

Considering the Cloud? Thinking Beyond the Readme File

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Agenda

- Introduction
- Defining Cloud Strategies
- Risk Assessment
- SWOT Analysis
- Decision Matrix
- Final Thoughts



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A Little Bit About Your Speaker...

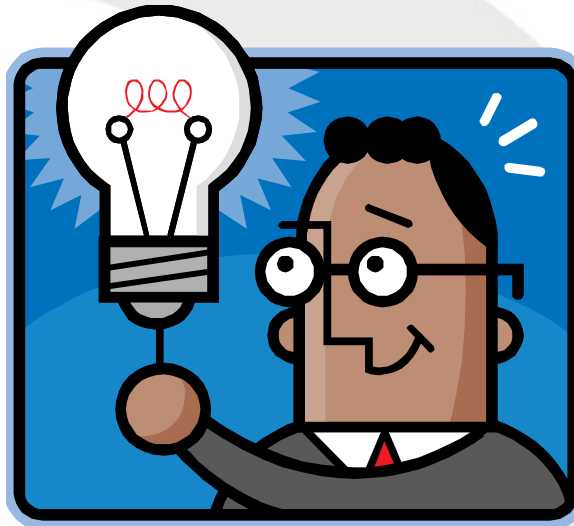
- Regulatory compliance expert in the field
- Written multiple articles on compliance and eDiscovery
- Speaker at 18 Lotus® related conferences/LUGs
- Co-authored two IBM® Redbooks on Linux®
- Designed disclosure response solutions for Fortune® 100, medium-sized, and small established regulated firms
- Technical advisor for many of my clients
- IBM Champion – Collaboration Solutions 2011



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Completing Your Evaluations

- Please ensure that you fill-in your session evaluation form when it is provided after the conference
- Thank you in advance



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Agenda

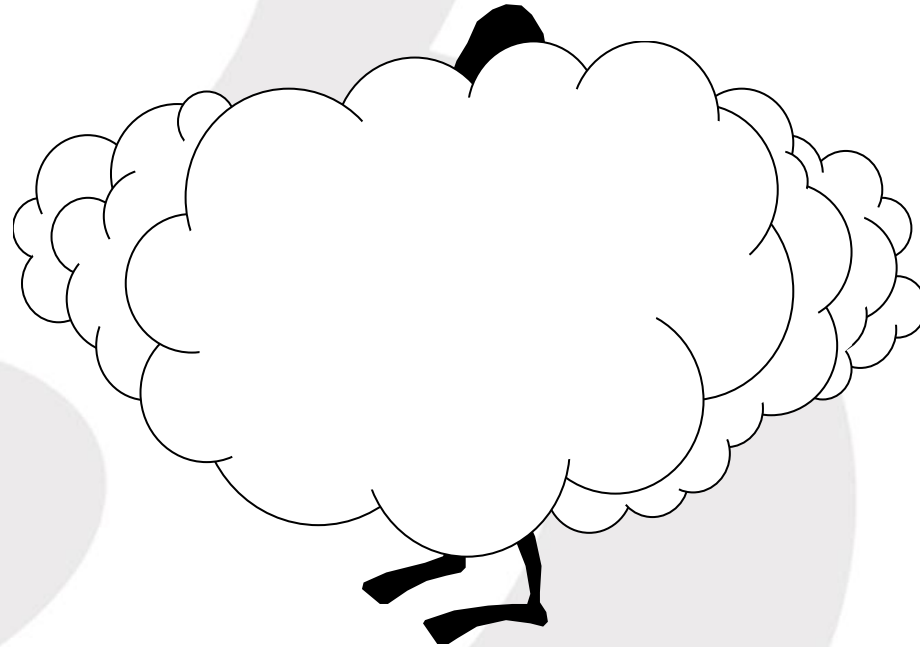
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Cloud Defined

- Standard Definition
 - There is none!



Two Primary Cloud Facets

Infrastructure (IaaS)

Virtual Hardware

Bandwidth

Storage

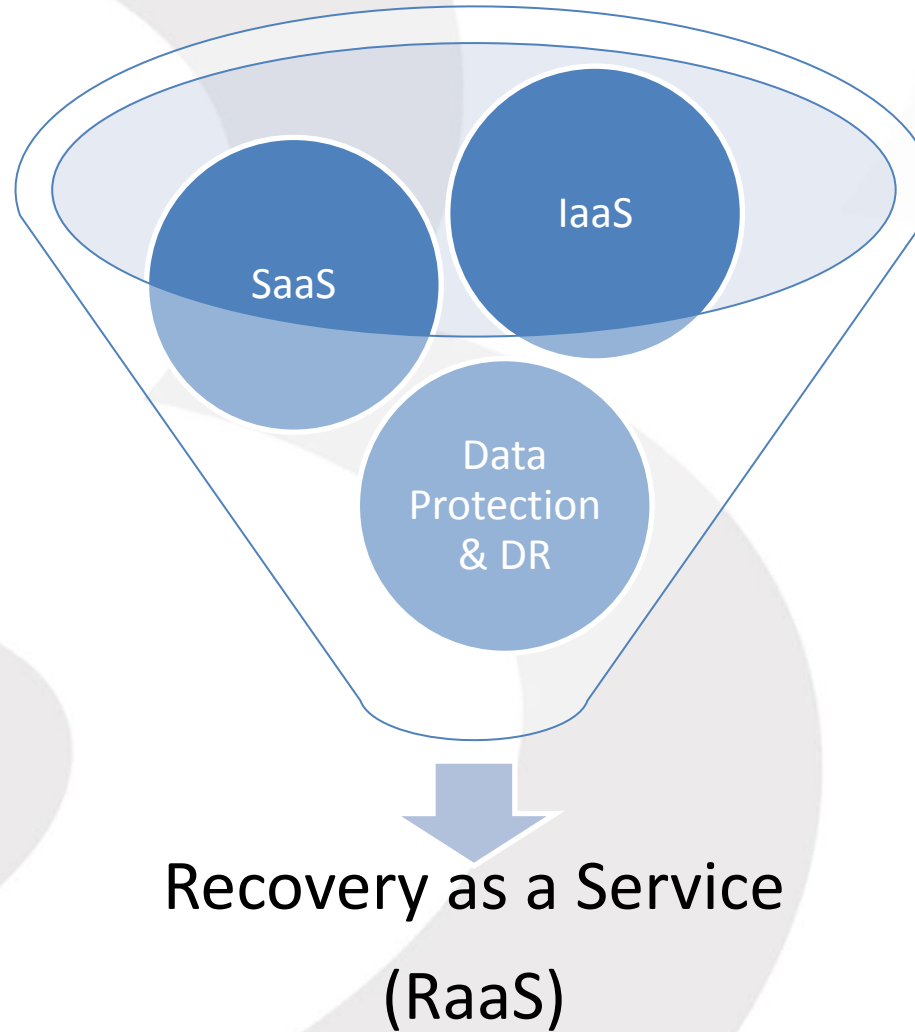
Software (SaaS)

Layered
Functionality

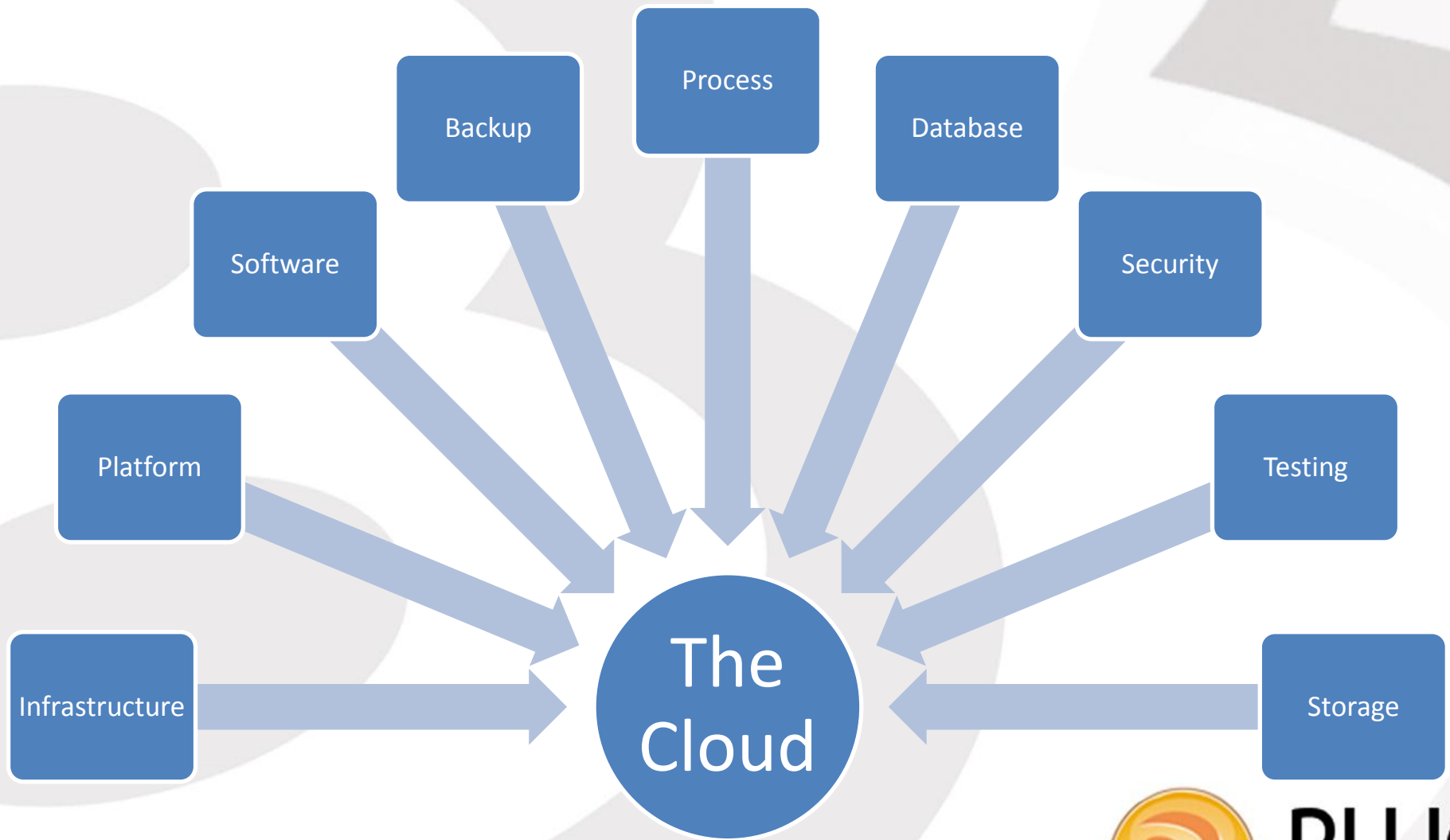
Business Line
Specific



Combining Cloud Facets Creates Additional Services



Decisions. Decisions. What Can You Cloud?



Setting the Foundation to Make the Move

Create a well defined plan, with clear boundaries

- Otherwise, the effects to your business can be catastrophic

Define the business functionality set in-scope for the project

- Review what you feel you need to outsource
- Ensure the affected business leaders are aware, support, and well coupled during the process

Ensure legal, security, compliance, network all approve the plan

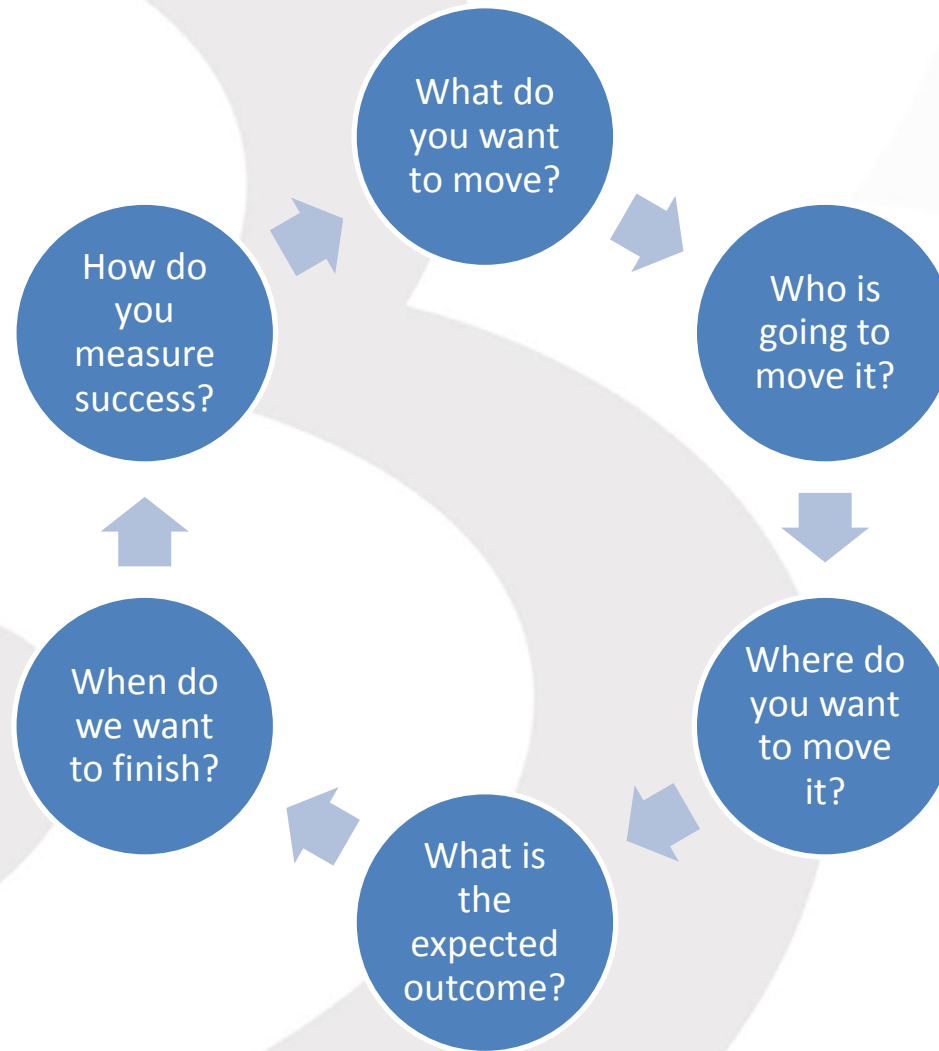
- Where you do business or with whom affects how these teams will evaluate your plan

Before your firm approves the plan, you may learn it is not in your company's best interest

- Perhaps modifying the design to achieve unanimous approval is required



For Any Cloud Move Discussions, Key Questions Must Have Answered



The Benefit Contrast – A Trio

- What are the best points of cloud, hybrid, and on-premises solutions



First, the Cloud: Private and Public

Ubiquitous
access

Upgrade
simplicity

Decreased
overall TCO

Business
process
efficiency

Decreased
capital
expenditures

Predictable
cash flow
calculations



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On-Premises

Ubiquitous
access

Increased
security

Decreased
overall risk

Governance

Customizable
solution

Data portability

Increased
vendor
management

Maintain
multiple vendor
relationships



Hybrid

Same benefits
as cloud and
on-premises

Increased
design
flexibility

More security
over pure
cloud



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The Hybrid's Three Styles Allow for Cost and Configuration Optimization

Public

- On-premises
- Public cloud

Private

- On-premises
- Private cloud

Public-Private

- On-premises
- Public cloud
- Private cloud



The Detriment Contrast – In Multi-part Harmony



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Reasons Not To Go To The Cloud

- You hate your IT Staff
 - “Who cares about the cost, get rid of them!”
 - This is a management issue, not a resource issue: fix the team
- You want to impress the boss
 - “If I succeed, I’ll get a promotion.”
- Your users are threatening to leave
 - If the users dislike a solution to the point of changing career paths, address the true problem
 - Users drive features, but not infrastructure
 - Address the underlying issue(s) instead
- Cost
 - “The cheap solution is always the most expensive.”
 - If you only look at the hard numbers, you will ignore mitigating factors
 - E.g. eDiscovery responsiveness
- “Everyone is doing it!”



Private Cloud Considerations Beyond the Risks

Private clouds are less DR hardened

- Lack of multi-location clustering
- Generally housed in one building

New utilization, monitoring, and billing tools needed

- Built in-house or purchased
- Establishes self-service resource allocation
- Must be designed, planned, and developed

Private Clouds are SMB cost prohibitive

- Cooling, clustering, connections
- Priced only for the largest shops



Public Cloud Considerations Beyond the Risks

Public clouds are housed with an unknown entity

- Security officers will be concerned
- Your control ends at their door

Data transport to public clouds

- Third-party tools help
- Costs are hardly trivial

Vendor lock-in

- Proprietary data storage
- Lack of standards forces dependency
- Upgrade frequency is mostly on their terms



On-Premises Considerations Beyond the Risks

Nothing changes

- Whatever issues you have, will remain
- Must actively create projects to renew
- Can outsource these efforts

Upgrade complexity

- The larger the shop, the longer the project
- Customizations require additional testing

Cash flow unpredictability

- New equipment requires ad hoc approvals
- Dramatic changes can consume budget
- Additional projects can be delayed



Hybrid Considerations Beyond the Risks

Split Environment

- Creates complexity through resource tracking workflow
- Must ensure proper access to both environments

New security concerns

- Perimeter extension beyond your walls
- New/additional encryption key management

Extending identity management tools

- Common to resolve by extending to the cloud
- Can impact the corporate identity through security due to risk; discuss with security team

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Cloud Compound Critical Risk Factor Identified

“Single point of failure, where you have no control.”

– David Leedy, Notes In 9



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With the Good, Does Come The Bad: Majors Areas to be Evaluated

- Legal risk
- Compliance risk
- Security risk
- Vendor lock-in risk
- Data usability risk
 - Received format will any returned data be useful
- Data safe-guards risk
 - Bypassing what you currently have in-place
- Data management risk
- Personnel risk
 - Who's vetting the people running your systems?
 - Unable to screen administrators in your usual manner



Vendor Outsourcing Risk

- Just because you have a contract with your cloud vendor, hardly indicates those terms will continue when they outsource certain aspects of their data center
 - Quite common and is a question that is almost never asked
 - Can create quite a concern down the road for disclosure motion requests
 - They can decide to move part of their environment to a place that is unpalatable to your business
 - The cloud is faceless
 - Changes are never seen by the end-user
 - Almost all vendors deny they do this; some are correct

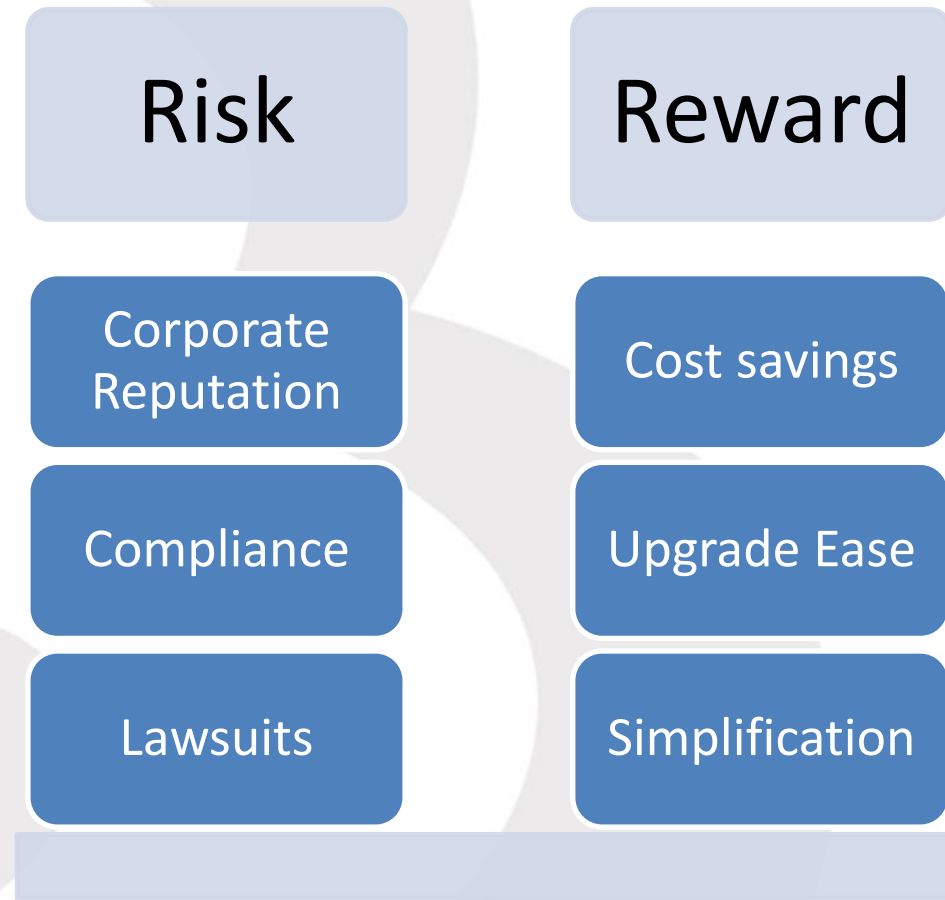


Finally, Reliable Accessibility

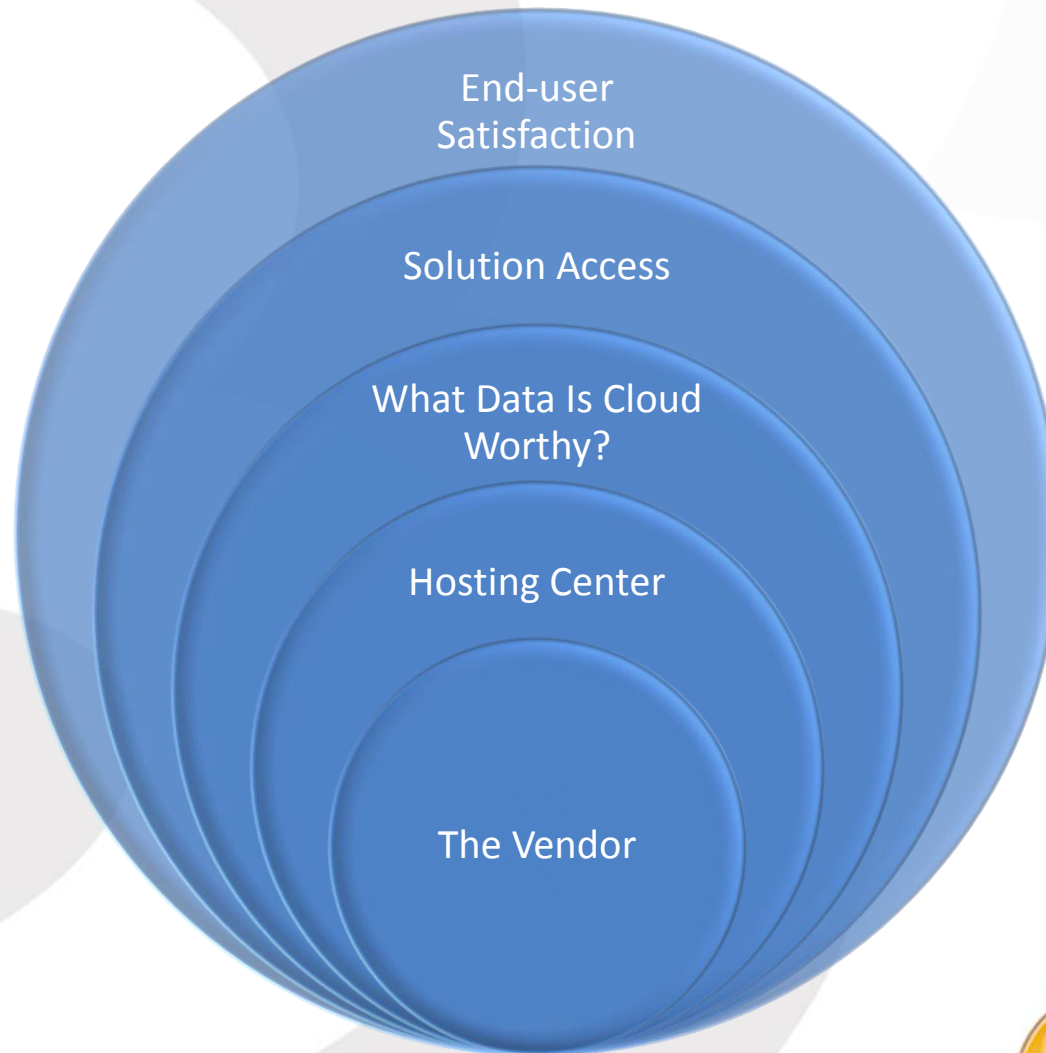
- What if you cannot get to your data when you need it?
 - The big question and one that catches all the news headlines
- What is your company's reputation worth?
- Lack of multiple network access paths
 - Regardless of how well your servers are clustered
 - Company-wide outage is just one hop away



The Delicate Corporate Balancing Act



The Overall Risk Relationship Model – Putting the Pieces Together Helps Drive Proper Inter-team Dialogue



Some of the Top Outages in 2011

- See if any of these stories sound familiar

Note: Images with supporting prose included from the CRN article, *“The 10 Biggest Cloud Outages of 2011, So Far”*

<http://www.crn.com/slide-shows/cloud/231000954/the-10-biggest-cloud-outages-of-2011-so-far.htm>



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The Data Center Glitch – 500 Customers Affected

The Jive logo is displayed in a stylized, lowercase font with a 3D effect, set against a black rectangular background.

Jive Software

Several hundred [Jive Software users' wikis went down in January](#), a cloud outage prompted by a data center glitch. According to a Jive blog post detailing the outage, an issue at a SunGard-owned data center in Aurora, Colo., where Jive offers hosting services for some of its blogs, wikis and other offerings started the trouble. Jive said the downtime was caused by a hardware failure in a storage system.

At least 500 Jive Software customers had their wikis thrown offline Friday after the provider of cloud-based social media platforms suffered a major outage at a data center, sources said.

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One Update Glitch Equals Disappearing Mail Boxes for 150,000 People



Google Gmail

Google's widely popular cloud e-mail service [Gmail suffered a massive outage in late February 2011](#) that wiped out thousands of Gmail inboxes. Gmail users awoke to find messages in their Google Gmail inbox, folders and other data vanished. At its peak, the outage affected roughly 150,000 Gmail users.

In the days that followed, [Google apologized for the outage](#), calling it a "scare." Google said a software bug that was introduced by a storage update had caused the downtime.

Google Gmail was back to full service within a few days.

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Maintenance Operation Malfunction – The Seven Day Glitch

The Intuit logo is displayed in a blue, lowercase, sans-serif font. The letters 'i' and 't' have small blue dots above them. A registered trademark symbol (®) is located at the bottom right of the word.

Intuit

A number of [Intuit's hosted services for SMBs were wracked by a string of service outages in late March 2011](#). The outages, occurred on a Monday, a Tuesday and a Friday, but many users reported issues lasting an entire week. Popular cloud-based Intuit services like QuickBooks Online, QuickBooks Online Payroll and Intuit Payments Solutions conked out during the outages, which were blamed on errors introduced during maintenance operations.

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The Seven Day “Re-mirroring Storm”



Amazon Web Services

On April 21, Amazon Web Services' cloud offerings suffered sweeping outages and service interruptions for customers using Amazon's North Virginia data center, aka Availability Zone. Service hiccups from Amazon's cloud outage persisted for several days for some customers, angering users. [Amazon's lack of communication around the cloud outage prompted calls for transparency.](#)

Amazon said its Elastic Block Store (EBS) service got stuck in a "re-mirroring storm" in its North Virginia data center. The hiccup knocked several Amazon cloud users offline. More than a week after the initial downtime, [Amazon apologized for the cloud outage and offered users a cloud credit.](#)



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One Errant Keystroke and All Load Balancers Gone



vmware®

VMware Cloud Foundry

[VMware's Cloud Foundry development platform was racked by a pair of different blackouts](#) in the same week, on April 25 and April 26.

While still in beta, the open source Cloud Foundry service was knocked out of commission by a power outage that affected a storage cabinet power supply on April 25 around 5:45 a.m. The following day, around 10:15 a.m., an engineer that was developing an early detection plan to prevent outages like the one the previous day knocked Cloud Foundry offline with an errant keyboard tap, which took out all load balancers, routers and firewalls; caused a partial outage to portions of the internal DNS infrastructure; and resulted in a complete external loss of connectivity to Cloud Foundry.



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The Undisclosed Mystery Outage

The image shows the classic Yahoo! logo in red, bold, sans-serif font with a registered trademark symbol. The logo is centered within a white rectangular box that is part of a larger presentation slide.

Yahoo Mail

[Yahoo Mail, the search company's massive cloud-based e-mail service, went down](#) on April 28. Yahoo could not say how many users were impacted when its popular e-mail service was down for several hours, but Yahoo estimated that more than 1 million of Yahoo Mail's more than 250 million users.

Yahoo didn't say what caused Yahoo Mail to go dark for that several-hour stretch, but said no e-mail data was lost or at risk during the disruption.

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BPOS: Four Days -- 1.5 Million Messages Are Stuck

The Microsoft logo is displayed in its characteristic bold, italicized, sans-serif font. The word "Microsoft" is in black, followed by a registered trademark symbol (®). The logo is positioned on the left side of a light gray rectangular box that contains the main text of the slide.

Microsoft BPOS: Round 1

Between May 10 and May 13, [Microsoft Business Productivity Online Service \(BPOS\)](#) suffered a string of [cloud outages](#) that caused lengthy cloud e-mail delays for BPOS users.

Trouble started around 12:30 p.m. on Tuesday, May 10, when the BPOS-S Exchange service experienced an issue with one of the hub components due to malformed e-mail traffic on the service. Microsoft said Exchange features a built-in capability to handle malformed traffic but "encountered an obscure case" where that also didn't work correctly, creating a backlog of e-mail. The issue caused delays of six to nine hours.

Then, on May 13, more issues caused e-mail delays, resulting in more than 1.5 million e-mail messages getting stuck and awaiting delivery. Microsoft fixed that issue by 3:04 p.m. and all e-mails were cleared within a few hours.



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BPOS: Mail Issues Cause Exchange Delivery Delays

Microsoft®
Online Services

Microsoft BPOS: Round 2

On May 19, [Microsoft's Exchange Online cloud e-mail service, part of BPOS, suffered a software problem that caused intermittent e-mail delays](#) for customers in the Americas. Microsoft said less than one percent of customers were affected by the e-mail delays, which began at 8:48 a.m. when monitoring systems detected abnormally large email queues in 30 percent of Exchange Online hub servers. By 9:54 a.m., e-mail queues had fallen to normal levels on all but one hub server, and at 11:21 a.m., Microsoft's BPOS, Exchange and Forefront Engineering teams identified the software problem causing the issue. Microsoft fixed the software problem by adding a single new hub server that relieved the backlog and restored the free flow of email by 3:33 p.m.



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BPOS – Fourth Outage in a Month, Blinding Admins and Users



Microsoft BPOS: Round 3

[Microsoft BPOS suffered its fourth outage in just over a month](#) on June 22. The service was knocked offline for more than two hours and also took with it the Online Services Health Dashboard, meaning users had no place to look to see the problem.

Throughout the outage, Microsoft kept affected BPOS customers up to speed via social networks like Twitter and Facebook.

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Heating Up the Internet for Four Days and 17,000 People



Microsoft Windows Live Hotmail

While [Microsoft's Windows Live Hotmail outage](#) started on Dec. 30, 2010, it persisted until Jan. 2, 2011 when Microsoft finally gave the all clear.

Hotmail, the widely popular cloud e-mail service suffered an outage that temporarily deleted user inboxes for more than 17,000 Hotmail users. The outage lasted roughly four days. Users reported that when they logged into their accounts they noticed e-mails, folders and other data had vanished and could not be recovered. While Microsoft said the Hotmail hiccup was fixed by January 2, some users said problems lasted at least two days later.

[Microsoft said a load balancing issue knocked out the cloud e-mail service](#) to affected users.



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But Wait, There are More...

Playstation Network

Twitter Service

Netflix Streaming Service

Research In Motion (SaaS/push)



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Some Additional Queries Around Risk

When service levels change between a cloud provider and their vendors, will you be notified?

What control do you have around data access?

- Data encryption
- Vetting administrators

How do you manage data distribution across multiple jurisdictions?

- When you lack awareness of the matter?

What guarantee do you have the cloud provider will take the same data safeguards to protect your data?

- How do you fill-in the gaps?



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Strengths

Weaknesses

Opportunities

Threats



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The Basic Process

One SWOT matrix for each strategic permutation

Facets with each to help you endure

Faults with each strategy/process

How does each help your business?

Where could each hurt your business?



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Group Discussion Exercise: Learning From Each Other



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SWOT: Your In-session Input, Entered Below

S

- Fixed costs
- No infrastructure
- World-wide access
- Software upgrades
- Reduces overhead

W

- Security
- Risks
- Available bandwidth
- Technical barriers
- Lack of change control

O

- Flexible
- Future integration
- Extra customer channel
- Lower cost of ownership
- Scalability
- Mergers/Acquisitions: Faster adaption

T

- Unavailability
- Not possible to customize
- Data protection
- Your customers may not like their data in the cloud
- Restore procedure, not as fast, less flexible, lose granularity



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Decision Matrix Template

What is the data we want to move?

What is the time-frame?

What is the end goal/objective?

Full Risk Assessment Completed?

External forces *assisting* process?

Strategy	Risks	Timeline	Compliance Concerns	Fixed Costs	Variable Costs	Legal Concerns
On-Premises						
Public Cloud						
Private Cloud						
Hybrid						



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Your Pre-session Questions Answered Below

- **Want to put a blog in the cloud: concerned about system security**
 - A: Blogs are one of the easier applications to move to the cloud and it is quite common to do so; security concerns are common and should be reviewed with your vendor(s) of interest as it will vary based upon the vendor
- **Challenges**
 - A: Good question and we cover this extensively in the session
- **Security**
 - A: Another good question, which we cover in the session in a few areas
- **Record Management**
 - A: Although we did not cover this directly in the session, I would be happy to answer a few questions afterwards, as time for the session expired
- **Is moving to the cloud technically feasible?**
 - A: Absolutely it is. The challenges you will face depend upon what you want to move, getting the correct vendor, and ensuring that your company has a full and complete discussion around risk and the process



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Merci

Bedankt

Dielen
Dank

THANK YOU



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