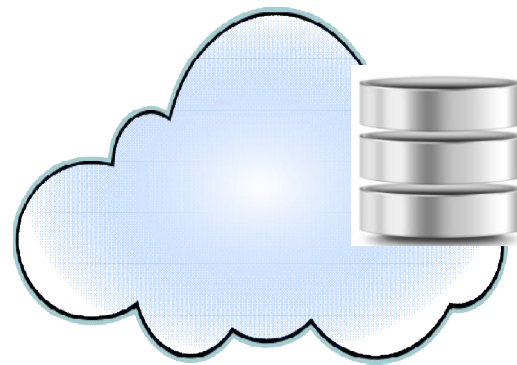




# SOA Lightning – *Harnessing the power of SOA*

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## Data and the Cloud DAMA Phoenix March 8, 2012





# Data and the Cloud

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## Presentation Topics

- You will learn about and understand:
  - Cloud Definitions
  - How to evaluate the risks, complexities and rewards for a "Software as a Service" solution
  - The steps you need to take in order to enable data integration with the cloud solution
  - How can you plan and prepare – Contingency planning if your Cloud project goes bad
- Let's try to answer these important Questions:
  - Can your enterprise deliver a cloud solution faster and at a far lower cost than a more traditional IT developed solution ?
  - Risks and how to avoid them (or at least have awareness)
  - Are there hidden costs ?
  - Data Integration is key !
  - Techniques to make your cloud solution successful
- This session will also close with an interactive, audience participation session. Audience members will be encouraged to share their cloud experiences, their concerns and their approach to success.



# Data and the Cloud

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## Cloud Definitions





# Cloud Perspectives

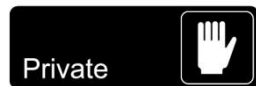
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## Cloud Perspectives – Public and Private Cloud

- A simple way to distinguish between public and private clouds is to view the cloud offering or service from the perspectives of the provider and the consumer.
- If the cloud is being offered by your enterprise or organization, you are the provider.



- A “**Public**” Cloud is most often offered to consumers outside of your enterprise or organization. Your enterprise might be the provider of the Public Cloud offering, or it might be provided by another organization.

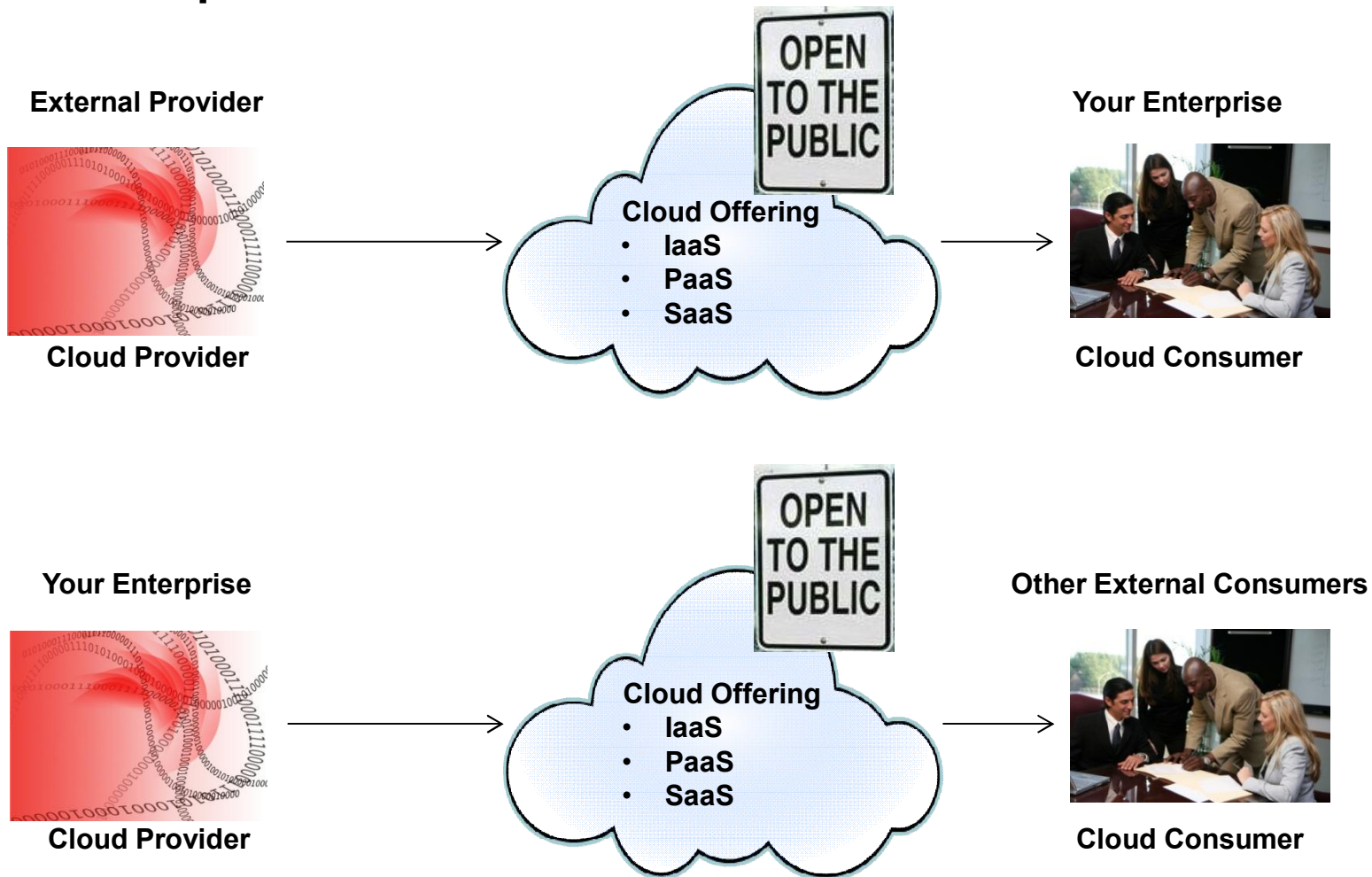


- A “**Private**” Cloud is most often offered to consumers within your enterprise or organization. Further, a Private Cloud is also usually offered by your enterprise or organization (sometimes referred to as an “Internal” Cloud).



# Cloud Perspectives

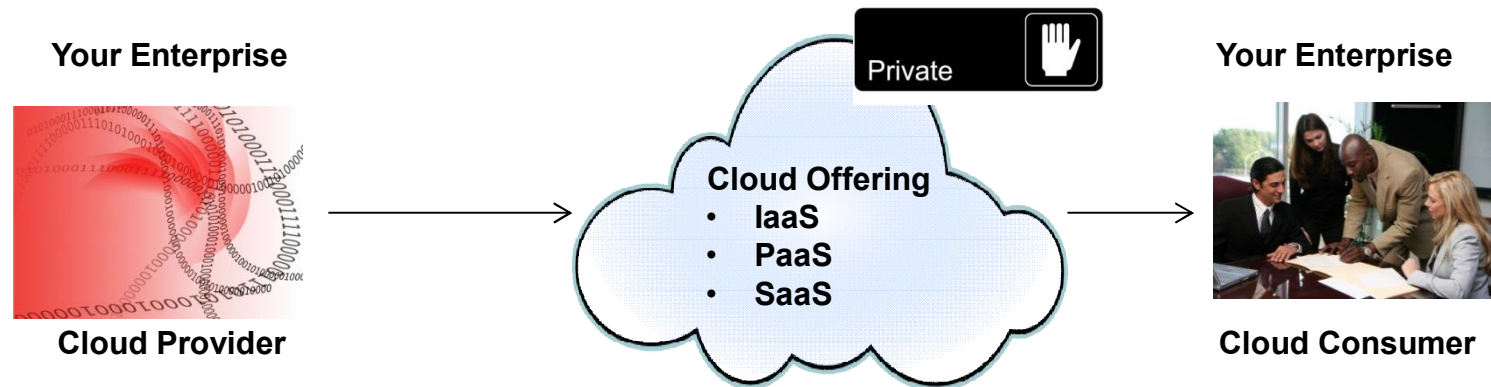
## Cloud Perspectives – Public Cloud





# Cloud Perspectives

## Cloud Perspectives – Private Cloud (internal)





# Cloud Definitions

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## Cloud Definition and Characteristics

(derived from Gartner, and modified)

- **Cloud Computing:**  
The set of disciplines, technologies, and business models used to deliver IT capabilities (software, platforms, infrastructure) as an on-demand, scalable, elastic service.
- **Cloud Characteristics:**
  - Dynamic, virtual, multi-tenant, and shared infrastructure
  - On-demand and self-service provisioning
  - Elastic and scalable
  - Priced by consumption, users or connections, data volumetrics, and user specified configuration
  - Available across common networks (e.g. Internet)
- **Cloud Offering Types:**
  - IaaS - Infrastructure as a Service
  - PaaS - Platform as a Service
  - SaaS - Software as a Service



# Cloud Definitions

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## **IaaS - Infrastructure as a Service**

- Individual hardware components and capabilities
  - Computational / Processor
  - Storage
  - Network
- Infrastructure as a Service offerings can be combined as needed
- Infrastructure as a Service components can be assembled from different providers and also from brokers
- When might an IaaS Cloud solution be a good idea ?
  - You need additional, temporary disk space
  - You need additional computational power for a short period of time
  - You need to augment your network.





# Cloud Definitions

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## **PaaS – Platform as a Service**

- Configurable technology platforms:
  - IaaS components (Storage, Computational Power, Networks)
  - Operating Systems
  - Databases
  - Application Servers
  - Web Servers
  - JVM's
  - Application Software (development, testing and run-time)
- Platform as a Service offerings can be configured as needed (e.g. “turn-key”)
- Platform as a Service components are usually assembled from one provider. However, individual PaaS components might be provided by brokers
- When might a PaaS Cloud solution be a good idea ?
  - You need a quick, temporary test environment
  - You need temporary environment redundancy
  - You need to evaluate a platform configuration that you will be building in-house



# Cloud Definitions

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## **SaaS – Software as a Service**

- Configurable application software and development platforms:
  - Application development tools (often proprietary and business user focused)
  - Application run-time software
  - Application integration tools (simple API's)
  - Batch or streamed processing tools
- Software as a Service offerings might allow some level of simple configuration
- Software as a Service offerings will often include some form of volumetric governance or metering
- Software as a Service components might be assembled from one provider, or from many providers. However, SaaS consumers will usually not be aware nor have the ability to control the providers
- When might a SaaS Cloud solution be a good idea ?
  - You need a quick, simple, easy to develop application
  - The application does not require extensive regulatory, PCI or PII controls
  - Operational risks such as availability and performance are acceptable to your enterprise
  - Your internal IT development team does not have bandwidth



# Data and the Cloud

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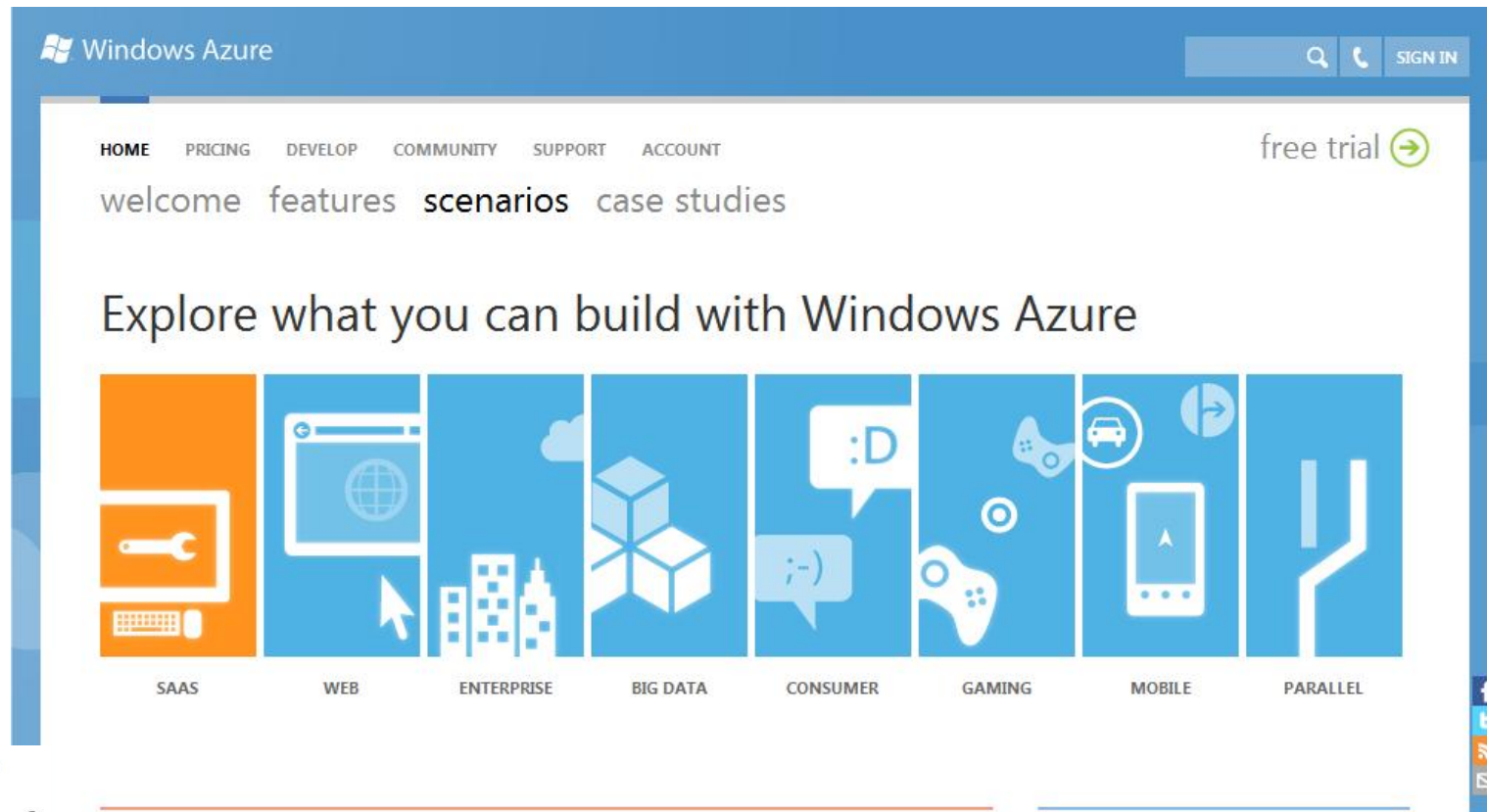
## A few examples of well-known Cloud Providers and Offerings





# Example Cloud Providers

## Windows Azure



**Microsoft**

Microsoft™

<http://www.windowsazure.com/en-us/home/scenarios/saas/>



# Example Cloud Providers

## Google Apps



Google™

<http://www.google.com/apps/intl/en/business/index.html>



# Example Cloud Providers

## Amazon EC2

The screenshot shows the Amazon EC2 details page. At the top is the Amazon Web Services logo and a navigation bar with links for 'Sign Up', 'My Account / Console', 'English', 'AWS Products & Solutions', 'AWS Product Information', 'Developers', and 'Support'. The main content area is titled 'Amazon Elastic Compute Cloud (Amazon EC2)'. It includes a sidebar with 'Amazon EC2 Details' and 'Amazon EC2 Features'. The 'Details' sidebar lists: EC2 Overview, EC2 FAQs, EC2 Pricing, Amazon EC2 SLA, EC2 Instance Types, EC2 Instance Purchasing Options, Reserved Instances, Spot Instances, and Windows Instances. The 'Features' sidebar lists: Elastic Block Store, Amazon CloudWatch, Auto Scaling, Elastic Load Balancing, and High Performance Computing. The main content area has a description of Amazon EC2, a 'Sign Up Now' button, and a list of categories to jump down to: Amazon EC2 Functionality, Service Highlights, Features, Instance Types, Operating Systems and Software, Pricing, Resources, Detailed Description, and Intended Usage and Restrictions.

**Amazon EC2 Details**

- EC2 Overview
- EC2 FAQs
- EC2 Pricing
- Amazon EC2 SLA
- EC2 Instance Types
- EC2 Instance Purchasing Options
- Reserved Instances
- Spot Instances
- Windows Instances

**Amazon EC2 Features**

- Elastic Block Store
- Amazon CloudWatch
- Auto Scaling
- Elastic Load Balancing
- High Performance Computing

### Amazon Elastic Compute Cloud (Amazon EC2)

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.

Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers the tools to build failure resilient applications and isolate themselves from common failure scenarios.

Easy to sign up, pay only for what you use

[Sign Up Now](#)

This page contains the following categories of information. Click to jump down:

- [Amazon EC2 Functionality](#)
- [Service Highlights](#)
- [Features](#)
- [Instance Types](#)
- [Operating Systems and Software](#)
- [Pricing](#)
- [Resources](#)
- [Detailed Description](#)
- [Intended Usage and Restrictions](#)



Amazon™  
<http://aws.amazon.com/ec2/>





# Example Cloud Providers

## Salesforce

The screenshot shows the Salesforce homepage. At the top is a blue navigation bar with the Salesforce logo, a search bar, and links for 'login' and 'free trial'. Below the navigation bar is a large banner with the text 'WELCOME TO THE SOCIAL ENTERPRISE™' and 'Connect to customers and employees like never before'. To the right of the banner are three blue buttons: 'View demos', 'Editions & pricing', and 'Free trial'. Below the banner is a section titled 'Transform your business with the trusted leader in cloud computing and CRM. Free trial >'. This section contains five columns of services, each with an icon, a title, a brief description, and links for 'View demo' or 'Pricing'.

Icon	Service	Description	Links
People icon	<b>Super-charge your sales</b> <b>Sales Cloud</b>	The world's #1 sales application	<a href="#">View demo</a>   <a href="#">Pricing</a>
Database icon	<b>Data.com®</b>	B2B sales and marketing account and contact data	<a href="#">View demo</a>   <a href="#">Pricing</a>
Headset icon	<b>Deliver amazing service</b> <b>Service Cloud</b>	Customer service for the Social Enterprise	<a href="#">View demo</a>   <a href="#">Pricing</a>
Desk icon	<b>Desk.com</b>	The social help desk for small business	<a href="#">Learn more</a>
Speech bubble icon	<b>Join the conversation</b> <b>Chatter</b>	A secure, private social network for your business	<a href="#">View demo</a>   <a href="#">Pricing</a>
Microphone icon	<b>Radian6</b>	Social media monitoring and engagement	<a href="#">View demo</a>
Gears icon	<b>Extend your success</b> <b>AppExchange</b>	The marketplace for cloud apps and services	<a href="#">Learn more</a>
IT icon	<b>Remedyforce</b>	The IT help desk for the Social Enterprise	<a href="#">View demo</a>
Gears icon	<b>Build apps and sites</b> <b>Force.com</b>	The cloud platform for custom apps	<a href="#">View demo</a>   <a href="#">Pricing</a>
Code icon	<b>Heroku</b>	Build social and mobile apps in Ruby & Java	<a href="#">Learn more</a>
Database icon	<b>Database.com</b>	Trusted cloud database	<a href="#">View demo</a>
Document icon	<b>Siteforce</b>	Web content management	



Salesforce™  
<http://salesforce.com>



# Example Cloud Providers

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**How would you classify each of the following Cloud offerings ?**

- IaaS – Infrastructure as a Service
- PaaS – Platform as a Service
- SaaS – Software as a Service







# Example Cloud Providers

**How would you classify each of the following Cloud offerings ?**

- IaaS – Infrastructure as a Service
- PaaS – Platform as a Service
- SaaS – Software as a Service

PaaS – Microsoft Azure  
IaaS – SQL Azure

?



SaaS – Google Apps  
PaaS – Google App Engine

?



amazon

PaaS – EC2, S3

?



SaaS – Salesforce  
PaaS – Sales Cloud

?





# Is it Market-Hype, or is it “real” ?

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Information Management, “KPMG: Cloud Investments To Skyrocket in 2012”

Seth Fineberg, OCT 12, 2011 10:17pm ET

<http://www.information-management.com/news/KPMG-Cloud-Investments-Skyrocket-2012-10021301-1.html>

- KPMG found that **economic factors were cited by 76 percent of the companies surveyed as their reason for cloud adoption ...**
- The research also found that **81 percent of participants said they were either evaluating cloud applications, planned a cloud implementation, or had already adopted a cloud strategy and timeline for their organization ...**
- Additional survey findings revealed that **75 percent of total respondents globally said they need to show a cost savings to justify a move into the cloud.**

*The KPMG survey was conducted in 15 countries from February to April 2011, and canvassed 806 senior executives—nearly 50 percent of them from the C-level—in companies that use or plan to use the cloud, as well as 123 executives from cloud service providers.*



# Is it Market-Hype, or is it “real” ?

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Information Management, “U.S. Dominates SaaS

By Valerie Valentine SEP 15, 2011 3:52pm ET

<http://www.information-management.com/news/us-dominates-saas-10021132-1.html>

- Gartner’s regional SaaS forecast research shows that North America will account for 63.6 percent of revenue in 2011.
- **By the end of 2015, North America's share will represent 60.8 percent of worldwide SaaS revenue ...**
- Worldwide SaaS revenue is on pace to reach \$12.1 billion in 2011, a 20.7 percent increase from 2010 of \$10 billion, according to Gartner analysis.

*Gartner report "Forecast: Software as a Service, All Regions, 2010-2015."*



# Is it Market-Hype, or is it “real” ?

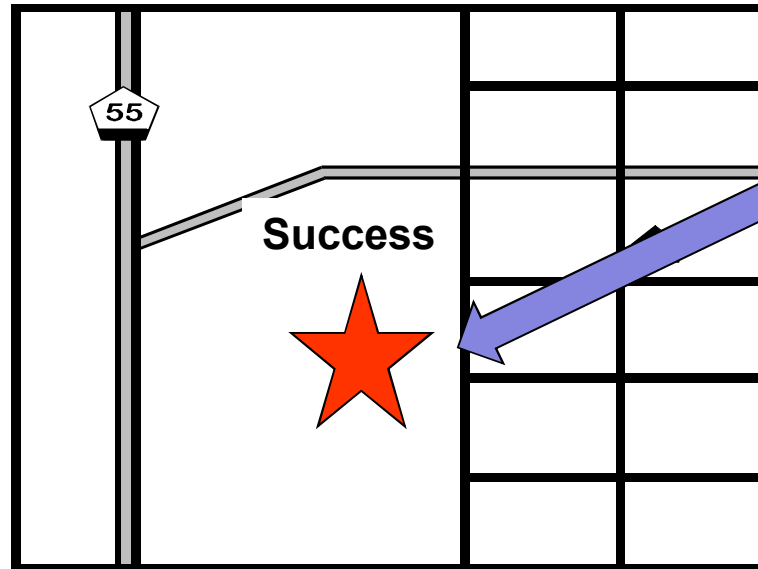
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## Cloud Impressions

A few of the more common “impressions” that business executives have about Cloud computing

- **Cloud is Less Expensive**  
Cloud is less expensive than hosting and developing the technology internal to their environment
- **Cloud offers Faster Time-to-Market**  
Cloud avoids the need for internal technology involvement. It simplifies the technology to a level where the business user can easily onboard and develop a cloud application
- **Cloud is Lower Risk**  
Since the public Cloud offering is completely hosted and managed by an external provider, they take on all of the risk
- **Cloud is Flexible**  
Cloud resources can be increased or decreased to meet my demand. They only have to pay for what they need or use

***Which of the above do you think are real, or might be market hype ?***





# Cloud Success Criteria

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A Cloud project can provide a tremendous value proposition for your enterprise. However, and in order to meet expectation, there are a few important criteria to consider:

1. **Market-hype.** As technology professionals, we should look past the hype and perform reasonable due diligence to ensure that requirements will be effectively met.
2. **Cost .** The obvious costs for a Cloud solution (license, resource consumption, etc.) are often far less than the (internal) enterprise technology route.

However, there are many other costs to consider. Three of the most significant, impactful and overlooked costs of a Cloud solution are:

- **Integration Costs** – Onboarding, integration development, testing
- **Regulatory Compliance Costs** – Ensuring the Cloud solution meets all of your regulatory and compliance needs (data standards, information protection, security)
- **Data** – Unless the Cloud solution is truly stand-alone (which is VERY rare), data plays a key and critical role. Getting your data into the cloud, managing your data in the cloud, ensuring a high degree of data quality in the cloud, protecting your data in the cloud, enriching your data in the cloud, and re-integrating your data back into the enterprise from the cloud are significant



# Cloud Success Criteria

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- 3. Solution Placement.** Remember that as a Cloud consumer, you are relying on the Cloud Provider for things like availability, resiliency, performance.

Is a Cloud offering the right solution, when your requirements represent:

- Enterprise scale, mission critical functionality
- A market-facing customer application

- 4. Regulatory Compliance.** You need to determine if your Cloud provider can meet applicable regulatory compliance. Additionally and if your business users are now the “developers”, you will need to ensure that they are also in compliance  
(e.g. Capture of and exposing PCI or PII data, requisite controls – access rights, authentication, encryption – in motion and at rest, display obfuscation)

- 5. Backup and Recovery.** Ensure that your Cloud provider has a proven backup and recovery framework in place, and that you can effectively restore to meet your RPO

- 6. Provider Viability.** Even some of the largest companies can struggle during today’s economic climate. Financial, historic, and reference due diligence are strongly recommended





# Data and the Cloud

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**What happens “if” your Cloud solution goes wrong ?**





# Cloud Contingency Planning

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## Cloud Contingency Planning

While we hope that your Cloud program is successful, there is always some risk that it might not be. Risks might be from any number of events, but a few to consider are:

- Cloud provider viability
- Unplanned or unforeseen economic impacts
- Technology infrastructure failure (yes, the Web does fail)
- Cloud provider pricing models becoming excessive
- Hitting governor thresholds

So what can you do ?

**Plan for risks and develop contingencies.** However, your contingencies might need to be somewhat different than that of an internally developed solution:

**Departure Planning.** Plan for departure from your current Cloud provider. Have a plan in place in case you need to bring the solution in house, or you need to move to another provider. Standards compliance by your provider can play a significant role



# Cloud Contingency Planning

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**Data.** Whether your data is in the Cloud or not, it is the life-blood of your enterprise. Treat it as such. Plan for re-acquiring and re-integrating the cloud data back into your enterprise.

Remember that Cloud providers will often use a multi-tenant, shared schema or schemas based upon meta-object models. The internal representation of your data might not be in a form that can be easily re-hosted anywhere else. Plan for this contingency.

When you plan for data backups or exports, consider that you might need to have the data reformatted into an industry standard, SQL model for export. Also ask if your Cloud provider can provide a representative and contextual model, with descriptive metadata for the export.

**Security and Compliance Due Diligence.** Do not limit your security and compliance review to the initial vendor qualification. Also ensure that you have periodic and follow-up security and compliance reviews.



# Data and the Cloud

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## The Data Role





# The Data Role

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## It's still data !

It doesn't matter where it is captured, hosted, managed, or displayed – it is still data !

The Data Architect and DBA still have a role to play. A strong recommendation is to embed these roles into your SDLC for Cloud scenarios. There are still many “data” activities to consider:

**1.Metadata and definitions.** Even for a proprietary, SaaS development language and resulting UI, metadata is critical. Data might be sourced from or to this new Cloud application and ensuring a complete understanding of the data is critical

**2.Data Standards.** Ensuring a high degree of data quality and reintegration of the Cloud data back into the enterprise can be simplified by compliance with well-defined enterprise data standards

**3.Information Protection and Controls.** Your enterprise will most likely still be subject to some form of regulatory compliance for PCI and PII data. Ensuring proper controls are in place is also critical.



# The Data Role

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**It's still data !**

**4.Integration.** Some type of data loading and integration (bi-directionally) will be needed. This might include complex architectures and solutions like ETL, CDC, singleton API or Web Service calls. Further complicating integration will be data volumetrics, formatting, protection (encryption over the wire), and governor thresholds.

**5.Data Exports and Recovery.** The need to consider and address a recovery strategy either internal or at another provider will be important. Complexities might involve the frequency and timeliness of an export/backup, as well as the format and how it can be reloaded or consumed external to the Cloud provider



# Data and the Cloud

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**Your Experience, Recommendations, Questions ?**

**And.... THANK YOU !!!!**



# References

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Content provided in this document originated from several sources, including but not limited to:

**Information Management**

<http://informationmanagment.com>

**Microsoft Office Images – images, graphic, pictures discovered**

<http://office.microsoft.com/en-us/images/>

**Forrester Research**

<http://forrester.com>

**Gartner Inc**

<http://gartner.com>

**Microsoft (Azure)**

<http://www.windowsazure.com/en-us/home/scenarios/saas/>

**Google (Google Apps)**

<http://www.google.com/apps/intl/en/business/index.html>

**Amazon (EC2)**

<http://aws.amazon.com/ec2/>

**Salesforce (Sales Cloud)**

<http://salesforce.com>

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