Choosing The Right Cloud Strategy

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- McGladrey’s Cloud Services Leader

- Technology strategist with 20+ years of experience across a wide range of technologies and industries
Objectives

- Create an understanding of fundamental Cloud Computing concepts
- Describe the offerings of the McGladrey Cloud Portfolio that are available
- Detail which Cloud offerings may or may not be applicable to specific situations
## Overview of topics

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Cloud Computing Fundamentals
What Exactly Is Cloud Computing?

Consider cloud computing to be similar to other utility providers – but selling compute and storage

- Ubiquitous
- Elastic
- Economies of scale
- Pay per use
- Operating rather than capital expenditures
Cloud computing comes in many variants along two primary criteria:

- What are you purchasing “As A Service”? 
- How is the solution technically architected and what degree of sharing of resources is there?
Differentiating Cloud Constructs
“As A Service” Offerings

- The “As A Service” cloud differentiating criteria considers what level of managed service you are purchasing.

- Each “As A Service” offering constitutes the management of different aspects of the technology stack.
Differentiating Cloud Constructs

**On Premise Solutions**

- For on premise technology implementations, everything from the facilities to the data itself is owned and managed by the organization.

- One of the greatest drivers of cloud adoption today is that as each of these parts of the overall stack becomes more complicated and expensive, it makes less sense to own and manage.
Differentiating Cloud Constructs

Co-Location Services

- Co-location services includes ownership and management of:
  - Facilities
  - Power
  - Cooling
  - Bandwidth

- In co-located scenarios, the customer still owns and manages the server and storage equipment
Differentiating Cloud Constructs

*Infrastructure as a Service (IaaS)*

- IaaS expands upon co-location as the provider assumes responsibility for the compute and storage aspects.

- Customers are still responsible for managing everything that is running within the managed environment from the operating system up.
Differentiating Cloud Constructs

Platform as a Service (PaaS)

- PaaS goes beyond IaaS in that the provider manages the operating system, middleware and runtime aspects of the environment.

- PaaS solutions are often utilized when compliant environments are required as administrative rights to the environment are removed from the customer.

- The customer is still responsible for managing aspects of applications as well as its own data.
Differentiating Cloud Constructs

**Software as a Service (SaaS)**

- SaaS places management of the entire stack in the hands of the service provider.

- In a SaaS scenario, the customer is typically using a web browser to utilize an application.

- Think NetSuite, Salesforce.com, Office 365.
The Cloud Computing Continuum

- **Traditional On-Premise Computing**
  - Data
  - Applications
  - Runtime
  - Middleware
  - O/S
  - Virtualization
  - Servers
  - Storage
  - Networking
  - AC/Cooling
  - Facilities

- **Co-Location Services**
  - Data
  - Applications
  - Runtime
  - Middleware
  - O/S
  - Virtualization
  - Servers
  - Storage
  - Networking
  - AC/Cooling
  - Facilities

- **IaaS**
  - Data
  - Applications
  - Runtime
  - Middleware
  - O/S
  - Virtualization
  - Servers
  - Storage
  - Networking
  - AC/Cooling
  - Facilities

- **PaaS**
  - Data
  - Applications
  - Runtime
  - Middleware
  - O/S
  - Virtualization
  - Servers
  - Storage
  - Networking
  - AC/Cooling
  - Facilities

- **SaaS**
  - Data
  - Applications
  - Runtime
  - Middleware
  - O/S
  - Virtualization
  - Servers
  - Storage
  - Networking
  - AC/Cooling
  - Facilities
Differentiating Cloud Constructs

Cloud Architectures

- The second set of criteria used to differentiate cloud variants relates to the general architecture of the constructs.

- From an architecture perspective, the degree of multi-tenancy of the cloud environment is a key consideration.
Differentiating Cloud Constructs

**Public Cloud**

- Public cloud architectures involve complete multi-tenancy – everything is shared
- The most common public cloud constructs support SaaS offerings
Differentiating Cloud Constructs

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
Differentiating Cloud Constructs

**Private Cloud**

- In a private cloud architecture, there are aspects of the environment which are not shared.

- It is common for there to be shared networking aspects of the environment (e.g. firewall, route, switch, bandwidth) with separate operating environments (e.g. database, web, other server).

- Private cloud architectures are often required in situations that require specific compliance needs or customization.
Differentiating Cloud Constructs

Private Cloud Example

- **Shared Infrastructure Services:** Backup, Firewall, Network, Monitoring and Antivirus
- **Dedicated Application Servers:** Dynamics ERP and CRM systems, Exchange, SharePoint

Diagram:
- **Private Cloud**
  - Company A
  - Company B
  - Company C
In reality, most organizations end up operating in a hybrid cloud setup.

Hybrid clouds involve the use of different cloud architectures often in combination with on premise technologies.
Differentiating Cloud Constructs

Hybrid Cloud Example

- Shared Infrastructure Services: Backup, Firewall, Network, Monitoring and Antivirus
- Secure HTTPS Connection
- Microsoft Hosted Exchange
- Company C
- Private Cloud
- Secure Point to Point VPN Connection
- Secure Point to Point VPN Connection
- Company C Local Network
- Dedicated Application Servers: Dynamics GP and CRM
Why Go To The Cloud?
Why Go To The Cloud?

Cost and Capacity

- Total costs of ownership is reduced through reduced facilities, competency cost and ongoing maintenance among other things.
- 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 only what you need rather than including excess capacities.
- There can be an essentially infinite capacity to the cloud in peak periods.
Why Go To The Cloud?

**Speed**

- 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.
Why Go To The Cloud?

Innovation

- 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
Why Go To The Cloud?
*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
Why Go To The Cloud?

Backup and Recovery

- The Cloud provides enhanced, cost-effective solutions for building out backup and recovery.
- On premise implementations can leverage Cloud providers to provide geographically disparate and relatively inexpensive backup and recovery destinations.
- Cloud providers typically have multiple data centers in geographically disparate locations to facilitate their own backup and recovery.
Addressing
Cloud Concerns
Addressing Cloud Concerns

Security

- The ability of a cloud vendor to secure its environment is the most often vocalized concern.

- Reputable cloud vendors will have monitoring and security related technologies in place that the typical business can’t afford (critical mass).

- Reputable cloud vendors will have procedures in place and undergo stringent audits that typical businesses can not match.
Addressing Cloud Concerns

Data Ownership

- Who owns the data and what happens to it under various special circumstances?

- Data ownership questions typically require scrutiny of cloud vendor contracts and operating procedures.

- It is important to know what happens to your data when your relationship with a cloud vendor ends – whether voluntarily or involuntarily.

- It is important to know where all of your data resides when dealing with a cloud vendor.
Addressing Cloud Concerns

Vendor Lock In

- It is important to understand how difficult it will be to sever ties with a cloud vendor

- These questions are answered contractually and by understanding cloud vendor operating procedures

- Among the items to consider:
  - Termination fees or notice periods
  - Data migration requirements
  - Proprietary considerations
Addressing Cloud Concerns

Availability

- It is often asked “what will I do if my Cloud provider is down or part of a disaster”

- Reputable Cloud providers have built in levels of redundancy (N+1) that the typical business can not afford

- Reputable Cloud providers generally possess separate facilities and equipment for recovery – though you need to confirm these arrangements
Introducing the McGladrey Cloud Portfolio
The McGladrey Cloud Portfolio

McGladrey Cloud Portfolio

McGladrey cloud advisory services

McGladrey IaaS

McGladrey Private Cloud

McGladrey Hybrid Cloud Services

McGladrey Public Cloud Solutions
The McGladrey Cloud Strategy

- McGladrey recognizes that there are many different cloud scenarios.
- McGladrey will recommend and offer appropriate cloud solutions given the requirements of the client.
- McGladrey will help clients to build out hybrid cloud solutions (if appropriate in tandem with on premise technologies) that will work as seamlessly as possible.
McGladrey IaaS

- McGladrey IaaS is our compute, storage and networking platform
- Clients are charged based upon metered usage and can scale their environments up and down based upon need
- The McGladrey IaaS environment can be self-administered by clients or can be administered through McGladrey consultants
McGladrey Private Cloud

- McGladrey Private Cloud is our fully managed, compliant solution

- McGladrey undergoes a stringent SOC II Type 2 audit each year

- This level of audited compliance allows for hosting in situations where FDA, SOX and other regulatory standards must be met

- Due to the highly compliant nature of the environment, administrative control is turned over completely to McGladrey’s Cloud Services team
McGladrey Public Cloud Solutions

- McGladrey is a reseller of many of the pre-eminent public cloud solutions, including NetSuite and Microsoft Office 365.

- McGladrey has also created and sells the Auditor Assistant internal audit and Global Tracker project management public cloud solutions.

- Given this, we are well positioned to help clients select, implement and configure public cloud solutions to meet their needs.
McGladrey Hybrid Cloud Services

- As clients implement a wide range of cloud architectures in tandem with on premise solutions, McGladrey can help our clients to make it all work together seamlessly.

- Our Application Development team can help clients to integrate their varied Cloud solutions.

- Our Infrastructure team can help clients to implement single sign on solutions.

- Our McGladrey IT Vision™ team can provide monitoring and support services across the disparate Cloud architectures.
McGladrey Cloud Advisory Services

- McGladrey has built out a methodology to help clients to build a roadmap to the Cloud:
  - Taking A Technology Inventory
  - Defining Technology Usage Methods
  - Information Technology Function Evaluation
  - Defining Future Technology Needs
  - Cloud Computing Education and Primer
  - Cloud Roadmap Development
Applying the Cloud to Specific Situations
When To Use McGladrey IaaS

- McGladrey IaaS is a solid solution for those clients who are looking to purchase compute and storage as a utility.
- McGladrey IaaS can be sold strictly as compute and storage which the client can administer.
- McGladrey IaaS can also be sold in tandem with our McGladrey IT-Vision™ services.
- McGladrey IaaS is an excellent choice for clients who are just looking to replace their facilities and equipment capital expenditures.
- McGladrey IaaS is a great solution for situations that require elasticity.
When To Use McGladrey Private Cloud

- McGladrey’s Private Cloud solution is intended for those clients that have environments that require compliance or high levels of managed service.

- McGladrey’s Private Cloud solution provides fully managed services and a compliant environment (SOC II Type 2) that restricts administrative access.

- It is the ideal Cloud environment for client financial systems.

- Clients with specific regulatory and compliance scenarios (FDA, SOX, etc.) are candidates for our McGladrey Private Cloud solution.
Microsoft Azure

- Azure is Microsoft’s heavily marketed IaaS environment
- Azure is a good alternative for non-mission critical environments like development and test environments
- Azure can be utilized as a low-cost destination for on premise backups
- Although Microsoft is making heavy investments in Azure, it is not yet recommended for mission critical client environments due to low performance (iOps) and poor availability guarantees
Starting With Cloud Advisory Services

- The first thing McGladrey can do is to clear up confusion regarding the Cloud.

- McGladrey can help its clients to determine which Cloud constructs are the best fit for specific technologies.

- McGladrey can help its clients to lay out chronology and points of integration to build out an appropriate hybrid cloud.
Contractual Considerations

- McGladrey can help our clients to assess and select appropriate Cloud vendors

- McGladrey can also help clients to understand and modify the contracts that they may have with Cloud vendors:
  - Service Level Agreements
  - Service Level Objectives and support
  - Termination clauses
  - Rights in data
  - Compliance and audits
  - Back up and recovery
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