

Pulse2011



Session 5, Track 2: Constructing and Managing a Private Cloud with IBM's Service Delivery Platform

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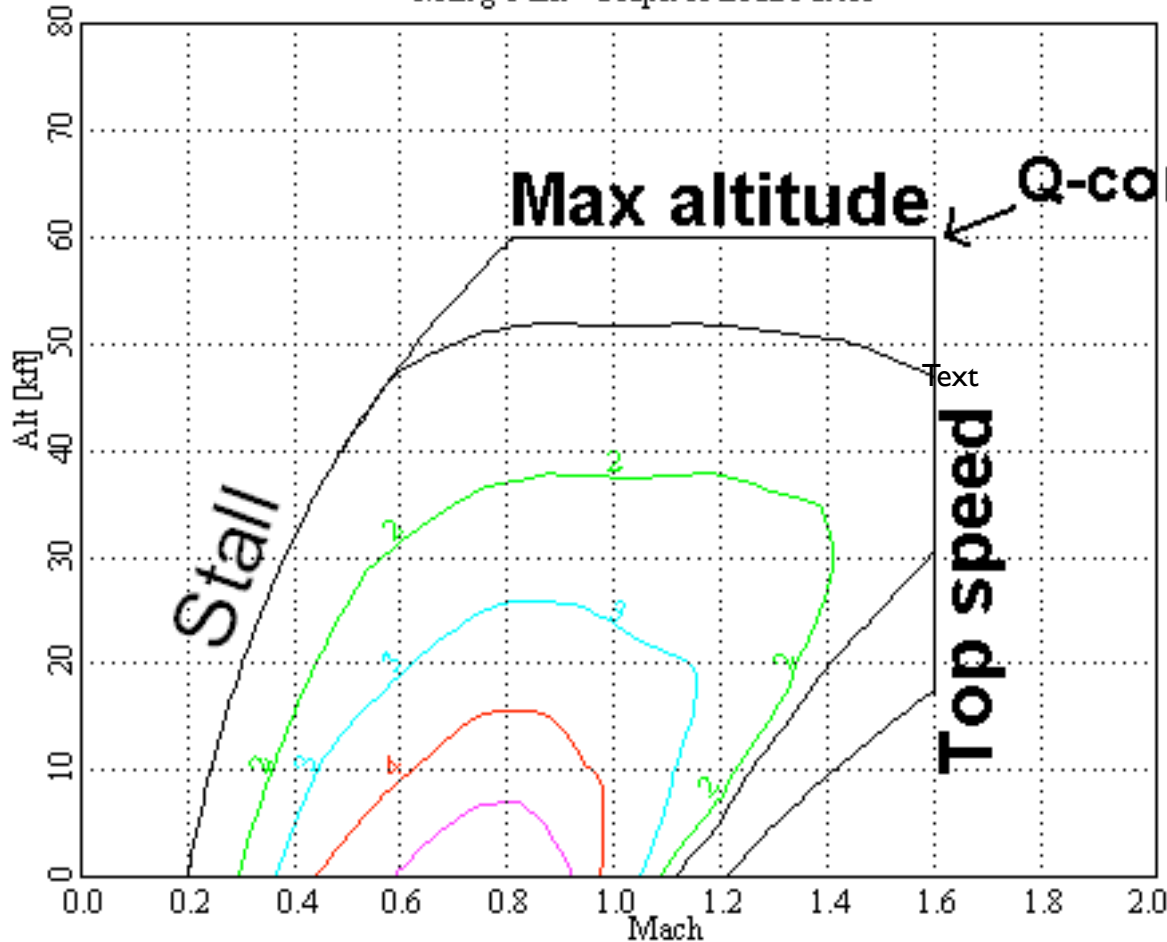


Constructing and Managing a Private Cloud with IBM's Service Delivery Platform

- Are current Clouds flying towards 'Coffin Corner'?
- The fact is, Cloud is a great vehicle to design, build, develop, test, and deliver new services, explore new routes to market, build new Business models, find New revenue streams - but equally, when it goes wrong, there is a spectacular opportunity for showing yourself up in public.
- Just as equally, it does not have to be like that.
- All the rules about Service Management still apply - but more so.

Coffin corner (aviation), an unstable combination of speed and altitude

Max g Turn - Graph of Load Factor



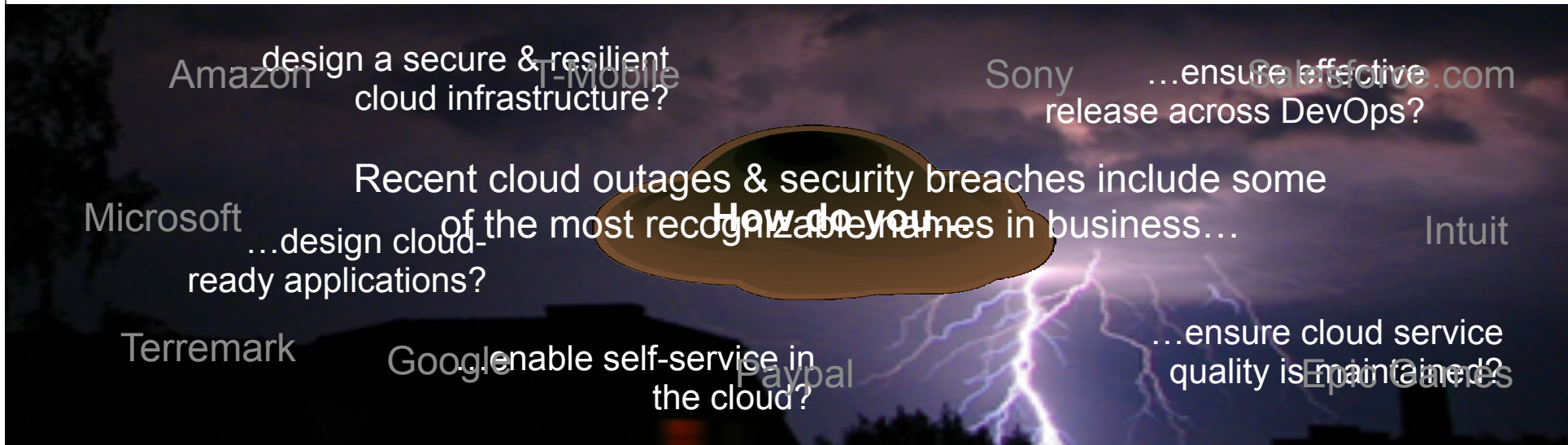
..there is a point where the positively sloping plot of the plane's stall speed crosses the negatively sloping line of its maximum safe speed below the speed of sound (Mach 0.86, in the case of an Airbus 330). The apex where the two lines intersect—where the minimum and maximum safe speeds are the same—is known euphemistically as "coffin corner". At 10,600 metres, a fully loaded Airbus 330 cruises (for reasons of fuel economy) just below this critical point in its flight envelope—with probably no more than 25 knots (46 kph) between stalling (through flying too slow) and breaking up in a shockwave-induced dive (through flying too fast

- http://www.economist.com/blogs/babbage/2011/03/aviation_accidents

The Difference Engine: Wild blue coffin corner: The Economist Mar 25th 2011.

However, Cloud is not without its challenges...

After all, IT has been trying to automate service delivery from the start...



Bottom Line: *Cloud without effective end-to-end management of service delivery can increase risk and exposure!!*

Cloud Requires

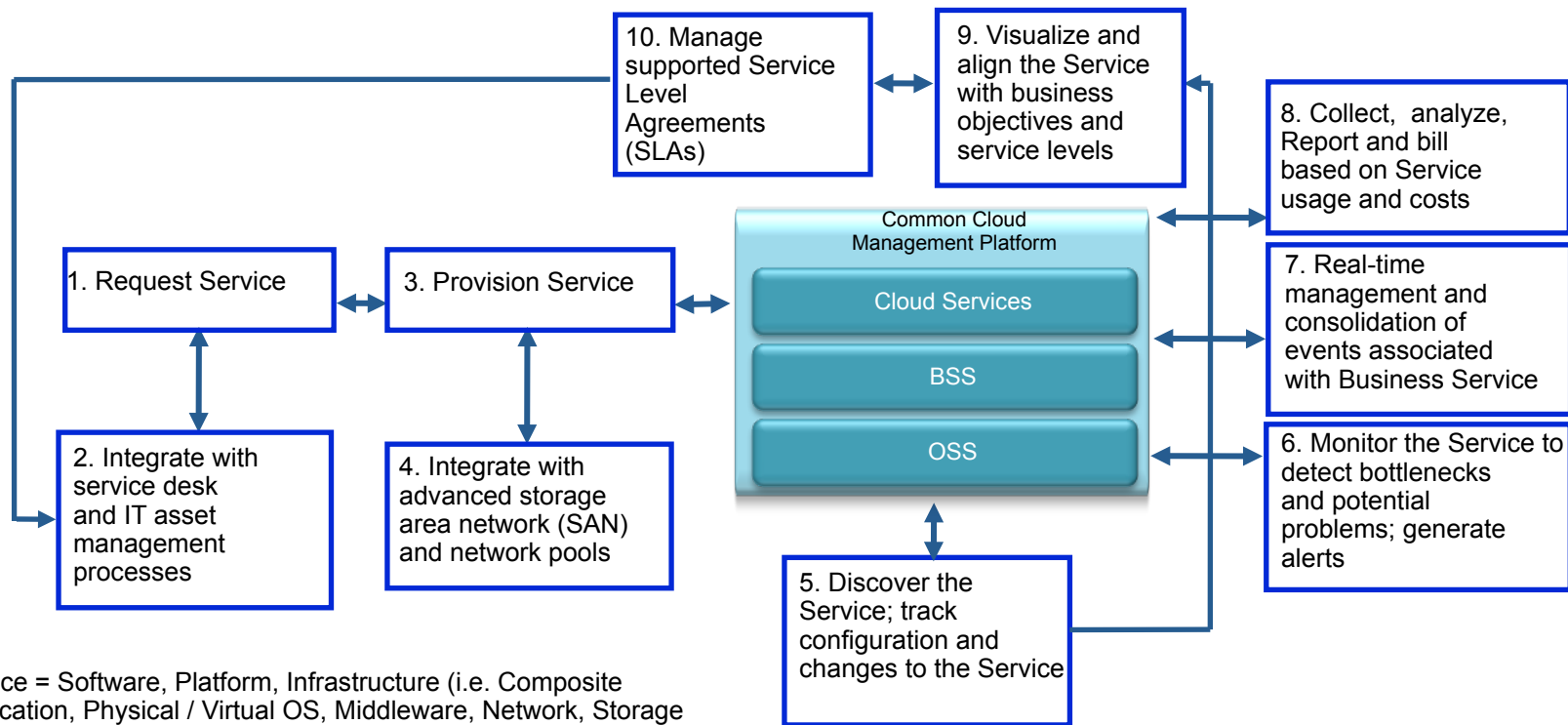
- ✓ Full **service lifecycle management**, not just provisioning of resources
- ✓ Seamless collaboration & workflow **across Service Design and Service Operations.**
- ✓ Interoperability of infrastructure, tools & delivery models as **an automated system.**



Where is Your Coffin Corner?

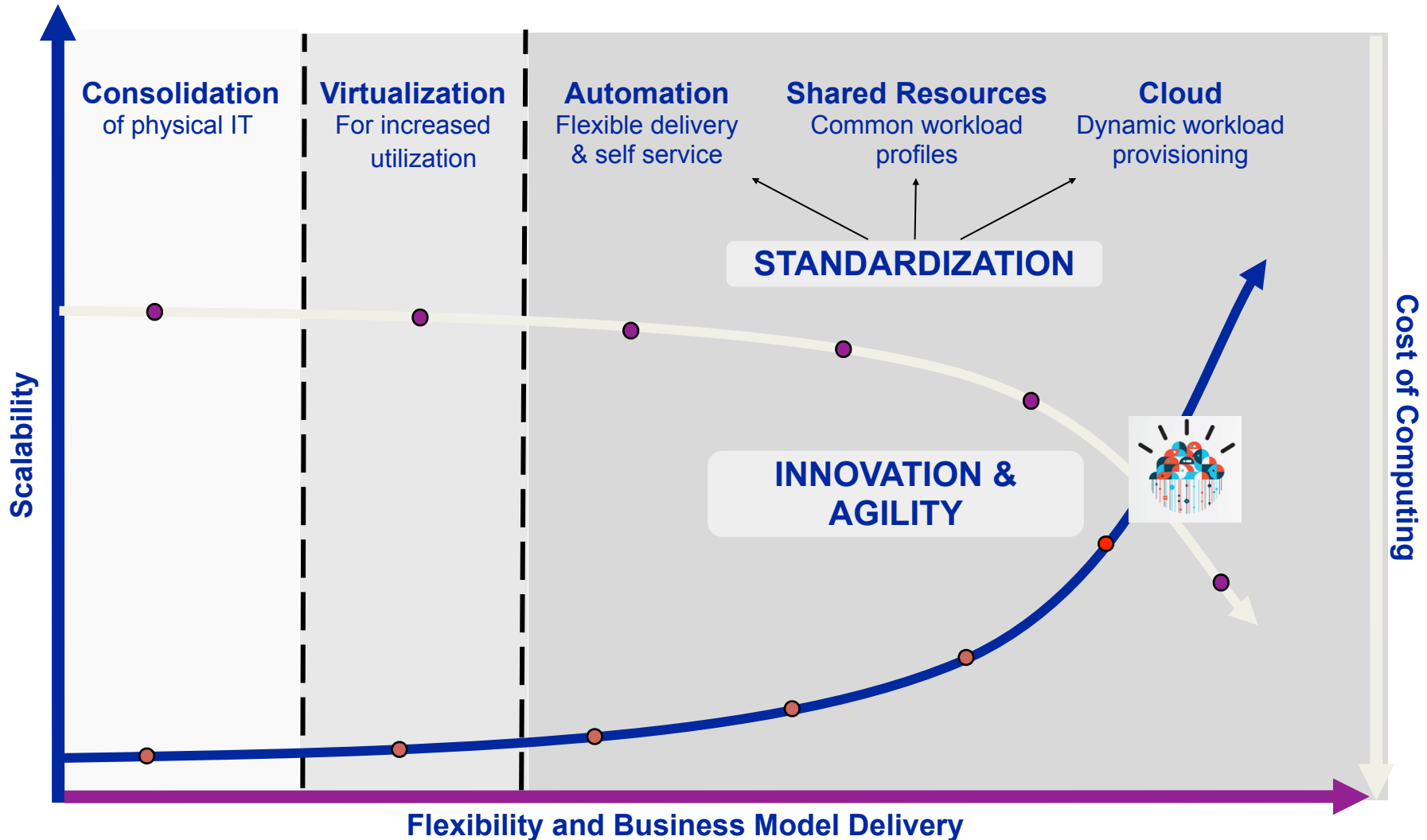
- 1. Amazon Web Services.** Routine Network Configuration Change. 4 Days Outage
- 2. Microsoft SideKick.** One Weeks Outage. No Backup to restore users data
- 3. Gmail.** 150,000 users with empty email folders. 4 Days Outage
- 4. Microsoft Hotmail** Deleted 17000 User Accounts. Between 3 and 6 Days Outage
- 5. Intuit Services.** Power failure took out Primary and Backup Datacentres. 36 Hour Outage (followed by Identical outage a few weeks later)
- 6. Microsoft BPOSS.** 9 hour delays on emails. Problem Re-occurred. Login issues with Web-based Outlook Portal
- 7. Salesforce.** Data Centre Shutdown. Services, Backups lost
- 8. Terremark vCloud Express.** 7 Hours Outage
- 9. PayPal.** Offline for an Hour, and erratic afterwards
- 10. Rackspace.** Four Outages. \$3.0M Compensation for single outage

Lets Start by Understanding What a Cloud Use Case Might Look Like

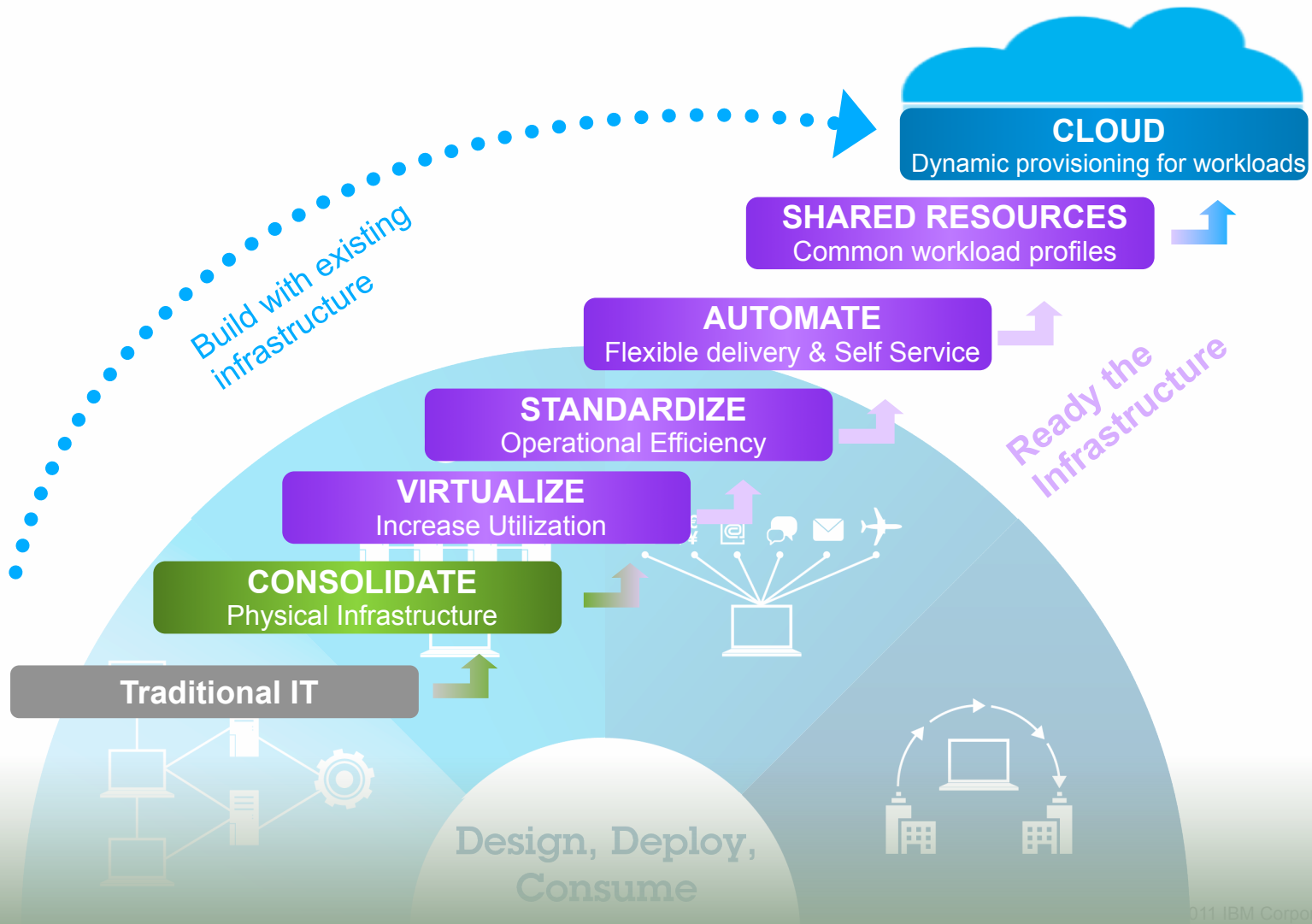


The economics and flexibility of workload optimized systems

Movement to standardized infrastructure is driving greater automation and optimization



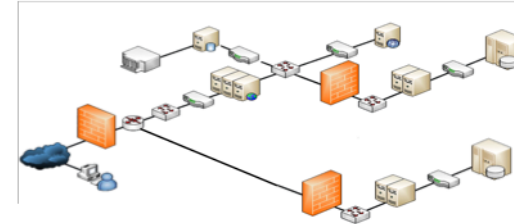
Driven through evolutionary adoption of capabilities



Monitor application and infrastructure performance

- Collect key performance and availability metrics.
 - Application, Response time, OS, Hypervisor, Storage, Web Services, and more.
- Quickly debug problems that span servers, storage, network, hypervisor and applications
- Dynamic thresholds; predictive trends & alerts
- Warehouse data and reporting – capacity planning
- Monitoring for z/VM, Power Systems, Hyper-V, Solaris, Citrix, KVM and VMware virtual environments

Monitor the complete Application and Application Infrastructure



Measure, Baseline and Analyze the Service and Transactions

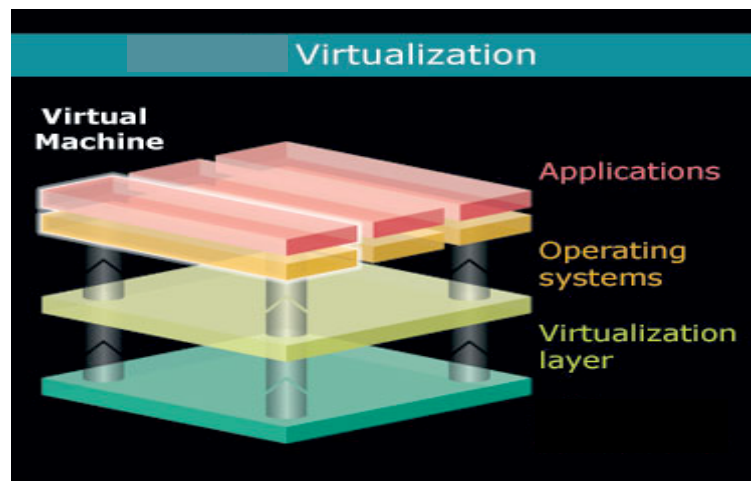


| Cluster | Servers | Storage | Network |
|--------------|---------|---------|---------|
| Cluster A | ✓ | ✓ | ✓ |
| Cluster App1 | ✓ | ✓ | ✓ |
| Cluster B | ✓ | ✓ | ✓ |
| Cluster App2 | ✓ | ✓ | ✓ |
| Cluster C | ✓ | ✓ | ✓ |
| Cluster App3 | ✓ | ✓ | ✓ |
| Cluster D | ✓ | ✓ | ✓ |

| | |
|--------------------|--------------------|
| Cluster Instance | Cluster A |
| Object Type | VMware Cluster |
| Last Modified Time | 5/21/10 15:39 CEST |
| Product Name | VSphere 4.0 |
| Product Version | VSphere 4.0 |
| Home | Home/Sphere |

Virtualisation Management

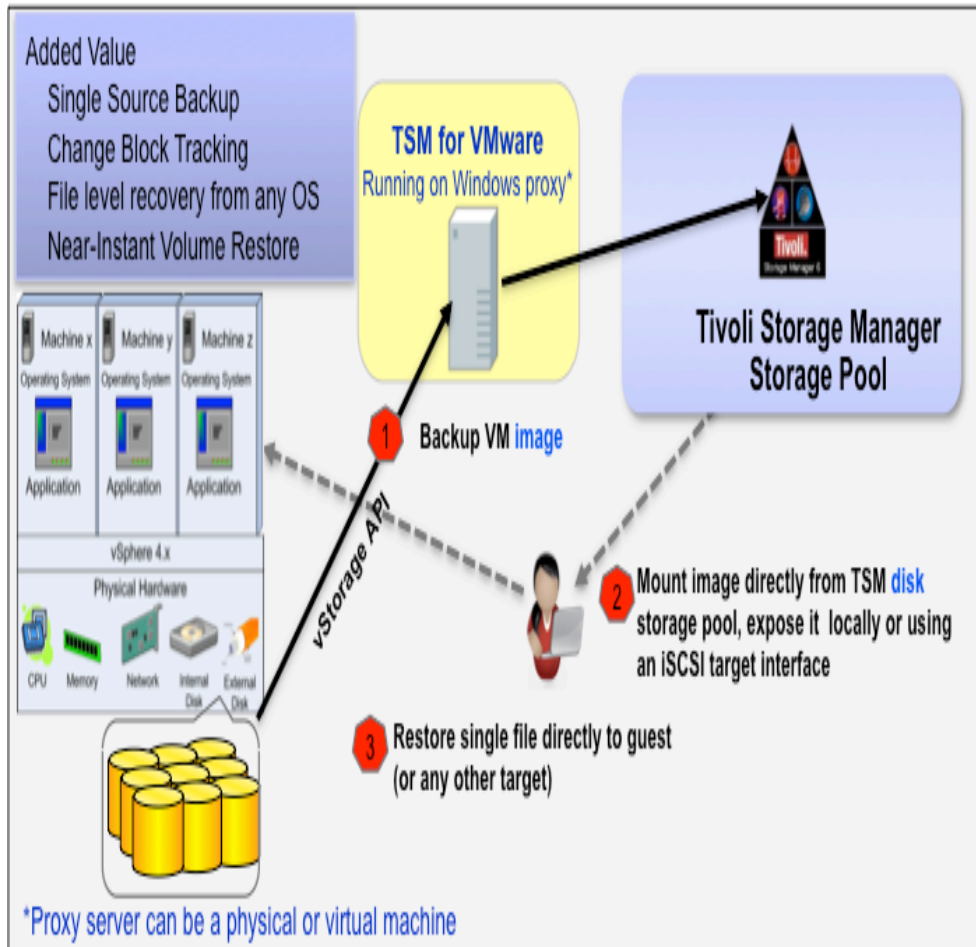
- Understand virtual and physical resource usage
- Dynamically manage virtual workloads to optimize resource usage
- Automatically migrate virtual machines across systems to maintain service levels
- Management of VLANs to support multi-tenancy



- Identify and resolve the problem before the user ever calls the help desk
 - Ability to apply automated process to fix issues before they impact users, system performance or application availability
- Complete visibility into all layers of the virtual environment
 - Includes hardware, OS, database and applications
- Seamless integration with change, incident and problem management systems and processes
- Provide capacity on demand based on seasonal or peak loads
 - Automatically increase memory, CPU, storage, etc. as necessary
 - Policies that have priorities with maximum and minimum capabilities
- Push-button automation of shutdown and startup procedures to support both planned and unplanned events

...Increases utilization for lower capital expense with improved application availability

Backup and Restore of virtual environments



- Near-instant restore of Windows and Linux disk volumes
 - Data is made available immediately while it is copied in the background
- Automated discovery of new VMs; automatically applies backup policies
- Utilizes VMware’s vStorage APIs for Data Protection, including block-level incremental backups based on VMware’s Change Block Tracking
- Provides flexible recovery options – file, volume or image – from a single-pass backup
- Offloads the backup workload from virtual machines and production ESX hosts to vStorage backup servers

Northrop Grumman Technology



Business Background

- Prototyping lab for arm of United States Government
- Chartered with discovery and integration of new technologies that enable interoperability and information sharing between US Government programs
- Issues with virtualized test and development environment:
 - Manually developing virtual machines was labor intensive and error prone
 - Difficulty managing licensed software on deployed virtual machines
 - Lack of monitoring tools for software utilization
 - Lack of auditing tools to verify configuration compliance
 - Lack of a request management system to track requests

Solution Overview

- Private cloud :
 - built on IBM and HP blades and storage
 - Linux and Windows operating systems
 - VMWare-based virtual infrastructure
- Design point :
 - environment to provide infrastructure services to Department of Defense users
- Tivoli Service Automation Manager enables users to request, deploy and utilize virtual machine environments through a service catalog containing customized offerings

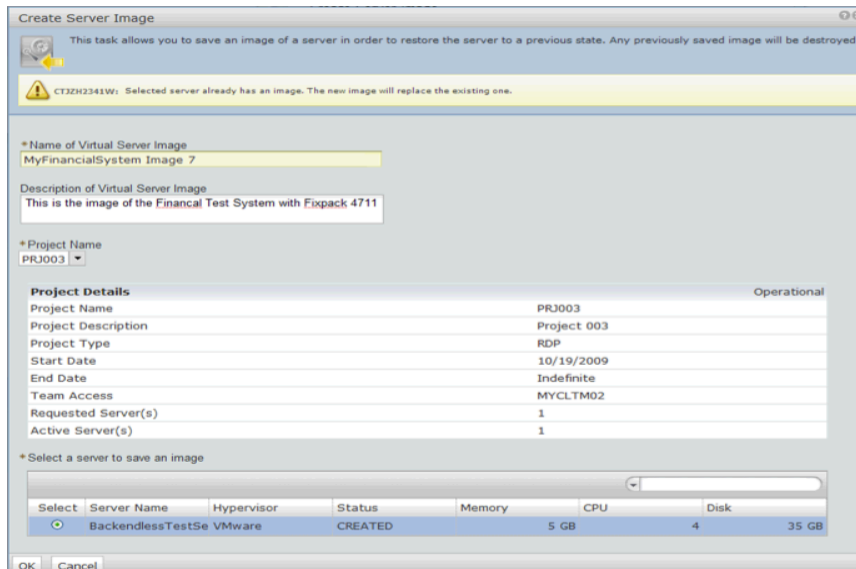
Cloud Business Benefit

- Reduced service delivery time from days to hours
- Increased accuracy, repeatability, traceability and compliance
- Reduced operational expense

Prototyping Lab leverages infrastructure as a service

Automation

- Resources can be provisioned in minutes versus weeks
- Resources are provisioned consistently every time
- Resources are quickly returned to pool when no longer needed instead of sitting idle
- Easily customizable by role



Create Server Image

This task allows you to save an image of a server in order to restore the server to a previous state. Any previously saved image will be destroyed.

CT3ZH2341W: Selected server already has an image. The new image will replace the existing one.

* Name of Virtual Server Image
MyFinancialSystem Image 7

Description of Virtual Server Image
This is the image of the Financial Test System with Fixpack 4711

* Project Name
PRJ003

| Project Details | | Operational |
|---------------------|-------------|-------------|
| Project Name | PRJ003 | |
| Project Description | Project 003 | |
| Project Type | RDP | |
| Start Date | 10/19/2009 | |
| End Date | Indefinite | |
| Team Access | MYCLTM02 | |
| Requested Server(s) | 1 | |
| Active Server(s) | 1 | |

* Select a server to save an image

| Select | Server Name | Hypervisor | Status | Memory | CPU | Disk |
|----------------------------------|-------------------|------------|---------|--------|-----|-------|
| <input checked="" type="radio"/> | BackendlessTestSe | VMware | CREATED | 5 GB | 4 | 35 GB |

OK Cancel

Customer Profile

- Swiss Re, is a Swiss reinsurance company
- It is the world's second-largest reinsurer
- The company has its headquarters in Zurich with offices in more than 20 countries
- Swiss Re is focused on large and complex reinsurance transactions with insurance, corporate, public sector and pension fund clients

Solution Overview

- Manages the automated deployment of over 60 large complex business applications
- custom workflows for bespoke applications
- Automated integration with Change and Release Management

Business Benefits

- Automated the deployment of over 60 large business applications replacing manual process
- Allows the use of remote operation of deployment activities through off-shoring
- Optimized use of IT infrastructure delivering reduction in capital and operational expenses

...Speeds delivery of services via easy-to-use provisioning

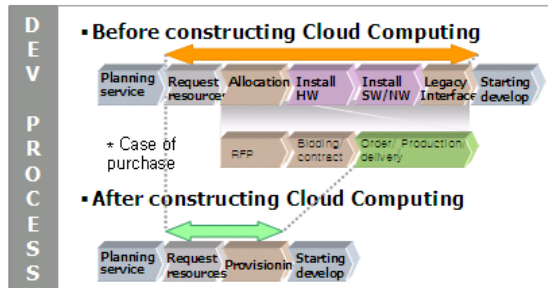
SK Telecom

Business Background

- SK Telecom is a unit of SK Holdings, one of South Korea's largest *chaebol* conglomerates .
- SK Telecom has #1 market share in the domestic wireless market, and #2 market share in the domestic fixed line market.
- SK Telecom has a reputation of technology innovation and leadership.

Cloud Business Benefit

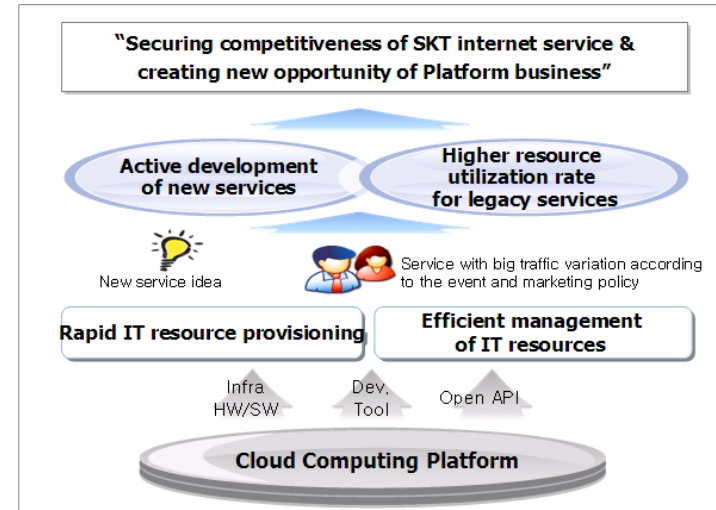
- New services delivered with partners with faster time to market, creating competitive market advantage.
- Optimized use of IT infrastructure delivering reduction in capital and operational expenses.



Solution Overview



- Korean language portal based on API extensions to Tivoli Service Automation Manager.
- Tivoli Provisioning Manager-based Development Platform-as-a-Service offering to allow Business Partners 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.

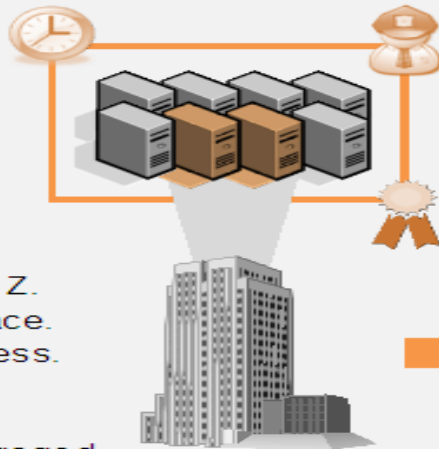


Platform as a service accelerates service innovation

Security and Privacy

We Have Control

It's located at X.
It's stored in server's Y, Z.
We have backups in place.
Our admins control access.
Our uptime is sufficient.
The auditors are happy.
Our security team is engaged.



Who Has Control?

Where is it located?
Where is it stored?
Who backs it up?
Who has access?
How resilient is it?
How do auditors observe?
How does our security team engage?



People and identity



Data and information



Application and process



Network, server and end point



Physical infrastructure



United States Air Force



Business Background

- The United States Air Force (USAF) provides aerial, space and cyber warfare for the United States Armed Forces. The USAF consists of 10 major commands, 100 military bases, and 700,000 personnel worldwide

Business Benefit

- IBM will provide research, design and demonstration a secure cloud computing infrastructure for the USAF.
- IBM is helping the USAF understand how to manage, monitor, and secure the information flowing through the USAF, Department of Defense and other intelligence agency networks.
- IBM will demonstrate an unprecedented level of security, network resiliency to the USAF networks.
- The resulting architecture will provide the USAF with an advanced level of “Situational Awareness” by implementing sensors, monitors, detection devices, security policy management, compliance management, and advanced analytic stream processing.
- The new cloud architecture will reduce the time it takes to respond to cyber threats by leveraging automated mission prioritized workload and capacity management systems.

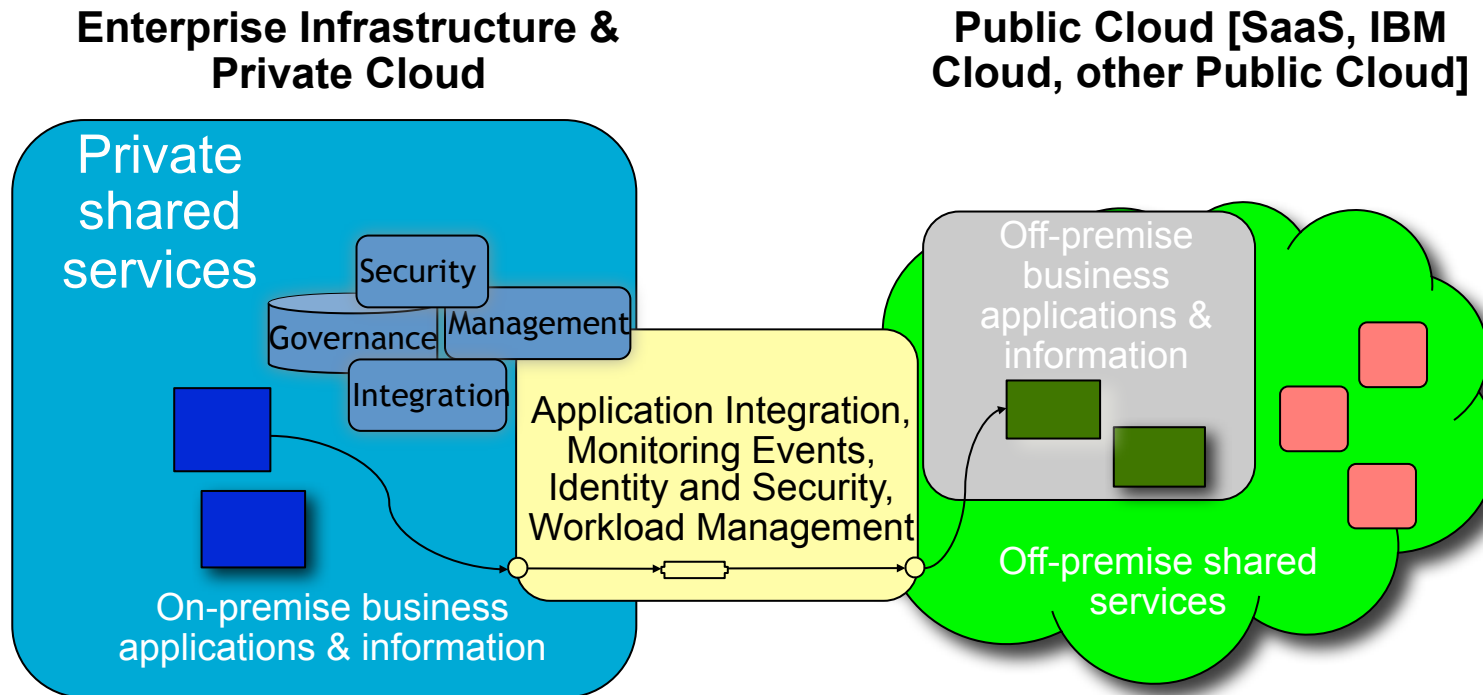
Solution Overview

- Demonstration of a security focused cloud computing architecture that can manage, monitor and secure the information flowing through the Air Force network.
- Advanced analytic processing from InfoSphere Streams coupled via sensors, monitors, and other detection devices
- Automated mission prioritized capacity management
- Real-time situational awareness of the cloud environment
- Policy based security compliance reporting and enforcement
- IBM hardware – System x , BladeCenter, DataPower, ISS Proventia
- IBM software – Tivoli, Rational, WebSphere and InfoSphere

Addressing cyber threats with a secure, mission oriented cloud



Connect, manage and secure hybrid clouds



Workflow
Manage the process for approval of usage



Monitoring
Provide visibility of performance of virtual machines



Provisioning
Automate provisioning of resources



Metering and rating
Track usage of resources

Automotive Customer

Onsite Accomplishments to date

- Completed Hybrid Cloud Integrator appliance installation and configuration. Applied development provided fix for proxy server connections.
- Completed Base Installation and configuration of ISDM (Provisioning, Monitoring & Usage and Accounting)
- Demonstrated VM Provisioning for 4 template images. (Linux and Windows)
- Demonstrated server hardening through post provisioning workflows
- Demonstrated OS and VCenter level monitoring
- Assisted customer-led demo to key technical stakeholders

Onsite Work in Progress

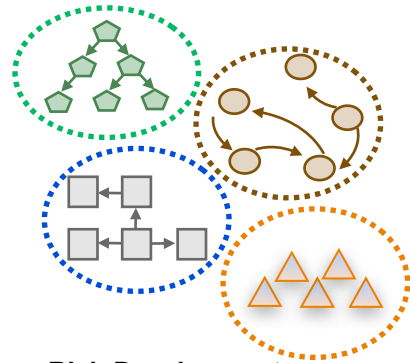
- Complete Active Directory integration
- Implement 2 software stack installation workflows
- Assisting customer in preparation for demo to executive stakeholders
- Installation and configuration of HCI upgrades to TSAM 7.2.1
- Demonstrate SEC and EC2 cloud provisioning scenarios





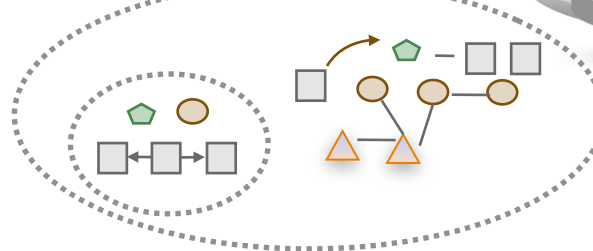
Evolving our Cloud Portfolio

Progressive capability to match client evolution



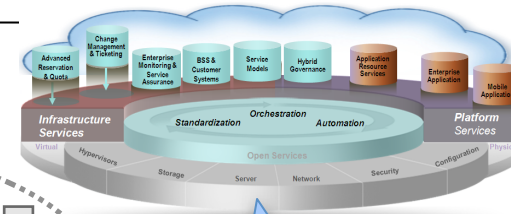
Rich Development, Middleware, Infrastructure and Cloud Management Capabilities

2011



Packaged for rapid stand up of cloud and progressive adoption of advanced and integrated capabilities

2012



Pre-Integrated, optimized service delivery

Rapid service development tooling

Optimized platform services (caching, logging)

Elastic scale and intelligent Workload Placement

Optimized

Business and client service integration. Hybrid Cloud Management and partner services connectivity

Scaled

Multi-tenancy, advanced service orchestration, workflow automation through policies, analytics and governance

Self-service automation through basic or composite image and pattern catalogue integrated with usage metering and accounting

Expedient

Image and virtual environment management through integrated creation, construction and deployment tools and dashboards

Datacenter Automation through runbook capabilities and high scale, fault tolerant deployment engine

Standardization through physical and virtual consolidation across heterogeneous image and resource infrastructure

In Summary

- Cloud Represents a significant opportunity for new business development
 - Projects fail to realise their potential if they are insufficiently attached to business focussed initiatives. Companies need to understand what their proposed destination is to understand what elements will be critical to success
- All the rules around Integrated Service Management still apply
 - by driving standardisation companies can reduce costs, raise service quality and drive compliance
- Companies need to review their existing Service Management as part of their Cloud strategy. In particular they need to look to their Automation strategy to ensure that it can meet their delivery requirements.
- IBM Tivoli Software provides a highly Scaleable, Integrated, and Automated solution to address Cloud Management for companies that are want to deliver high profile services



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