Service Management: Heart of the Cloud

Everything you wanted to know about Cloud Computing but were afraid to ask

Craig Barbakow

IBM Integrated Service Management Principal for Australia & NZ

Certified ITIL v3 Expert & v2 Service Manager, MBA, MS, BA

Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- Cloud survey results
- How does Service Management fit in?
- Case studies
- Next steps / Where to start?
- Conclusions

Historically, operations have industrialised over time.

Telcos automate traffic through switches to assure service and lower cost.

Manufacturers use robotics and standardised components to improve quality and lower cost.

Banks use automated teller machines to improve service and lower cost.

Why does IT cost so much?

Data

1.5x

54% growth in storage shipments every year

IT Resources

85% idle

Paying for IT that is only used 15% of the time.

Budget

70¢ per $1

is spent maintaining existing IT infrastructure

What is cloud computing?

Cloud computing is a new consumption and delivery model inspired by consumer Internet services.

Cloud enables:

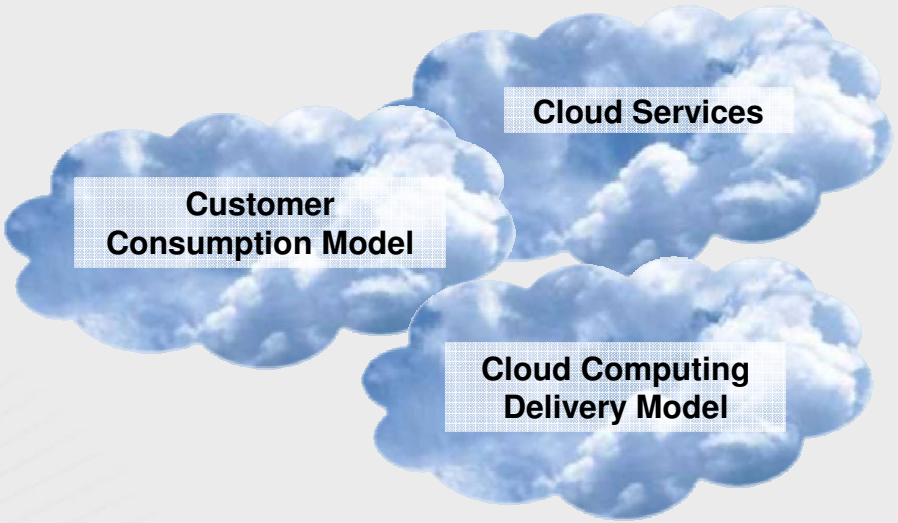
- Self-service
- Sourcing options
- Economies of scale

Cloud represents:

- The **industrialisation of delivery** for IT-supported services

Multiple types of clouds will co-exist:

- **Private, public** and hybrid
- Workload specific



What is a Service?

"Services are a means of delivering **value to customers** by facilitating outcomes customers need to achieve **without owning specific costs and risks**."

– ITIL v3

"Someone calling themselves a customer says they want something called service."

A service example: Owning your own car vs. a taxi service…

"Services are a means of delivering **value to customers** by facilitating outcomes customers need to achieve **without owning specific costs and risks**."

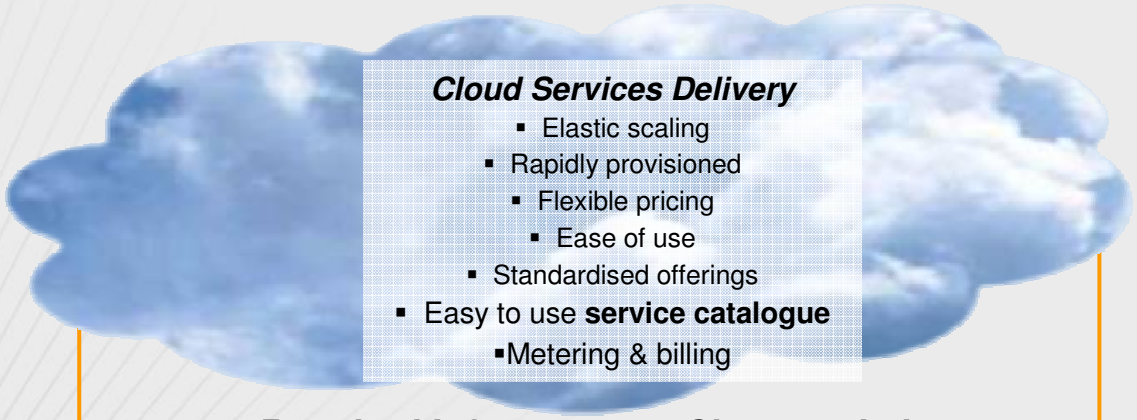
– ITIL v3

A cloud requires that IT infrastructure become more dynamic…

VIRTUALISATION + STANDARDISATION + AUTOMATION = Cost Flexibility

…to free budget for new investment and speed deployment of new capabilities.

What are the characteristics of a cloud?



Cloud Services Delivery

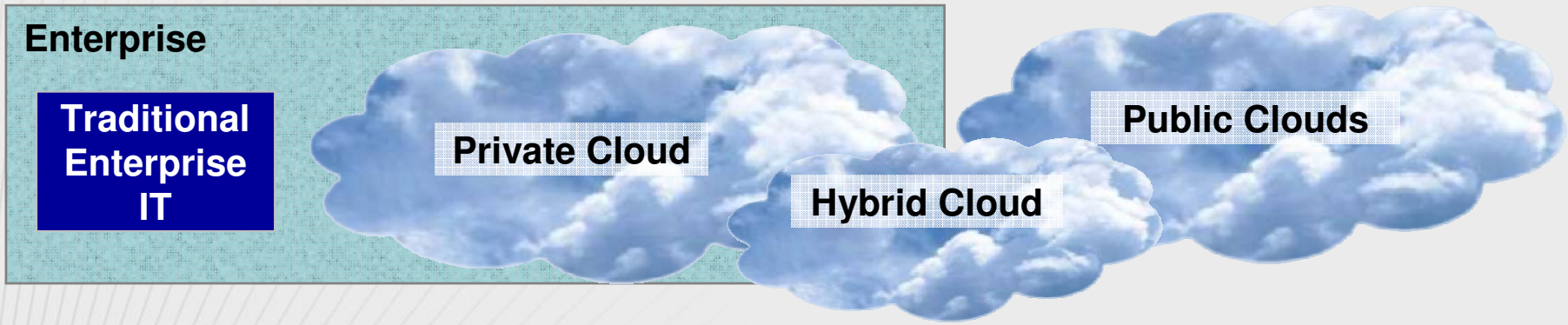
- Elastic scaling
- Rapidly provisioned
- Flexible pricing
- Ease of use
- Standardised offerings
- Easy to use **service catalogue**
- Metering & billing

Required Infrastructure Characteristics

- Open standards
- Service-oriented (SOA)
- Advanced **virtualisation** and automated management
- Common components and processes
- Advanced security and resiliency

	Attributes	Characteristics	Benefits
Virtualisatio	**Advanced virtualisation**	• IT shared by applications • Applications run anywhere	• Efficient utilisation • Hardware savings through economies of scale
Automation	**Automated provisioning**	• On demand provisioning/ shut-down of IT resources	• Faster IT cycles (real-time provisioning) • Management savings
	Elastic scaling	• IT scales up or down in large leaps whenever needs change	• Optimised IT resources – better utilisation • More flexibility
Standardisation	**Service catalogue ordering**	• Pre-defined services and environments available	• Higher customer satisfaction through targeted self service – consumers and providers can use different interfaces for the same service
	Metering and billing flexible pricing	• Usage metrics make multiple payment models possible	• More transparent costs • More flexible pricing schemes
	Ubiquitous network access	• Services delivered via internet and/or intranet	• Access anywhere, anytime

Today there are three primary delivery models that companies are implementing for cloud.



Private Cloud

IT activities/functions are provided "as a service," over an intranet, within the enterprise and behind the firewall

- Key features include:
  - Scalability
  - Automatic/rapid provisioning
  - Widespread virtualisation
  - Chargeback ability

Hybrid Cloud

Internal and external service delivery methods are integrated, with activities/functions allocated based on security requirements, criticality, architecture and other established policies.

Public Cloud

IT activities/functions are provided "as a service," over the Internet

- Key features:
  - Scalability
  - Automatic/rapid provisioning
  - Standardised offerings
  - Consumption-based pricing
  - Widespread Virtualisation
  - **Multi-tenancy**

- Amazon Elastic Compute Cloud (EC2) is a central part of Amazon.com's cloud computing platform, Amazon Web Services (AWS).
- EC2 allows users to rent virtual computers on which to run their own computer applications.
- EC2 allows scalable deployment of applications by providing a web service through which a user can request and receive an Amazon Machine Image to create a virtual machine containing any software desired.
- A user can create, launch, and terminate server instances as needed, paying by the hour for active servers, hence the term "elastic".
- EC2 provides users with control over the geographical location of instances which allows for latency optimization and high levels of redundancy.
- Building a new Data Centre in Singapore.

Brief History of IT…

Mainframe

Personal Computers

Internet

Cloud the next big thing?

1950 1960 1970 1980 1990 2000 2010

Is the cloud really all that new?

- Service Bureaus – 1960s & 1970s
- Business Process Outsourcing (BPO) – 1980s
- Telephony cloud – 1990s
- IT & Application Hosting – Late 90s
- Virtualization – Late 90s
- Hotmail Launched – 1996
- Google formed – 1998
- vmware formed – 1998
- Grid / Utility Computing – early 2000s
- Online Service Catalogues – early to mid 2000s
- SaaS – early to mid 2000s
- SOA – early to mid 2000s
- Facebook - 2006

msn Hotmail

vmware

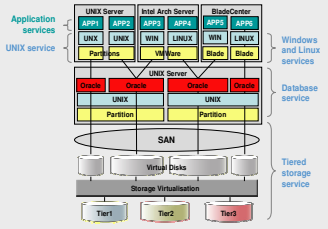
Google

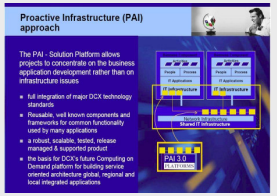
amazon.com

Cloud computing is a natural evolution of the strategies and best practices already being pursued by leading firms.

IT Simplification

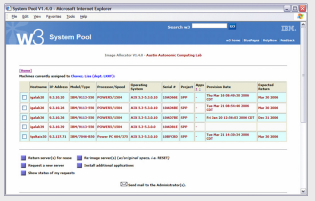
- Virtualisation and Consolidation
- Standardised Application Infrastructure
- SaaS
- Appliances
- Unified Messaging and Integration (e.g. ESB)





Operational Effectiveness

- ITIL V3 and the Service Lifecycle
- "Request Driven Provisioning"



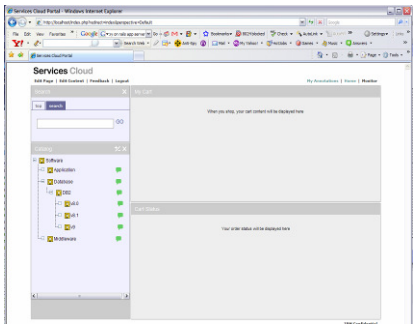
Governance

- Architectural Compliance
- "Build to Manage"
- Cost Visibility and Metrics

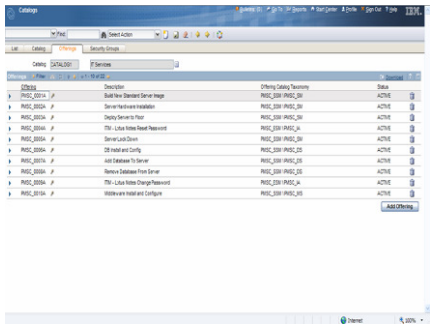
Cloud implementation requires advanced service automation.

End Users

Service Portal



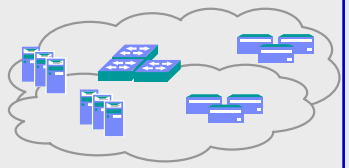
Service Catalogue & Request Workflow Engine



Provisioning Engine
- Workflows
- Expert Systems
- Scripts

Optional Service Modules
- Metering / Usage Billing, Monitoring, etc.

Virtualised Cloud Infrastructure



- Easy to access, easy to use Service Request catalogue
- Hides underlying complex infrastructure from user and shifts focus to services provided
- Enables the ability to provide standardised and lower cost services
- Facilitates a granular level of services metering and billing
- Workload standardisation eases complexity

Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- **A scenario**
- Cloud survey results
- How does Service Management fit in?
- Case studies
- Next steps / Where to start?
- Conclusions

Scenario: Developing a new weather service for mobile devices…

Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- **Cloud survey results**
- How does Service Management fit in?
- Case studies
- Next steps / Where to start?
- Conclusions

Cloud is rapidly gaining CIO's attention…

CIO Technologies	Ranking of technologies CIOs selected as one of their top five priorities in 2009.				
Ranking	2010		2009	2008	2007
Virtualization	1	↑	3	3	5
Cloud Computing	2	↑	16	*	*
Web 2.0	3	↑	15	15	*
Networking, voice and data communications	4	↑	6	7	4
Business intelligence (BI)	5	↓	1	1	1
Mobile Technologies	6	↑	12	12	11
Data & Document Management and Storage	7	↑	10	9	9
Service-oriented applications and architecture	8	↑	9	10	7
Security technologies	9	↓	8	5	6
IT Management	10		*	*	*
Enterprise Applications	11	↓	2	2	2

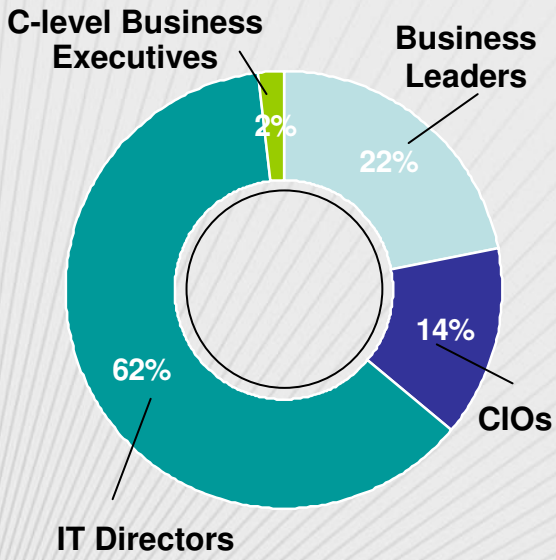
* New Question

Gartner

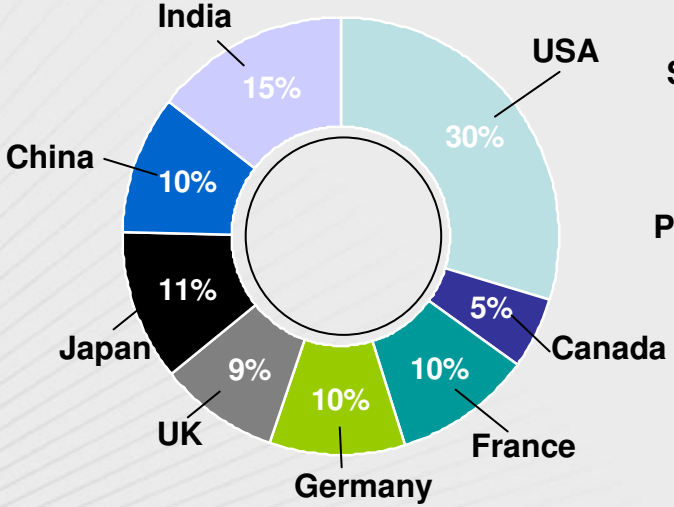
In June and July of 2009, IBM interviewed 1,090 IT and business decision makers around the world to understand current cloud adoption

Who we talked to:

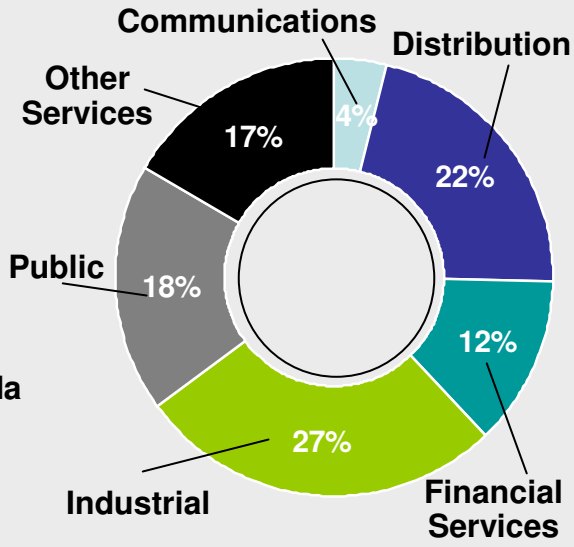
Job role



Country



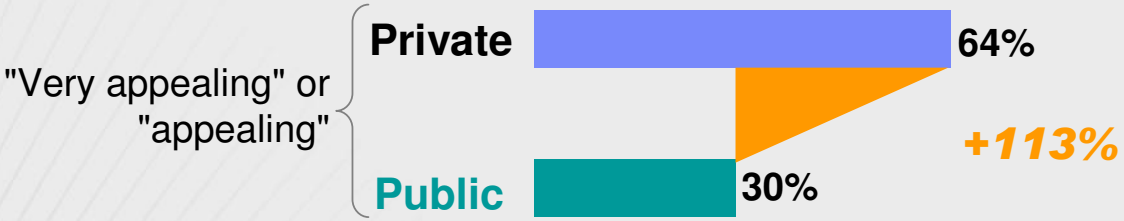
Sector

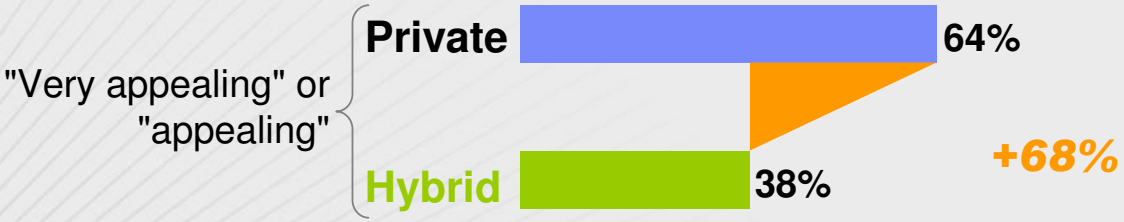


Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Clients interviewed significantly prefer private clouds over public or hybrid clouds

Overall, how appealing are the public, private and hybrid delivery models for your company?





However, adoption of Public Clouds is expected to grow by 26% CAGR between now and 2013*

*IDC eXchange, IDC's New IT Cloud Services Forecast: 2009-2013, p=543, Oct 5, 2009

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Cost savings and faster time to value are the leading reasons why companies consider cloud

To what degree would each of these factors induce you to acquire public cloud services?

Reduce costs	**Software licenses savings • Hardware savings • Lower labor and IT support costs • Lower outside maintenance costs**	**77%**
Faster time to value	**Relieve pressure on internal resources • Simplify updating/upgrading • Speed deployment • Scale IT resources to meet needs**	**72%**
Improve reliability	**Improve system reliability • Improve system availability**	**50%**

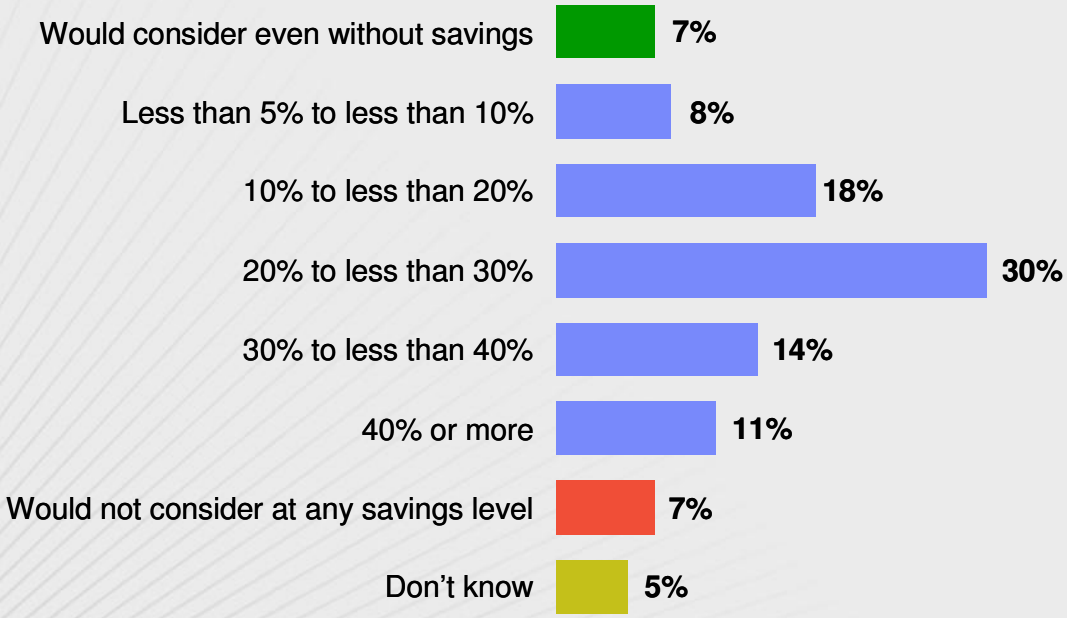
Percent rating factors as a major inducement (4 or 5)

Respondents could rate multiple drivers items

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Nearly one-third of respondents say a 20-29% cost reduction is needed to make a compelling business case for public cloud delivery

What is the minimum cost reduction you would need to acquire services through a public cloud?

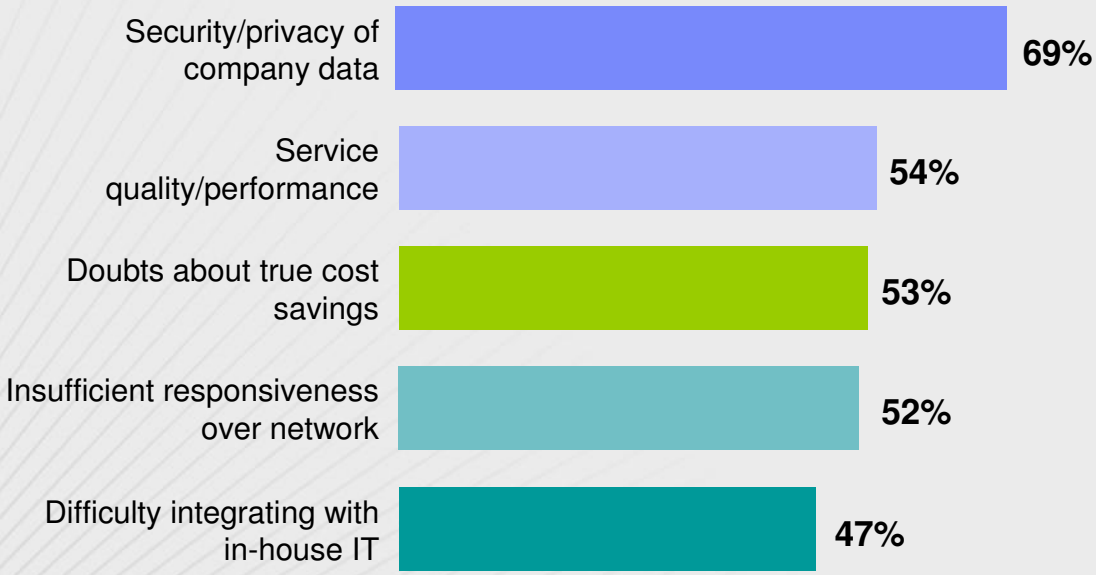


Respondents selected one

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Concerns about data security and privacy are the primary barriers to public cloud adoption

What, if anything, do you perceive as actual or potential barriers to acquiring public cloud services?



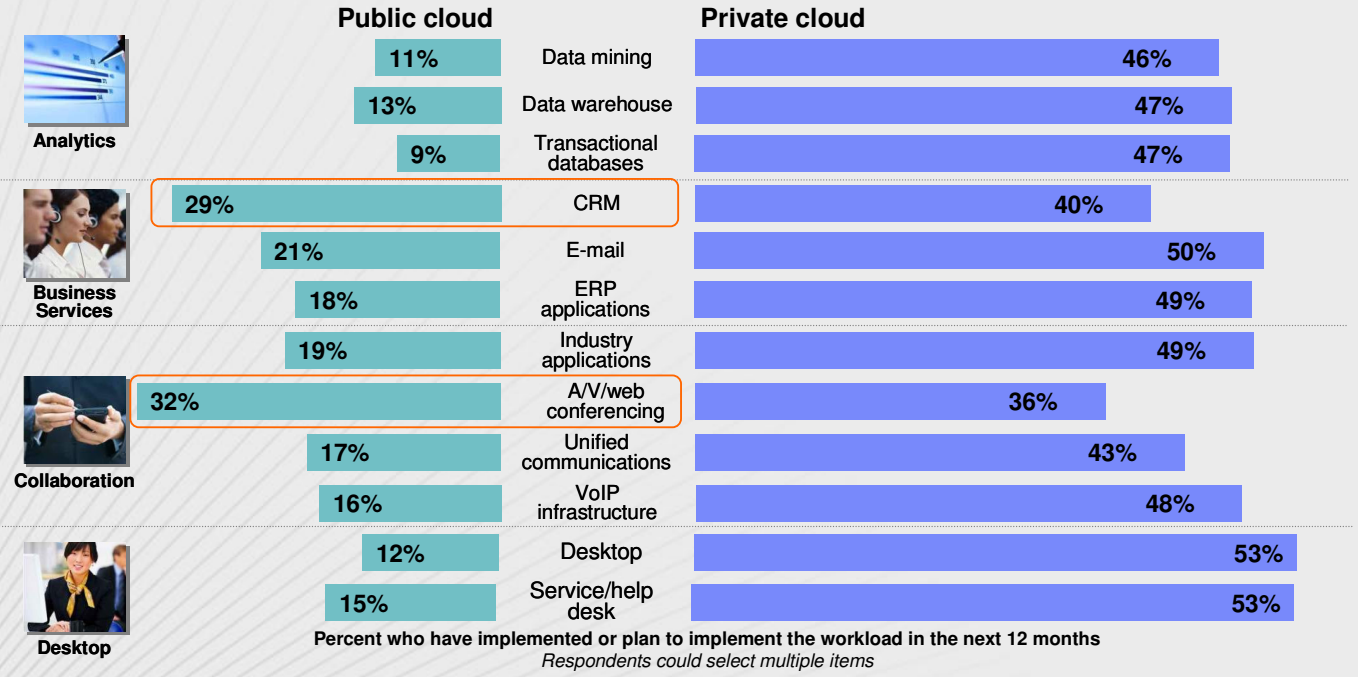
Percent rating the factor as a significant barrier (4 or 5)

Respondents could select multiple items

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Audio/video web conferencing and CRM hold the greatest interest for deploying in a public cloud

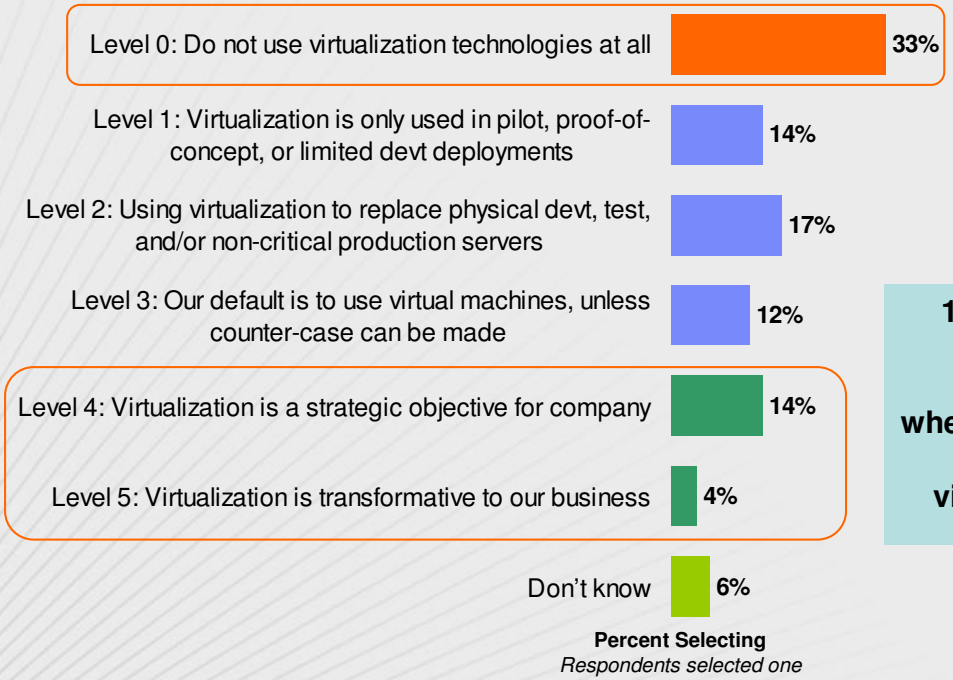
Have you, or are you planning to implement, public or private cloud delivery for these IT activities?



Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=362–1,029, depending on the workload.

Similarly, few companies are far along the virtualisation maturity continuum — even though it is an essential technology for cloud

Which one of the following best describes your company's use of virtualisation technologies?

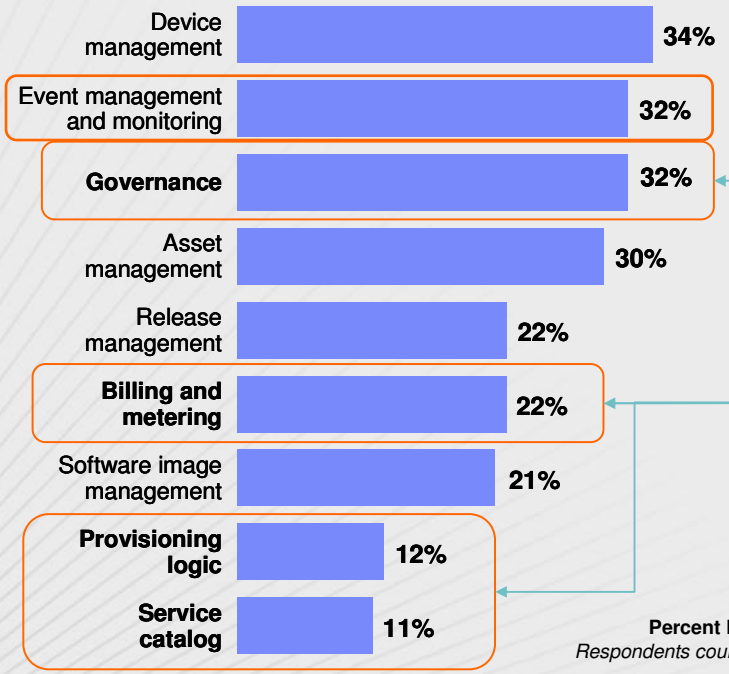


18% of companies indicate that virtualization is a strategic objective or transformative, whereas one-third report that they are not currently using virtualization technologies at all

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Our study revealed that despite strong interest in deploying cloud, few companies are addressing key Service Management capabilities

Rate how critical each of the listed areas are to your company.



IBM's experience shows that service catalogs, provisioning, metering and governance are critical service management disciplines for delivering "services" via a private or public cloud

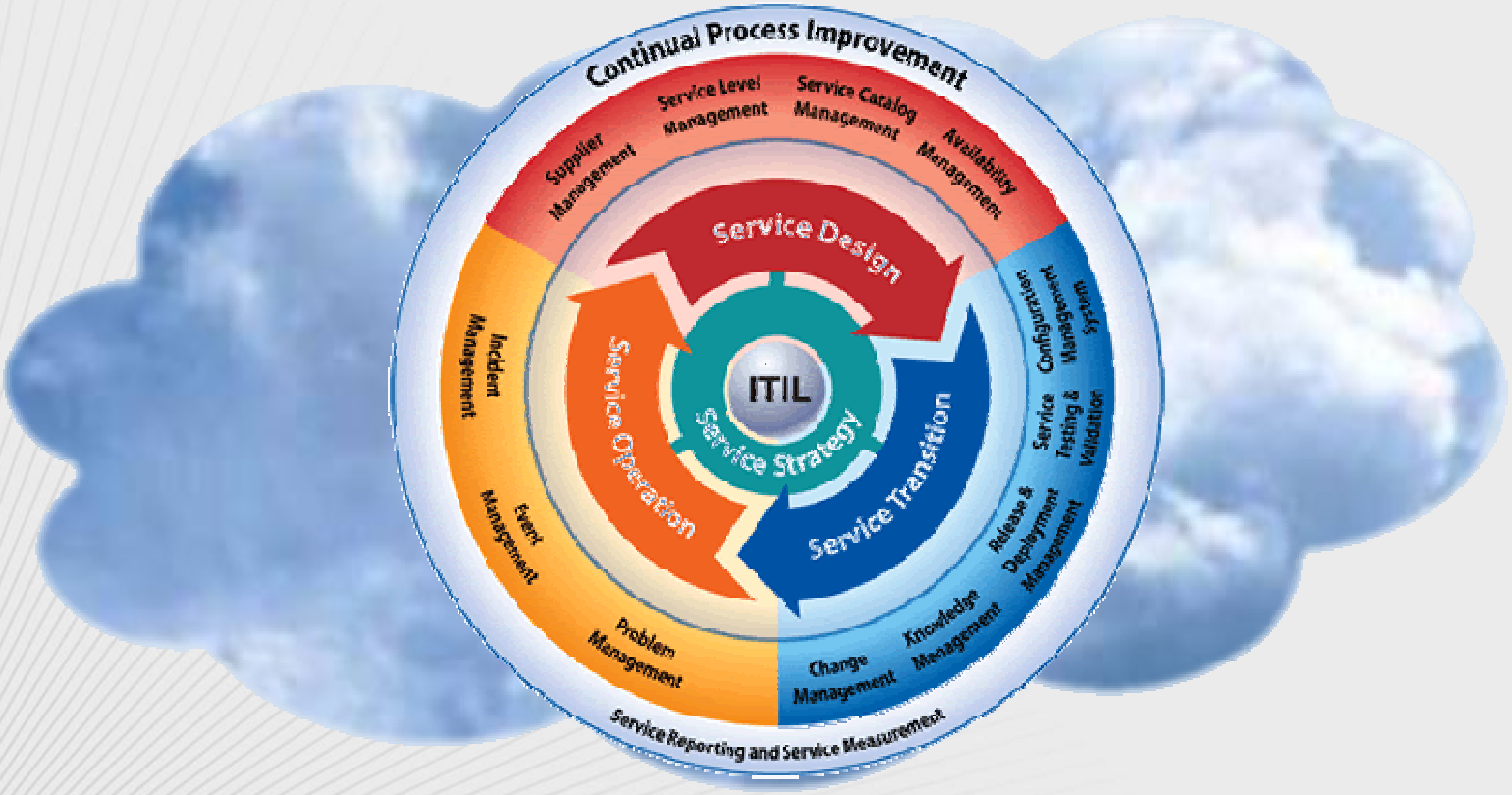
Percent Rating As Critical (4 or 5)
Respondents could rate multiple processes as critical

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=927

Presentation Contents

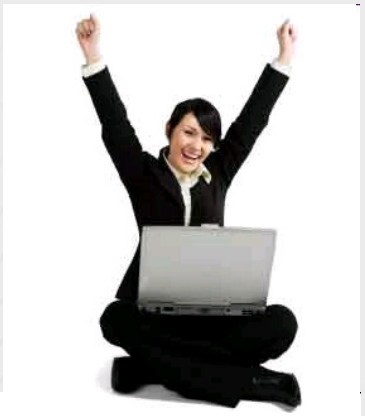
- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- Cloud survey results
- **How does Service Management fit in?**
- Case studies
- Next steps / Where to start?
- Conclusions

How does ITIL v3 fit into the cloud? How could you implement it?



Consumers vs. Providers

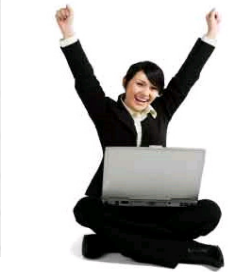
(A.K.A. Normal People vs. IT Geeks)



Consumers vs. Providers

(A.K.A. Normal People vs. IT Geeks)

Probably Not as concerned about Service Management Best Practices & Technology



What are the implications?

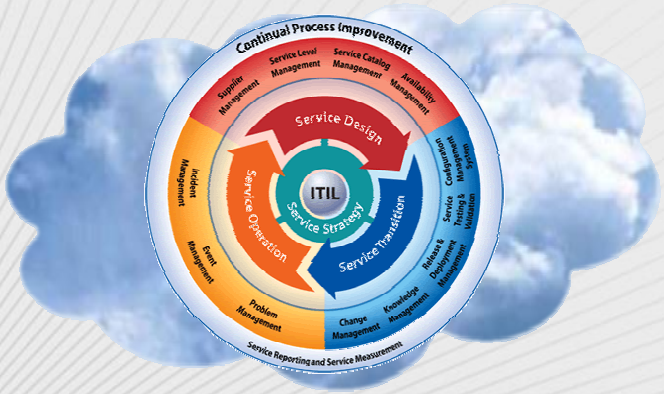
For now, let's focus on these guys

Need to be concerned with Service Management more than ever!!!

Try to imagine a cloud delivery and consumption model without Service Management processes, disciplines and capabilities.

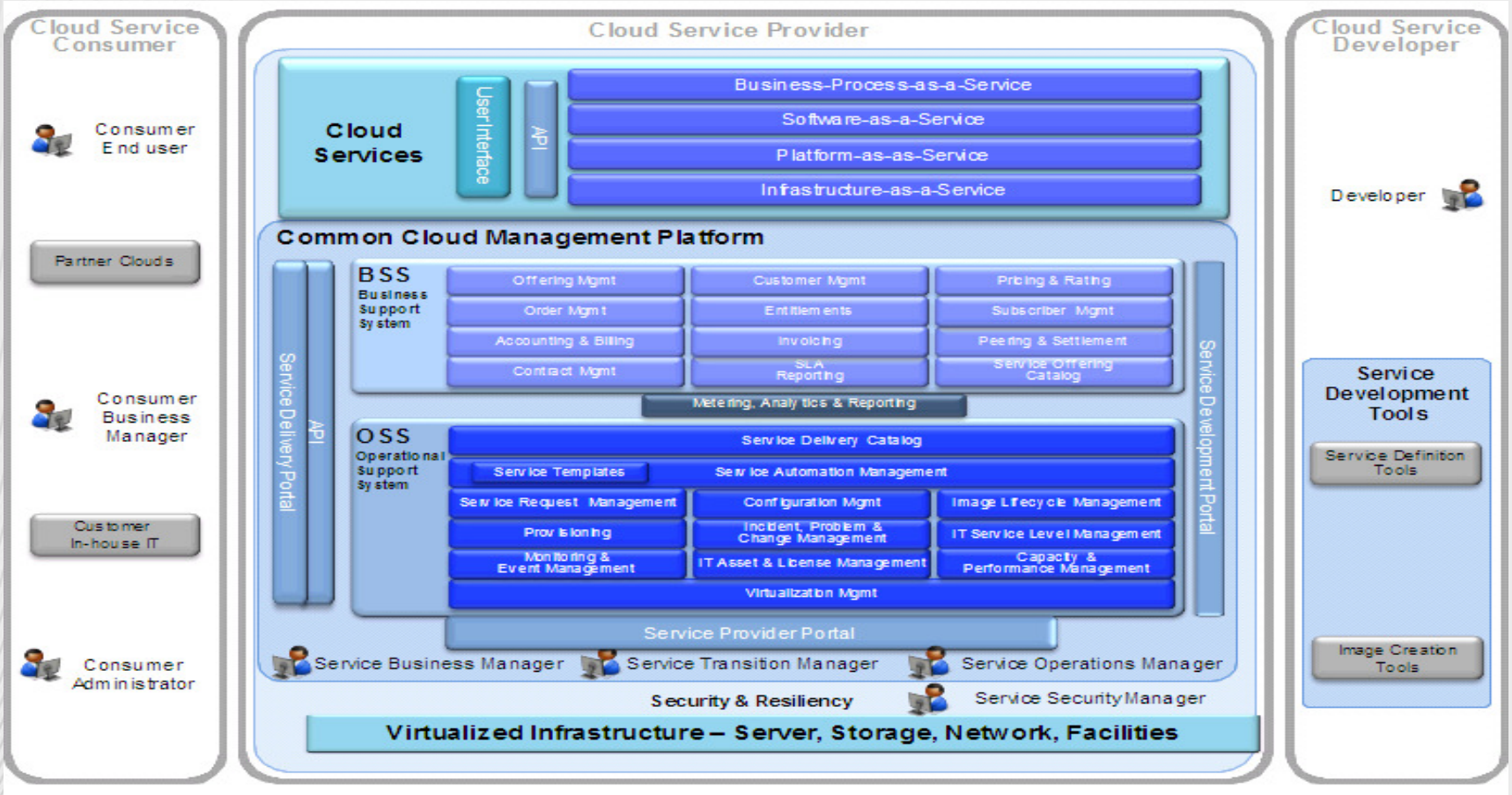
Service Management is the glue that hold the cloud together!

- Imagine if any “propeller head” could just punch a button and have whatever they wanted
  - How would you manage costs?
  - Manage change?
  - Control the CMDB?
  - ***You would be out of control fast!!!***

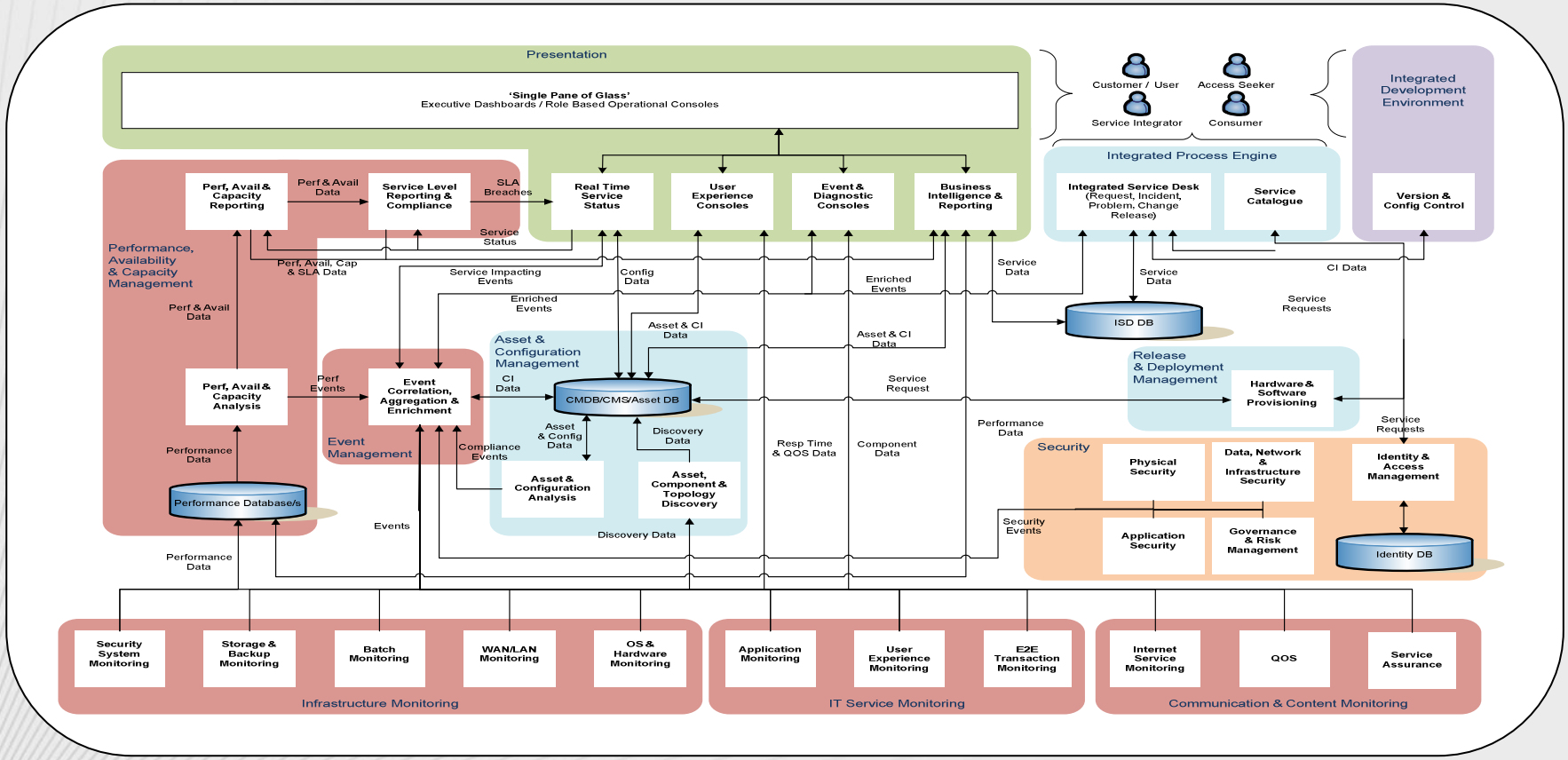


- Service Management & IT Governance describe best practices for many key ”cloud” attributes:
  - Service Catalogue
  - Requests Fulfilment
  - Change Management
  - Configuration Management
  - Strategy
  - Process definition & workflow
  - Policies & procedures
  - Service Levels & SLA Compliance
  - Release & Deploy (Provisioning)
  - Event Management (Monitoring & Alerting)
  - Business Service Management
    - Executive IT Dashboards
    - Metrics

A high level cloud architecture…



A more detailed cloud / Service Management architecture…



Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- Cloud survey results
- How does Service Management fit in?
- **Case studies**
- Next steps / Where to start?
- Conclusions

Businesses that implement cloud computing are seeing significant results.

U.S. AIR FORCE

SK telecom

LOCKHEED MARTIN
We never forget who we're working for™

WUXI · CHINA
简体 · 繁體 · 日本語 · 한글

SOFTEX
EXCELLENCE IN SOFTWARE

SOGETI

MUFG Bank of Tokyo-Mitsubishi UFJ

NEDBANK

Panasonic

iTricity
empowering your business

Highlights:

- **Reduce IT labor cost by 50% in configuration, operations, management and monitoring.**
- **Improve capital utilisation by 75%, significantly reducing license costs.**
- **Reduce provisioning cycle times from weeks to minutes.**
- **Improve quality, eliminating 30% of software defects.**
- **Reduce end user IT support costs by up to 40%.**

IBM has reaped the benefits of their move to cloud computing

IT Transformation

- Have reaped $4 billion over seven years.
- For every dollar invested, we saw a $4 cumulative benefit.

Data Centre Efficiencies

- Virtualised and consolidated thousands of servers onto approximately 30 mainframes.
- Additional virtualisation using distributed systems and storage.
- Savings include energy, software and system management and support.

	1997	Now
CIOs	128	1
Host data centers	155	7
Web hosting centers	80	5
Network	31	1
Applications	15,000	4,700

Energy Savings

- Virtualized environment uses 80% less energy and 85% less floor space.
- In 2010, will have doubled existing capacity without increasing consumption or impact.

On Demand IT Delivery

- Self-service for 3,000 IBM researchers across eight countries.
- Real time integration of information and business services.

Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- Cloud survey results
- How does Service Management fit in?
- Case studies
- **Next steps / Where to start?**
- Conclusions

Next steps: getting started with cloud computing

Developing your cloud strategy and plan is critical

- **Without a strategy, cloud computing can be a threat to the CIO and IT**
  - Reduced control of IT services delivered over the Internet
  - Perceived cost gap between a cloud service and traditional IT
- **With a strategy, cloud computing is a huge opportunity for the CIO**
  - Lower costs, more responsive IT, optimised delivery
  - Greater range of services and capabilities
  - Greater visibility in billing / chargeback to LOBs
  - Better control of the users' systems, desktops, and services access

Amongst the early adopters there are already clear patterns that suggest a practical approach to cloud computing

Define cloud strategy and roadmap

Plan & Prepare

- Assess cloud deployment models, service options and workloads
- Plan cloud strategy and roadmap
- Choose initial project

Condition the existing infrastructure for cloud

- Virtualise and automate existing systems
- Add Service Management, service catalogue

Start with an isolated private cloud deployment

Pilot & Deploy

- Choose low-risk workload such as test and development
- Standardise applications and systems
- Deploy self-service portal

Roll out cloud across the enterprise

Extend & Evolve

- Enable additional workloads on private cloud
- Add new users
- Use trusted public cloud services to supplement data centre capabilities

Development and Test workloads are well suited to cloud delivery.

A great place to start cloud deployment

- **Development/Test environments are frequently an ideal workload with which to pilot cloud technologies**
  - 30-50% of any given IT environment is devoted to test/dev purposes
  - Yet most test servers run at less than 10% utilisation, if they are running at all !
  - Setting up and taking down test environments is extremely labour-intensive, error prone and slow
  - 30% of all defects are caused by wrongly configured test environments (It's not the live production environment)
- **A Development/Test Cloud can enable faster time to innovation and lower the cost per unit of innovation**
  - Testing backlog is often very long and single largest factor in the delay new application deployments


Analytics


Collaboration


Development and Test


Desktop and Devices


Infrastructure

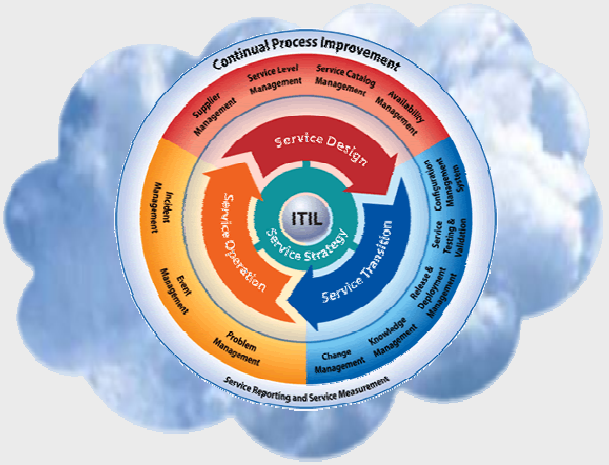

Business Services

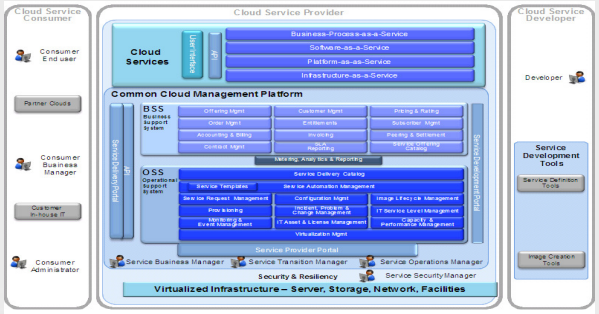
Presentation Contents

- Intro to Cloud Computing
  - What is cloud computing?
  - What's the business and IT value of the cloud?
- A scenario
- Cloud survey results
- How does Service Management fit in?
- Case studies
- Next steps / Where to start?
- **Conclusions**

Conclusions

- Cloud is more of an **evolution** than a revolution.
- Organisations are adopting cloud computing delivery models today, with **private cloud more likely place to start**…but the public cloud model has appeal and is growing
- Although clients today are more interested in private cloud, we found **significant gaps in Service Management and infrastructure readiness**
- **Service Management is key for Cloud service providers**. However, there still may be Service Management implications for Cloud consumers as well.
- Cloud and Service Management **strategies** should go hand-in-hand.
- **Development and Test workloads** are a great place to start with cloud.





Win* a 16GB Apple iPad

Valued at $629

Visit the IBM® Stand, fill in an evaluation form for your chance to WIN!

* See competition poster for full terms and conditions (available at the IBM Stand)


Thank You!
Q&A