



# C&SI Transformation Leveraging Cloud

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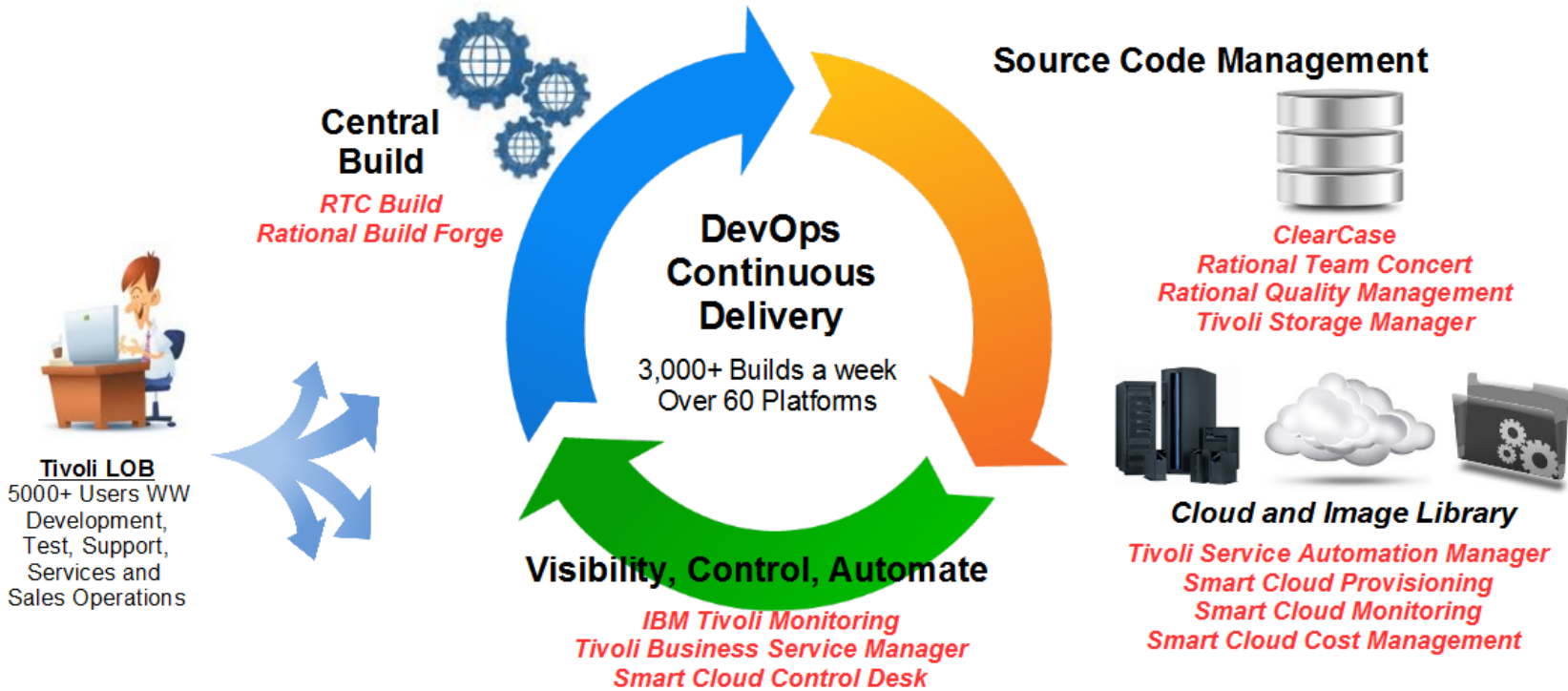
**Innovate2013**  
The IBM Technical Summit

**Cloud & Smarter Infrastructure**

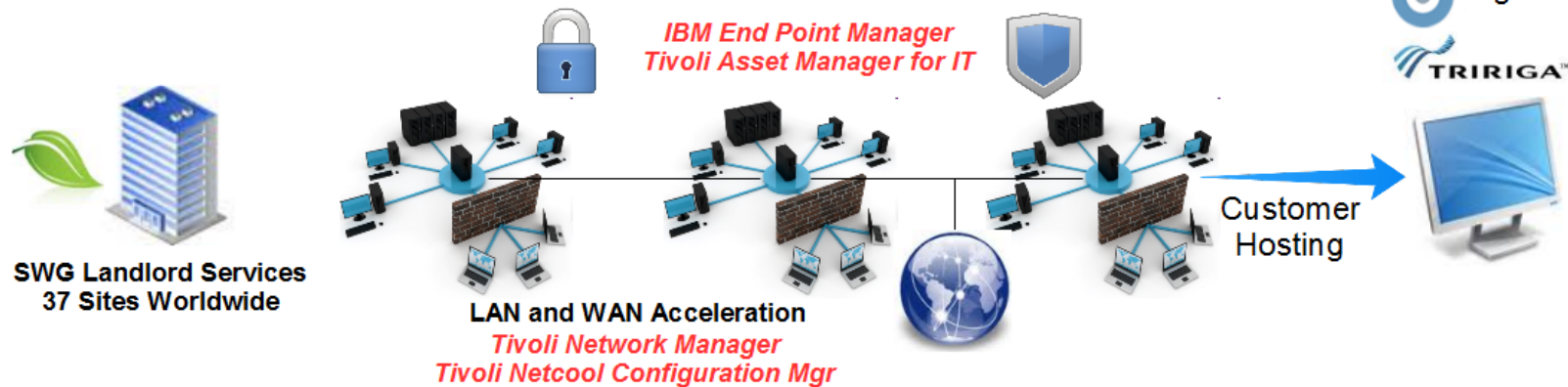
# Agenda

- C&SI IT Overview
- Deployment Approach
- Benefits & Lessons Learned
- Metrics
- SmartCloud Orchestrator
- C&SI Architecture
- SoftLayer
- Questions





**IT Security, Compliance and Fixed Asset Management**



# Cloud & Smarter Infrastructure Case Study

## Business Background

- Provide IT services for various test, development, and support teams in IBM Software Group
- By 2008, CSI (Tivoli) had grown to 38 sites
- Growing complexity of IT systems demanded that sprawling processes and tooling become standardized services that are efficient, secure, and easy to access

## Business Challenges

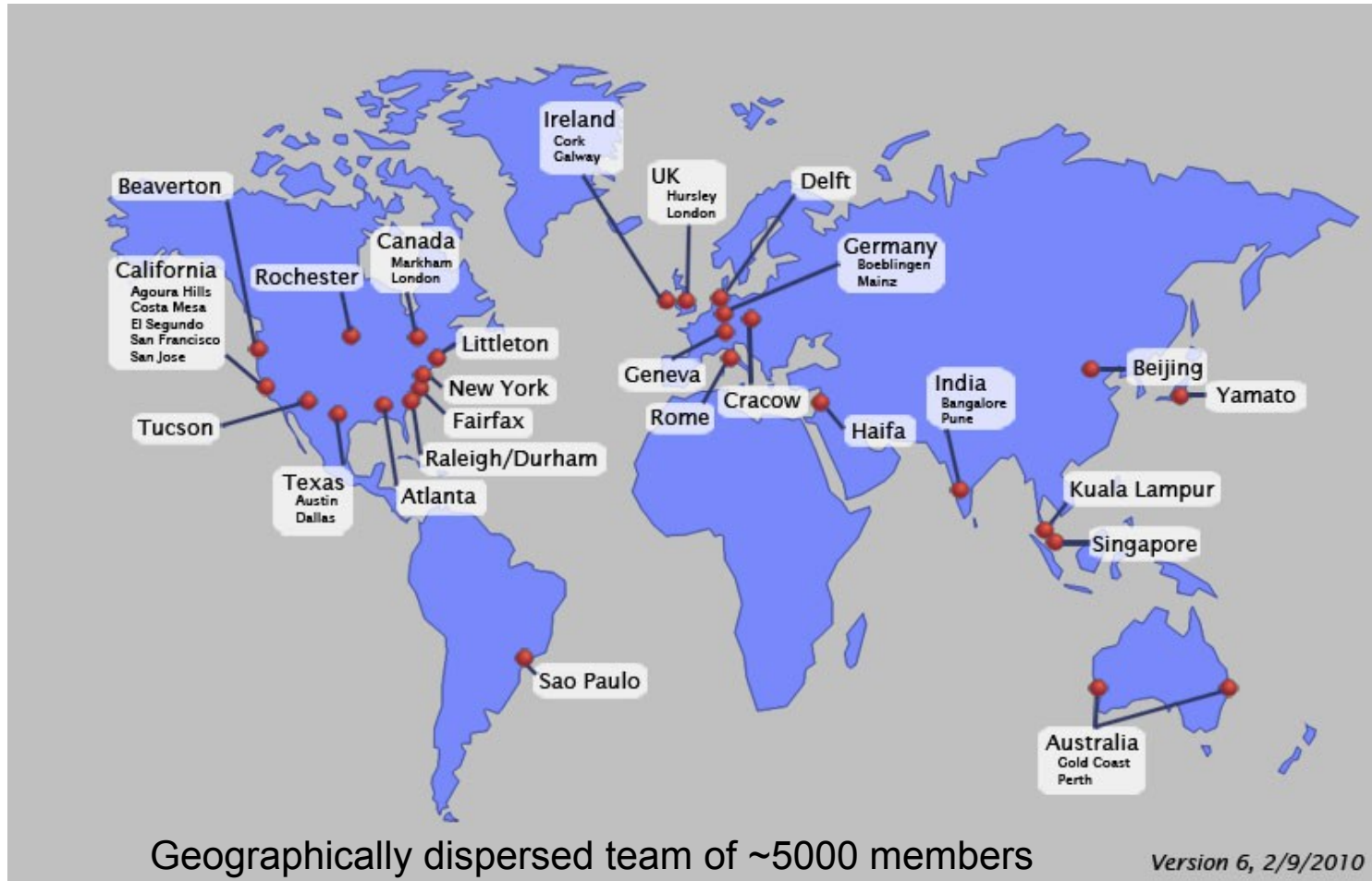
- Reduce CSI's IT infrastructure footprint and consolidate IT pillars
- Reduce capital expense while improving hardware utilization
- Reduce operational expense by standardization and automation
- Learn to effectively manage resources and IT services in the cloud enabling visibility, control, and automation to the business
- Empower end users in the new IT service consumption model

## Solution Overview

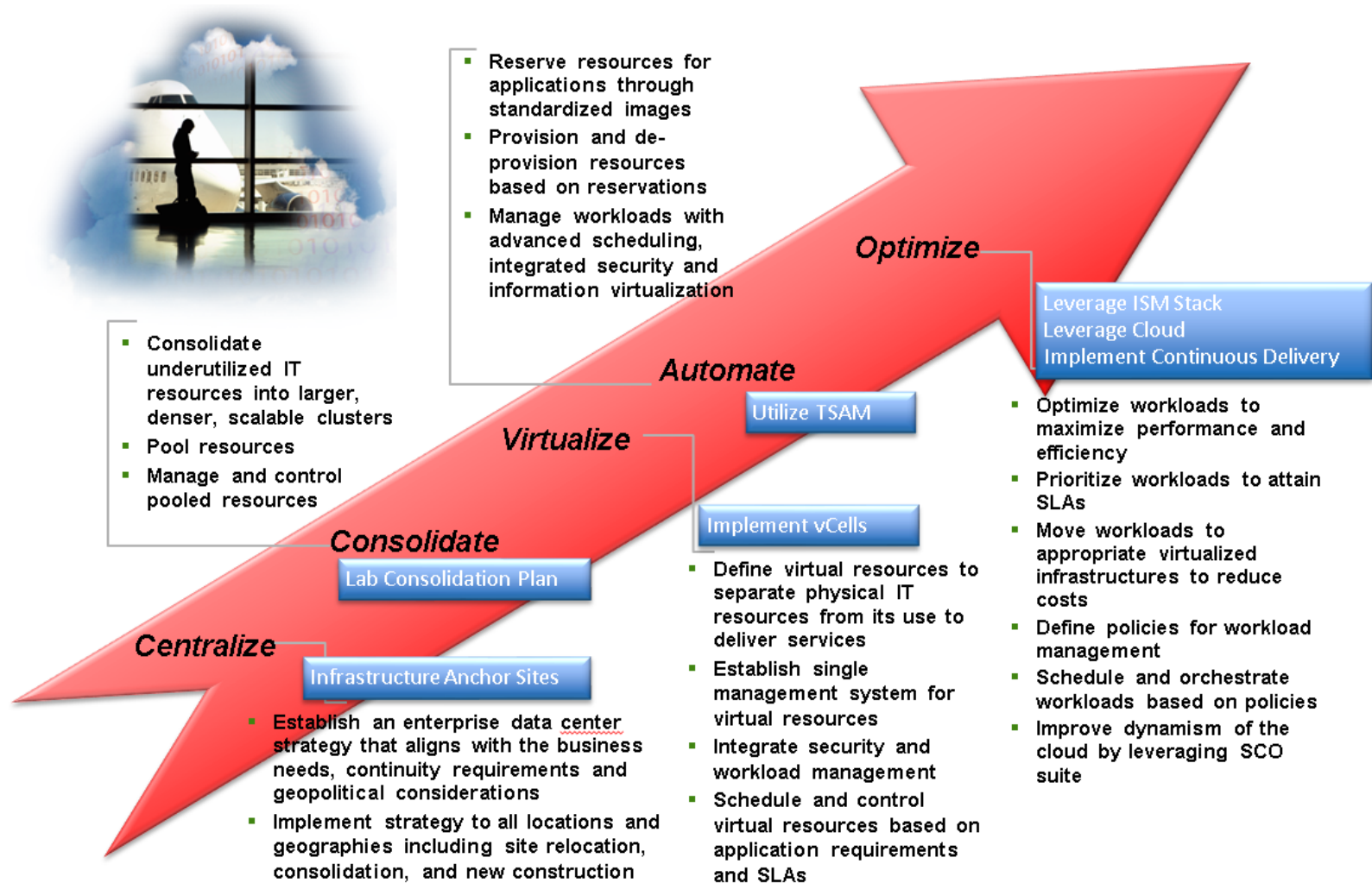
- Implemented with Tivoli Service Automation Manager, IBM Tivoli Monitoring, Tivoli Storage Manager, Tivoli Productivity Center, IBM Tivoli Identity Manager, Tivoli Data Warehouse, IBM Security Scanner, Tivoli Integrated Portal, SmartCloud Orchestrator, IBM UrbanCode uDeploy
- Single point of entry for automatic provisioning across heterogeneous environments by providing choice of hardware architectures and hypervisors
- Standardization of lifecycle change and release management processes



# Our World View in 2008



# Our Delivery Approach





# Our World View in 2013



# Business Benefit and Value

- **During 2012, avoided over \$6.1M capital and \$7.9M in expense through virtualization**
  - Re-use of images rather than procurement of hardware
  - Virtualized infrastructure operating over 70% utilization (CPU, RAM, SAN)
  - Each VM saves ~\$2,700 in expense per year (provisioning, security, green)
  - Consolidation of sites saw large reduction in facilities cost (power/cooling)
- **Improved service levels by delivering services more rapidly and consistently**
  - Automated self service provisioning (from 10hrs to ~45mins to ~5mins)
  - Mitigate the procurement of hardware 'risk' when placing test/dev plans together
  - Ability to capture and rapidly share environments during development & testing phases
- **Manage & Leverage experiences**
  - Our journey to a smarter infrastructure is what we see clients go through
  - Facilitate sales engagements with articulation of journey
  - Live demonstrations of how we use CSI technology as a cloud provider



# Key Lessons Learned

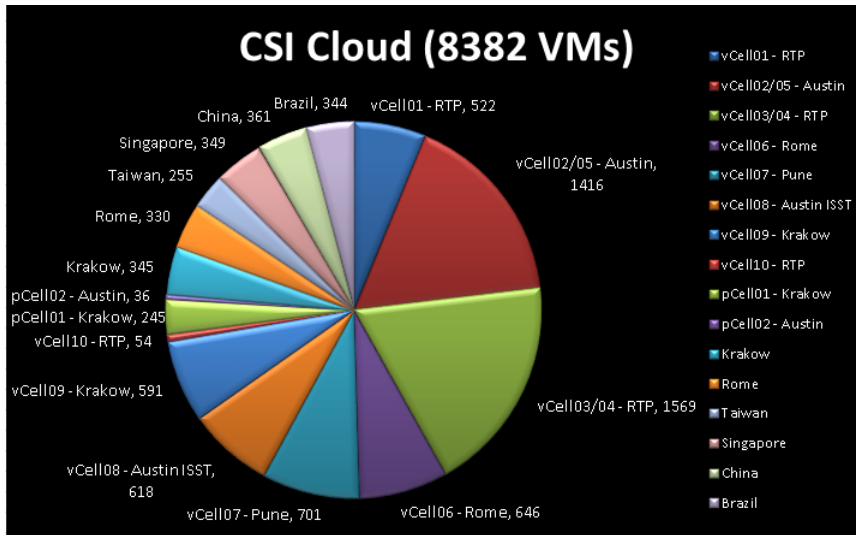
## Cloud Transformation

- **Architecture is key**
  - Delivering a cloud solution requires integration of multiple products with existing and new business processes and the consumability of that solution is the critical factor in success
- **Use cases must be clearly identified**
  - Cloud infrastructures have multiple dimensions with a broad set of roles
  - Validate that you are addressing everyone's needs and not just a particular role
  - Not everything can be tested/developed in a cloud environment
- **Implementation should be phased**
  - Establishing a cloud is a true transformation of both IT and Development business processes
  - The alignment of IT and Development operational strategies is key
- **Return on Investment**
  - Engage early and often on the topic of ROI

## Business Process Transformation

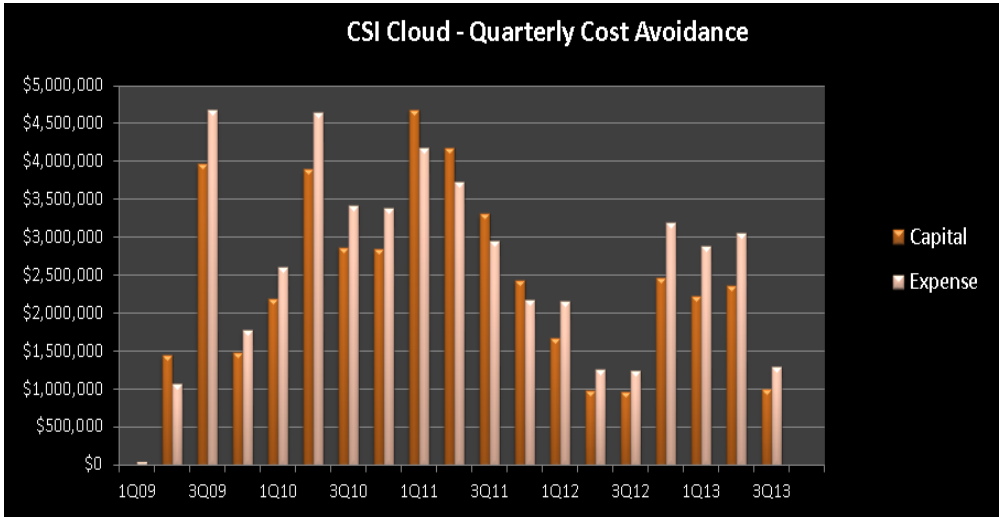
- **Financial Processes (Smarter investment strategy)**
  - Appointed single capital approver operating across Tivoli pillars
  - Virtualization is default and physical machines require exception approval
- **Development Processes (Efficiency)**
  - Education on self-service provisioning technologies
  - Understanding what workloads to transition
  - Think about images rather than physical machines
  - Think about capacity at planning stages of a project
- **Cloud Service Provider Processes**
  - Went from ticket based system to self service
  - Full ISM education program worked into schedule
  - Move home-grown and use of Hypervisor mgmt tools into IBM service management

# C&SI Cloud Metrics

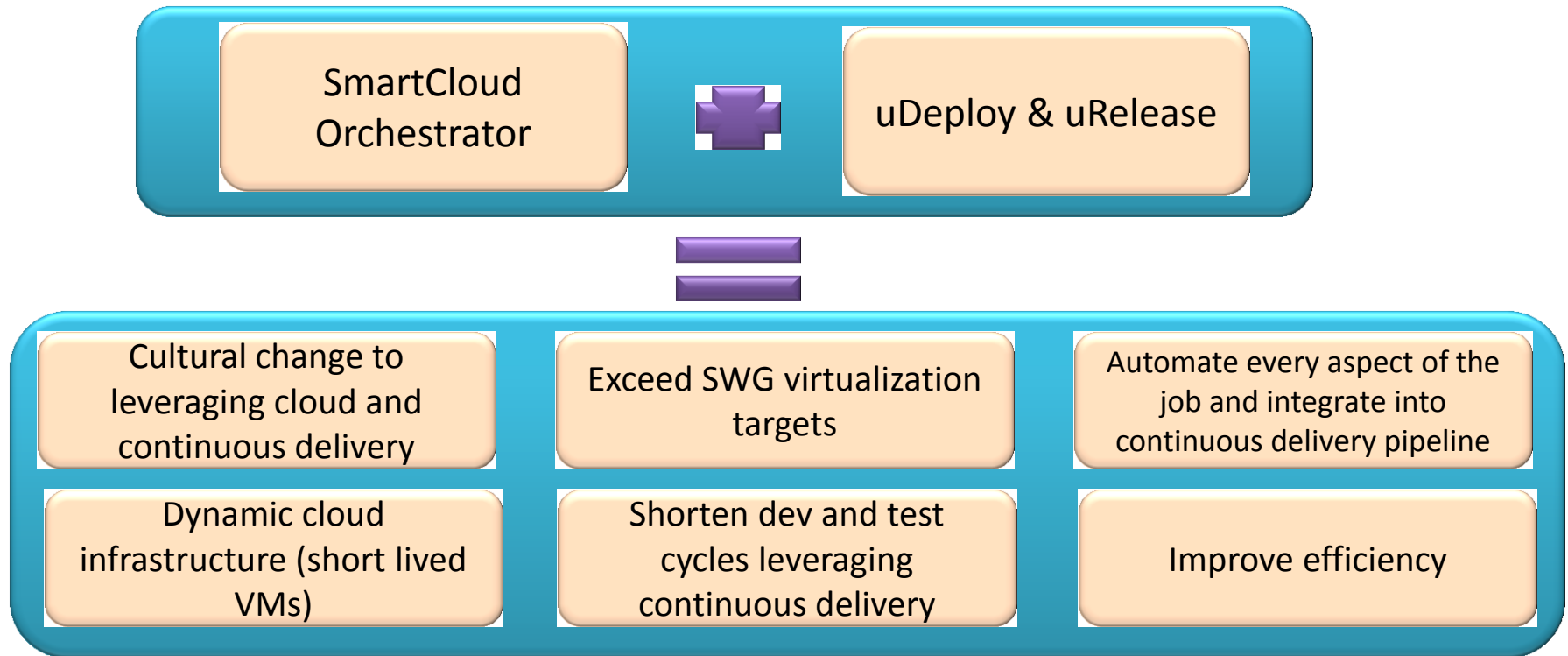


## Cloud & Smarter Infrastructure

Visibility. Control. Automation.

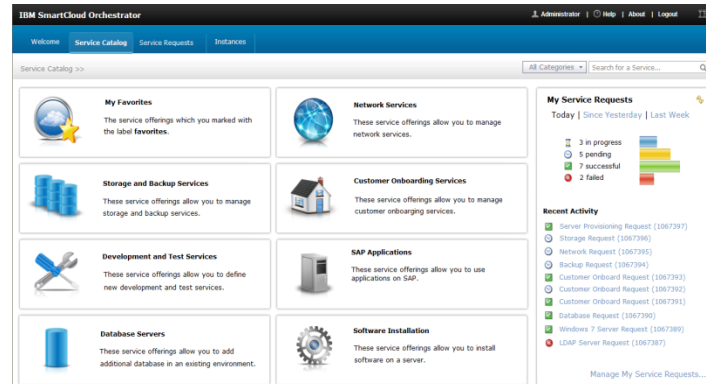
# Enterprise Virtualization to Cloud






"It is not necessary to change. Survival is not mandatory."  
W. Edwards Deming

# IBM SmartCloud Orchestrator

Open and flexible platform automating the deployment and lifecycle management of cloud services



 <p><b>Resource Orchestration</b> Onboard, provision, manage</p>	 <p><b>Workload Orchestration</b> Dynamic optimization</p>	 <p><b>Service Orchestration</b> Lifecycle of cloud services</p>
		 

# IBM SmartCloud Orchestrator Roadmap

## May 2013

SmartCloud Orchestrator 2.2

- *Open Stack adoption*
- *KVM and VMWare support*
- *Deploy and configure multi-node applications and middleware using patterns*
- *Drag and drop graphical composition of workflow automations*
- *Extensible Self service UI*
- *Image Management and Image composition*
- *TSAM coexistence*
- *Metering and accounting (SCCM)*
- *Cloud Marketplace*

## October 2013

SmartCloud Provisioning 2.3  
SmartCloud Orchestrator 2.3

- Open Stack Grizzly adoption
- SmartCloud Provisioning entry level solution
- PowerVM support
- Enhanced multi tenancy support
  - User and project namespaces
  - Separate LDAP per tenant
- Simplified deployment and configuration for production
  - High Availability
  - Deployment of multi node/region topology
- Management of exiting virtual systems

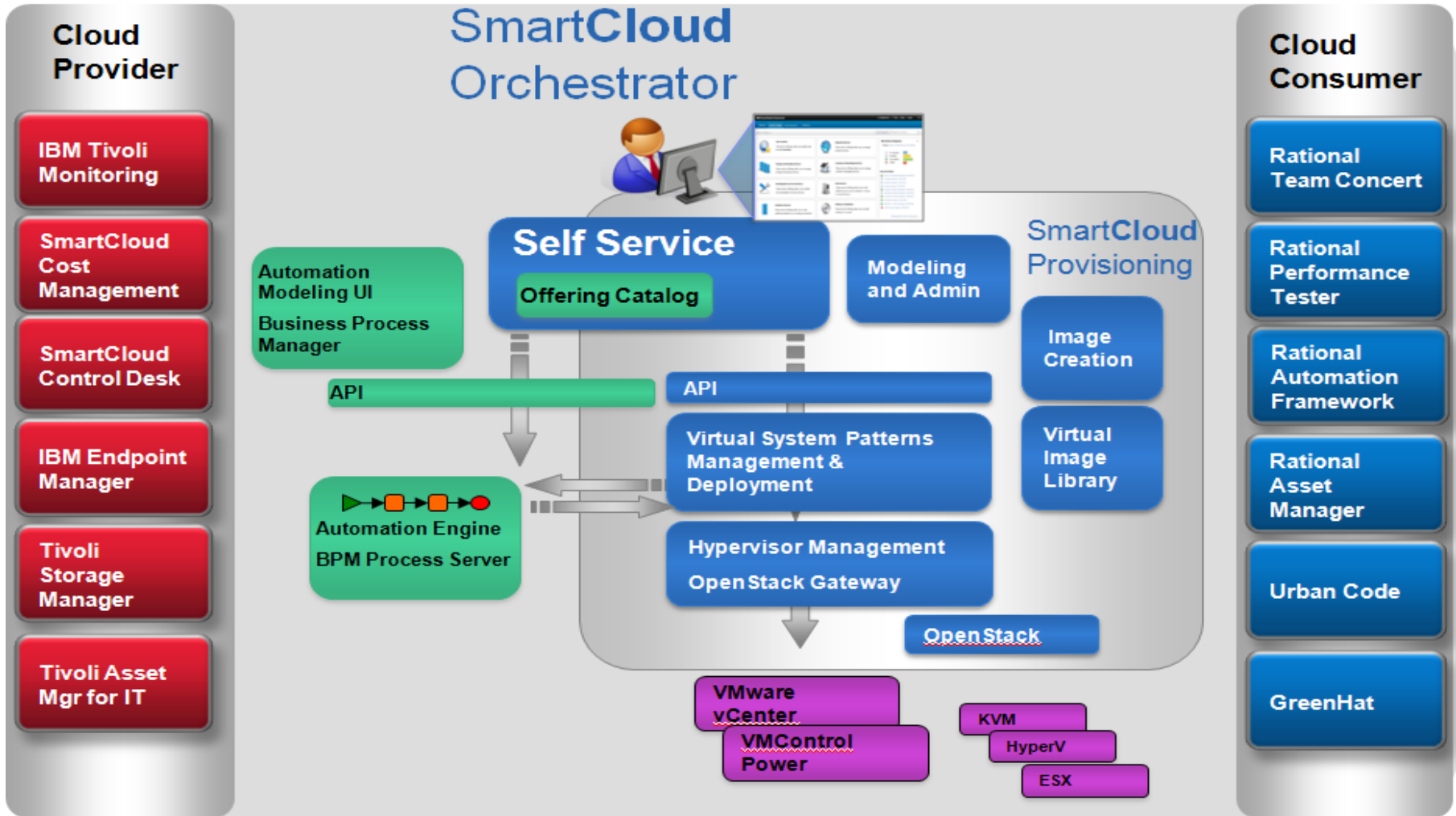
## 1H 2014

SmartCloud Provisioning  
SmartCloud Orchestrator vNext +

- Open Stack Havana and Icebreaker adoption
- zVM support
- Hyper-V support
- Full Multi-tenancy support
- Enhanced chargeback and service pricing support
- Resiliency and performance
- TSAM Migration support

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# C&SI Cloud Architecture





# IBM Cloud

Think it. Build it. Tap into it.

 Business Process as a Service

## Enabling business transformation



Smarter**Commerce**

Smarter**Analytics**

Smarter**Cities**

 Software as a Service

## Marketplace of high value consumable business applications



Smarter**Workforce**

**Watson solutions**

**Software solutions**

 Platform as a Service

## Composable and integrated application development platform



**Middleware Services**

 Infrastructure as a Service

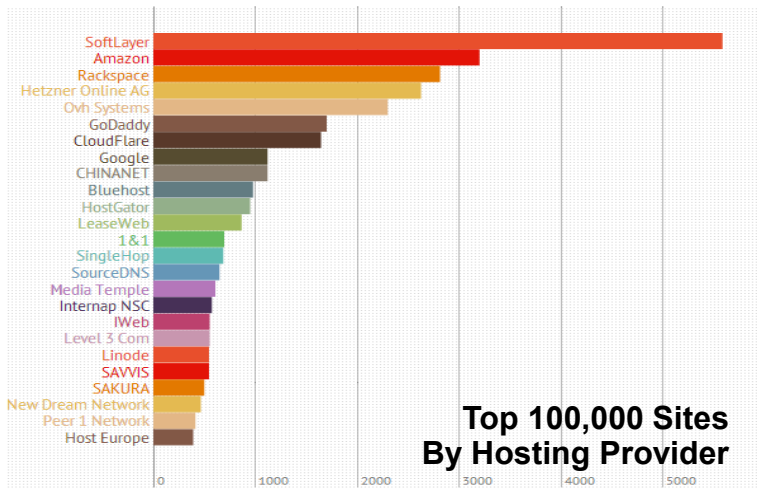
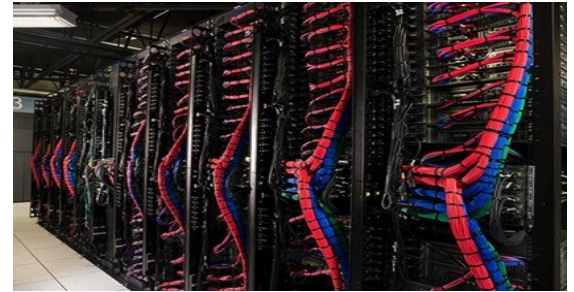
## Enterprise class, optimized infrastructure



**SOFTLAYER**

**IBM SmartCloud Enterprise +**

# SoftLayer Overview



**Customers**

21,000 in 140 countries

**Devices**

100,000

**Employees**

685

**Data centers**

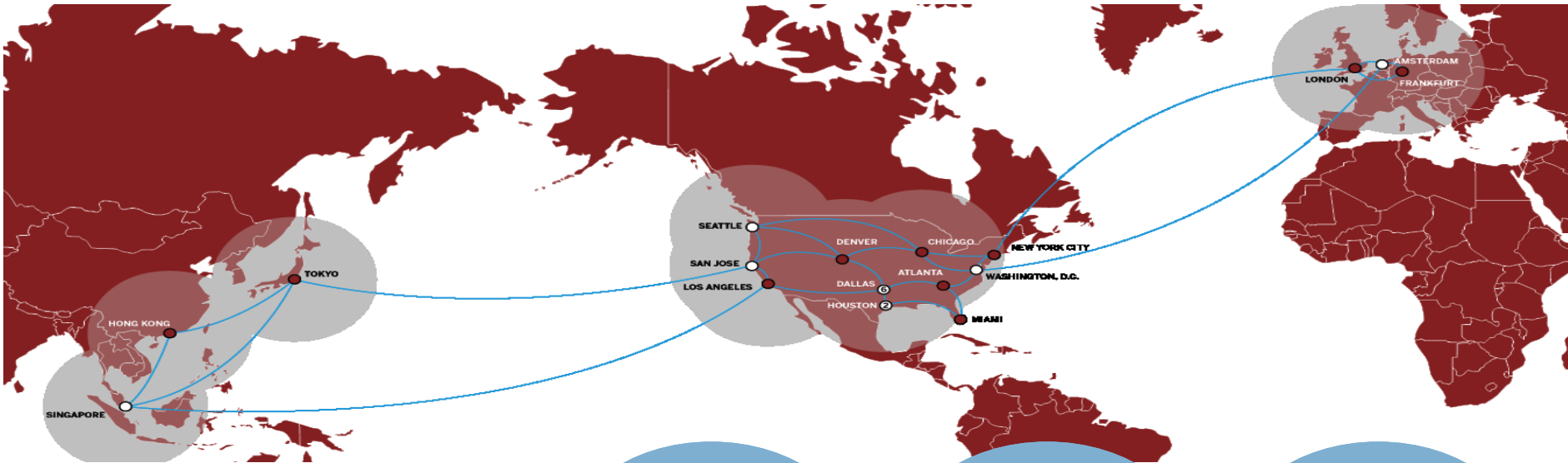
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**Network PoPs**

17

Source: Hostcabi.net

# SoftLayer (continued)



- 13 data centers
- 17 network PoPs
- Global private network

**100,000**  
SERVERS

**21,000**  
CUSTOMERS

**22,000,000**  
DOMAINS

# Questions



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# Thank You

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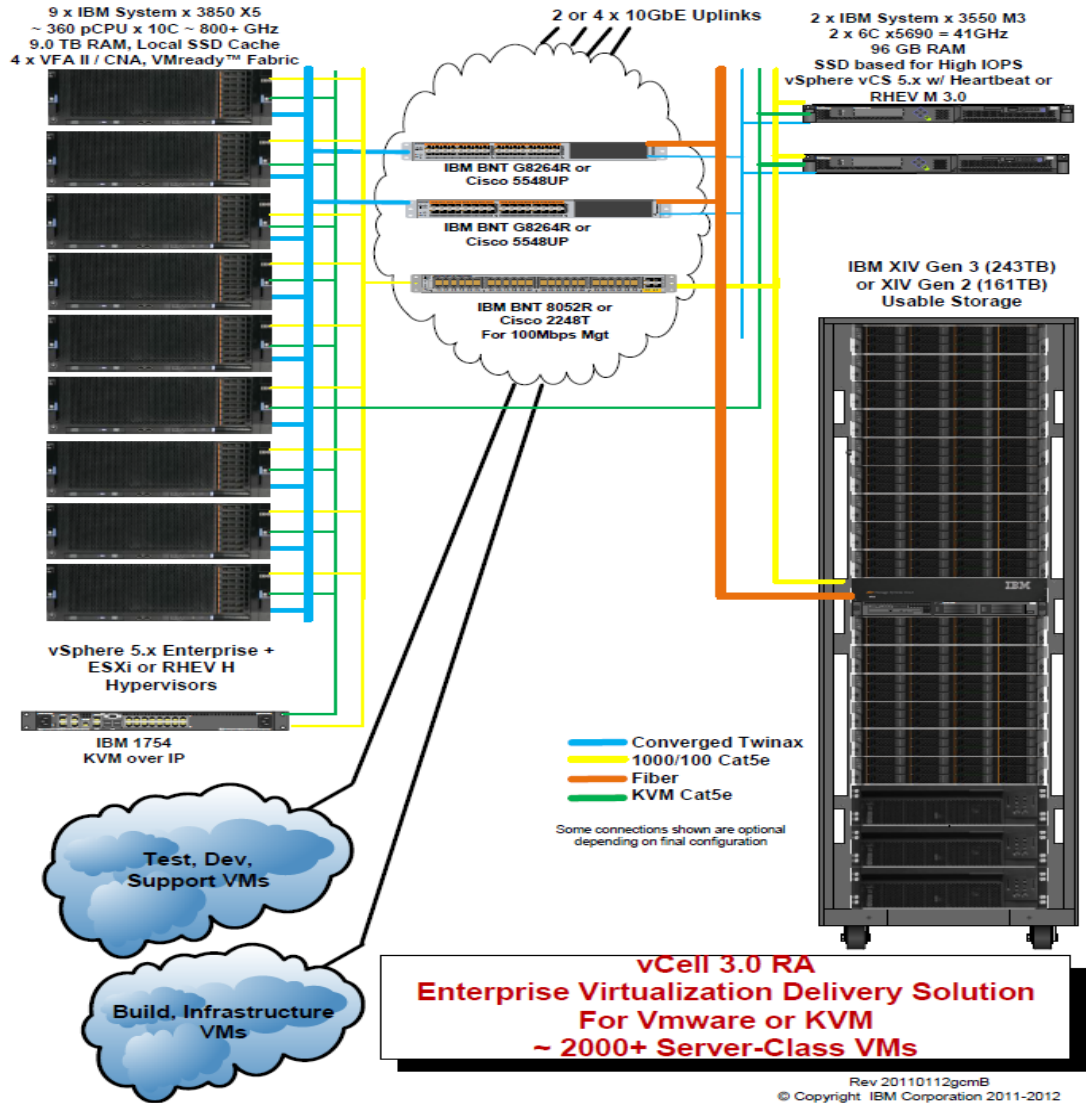
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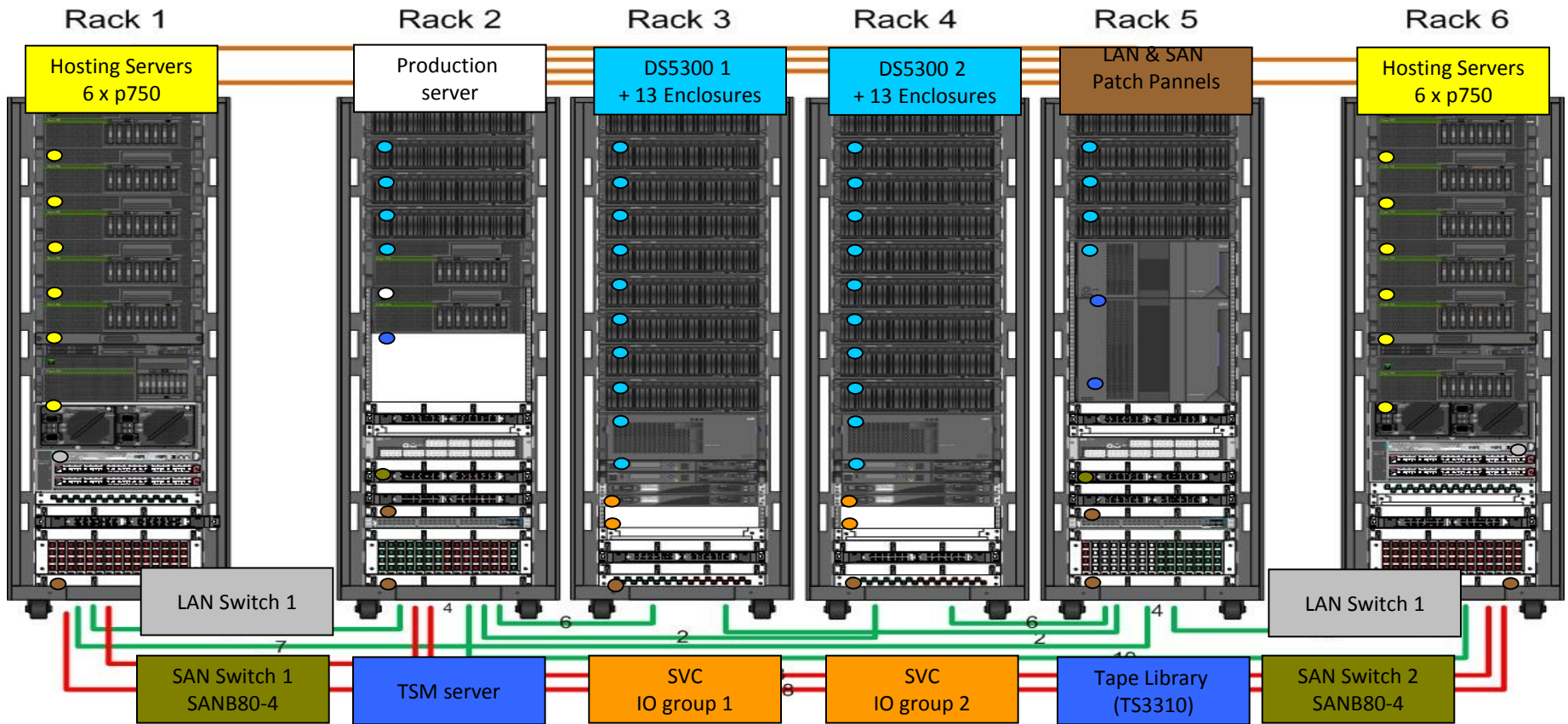


# Backup

# System x Hardware Overview



# System p Hardware Overview



# Thank You

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