<tr>
<td># of Concurrent Users</td>
<td>200</td>
</tr>
<tr>
<td># of Servers</td>
<td>2</td>
</tr>
<tr>
<td>Machine Specs</td>
<td>2x2.5GHz, 8 GB RAM, 350 GB HDD</td>
</tr>
<tr>
<td>Database Size</td>
<td>10 GB (est. used by web app)</td>
</tr>
<tr>
<td>Non-Database Data (file system)</td>
<td>750 GB</td>
</tr>
<tr>
<td>SLA (incl. RTO and RPO)</td>
<td>99.9% (2 hr. RTO and 12 hr. RPO)</td>
</tr>
<tr>
<td>Usage</td>
<td>6am ET – 8pm ET</td>
</tr>
<tr>
<td>Complexity</td>
<td>Moderate</td>
</tr>
<tr>
<td>Platform</td>
<td>Win2k3 web servers, DB2 on Unix</td>
</tr>
</tbody>
</table>
Application Suitability

**Score each area**

- 5 to 0
  (no changes – not possible)
- Is moving to the cloud sound or not?
- Prioritize applications
# Application Suitability

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform Alignment</td>
<td>4</td>
<td>Database challenge</td>
</tr>
<tr>
<td>Code Migration</td>
<td>3</td>
<td>New code for ETL process</td>
</tr>
<tr>
<td>Data Migration</td>
<td>3</td>
<td>Migrate to SQL Server 2008</td>
</tr>
<tr>
<td>Savings</td>
<td>4.5</td>
<td>Current hosting expensive</td>
</tr>
<tr>
<td>Cloud Accessibility</td>
<td>4.5</td>
<td>Public facing web site</td>
</tr>
<tr>
<td>Policy Barriers</td>
<td>3</td>
<td>Need to demonstrate adherence to company policies</td>
</tr>
<tr>
<td>Usage Pattern</td>
<td>2.5</td>
<td>Standard US business hours</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>5</td>
<td>Foreseeable future</td>
</tr>
<tr>
<td>SLA Requirements</td>
<td>5</td>
<td>Comfortable with 99.9%</td>
</tr>
<tr>
<td>Integration Points</td>
<td>4</td>
<td>Not internal integration points other than database</td>
</tr>
<tr>
<td>Data Sensitivity</td>
<td>3</td>
<td>Need to demonstrate security</td>
</tr>
<tr>
<td>Regulator Barriers</td>
<td>3</td>
<td>Need to demonstrate regulatory compliance</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td><strong>3.7</strong></td>
<td></td>
</tr>
</tbody>
</table>
Financial Impact

• Migrations Tasks

• Other Expenses
  – Software licensing
  – DevOps (monitoring, support, release mgmt)
  – Security & compliance reviews
  – Developer training

• On-Premises TCO vs. Cloud TCO

• ROI
Total Cost of Ownership

• On-premises may be hard to calculate
  – Energy & Cooling?
  – Hardware?
  – Licensing?
  – Maintenance / Labor?

• Cloud TCO should be easier
Total Cost of Ownership

Monthly Savings = CloudTCO – OnPremTCO

($2,136) = $1,864 - $4,000

Total Savings = Monthly Savings X Months

$25,632 = $2,136 X 12 months

Figures are for illustrative purposes only.
Return on Investment

$ROI = Total Savings - Migration Expenses$

\(-$368 = $25,632 - $26,000\)
Recommendation

• Final Application Suitability Score: **3.7**
• Application is suitable for moving to the cloud . . . but not without some challenges
One Possible Future State

WEB ROLE

SQL Azure
Database
Policy Blob
Container
SQL Azure Data Sync Service
Policy Document Generator
DB2
*Custom ETL / SSIS
SQL Server 2008

Enterprise
Recommendation

Important Activities

• Get current
• Clean up old data in database
• Custom ETL process*
• Modify data access logic
• Use blob storage instead of file system
References


• Babcock, C. *Management Strategies for the Cloud Revolution: How Cloud Computing Is Transforming Business and Why You Can't Afford to Be Left Behind*

Ask your questions
Thank You!

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