

Journey to the Cloud: Building the Private Cloud

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Microsoft Singapore

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SOFTWARE
AS A SERVICE



PLATFORM
AS A SERVICE



INFRASTRUCTURE
AS A SERVICE

IT as a Service



CUSTOMER &
PARTNER APPS
SOFTWARE
AS A SERVICE

Microsoft®
Online Services



PLATFORM
AS A SERVICE



Windows® Azure™
Platform

INFRASTRUCTURE
AS A SERVICE

IT as a Service

LEADING WITH OUR COMMERCIAL CLOUD SERVICES



PRODUCTIVITY	COMMUNICATIONS	COLLABORATION	BUSINESS APPS	DESKTOP MGMT	IDENTITY	DATABASE	PLATFORM



ON-PREMISES

KEY TAKEAWAYS



- Microsoft's private cloud computing infrastructure strategy and approach
- 3 Microsoft Private Cloud offerings to help you build your private cloud foundation
 - **For Enterprises, System Center Virtual Machine Manager Self-Service Portal 2.0 (SSP)**
 - For Hosters, Dynamic Datacenter Toolkit for Hosters (DDTK-H)
 - For Partners and Very Large Enterprises, Windows Azure Platform Appliance (TBA)
- Microsoft has a strong vision and roadmap with great execution partners for private cloud

OPTIMIZING DATACENTERS TODAY



Traditional
Computing
(Physical/ Virtual)



Private
Cloud



Public
Cloud



Just-in-time Provisioning & Scaling
of Services on Shared Hardware
IT as a Service

MICROSOFT SERVER & CLOUD COMPUTING STRATEGY



Server Platform

Service Platform

Traditional Datacenter



Private or Public Cloud



Private or Public Cloud
Windows Azure
Platform Appliance



Microsoft Cloud
Windows Azure



On-Premises Options

Off-Premises Options (Private or Public)

Windows Server
SQL Server
System Center
Visual Studio

Traditional Datacenter Hardware

Customer/Partner Hardware Choice
Software purchased as a product
Customer / Partner delivers IT service

Common
Development Tools
Management
Identity

Windows Azure
SQL Azure
System Center
Visual Studio

Windows Azure Platform Appliance

Specified Hardware (Compute/Network/Storage)
Software acquired as a service
Microsoft/Partner/Customer delivers IT service

KEY DRIVERS FOR PRIVATE CLOUD



Cloud Power

Self-Service

Scalable & Elastic

Metered by Use

Shared

*Accelerating the Speed
& Lowering the Cost of IT..... while
delivering Reliable Services to the
Business*

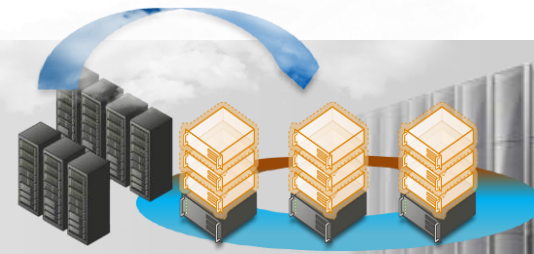
UNLOCK PRIVATE CLOUD WITH THE SYSTEM CENTER VIRTUAL MACHINE MANAGER SELF-SERVICE PORTAL 2.0



VISION

Fully supported, partner-extensible solution built on top of Windows Server 2008 R2, Hyper-V and System Center VMM, that enables customers to dynamically pool, allocate, and manage resources to enable Private Cloud for Infrastructure as a Service

- Self-service portal to consume IaaS
- Customer/business unit on-boarding
- Automation and guidance
- Dynamic provisioning engine
- Batch creation of VM's




Windows Server 2008 R2
Hyper-V™


Microsoft®
System Center
Virtual Machine Manager 2008 R2

MICROSOFT PRIVATE CLOUD – SERVER PLATFORM



Microsoft Private Cloud Solution

Self-Service & Provisioning

System Center Virtual Machine Manager Self-Service Portal 2.0

- Partner-extensible toolkit that enables datacenters to dynamically pool, allocate, and manage resources to enable IT as a service.

Integrated Management

 Microsoft System Center

- Full spectrum datacenter to cloud management
- Delivering cloud computing with existing investment

Platform

 Windows Server 2008 R2 Hyper-V™

- #1 Application Server in the world > 70% share
- Enterprise class platform for cloud
- Intel Nahalem delivers even greater scalability and performance for cloud computing



Network



Storage



Compute

What's New

- System Center Virtual Machine Manager Self-Service Portal 2.0
- Windows 2008 R2 SP1
 - Dynamic Memory
- Opalis for datacenter automation
- Increased supported VMs per host from 64 to 384, and scale up to 1000 VMs per cluster
- New since 2009; Windows Server 2008 R2 Hyper-V and Live Migration, System Center VMM 2008 R2

BUILDING A FOUNDATION



Delivering solutions that allow **hosters** and **enterprises** to dynamically pool, allocate, and manage resources to build a private cloud and enable IT Infrastructure as a Service

Dynamic Datacenter Toolkit for Hosters (DDTK-H)

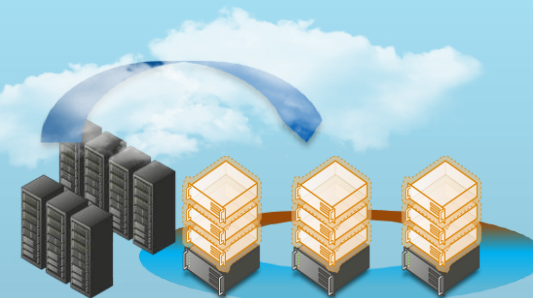
Available now and free of charge!



- Step-by-step instructions that you can use to build an instantly scalable virtualized infrastructure guidance
- Sample code and best practices

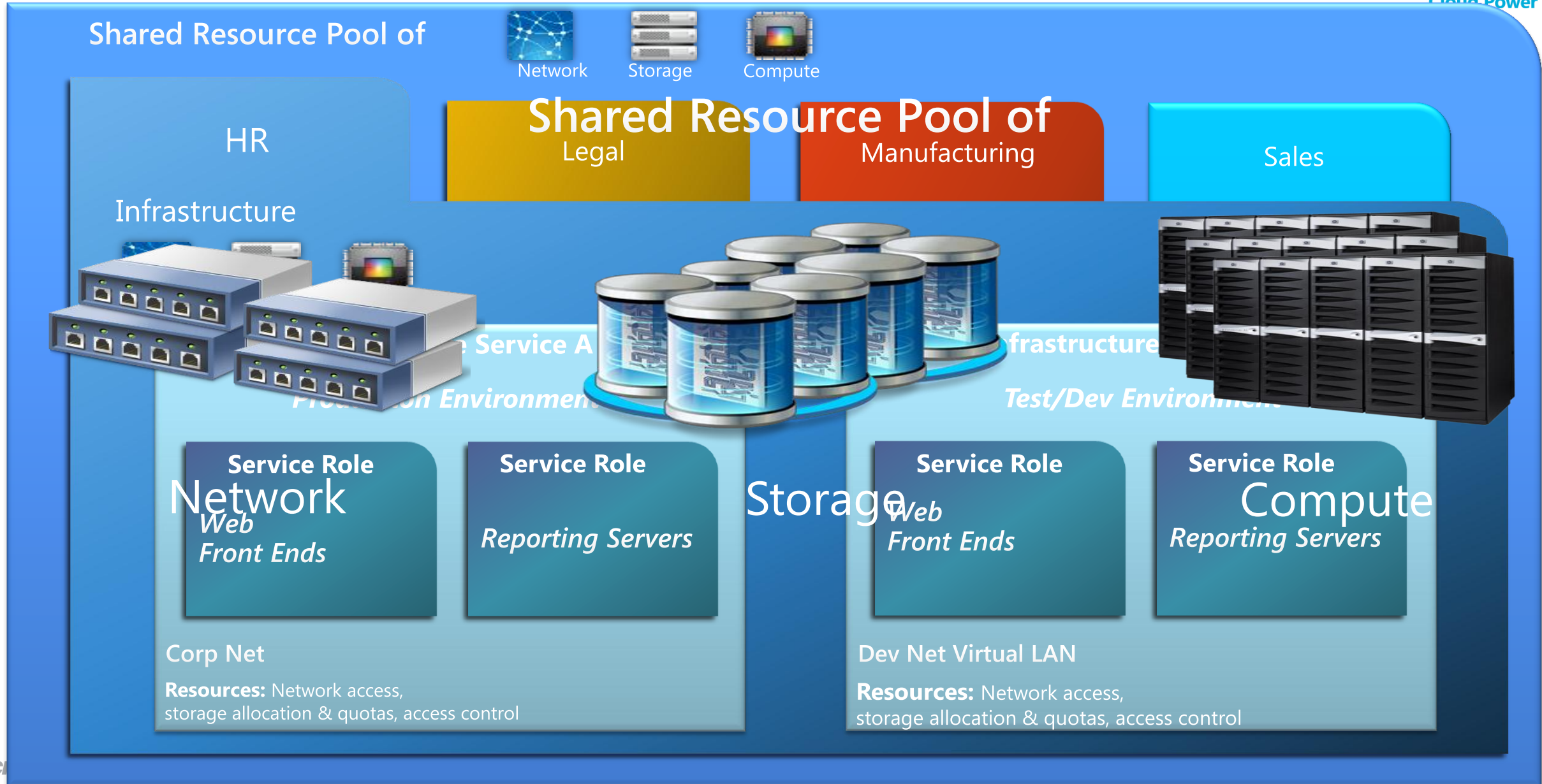
System Center Virtual Machine Manager Self-Service Portal 2.0

*Available free of charge
in early November 2010*



- An architectural roadmap, infrastructure planning guidance, deployment guidance, and best practices for enterprises to build a private cloud foundation
- Out of box capabilities like self-service portals & provisioning engine to get you started on your journey today!

MICROSOFT PRIVATE CLOUD – PORTAL OVERVIEW



PRIVATE CLOUD DEPLOYMENT KIT TOOLS AND GUIDANCE FOR IMPLEMENTING THE PRIVATE CLOUD



1. Technical IP

Guidance to create a private cloud offering

2. Deployment Guidance

Support for a full range of datacenter scenarios

Level 3

500+ servers consolidated

TBA

Partner Competency:
Virtualization

Optimized Private Cloud

Infrastructure
as a Service

Level 2

200-500 servers consolidated

Dec 2010

Partner Competency:
Virtualization
Systems Management

Advanced Private Cloud

Optimization and automation of
virtualized datacenter

Level 1

<200 servers consolidated

Jul 2010

Partner Competency:
Virtualization
Systems Management
Identity & Security
Server Platform

Private Cloud Foundation

Extended pool of virtualized resources with
provisioning workflow and self-service
capabilities

DELIVERING THE NEXT GENERATION OF DATACENTERS USING MICROSOFT DATACENTER SERVICE SOLUTIONS



Turn-key “private cloud” and customer evolution scenarios

Industry-leading datacenter principles and design patterns from Microsoft Global Foundation Services

Integrated solution architecture across Windows Server hyper-V, System Center, and Forefront

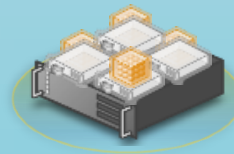
Automation of infrastructure management using Opalis and Microsoft Solution Accelerators

Operations Consulting and Premier Services included in solution

Datacenter Services Solution

Standardized

Secure and Well-Managed Datacenter Transformation



Rationalized

Optimized Datacenter Transformation



Dynamic

Infrastructure-as-a-Service Transformation



Scenarios

Microsoft | Services

MICROSOFT PRIVATE CLOUD ROADMAP



NOW

- Dynamic Datacenter Toolkit for Hosters
- System Center Virtual Machine Manager Self-Service Portal 2.0
- Windows Server 2008 R2/Hyper-V R2
- System Center Virtual Machine Manager 2008 R2
- System Center Operations Manager 2007 R2

NEXT

- System Center v.Next (CY11 H2)
- Dynamic Datacenter Toolkit for Hosters v2
- System Center Virtual Machine Manager Self-Service Portal v.Next
- Toolkit Amalgamation

FUTURE

- Windows Server v.Next/Hyper-V v.Next
- System Center Suite v.Next

MICROSOFT PRIVATE CLOUD – SERVER PLATFORM PARTNER ECOSYSTEM



Dynamic Provisioning

System Center Virtual Machine Manager Self Service Portal 2.0

Deep integration including : **HP, NetApp, Citrix, Compellent, Intel, F5 Networks and V-Kernel**

Integrated Management



System Center Alliance > **100% growth in past year** to 150 partners
22 Performance and Resource Optimization (PRO) packs; **15 packs since VMM R2 including HP, Dell, IBM, Brocade, QLogic, Emulex and APC**

Platform



Innovation on Hyper-V supporting Cluster Shared Volumes, Storage Virtualization, Provisioning, Conversion, Assessment and more with partners including: **Datacore, Double-Take, CA, Citrix, NetApp, CA, CommVault, Symantec, Sanbolic** and others



Network



Storage



Compute

More than 304 NICs qualified with Windows Server; 160 since R2 release

More than 1,600 storage arrays certified with Hyper-V; 700 since R2 release

More than 1,800 servers certified with Hyper-V; 780 since R2 release

Numerous Joint Solution Blueprints available for with partners including

HP, Dell, NetApp, Citrix, EMC, Hitachi Data Systems

Replication partner cluster integration including HP, HDS, NetApp, EMC, and Double-Take

Accelerate your cloud computing/ ITaaS Journey Today:

- Build your private cloud using Windows Server Hyper-V, System Center and System Center VMM Self-Service Portal
- Leverage **Microsoft** | Hyper-V Cloud programs to deploy your Private Cloud
- Architect with Microsoft Services Datacenter Service Solutions offering
- Deploy with Microsoft Cloud Partners

Start evaluating System Center 2012 for your current and future cloud computing requirements

Journey to the Cloud

HP-Microsoft Frontline Partnership

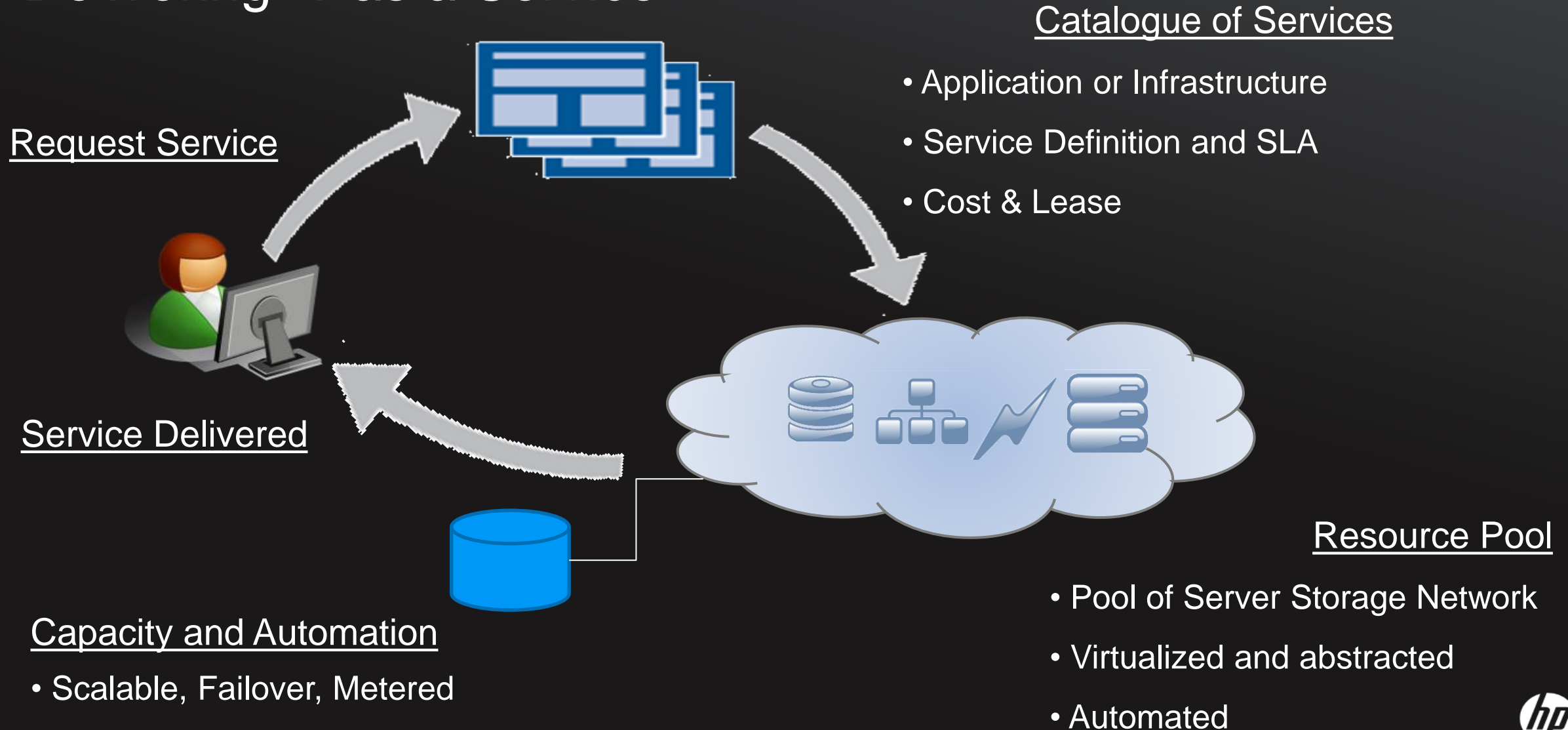
Jumpstarting your journey towards Cloud

Cheah Wai Kit
Chief Cloud Architect, ISB APJ
Hewlett-Packard

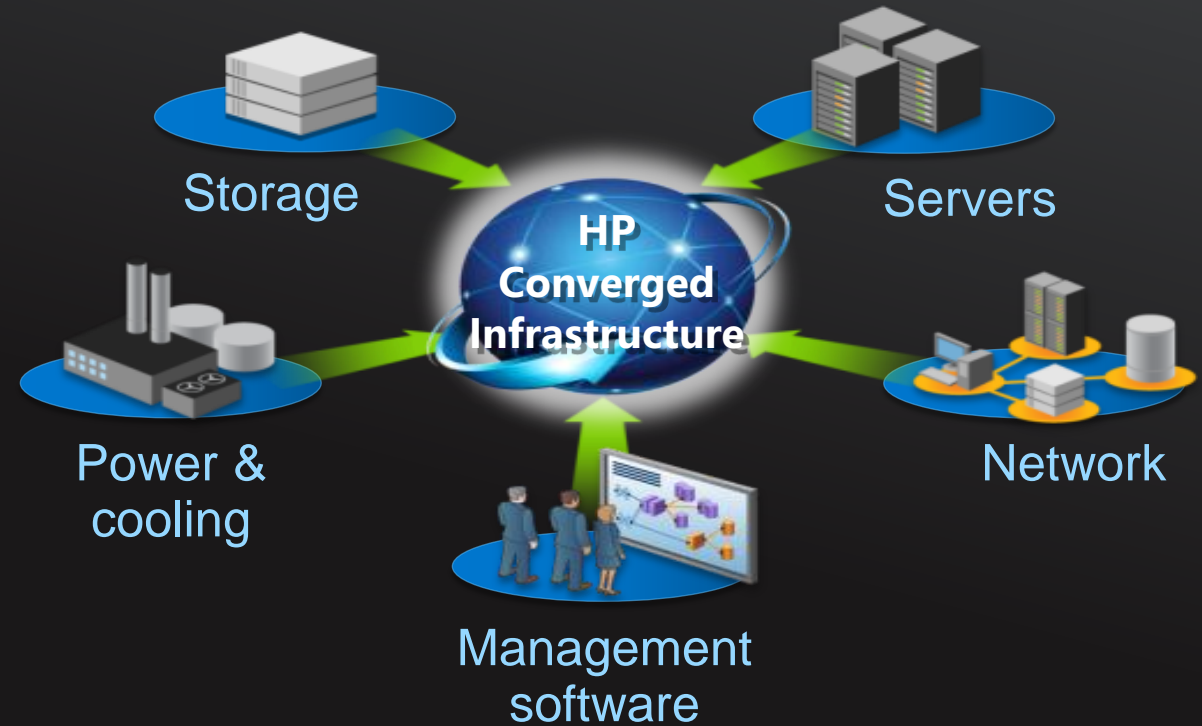
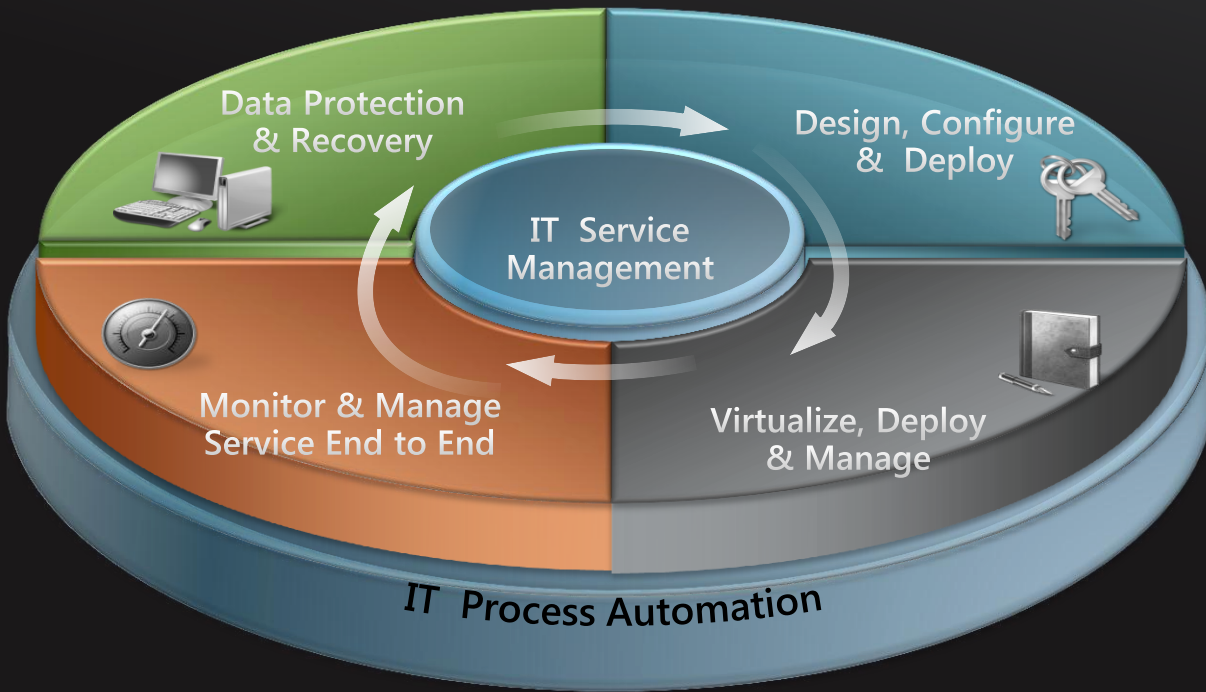


The Private Cloud concept

Delivering IT as a Service



Integrating Virtualization, Infrastructure, and Application Management



HP's Converged Infrastructure Architecture

Infrastructure operating environment

Enabling a common management platform to manage multiple vendors' technologies from infrastructure-to-application

Flex fabric

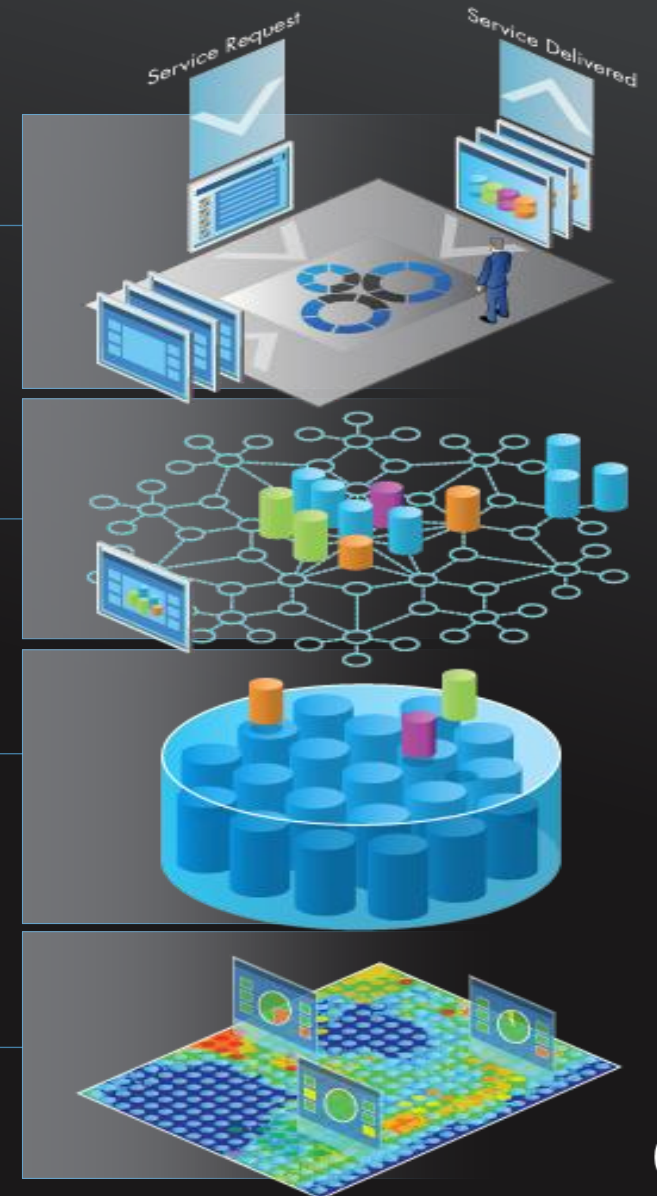
A common, wired-once, virtual I/O network

Virtual resource pools

A common modular infrastructure of virtualized compute, memory, storage & network resources

Data center smart grid

Intelligent energy management across systems and facilities



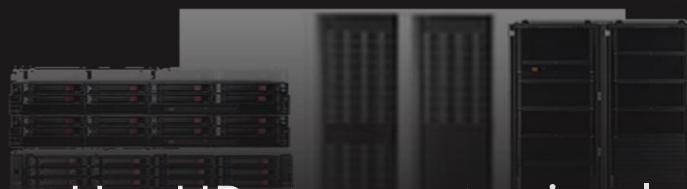
Unlock the full capabilities of Hyper-V and System Center with HP Converged Infrastructure

1



Take advantage of integrated management to deploy, monitor, control, and update infrastructure through applications.

2



Use HP storage to simply enable the full functionality of Hyper-V and protect against unplanned outage.

3



Use HP BladeSystem with Virtual Connect to deliver compute power and connectivity based on the needs of each application.



CloudStart Solution

Delivering Cloud Compute service experience to your business users within the trusted environment of your data center

Within 30 days of hardware installation, users can

1. Request a Physical / Virtual compute service from a number of pre-defined choices and prices
2. Have service provided immediately
3. Can scale or cancel the service
4. Use the service and don't worry about security, management, upgrade etc
5. Receive a regular report on consumption or chargeback

The image displays two overlapping screenshots of HP's cloud management interfaces. The top screenshot shows the 'BladeSystem Matrix Billing Manager' in a Microsoft Internet Explorer browser window. The bottom screenshot shows the 'Insight Orchestration' self-service portal, which includes a navigation menu and a table of available compute services.

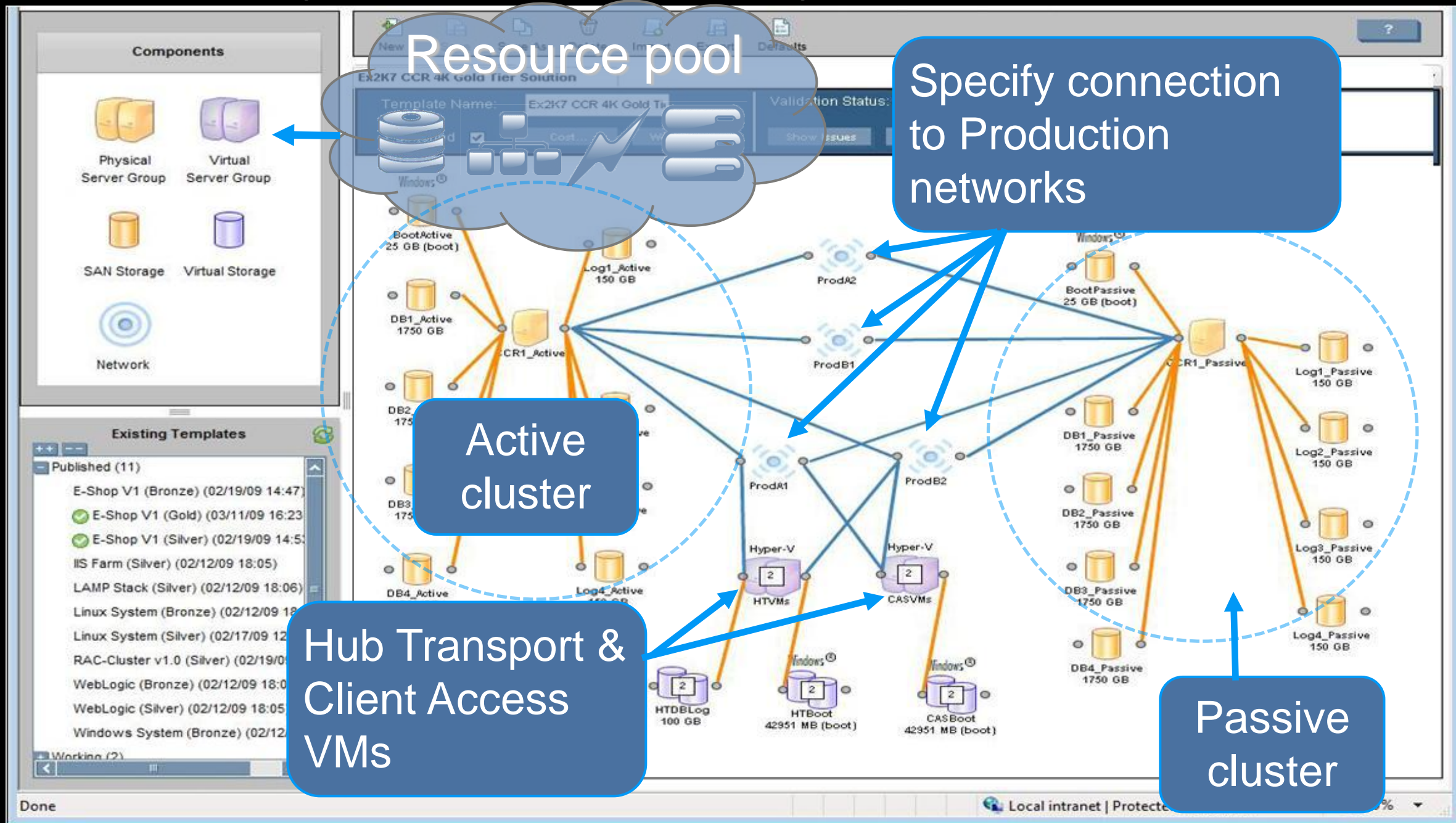
Item	Last Refresh Date	Cost	Status	Features
VM - 1.4GB Virtual with 64GB RAM - 4GB...	02/05/2010 01:45 PM	\$ 0.00	Active	Full
VM - 1.4GB Virtual with 64GB RAM - 4GB...	02/05/2010 01:45 PM	\$ 0.00	Active	Full
VM - Physical (Core) - 4 Linux - 4 GB (W...	02/05/2010 01:45 PM	\$ 1,563.00	Active	Full
VM - Physical (Core) - 4 Linux - 4 GB (W...	02/05/2010 04:41 AM	\$ 1,563.00	Active	Full
VM - Simple - 1GB Virtual with 64GB RAM...	02/05/2010 01:45 PM	\$ 12.00	Active	Full
VM - Simple - 1GB Virtual with 64GB RAM...	02/05/2010 01:45 PM	\$ 12.00	Active	Full
VM Physical - Windows - 4GB	02/05/2010 01:45 PM	\$ 1,750.00	Active	Full
VM Physical - Windows - 4GB	02/05/2010 01:45 PM	\$ 1,750.00	Active	Full
VM Virtual - Windows - 4GB	02/05/2010 01:45 PM	\$ 1,750.00	Active	Full
VM Virtual - Windows - 4GB	02/05/2010 01:45 PM	\$ 1,750.00	Active	Full
Virtual - IBM	02/05/2010 01:45 PM	\$ 19.00	Active	Full

Invoice generated

Self-service portal



IO Service Designer : Example – Exchange 2007 4000 users service template



How do Private Cloud delivers better Business Outcomes?

Jayantha Prabhu,
Head IT,
Infrastructure and
Technology Essar
Group

“The need today is to align IT with the business strategy, and that's not just about optimizing IT itself but delivering tangible business results. With Blade matrix, Essar is able to quickly adapt to the unpredictable and rapidly changing business environment with greater agility”

We are now able to reduce the time taken to deploy new application Infrastructure from months to minutes. This enables our group of companies to rapidly address new business opportunities and emerge stronger against competition globally.”

Efficiency through Sharing
Resource Pools

Automation & Reduction in error

Increased manageability, elasticity
Converged Infrastructure

Rapid Provisioning
Physical & Virtual Machine

Build the vision and strategy

HP Cloud Discovery Workshop

- Create common cloud understanding
 - Mobilize teams for fast decision-making
 - Evaluate cloud opportunity, risks
 - Share cloud best practices
 - Determine current capabilities across main domains such as service management, technical architecture, culture & staff, governance etc
 - Explore HP Converged Infrastructure Architecture and technologies
 - Layout next steps
- Duration: 1 day (for CloudStart solution)
 - Attendees: C-level decision makers, CTOs, chief architects
 - **Register for your Workshop now!**





Cloud Power

Microsoft®



FRONTLINE PARTNERSHIP

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