Private Test Cloud – The Perfect On-Ramp for Cloud Computing

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Meet the people who can help advance your infrastructure

Agenda

- Cloud computing transforms service delivery
- A Development and Test cloud is a great place to start
- Good cloud design begins with good service design
- Learning from the experience of others

Cloud computing represents a new way of delivering and consuming IT services

A user experience and a business model

- Standardised offerings
- Rapidly provisioned
- Flexibly priced

An infrastructure management and services delivery method

- Virtualised resources
- Managed as a single large resource
- Delivering services with elastic scaling

Similar to banking ATMs and retail Point of Sale, cloud is driven by:

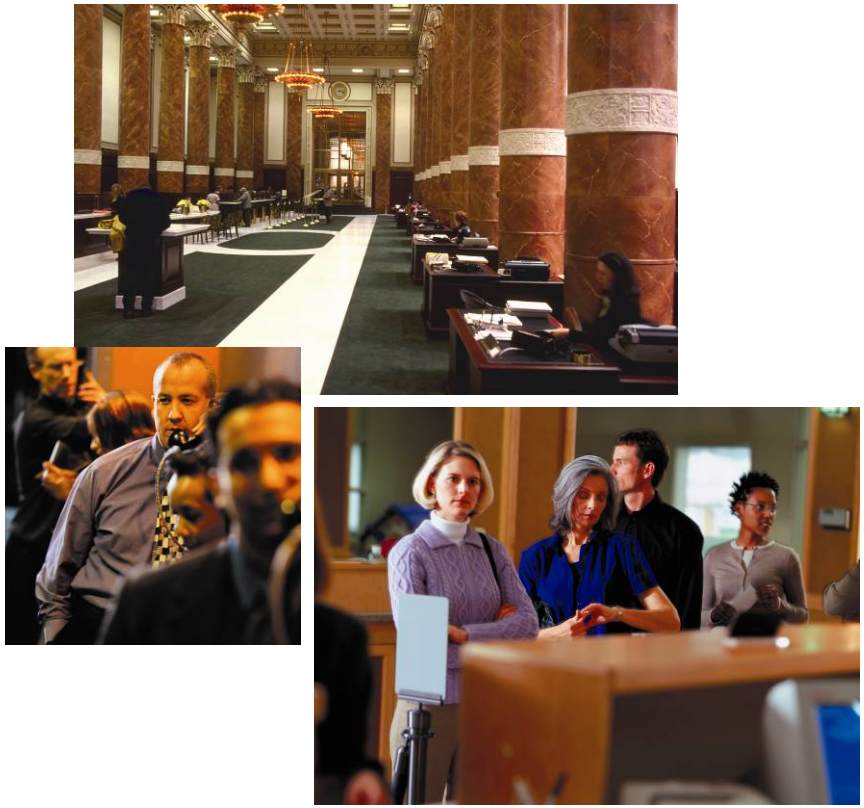
- Economies of scale
- Technology advancement

Banking

IT

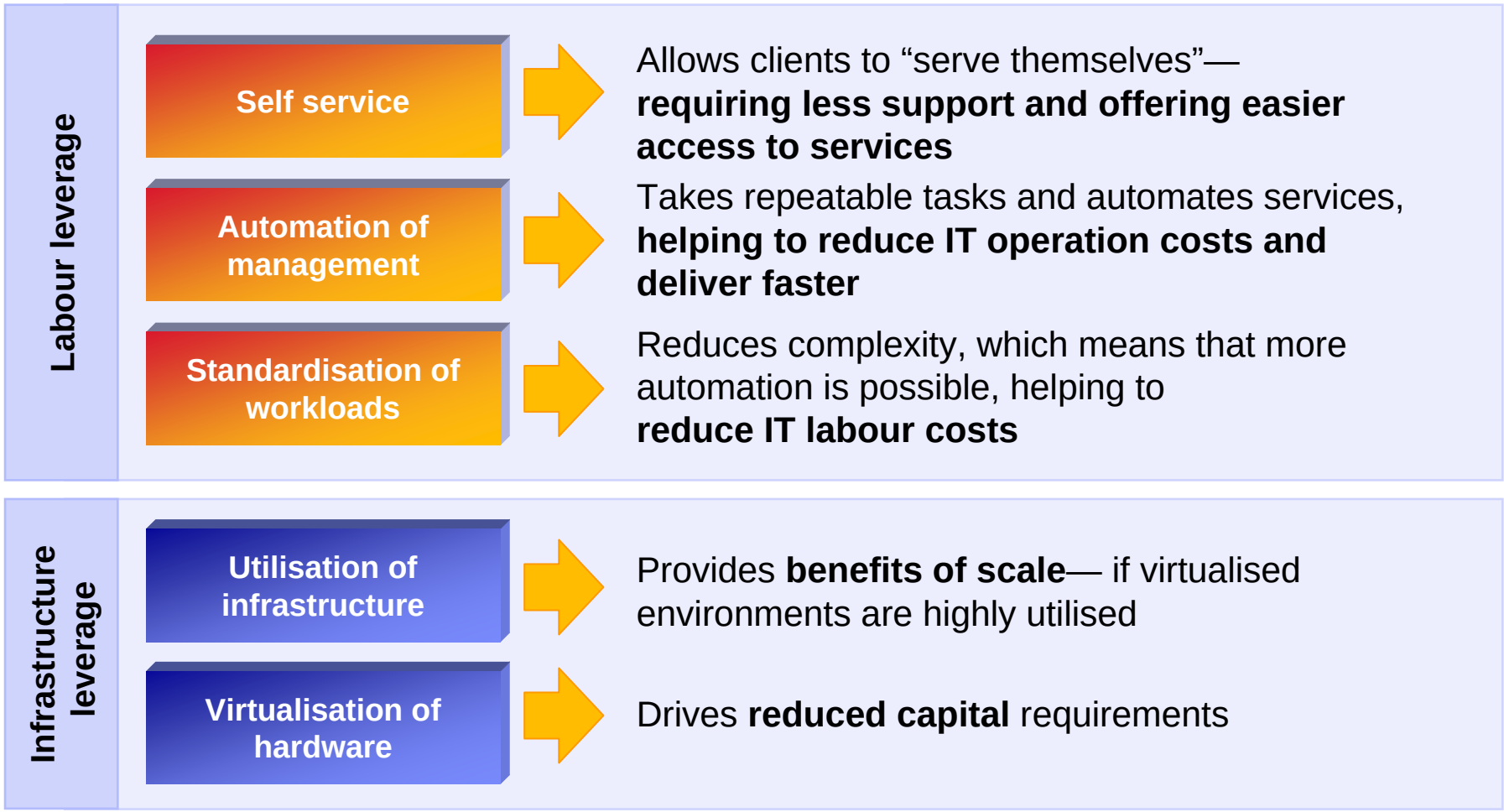
Retail

Cloud computing transforms service delivery



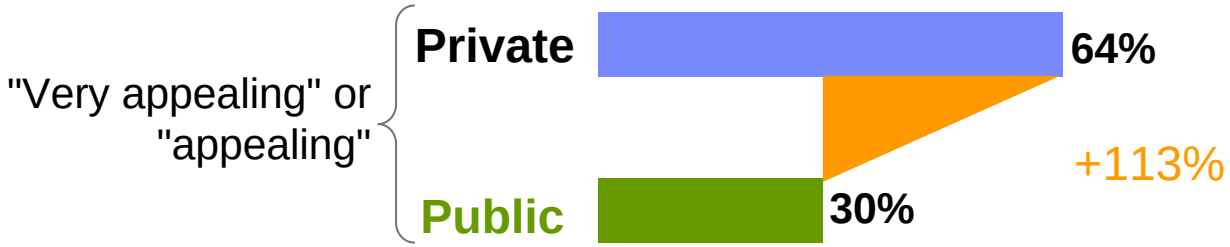
- Lower cost delivery channel
- Products standardised for electronic delivery
- Processes re-engineered and policies defined to allow “zero touch” automation
- Programs to migrate customers
- Use of the channel expanded over time

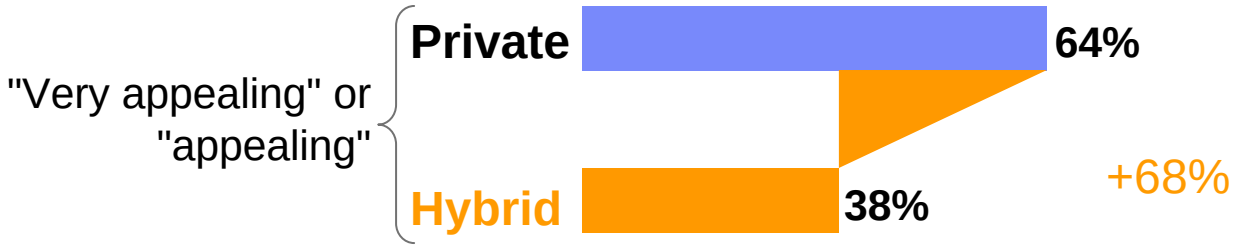
Several major factors are driving cloud computing economics … and it's potential for transforming IT



So far, clients significantly prefer private clouds over public clouds

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



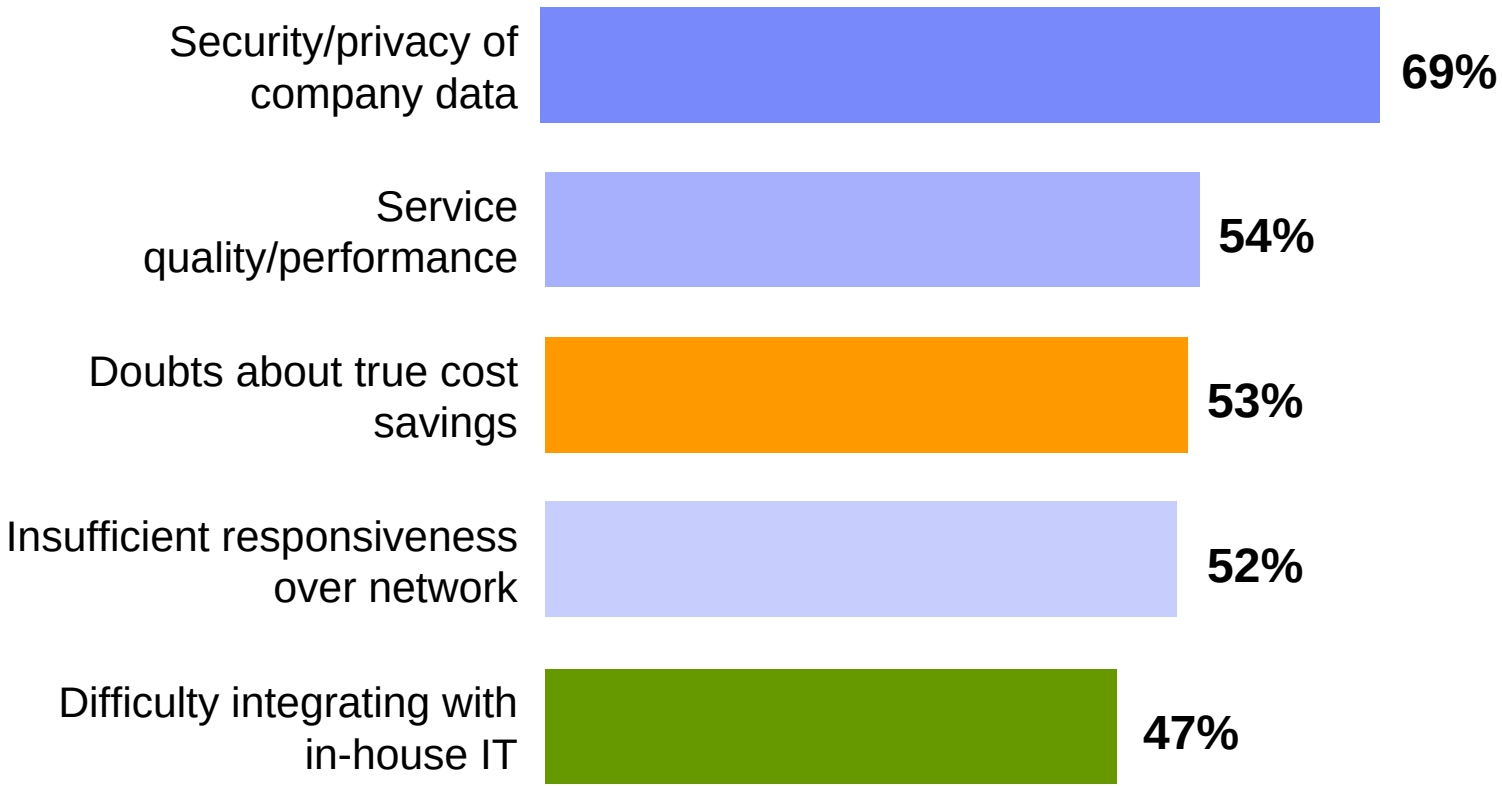


However, adoption of Public Clouds is expected to grow by 26% CAGR between now and 2013*

*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

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?



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

A test cloud as an on-ramp to cloud computing: typical testing environments and economics

- 30 per cent to 50 per cent of all servers within a typical IT environment are dedicated to test
- Most test servers run at less than 10 percent utilisation, if they are running at all
- IT staff report a top challenge is finding available resources to perform tests in order to move new applications into production
- 30 per cent of all defects are caused by incorrectly configured test environments
- Testing backlog is often very long and the single largest factor in delaying new application deployments
- Test environments are seen as expensive and providing little real business value

[1]"Industry Developments and Models – Global Testing Services: Coming of Age," IDC, 2008, and IBM Internal Reports

The benefits of a private Development and Test cloud are real

Results from IBM cloud computing engagements

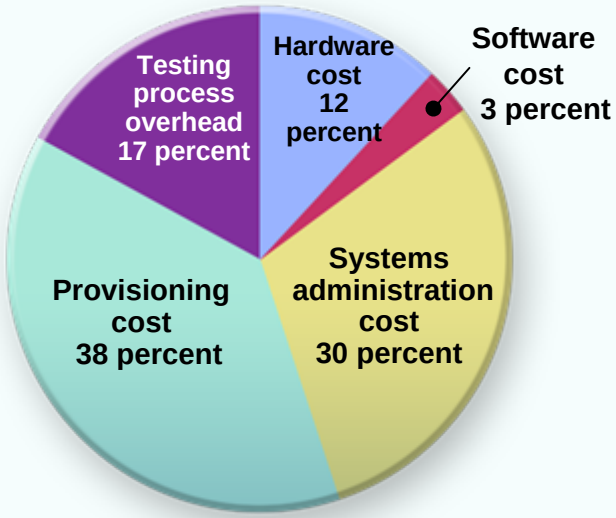
Increasing speed and flexibility	Test provisioning	Weeks	Minutes
	Change management	Months	Days/hours
	Release management	Weeks	Minutes
	Service access	Administered	Self-service
	Standardization	Complex	Reuse/share
	Metering/billing	Fixed cost	Variable cost
Reducing costs	Server/storage utilization	10–20%	70–90%
	Payback period	Years	Months

Source: Based on IBM and client experience.

A private test cloud provided rapid return on investment (ROI) for an international financial institution

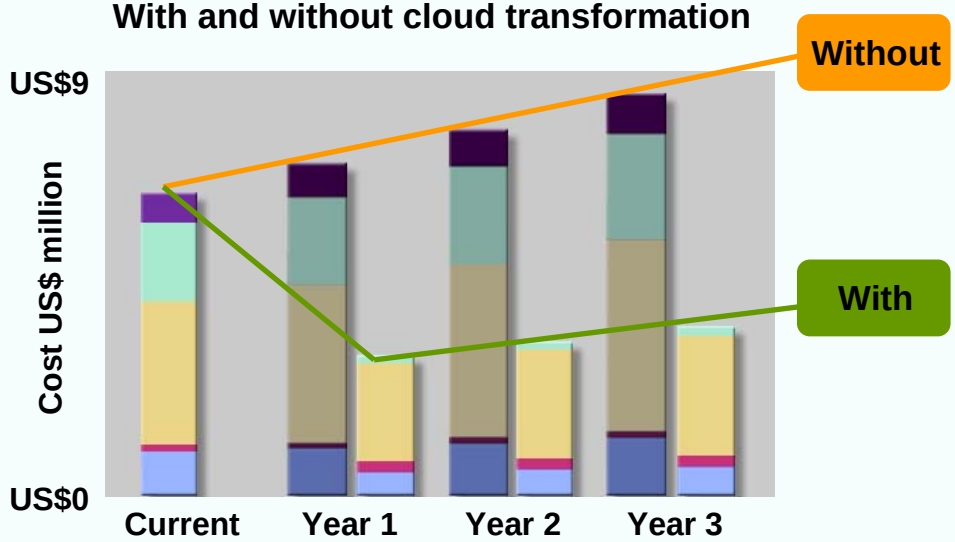
Saving by category

First year after cloud transformation



Cost structure

With and without cloud transformation



Payback period (months)	**2.85**
Total initial investment for test cloud	**US$914,929.31**
Net present value (NPV)	**US$7,949,228.81**
Estimated ROI over three years	**868.84 percent**
Estimate average annual ROI	**289.61 percent**

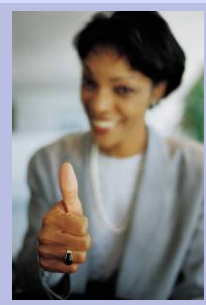
[1]Based on an August, 2009 IBM projection and analysis for an international financial institution.

Cloud computing is all about *services* – not just *servers*

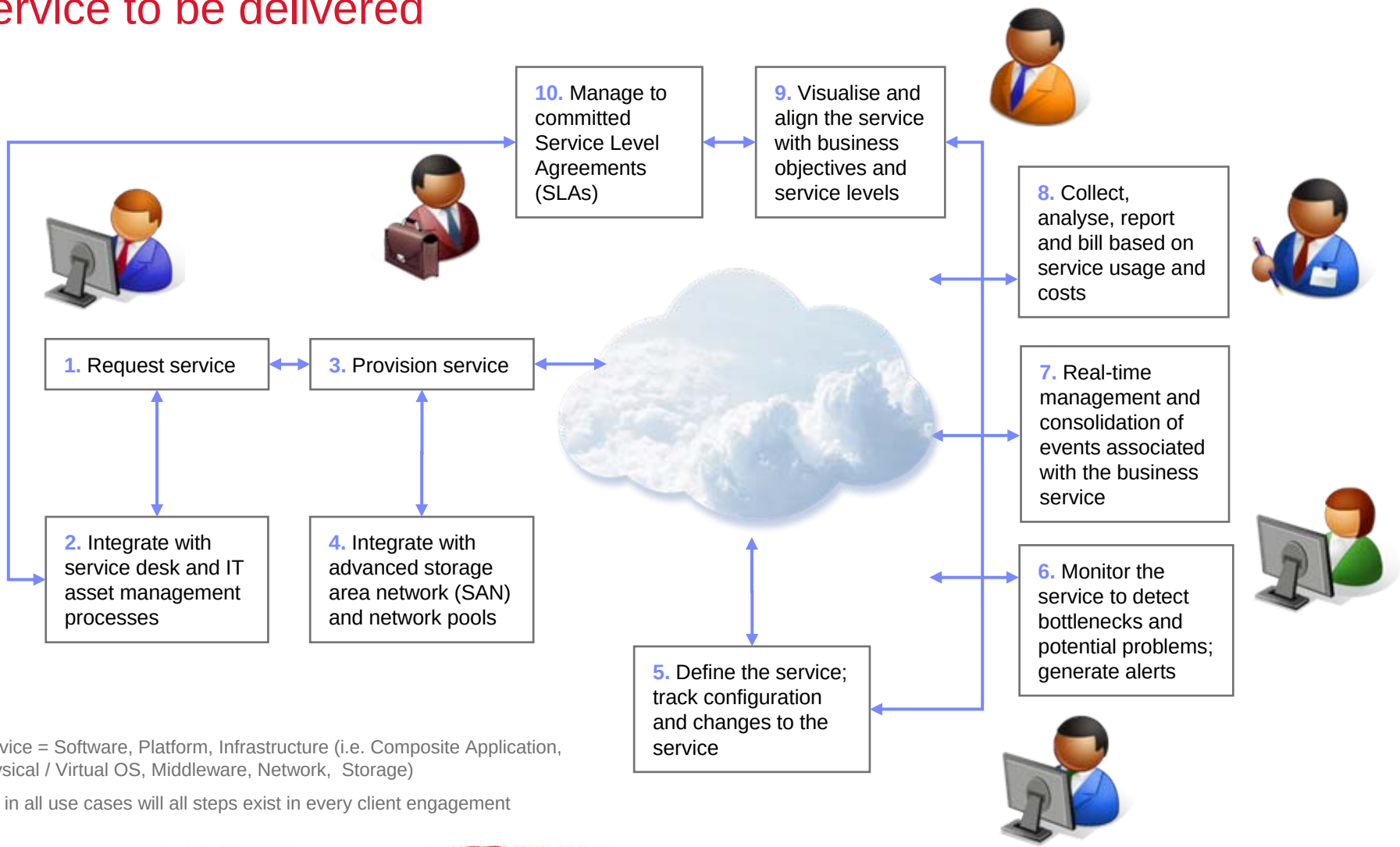
- ***Servers*** have always been with us
- Virtualisation is a critical and necessary enabler for cloud computing
- But…

- The emphasis on ***services*** is the aspect of cloud computing that is most different
  - Service lifecycle
  - Service portal
  - Service catalog
  - Service design
  - Service monitoring
  - Service pricing

- Take the **customer** perspective
- Focus on the **user experience** and the **service** being consumed
- Gain much deeper insight into the **value proposition** for cloud computing (and the requirements)



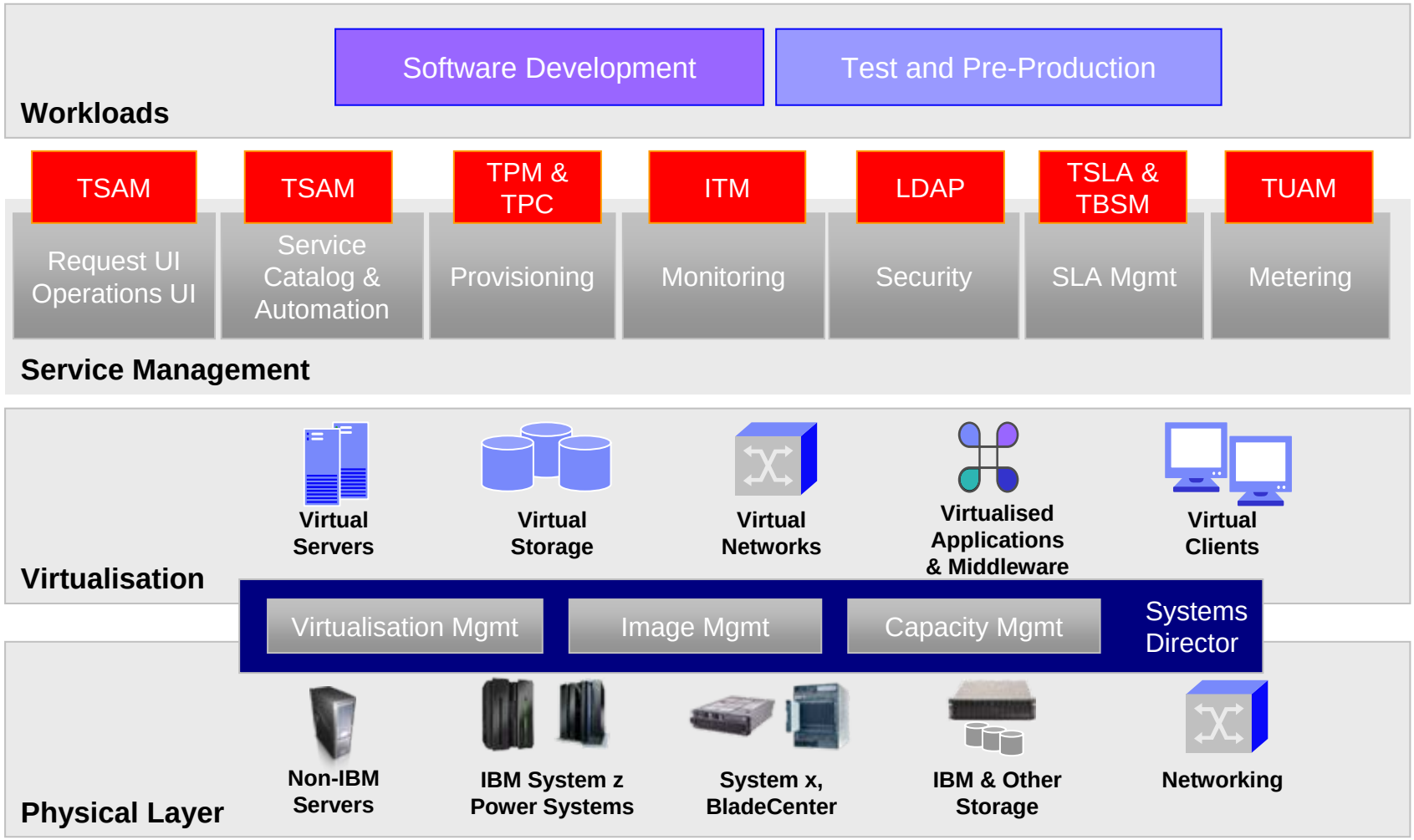
Typical cloud use cases and scenarios are focused on the business service to be delivered



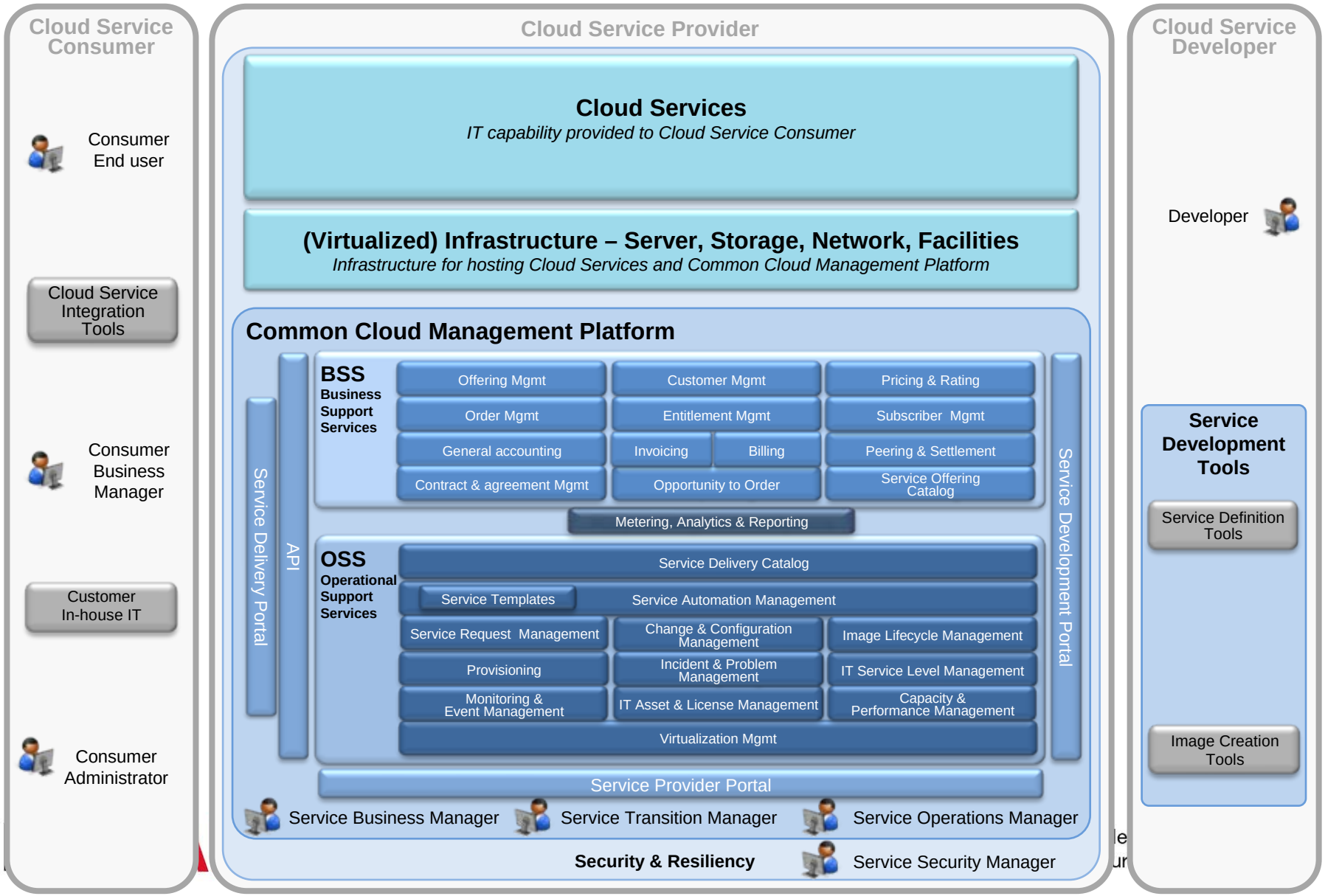
Service = Software, Platform, Infrastructure (i.e. Composite Application, Physical / Virtual OS, Middleware, Network, Storage)

Not in all use cases will all steps exist in every client engagement

Automated service management is therefore the central ingredient when building a private cloud

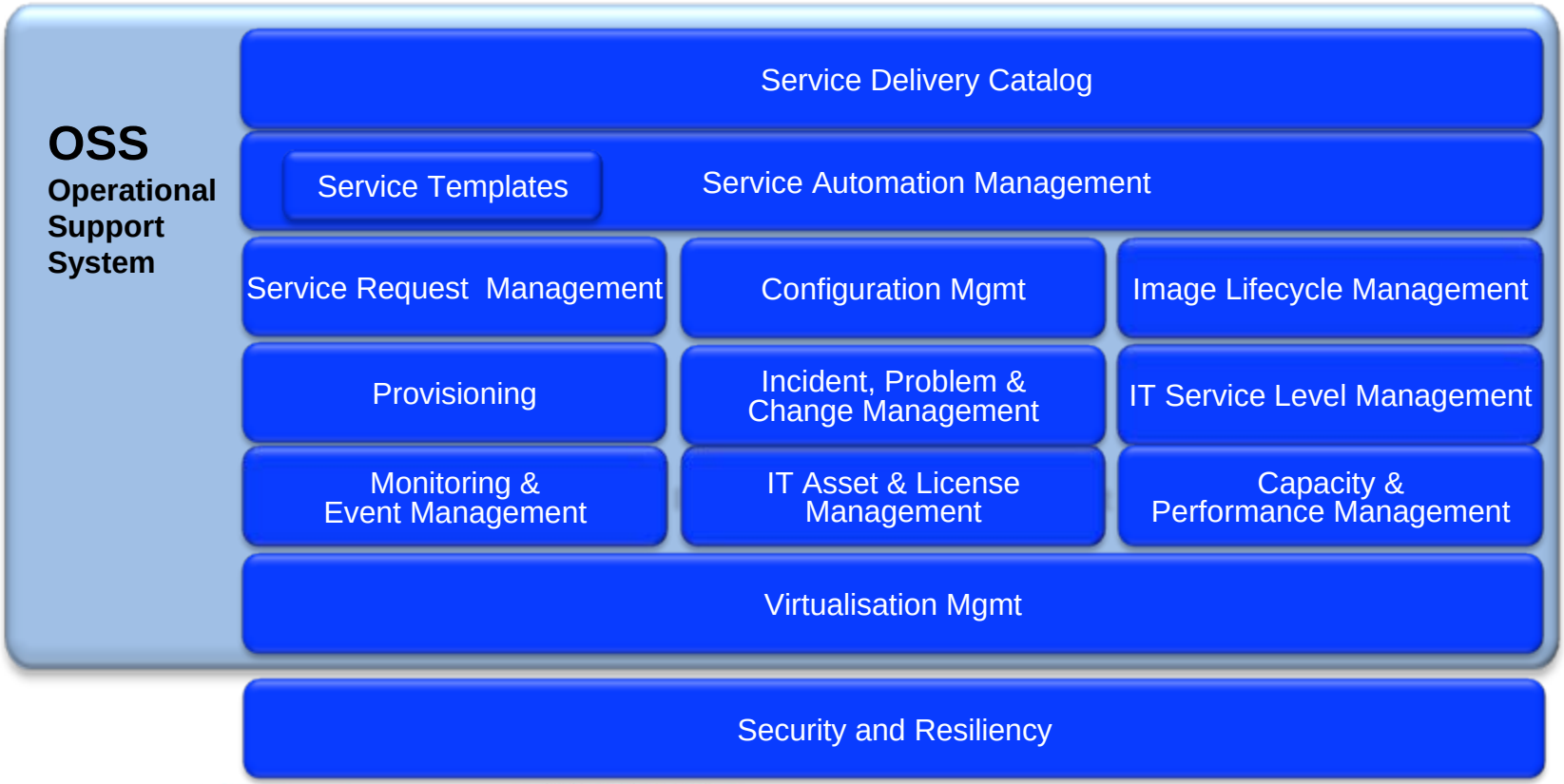


IBM Common Cloud Management Platform Reference Architecture

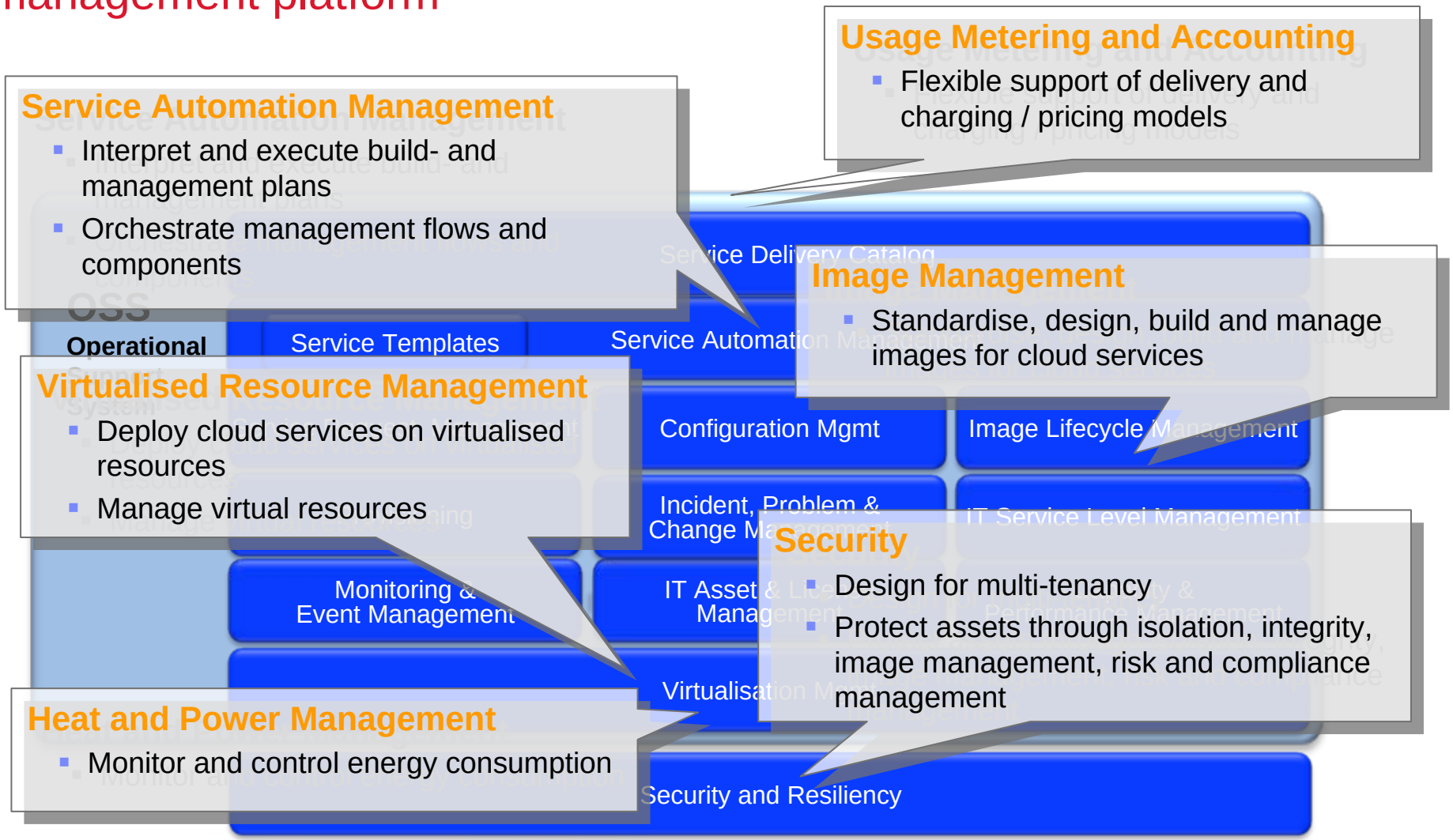


For most organisations the first priority is building the core operational support capabilities required for a cloud platform

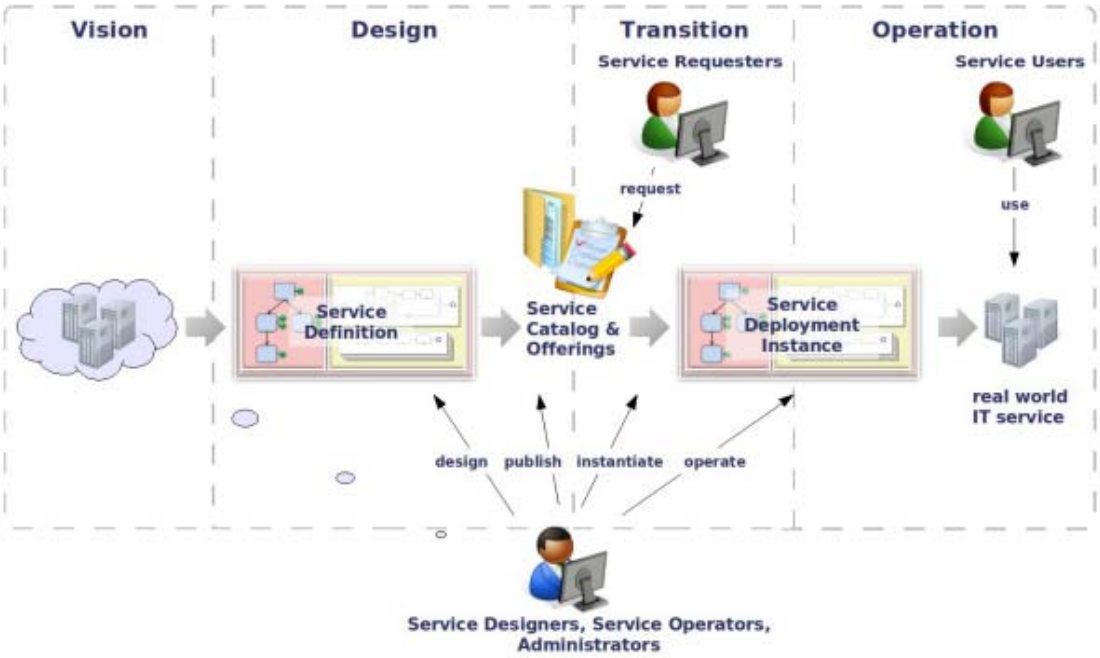
- An operational support system is required to deliver cloud services
- The key service management capabilities need to work together as a basis for customer cloud service delivery

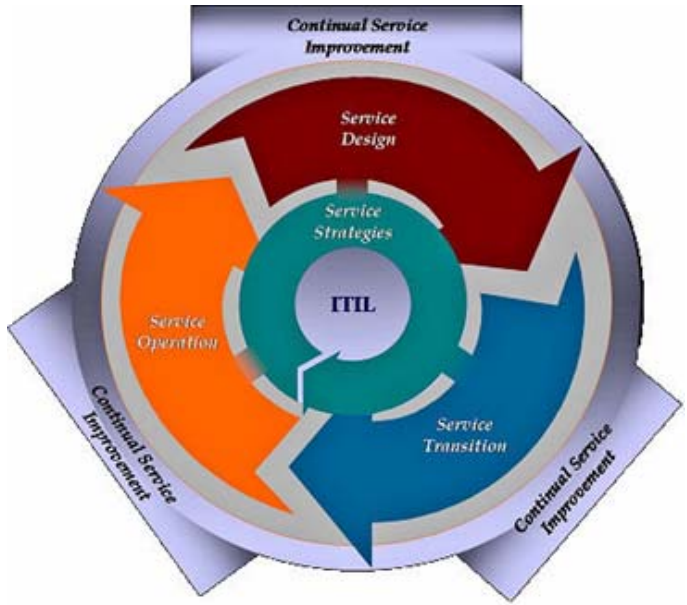


Cloud computing introduces new requirements for our service management platform

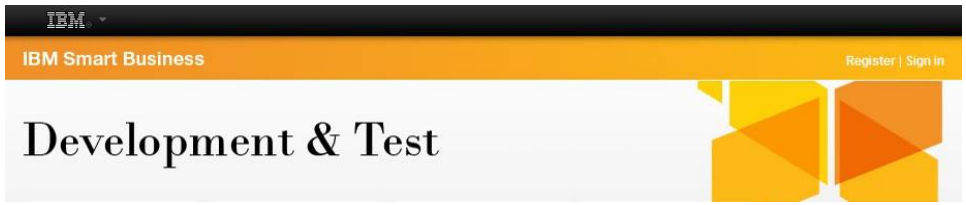


Good cloud design begins with good service design

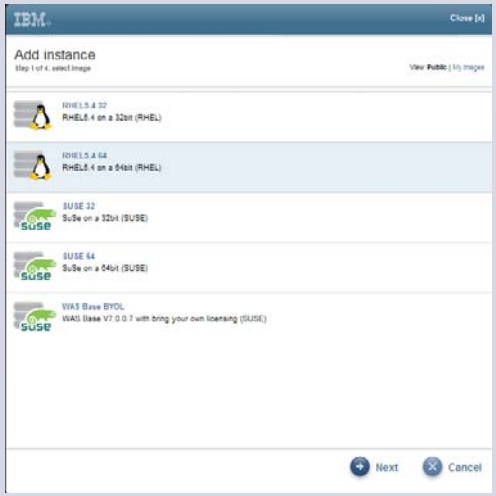




Understanding the service and the desired user experience greatly influence the way you design the service portal and the automation



Click and choose the service you need

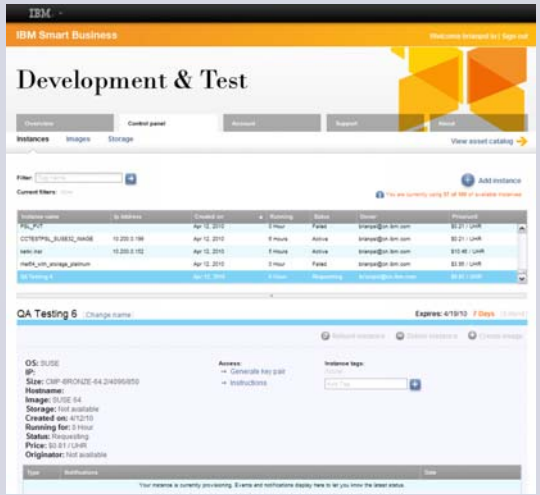


Step 1

View the image details and customise to your needs

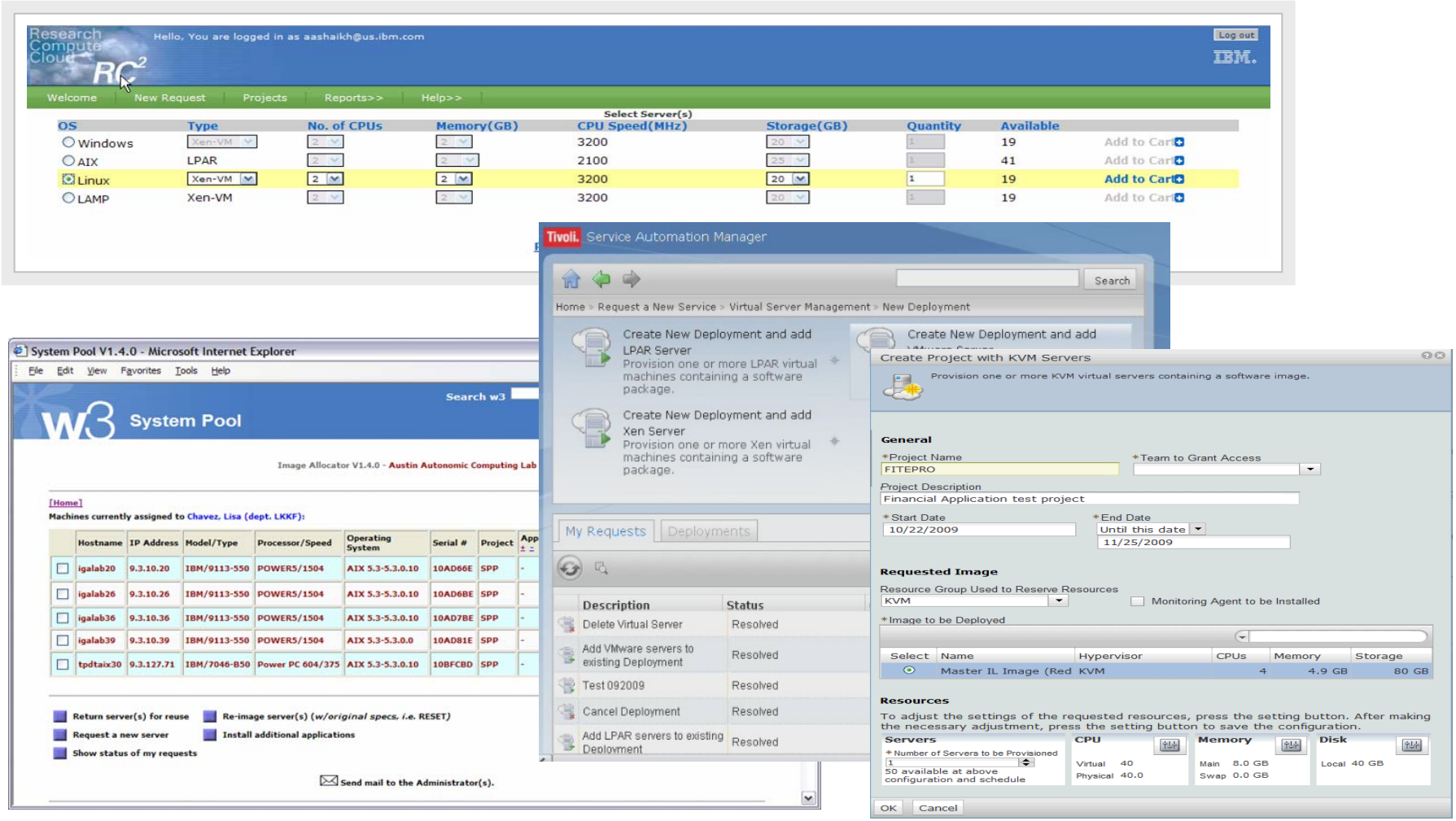
Step 2

Service provisioned and ready to run

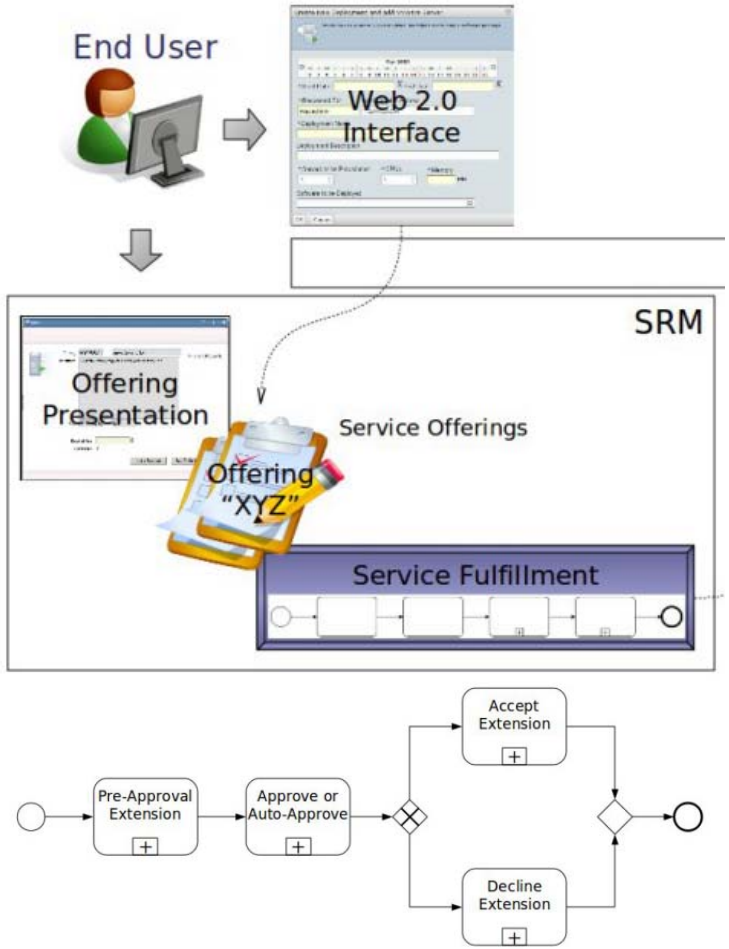


Step 3

For a Development and Test audience we may be able to begin with a more technical interface

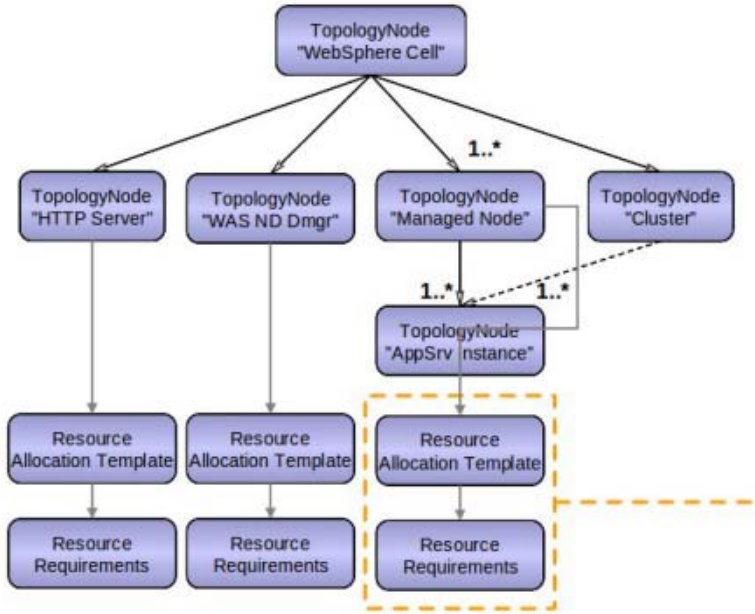


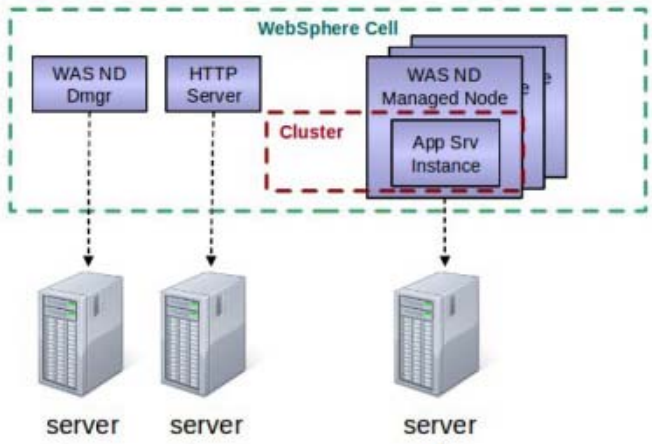
Service request approval workflows require careful engineering to ensure we do not perpetuate manual processes



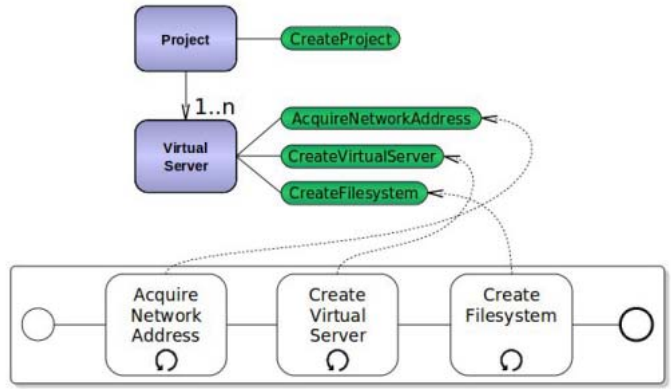
- Early cloud projects have been tempted to retain existing approval processes
  - Slow and manual
- Our goal is to create a highly automated self-service channel
- Start with services that make "zero touch" automation possible
- Define policies and guidelines that enable automated approval
  - Manually handle exceptions rather than everything
- Establish incentives to use standard services

The cloud needs to be able to provision all of the elements and platforms that make up the end-to-end service

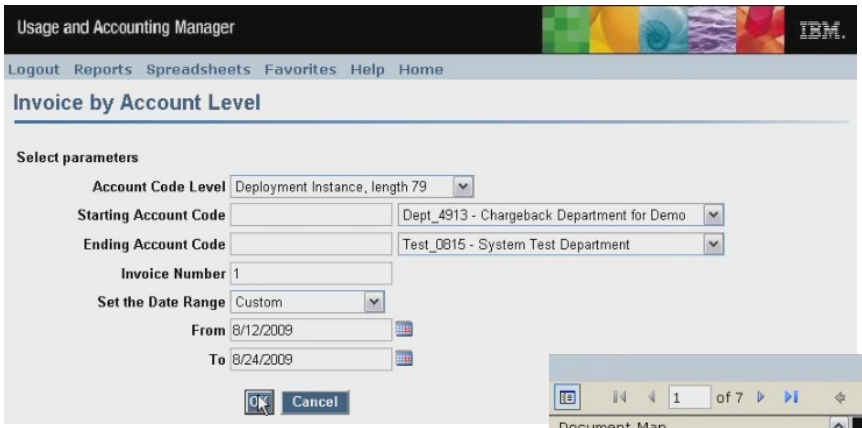




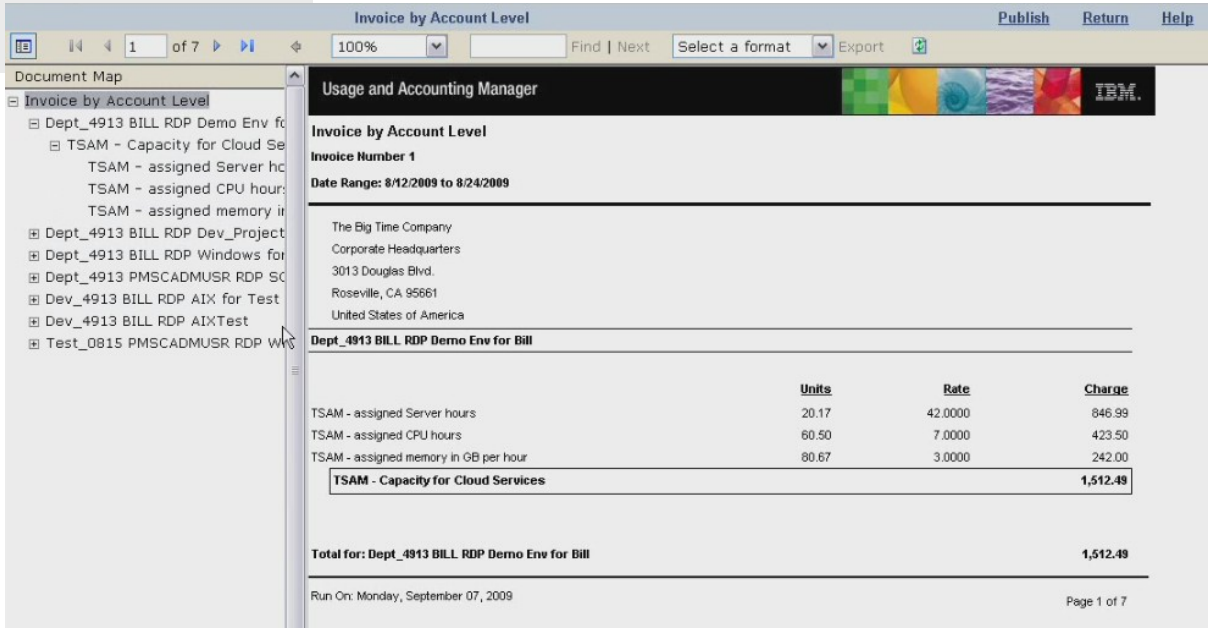
- Testing the mission critical applications used by most large organisations requires provisioning of a multi-tier, end-to-end service infrastructure
- Provisioning orchestration needs to be provided “above” the layer of individual resource managers



Metering and accounting for cloud service usage provides valuable insight even if you don't implement full chargeback



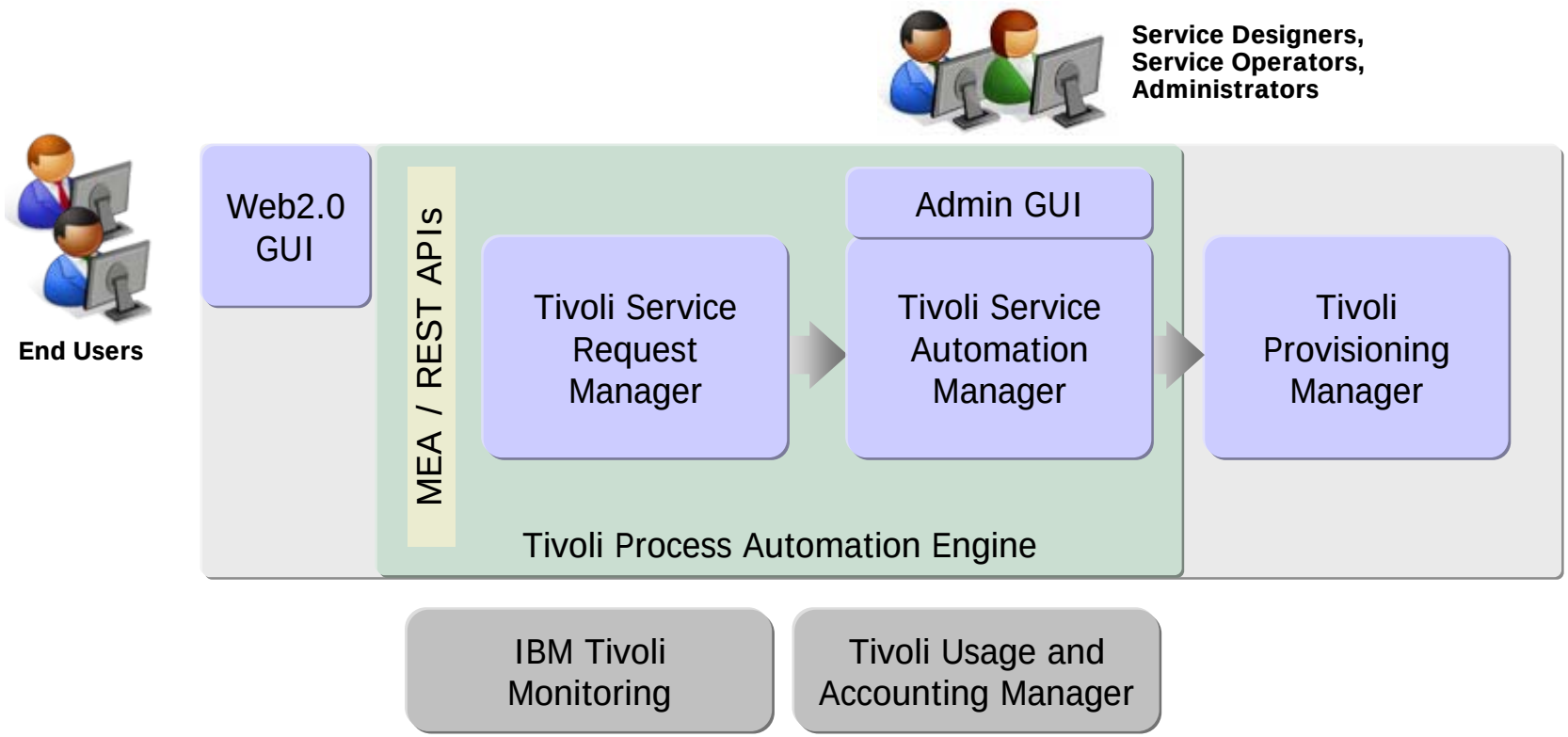
- Metering service usage provides valuable insights
  - Baseline for subsequent chargeback / pricing models
  - Influence demand / consumption patterns



- Early pilots have tended to leave service charging to later phases of their implementation

The Tivoli Service Automation Manager is architected to provide these key cloud operational management capabilities

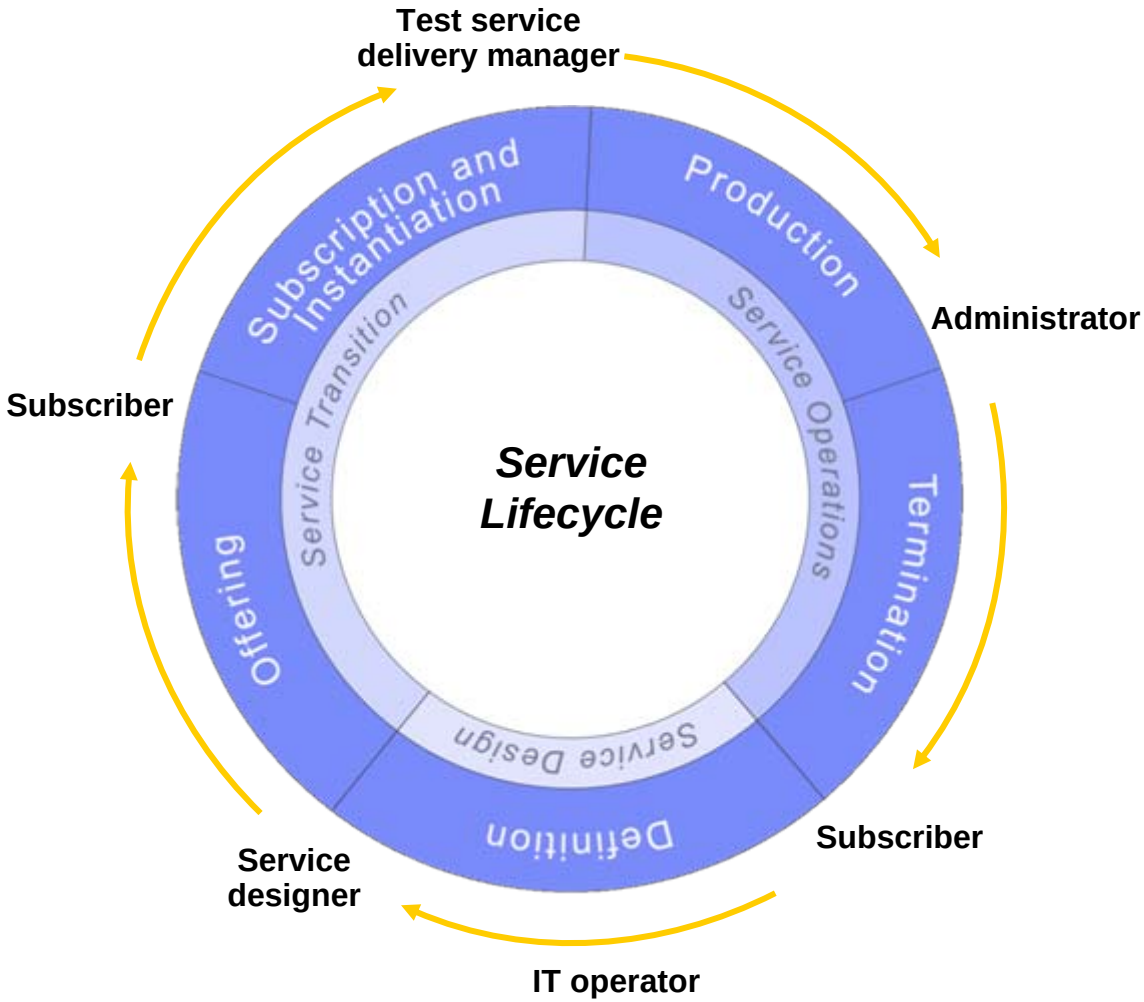
- Tivoli Service Automation Manager is a component based on the Tivoli Process Automation Engine (TPAe), implementing a data model, workflows and applications for automating the management of IT services



The Tivoli Service Automation Manager enables a shorter service lifecycle

TSAM helps automate the full service life cycle:

- Define services in the catalog
- Publish services and make available
- Request initiated from subscriber, process or workflow
- Resources are scheduled or reserved
- Provision resources, which may include:
  - Infrastructure: systems
  - Software: operating system and middleware
- Deprovision resources
- [Retire the service]



Where we start determines how quickly we deliver results

“From now on every new project will run on the cloud”

“Let’s target some key services that will enable quick wins”

“Let’s clean up this mess and migrate what we have to the cloud”

Optimising cloud management platform deployment

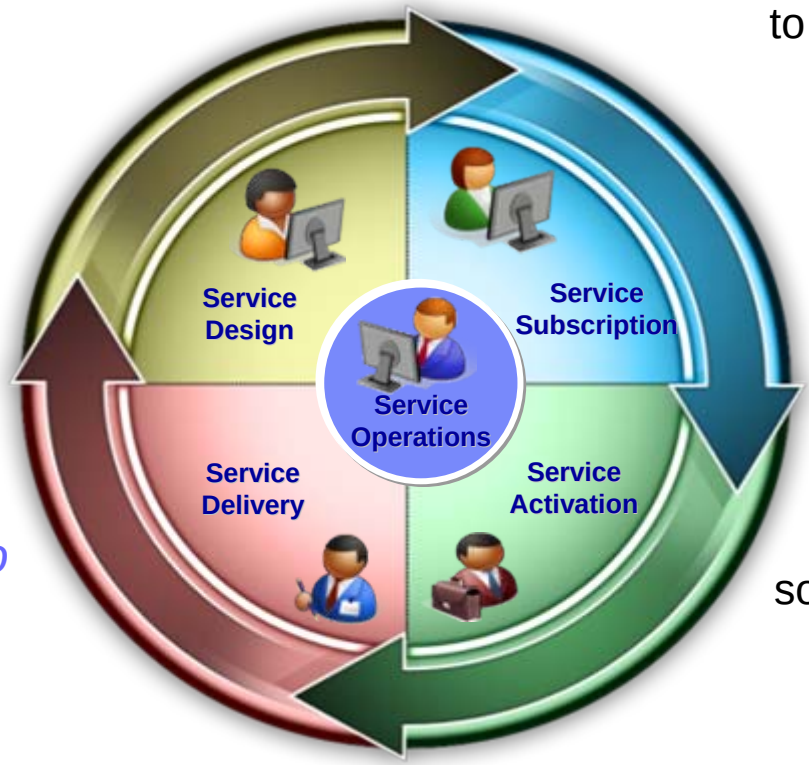
For those clients who wish to leverage a service management portfolio to build a **customised cloud solution**

Tivoli Service Automation Manger

+

IBM Service Management Portfolio

Powered by Tivoli process automation engine and Service Management products.



For those clients who wish to rapidly deploy a **turn-key environment** with little to no customisation

IBM CloudBurst

A purpose built service delivery platform that leverages the same software components in the Tivoli Service Automation Manager as well as integrated purpose built workflows

IBM Infrastructure Strategy and Design for Cloud Computing

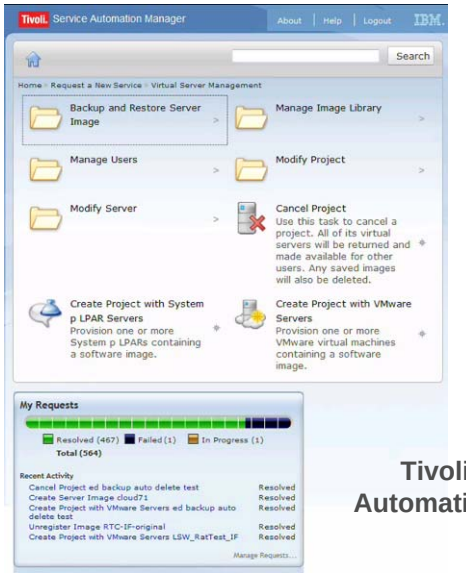
Using IBM-unique frameworks and techniques to answer strategic questions

- Could we utilise cloud services, and why ?
- What types of services would be most appropriate ?
- How would they support our business and IT objectives ?
- Which cloud services would align best with our role as IT service providers ?
- What would be the likely benefits ?
- Would our current IT infrastructure support cloud service delivery (or not) ?
- What specific IT improvements would we need to make ?
- How can we develop a roadmap to achieve our cloud objectives ?
- Where do we start ?

Cloud Services Adoption	Cloud Workload Prioritisation	Cloud Delivery Model	Cloud Architecture	Cloud Readiness Assessment	Cloud Value Proposition	Cloud Roadmap

IBM Smart Business Development and Test Cloud

IBM Global Technology Services can help you quickly design and implement a private cloud for development and test environments



Tivoli Service Automation Manager

Rational Software Delivery Services

IBM CloudBurst

The client gets:

- Self-service, catalog portal to request resources
- Cloud management platform that combines service request management, automated provisioning and change and configuration management

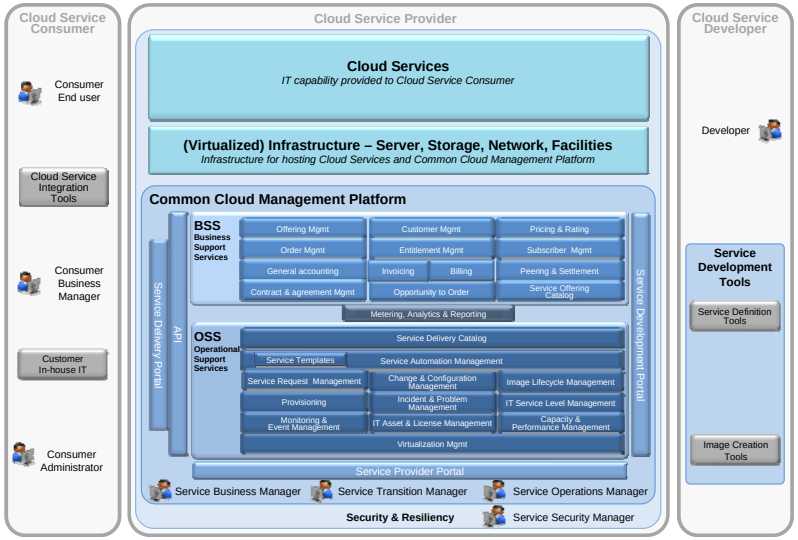
Supported platforms and key features:

- Out of the box support for VMware, KVM and PowerVM virtualised environments
- Enhanced cloud end-user GUI based on Web 2.0 technology
- Image management including save / restore
- Usage metering and accounting with ITUAM

Development and test tools included in the service catalog:

- Preconfigured software images for Rational Team Concert, Rational Asset Manager, Rational Quality Manager, BuildForge

IBM provides design and implementation services that can fully enable service management for the cloud



IBM Infrastructure Strategy and Design for Cloud Computing
IBM Smart Business Development and Test Cloud

- *Service Management Strategy and Design* – to assess and improve current service management capabilities
- *IT Service Strategy* – for service catalog development and refinement
- *IT Governance Consulting* – for cloud / multi-sourcing management and service integration
- *Accelerator for Tivoli Service Request Manager* – for incident and problem management
- *Accelerator for Tivoli Asset Management for IT* – for asset and license management
- *Event Management and Monitoring* – for end to end service monitoring
- *Business of IT Dashboard* – for cloud service performance dashboard
- *Accelerator for Tivoli Change and Configuration Management* – for integration with CMDB
- Accounting and usage management consulting and implementation services

Smart Business Development and Test Cloud

Taking new capabilities to market faster

SK telecom

Established company as leader in industry

Enabled customers and business partners to leverage new models more easily and increased company revenue

Improve new service development time, achieving faster time to market

Improved efficiencies of resources, delivering reduction in CapEx and OpEx

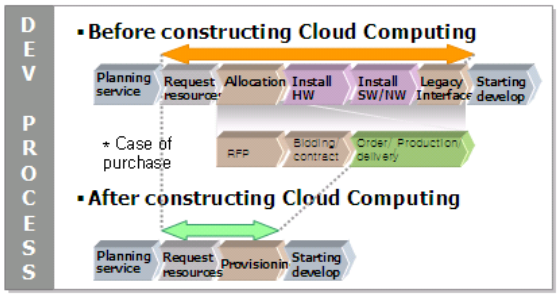
SK Telecom : Cloud Computing Platform

Business Background

- Unit of SK Holdings, one of South Korea's largest *chaebol* conglomerates
- Perceived as technology leader in South Korea
- Number 1 market share in domestic wireless market
- Number 2 market share in domestic fixed line market

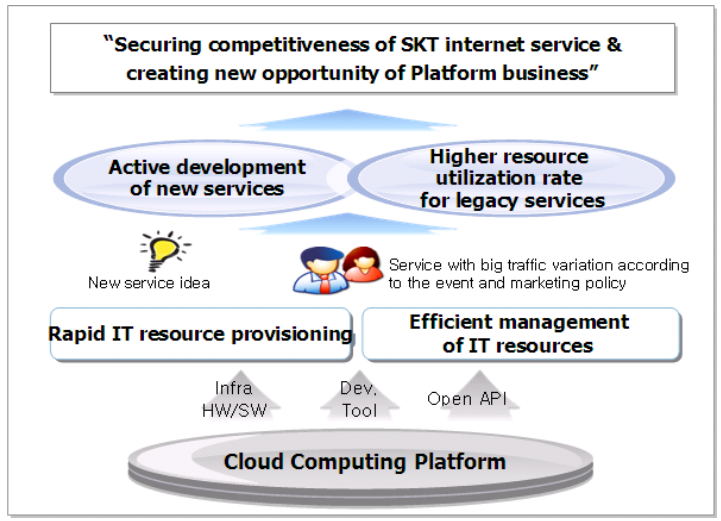
Cloud Business Benefit

- Improve new service development time, achieving faster time to market
- Improved efficiencies of resources, delivering reduction in CapEx & OpEx



Solution Overview

- Korean language portal based on API extensions to Tivoli Service Automation Manager
- Tivoli Provisioning Manager-based Development Platform-as-a-Service offering
  - Provides Business Partners with ability to quickly test, develop, and publish new end-user focused WAP services available on SK Telecom network
- Service Management-enabled cloud delivery platform to run new WAP services in a workload optimized fashion.



Business Needs

Business Needs

"Strengthen the competitiveness of the Internet Service & Create new business opportunities for Platform service"

Create new service offerings

Respond to changes quickly

New business service idea

Event/Marketing strategy changeover

Speed
: Provide resources quickly

Agility
: Quickly respond to changes in IT resource demand

Infra HW/SW

Dev Tool

Open API

Development & Production system Infra
Cloud Service Platform

Project Object

-Provide better and flexible service to users (CP/BP), enabling self-service request and delivering services more rapidly

Leverage CP/BP who has a new business service ideas

Reduce cost of ops & mgmt and for new investment

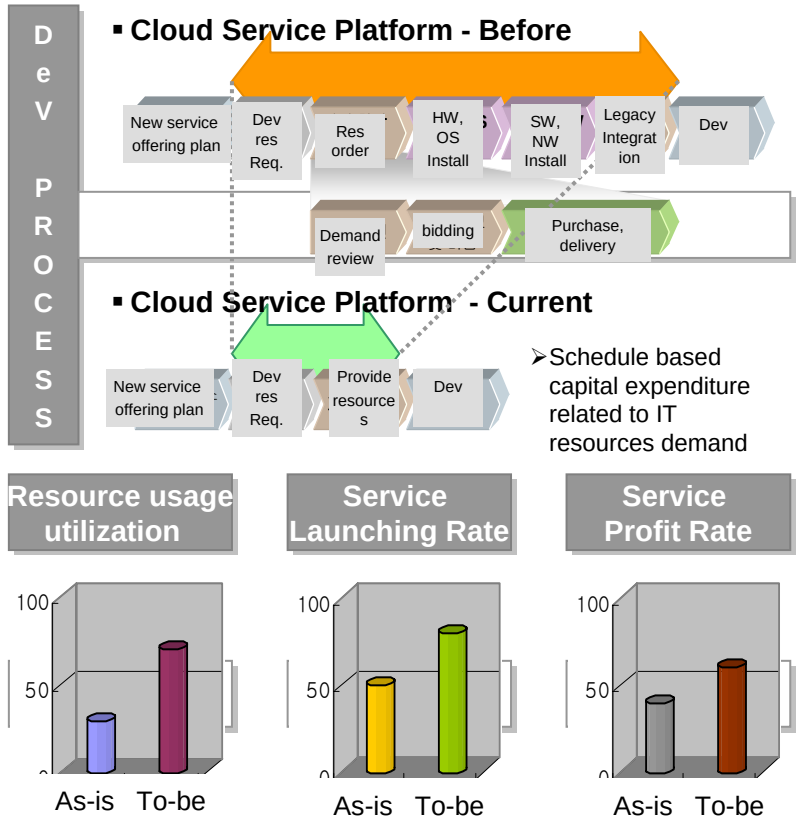
- Improve time to market – react to deliver a new IT service quickly, decrease time to deploy systems for new service offerings
- Lower development cost – increase resource utilization and reduce labor costs
- Find new revenue/profit streams thru embrace a new business service ideas of CP/BP quickly.

Project Goal

Cloud Service Platform implementation direction

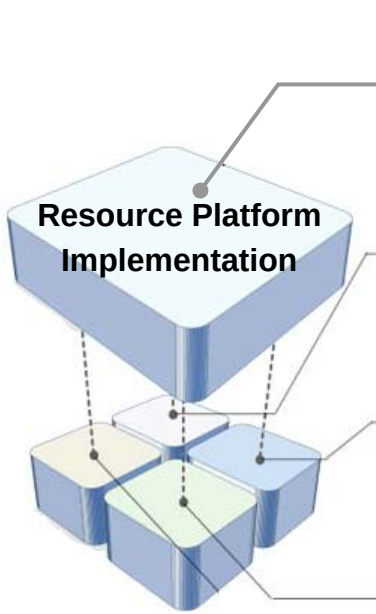
Goal	Direction
Decrease time for devt	▪ Resource request and supply (provide) resources – process reduction (shorten) ▪ **Automation – provisioning for installation, configuration, distribution**
Manage resources efficiently	▪ Virtualization – managing resource pool efficiently (increase resource utilization) ▪ **Standardization – IT Architecture standard setup for efficient operation**
Quickly Adapt Idea of CP/BP	▪ Provide HW/SW, Dev Tool, Open API for development at the right time right place ▪ Easy to request/deployment using users' Portal

Cloud Service Platform implementation – change point



Project Scope

Cloud Service Platform – project scope



Resource Platform
- Virtualization – server resource pool for development farm and production farm

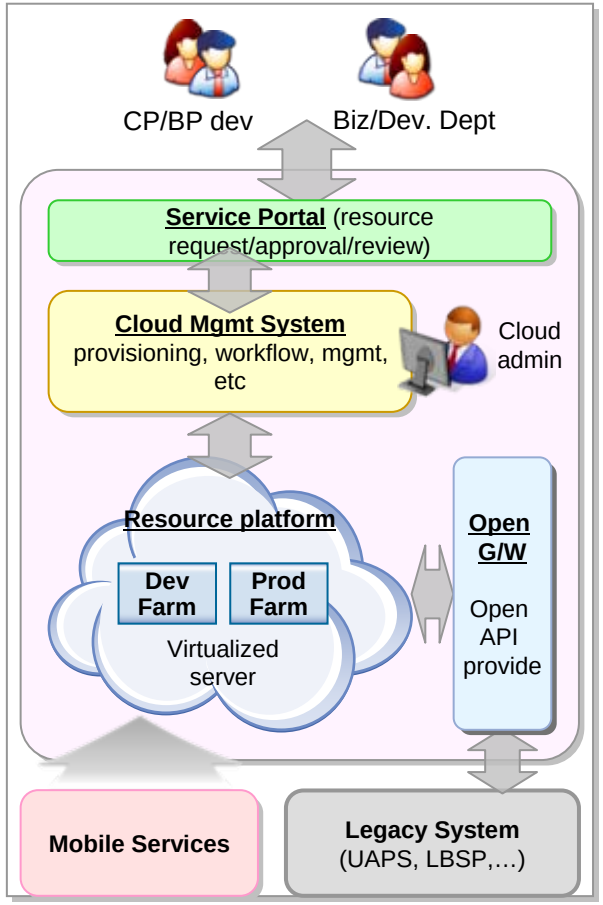
Cloud Mgmt System
- Provisioning Automation for HW, SW
- Resource Monitoring

Service Portal
- Service Portal for end-users and administrators – resource request, approval, search, guide

Devt Platform
- Provide Open API, dev/test tool

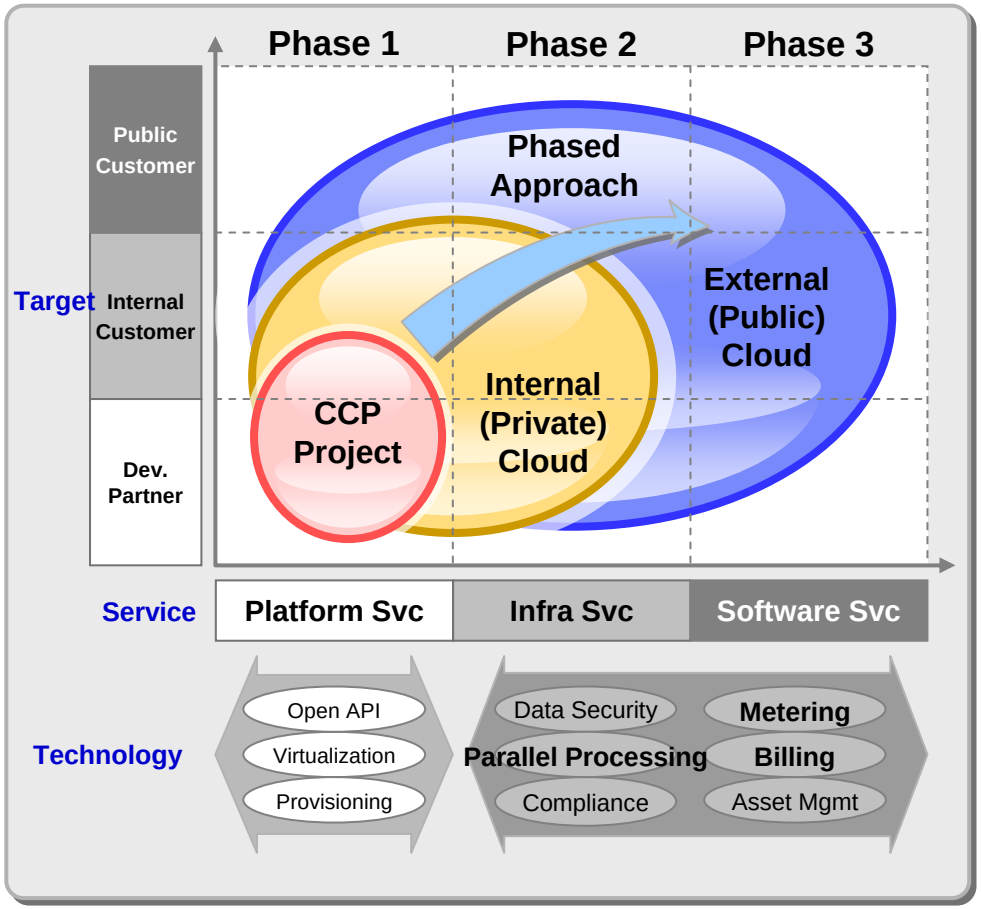
Service migration
- Migration of existing mobile services which are running on 'Incubation platform' & Provisioning for new mobile services

Cloud Service Platform



Future Plan

Cloud Computing - Future Direction



Cloud Computing Enhancement Plan

Target customer

Dev. Partner (CP/BP)-> Private Cloud for Internal customer-> Public Cloud for external customer

Service Scope

PaaS -> IaaS -> SaaS

Service Tech

Basic Tech (Provisioning, Virtualization) -> Parallel Processing (e.g. Hadoop), Metering & Billing

Cloud computing provides a tremendous opportunity to drive change and to transform the way we approach IT service delivery

We asked IBM clients “To what degree would each of these factors induce you to acquire cloud services?”

Reduce costs

77%
or higher

- Hardware savings
- Software license savings
- Lower labour and IT support costs
- Lower outside maintenance costs

Faster time to value

72%
or higher

- Relieve pressure on internal resources
- Simplify updating/upgrading
- Speed deployment
- Scale IT resources to meet needs

Consider cloud now:

- To lower the costs of delivering IT services
- To deliver flexible IT
- Because cloud changes the economics of IT and offers competitive advantage
- To drive trigger change and transformation within IT

Source: IBM, *Dispelling the vapor around cloud computing: New findings from IBM Market Insights*, 2009.

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