Understanding cloud computing and applying it to construction and real estate

Feb. 28, 2012
About the presenter

- Principal, McGladrey
- McGladrey Cloud Computing leader and information technology strategist
- Prior leadership over application development, portal, CRM and business intelligence units
About us

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- Member of RSM International, the sixth largest network of independent accounting, tax and consulting firms worldwide with 714 offices in 83 countries and more than 32,000 people.
- Delivering upon its original concept of service, predicated upon the personal attention of partners to the needs of clients, for 85 years.
Objectives

- Understand the core concepts behind cloud computing – cutting through all of the noise in today’s marketplace
- Understand the elements of a cloud computing implementation
- Understand the typical benefits one should expect from a cloud computing implementation
Objectives (cont.)

- Understand the obstacles and pitfalls to consider when implementing cloud computing scenarios
- Introduce scenarios where cloud computing is being applied in construction today
- Understand a framework that can be used to plan an organization’s cloud computing roadmap
Terminology

What is cloud computing?
Cloud computing overview

- Cloud computing can be loosely defined as the "dynamic provisioning of technology and business capability from a third party over the network"

- The National Institute of Standards and Technology (www.nist.gov) defines the following required cloud computing characteristics:
  - On-demand self service
  - Ubiquitous network access
  - Location transparent resource pooling
  - Rapid elasticity
  - Measured service with pay per use
Where did all the cloud noise come from?

Companies are switching focus from cost containment to performance management.

*Source: CFO Research Services, March 2011*
Cloud computing elements

- **Public clouds**
- **Private clouds**
- **Software as a Service (SaaS)**
- **Infrastructure as a Service (IaaS)**
- **Platform as a Service (PaaS)**
Infrastructure as a Service (IaaS)

- Taking the server room to the cloud – “getting out the hardware business”
- Most significant technology cost savings
- Service provider owns equipment and houses, runs and maintains it while client pays on a per-use basis
Platform as a Service (PaaS)

- Exposes the operating system level as part of the cloud
- Complexity in ability of platform to:
  - Accommodate multitenant environs
  - Dynamically procure resources
  - Handle diverse integrations
Software as a Service (SaaS)

- Software and data are stored and delivered from the cloud to a thin client
- Typical SaaS products are highly configurable to allow for as diverse a user base as possible
- Centralized hosting allows for accelerated feature delivery (more frequent upgrades)
Public cloud implementations resemble utilities available to the general public.

Public cloud implementations are typically self-service oriented.

Public cloud implementations are generally multi-tenant and highly dynamic and elastic in their usage.

Think Salesforce.com.
Public cloud example

All Infrastructure Shared: Application Servers, Backup, Firewall, Network, Monitoring, Antivirus, etc...

Example of Public Cloud Applications: Google Apps, Microsoft Office 365, Microsoft CRM Online, Salesforce.com, Gmail, Hotmail
Private cloud implementations remove multi-tenant implications while typically still offering some form of dynamic resource availability.

Private cloud implementations typically require more capital expenditure and hands on management than public cloud scenarios.

Private clouds can be internally or externally devised.
Public cloud example
Hybrid clouds are becoming common and result from integrating public and private cloud scenarios…
Hybrid cloud example
What’s driving this forward?

Cloud computing benefits
The speed of the cloud

- The elimination of back office considerations (e.g. facilities, hardware, multi-tiered networking) speeds typical cloud deployment.

- The highly configurable nature of SaaS products tends to result in reduced time to pilot and implement projects.

- Businesses improve agility when entering or leaving markets, increasing or decreasing head counts, etc.
Total cost of ownership

On-Premise

Cloud Computing

Ongoing Costs for 100 users over 4 years:
- Subscription fee
- Training
- Configuration

Ongoing Costs for 100 users over 4 years:
- Apply fixes, patches and upgrades
- Downtime
- Performance tuning
- Rewrite customizations
- Rewrite integrations
- Upgrade dependent applications
- Ongoing burden on IT
- Maintain/upgrade hardware
- Maintain/upgrade network
- Maintain/upgrade security
- Maintain/upgrade database

* Source: Yankee Group DecisionNote Technology Analysis
Variable costs of the cloud

- Legacy annual licensing cost and three-year depreciation costs are replaced with more timely operating expenditures (CAPEX vs. OPEX)

- The elastic, on-demand nature of the cloud allows you to pay for as many or as few users as you have in a given month

- There is essentially an infinite capacity to the cloud in peak periods
Innovation in the cloud

- All organizations tend to realize the benefits of the top 20 percent through the advanced upgrade schedules.

- The configurability of the solutions allows for organizational differences without third-party add-ons creating complicated upgrade cycles.
Escaping the upgrade cycle

- Upgrades happen with greater frequency and are part of the base costs

- Ongoing upgrades do create a different kind of non-technical, organizational headache

- Upgrades do constantly provide improvement opportunities in short windows
Security of the cloud

- Typical service level agreements ensure uptimes for all but minutes every year

- Security is always listed as a chief concern of the cloud but most organizations fall well short of their cloud providers in terms of the tools to secure and stabilize their environs

- It must be noted that, as relates to external entities, security can often to measured as an inverse to desirability
What do you need to think about?

Cloud computing considerations
Case-by-case cloud considerations

- Some things may not make sense in the cloud
- Carefully consider compliance factors (HIPAA, SOX, PCI, SAS70, SSAE)
- Consider strategic advantage and where you want to be ahead of the upgrade baseline
Off-premise data

- Moving data off site is the biggest psychological roadblock even though sometimes “down the hall” and “around the world” not really all that different

- Despite that, it is important to understand where your data will reside

- Perform due diligence regarding vendor security (SAS/SOC), disaster compliance, compliance, contracts
Contractual considerations

- Carefully review of provider, contracts and service level agreements - enlist help if appropriate

- Understand your rights in case of termination, audit, disaster, subpoena and other scenarios

- Avoid unreasonable “lock in” to a cloud solution
Choosing a cloud provider

- Setup the “poles, wires, and sockets” in the cloud
- Vendor agnostic advice
- Functional Experience
- Focused on growing and transforming your business
Cloud Computing drivers

Migration Trigger
- End of life product
- Growth
- Functional

Technical Fit
- Integrate with other apps in the cloud and on-premise
- Meet company’s architecture guidelines

Financial Analysis
- Total cost of ownership comparison
- Understanding buying motivations

Risk Analysis
- Can the data live in the cloud
- Risk of execution
- Organizational risk
Not “If”… But “When”

- **Google Apps**: One million new subscribers per month
- **Rackspace**: Over 100,000 customers
- **Amazon Web Services**: Over 50,000 websites
- **Salesforce.com**: More than 85,000 customers
- **Projected 30 percent cloud spend increase in 2012**
Cloud Computing maturity

Gartner Group – Hype Cycle
Today’s applications

Cloud computing In construction
Financial management systems

- Among the most commoditized capabilities
- Best-of-breed shared functionality greatly benefits midmarket organizations
- Reporting and mobility abilities at fractional costs
- Available in public and private cloud scenarios
Accounts payable processing

- Typically among the most inefficient processes
- Low hanging fruit for operational efficiency
- Paperless invoices to your inbox via customizable workflows/approvals
- Simplified vendor management and audits
E-mail / productivity applications

- Significant headaches related to administration, integration, upgrades, reach
- Cost benefits related to real license counts
- Productivity benefits related to possession of current functionality
### E-mail / productivity applications (cont.)

<table>
<thead>
<tr>
<th>Components</th>
<th>Suites</th>
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<tbody>
<tr>
<td><strong>Office Pro Plus</strong></td>
<td><strong>Microsoft Office 365 E4</strong> $27/mo</td>
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<tr>
<td>Voicemail &amp; advanced archive capabilities</td>
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<tr>
<td>Forms, Access/Excel/Visio Services</td>
<td><strong>Microsoft Office 365 E3</strong> $24/mo</td>
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<tr>
<td>Office Web Apps</td>
<td><strong>Microsoft Office 365 E2</strong> $16/mo</td>
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<tr>
<td>Email, calendar, AV/AS, Personal Archive</td>
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<tr>
<td>Collaboration Portal</td>
<td><strong>Microsoft Office 365 E1</strong> $10/mo</td>
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<tr>
<td>Conferencing</td>
<td>Includes:</td>
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<tr>
<td>IM &amp; presence</td>
<td>- Exchange Plan 1</td>
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**Microsoft Office 365 E1** $10/mo
- Exchange Plan 1
- SharePoint Plan 1
- Lync Plan 2

**Microsoft Office 365 E2** $16/mo
- Exchange Plan 1
- SharePoint Plan 1
- Lync Plan 2
- Office ProPlus
- Office Web Apps

**Microsoft Office 365 E3** $24/mo
- Exchange Plan 2
- SharePoint Plan 2
- Lync Plan 2
- Office ProPlus
- Office Web Apps

**Microsoft Office 365 E4** $27/mo
- Exchange Plan 2
- SharePoint Plan 2
- Lync Plan 2
- Office ProPlus
- Office Web Apps
- Lync Plus (Voice)
Customer relationship management

- Bringing enterprise level capabilities to small and mid-market organizations in functions including:
  - Sales management / automation
  - Marketing management / automation
  - Service management
Services automation

- Providing enterprise capabilities to small and mid-market businesses:
  
- Time entry
- Expense reporting
- Invoice management
- Project management
- Resource planning and scheduling
Cloud based PBX

- Expiring phone leases prompt on-premise versus cloud-based phone solution decisions
- Today’s primary options appear to be large carriers offering Broadsoft platform versus Microsoft Lync Server
Virtual desktop interfaces (VDI)

- Delivery of desktops, applications and data to end user hardware
- Allows for superior management of mobile workforces
- Virtual images are centrally stored, where they are better secured, backed up and where management and storage costs are more effective
Keep an eye on these

- Building information modeling (Obayashi / NEC)
- Equipment and material tracking (ToolWatch)
- GIS / measurement services
- Estimating / bidding
Laying out your roadmap

Planning for cloud computing
Universal technology drivers

- Increase top line revenues
- Improve operational efficiencies (increase bottom line profitability)
- Improve customer service
- Risk mitigation
Planning your roadmap

- Industry and Market Analysis
- Strategy Assessment
- Technology Performance
- Cloud Roadmap Development
Industry and market analysis

- Gain a greater understanding of the competitive landscape
- Identify key trends in the marketplace
- Target key issues within the organization and how these might affect overall operations
Strategy assessment

- Key executives need to be able to articulate the organization’s vision and strategy
- Analyze the critical processes and initiatives in place to support and drive this strategy
Technology performance

- Identify process areas where improvements will result in cost savings and efficiencies
- Measure organizational performance against key industry benchmarks
- Establish targets in the areas of financial, operational and technology performance
Cloud roadmap development

- Perform high-level process review and identify areas of opportunity and process improvements
- Develop a customized roadmap for your organization’s adoption of on-demand, cloud-based solutions and hybrid models
Cloud strategic roadmap

2012
- Transactional Stability
- Reporting

2013
- Workflow Automation
- Budgeting & Planning

2014
- Scenario Planning
- E-commerce

Foundation ➔ Enhance ➔ Optimize
Cloud adoption rate projections

SaaS
- Mainstream adoption of point solutions for CRM, email, payroll, etc.
- Mostly pilot projects; limited production for early adopters
- Production for many software companies; limited/piloting for corporate use

PaaS
- Majority of packaged solutions and custom applications in the cloud
- "Cloudsourcing" business in the cloud (serverless office)
- Migration of legacy applications and infrastructure

IaaS
- "Cloudsourcing" business in the cloud (serverless office)

Today 2-3 years 4-5 years
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