



Integrated Service Management

A Winning Combination for System x

IBM Software

PCTY2010



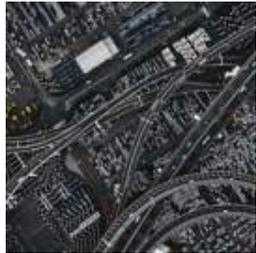
Pulse Comes to You

Benjamin Lim, System Software, IBM

13 April 2010, Singapore



As the world gets smarter, demands on IT will grow



Smart traffic systems



Intelligent oil field technologies



Smart food systems



Smart healthcare



Smart energy grids



Smart retail



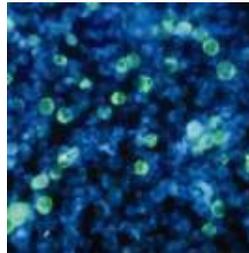
Smart water management



Smart supply chains



Smart countries



Smart weather



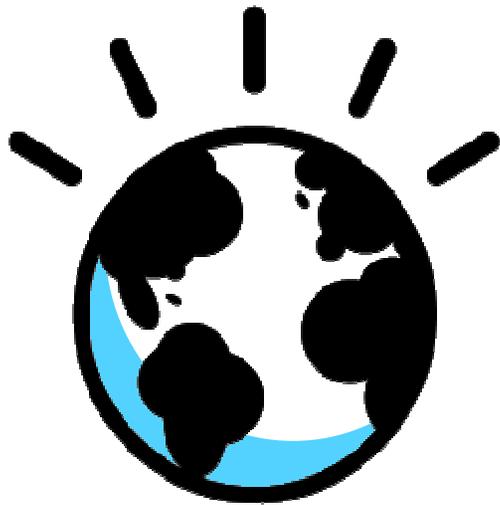
Smart regions



Smart cities



The World is Changing and Becoming More...



Instrumented



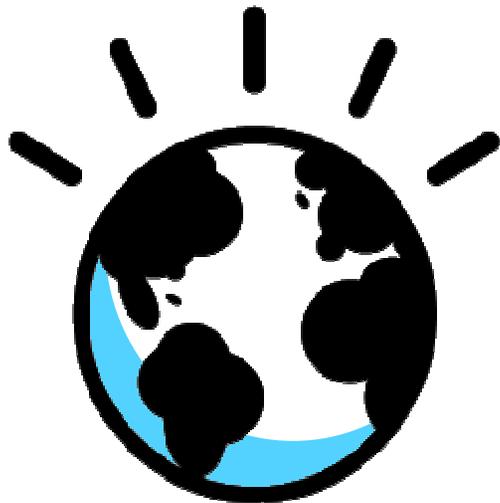
Interconnected



Intelligent



The World is Changing... and Data Centers want more...



Rationalization

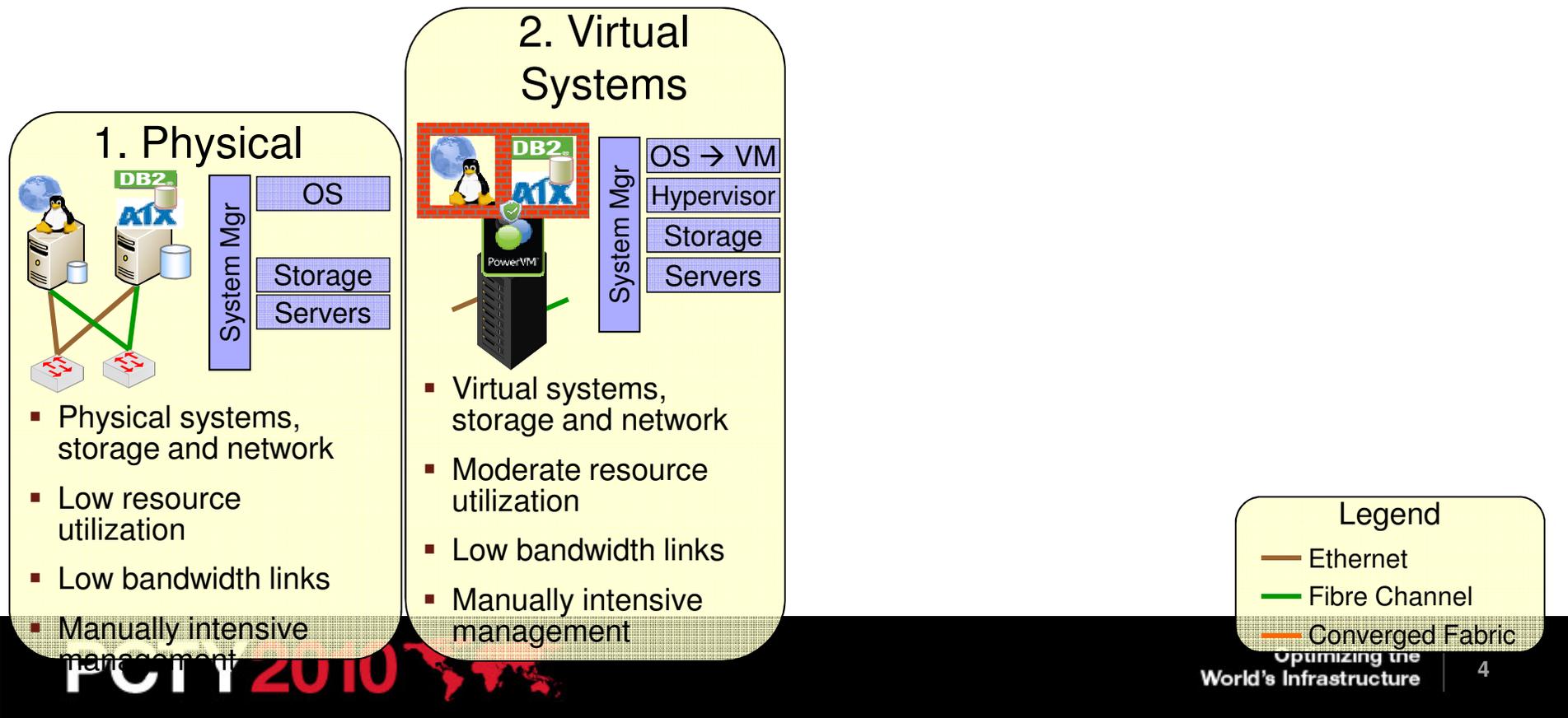
Consolidation

Virtualization

Automation

Optimization

IT is Undergoing a Transition...



.... to a Dynamic Infrastructure Model

Industry is transitioning from 1 & 2

To a Dynamic Infrastructure model (3 & 4)

1. Physical

DB2, AIX, OS, Storage, Servers, System Mgr

- Physical systems, storage and network
- Low resource utilization
- Low bandwidth links
- Manually intensive management

2. Virtual Systems

DB2, AIX, OS → VM, Hypervisor, Storage, Servers, System Mgr, PowerVM

- Virtual systems, storage and network
- Moderate resource utilization
- Low bandwidth links
- Manually intensive management

3. Cloud Building Block (CBB)

VM, Switch, Service Management, Hypvsr Mgr, Platform Mgr, VM, Hypervisor, Storage, Servers, Network

- VMs automatically migrate with their network & storage state anywhere within a CBB.
- Automated, integrated management
- High bandwidth links, enable converged fabric
- High resource utilization

4. DC as a Virtual System

Enterprise Service Tools & Management, Hypvsr Mgr, Platform Mgr, VM, Hypervisor, Storage, Servers, Network

- Integrated DC wide, service management
- Cross DC VM migration, requires Core switch orchestration

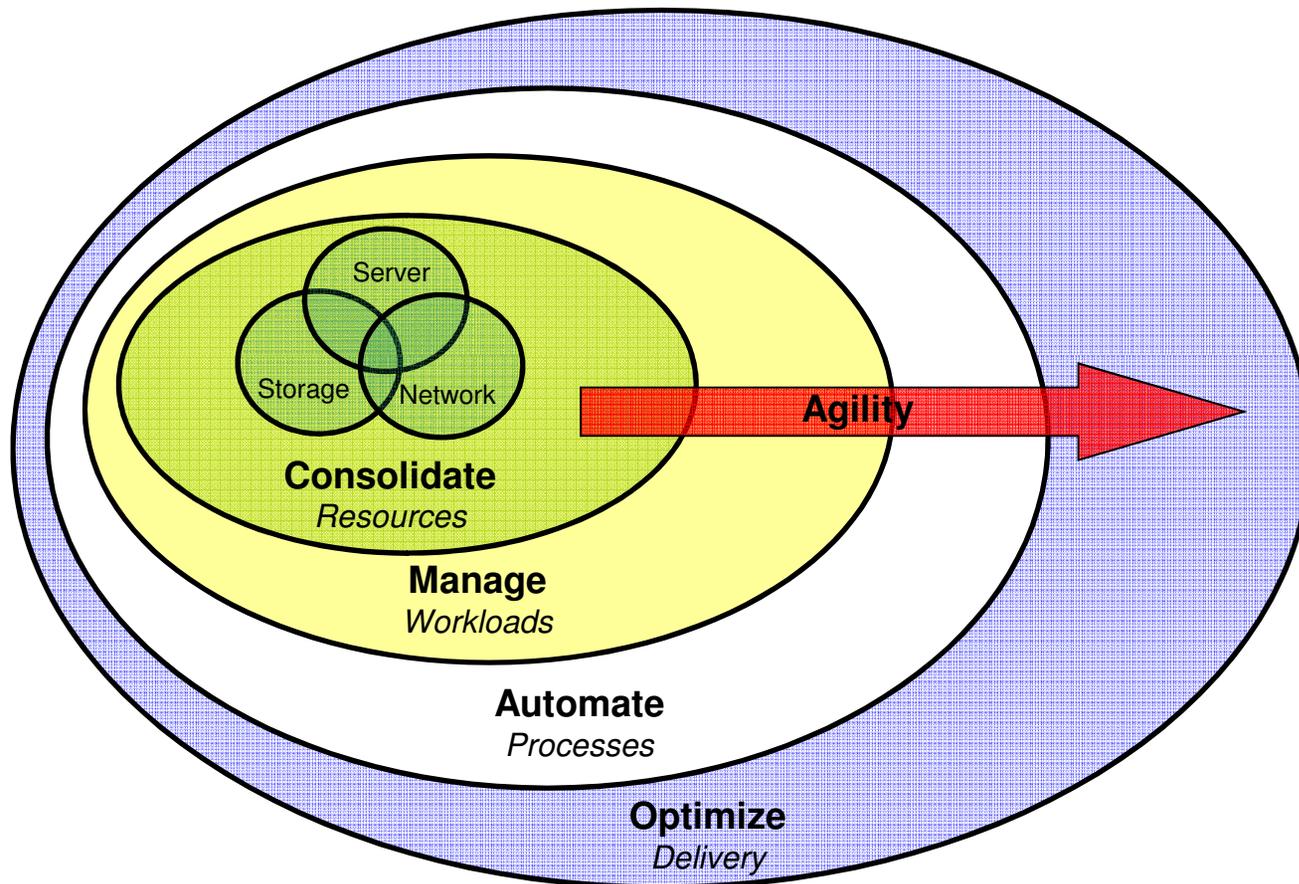
Legend

- Ethernet
- Fibre Channel
- Converged Fabric



Virtualization Journey

with Integrated Service Management





Client Challenges with Enterprise Workloads

Database, Virtualization, Transaction processing

Memory Capacity

- ❑ More virtual machines
- ❑ Larger virtual machines
- ❑ Bigger databases
- ❑ Faster database performance
- ❑ Greater server utilization

Do More With Less

- ❑ Buy what they need when they need it
- ❑ License Fees
- ❑ Operational Expense
- ❑ Energy and mgmt expenses
- ❑ Fit more into the datacenter they have today
- ❑ Reduce cost to qualify systems

Simplify

- ❑ Speed time from deployment to production
- ❑ Optimized performance for their workload needs
- ❑ Get more out of the people, IT, and spending they have
- ❑ Flexibility to get the IT they need, the way they need it

Difficult challenges create an opportunity for innovation.



eX5 Systems Overview





Maximize Memory Minimize Cost Simplify Deployment

The broadest portfolio of systems optimized for your most demanding workloads





The next generation of x86 is here!!

Maximize Memory

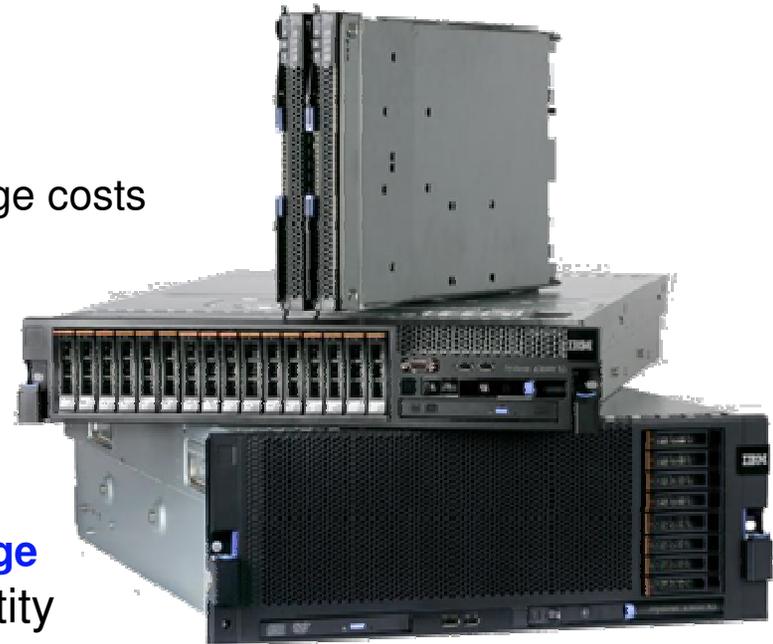
- Over **5x more memory** in 2 sockets than current x86 (Intel® Xeon® 5500 Series) systems
- Nearly **6x more memory** than any 4-socket x86 system available today
- More memory delivers **60% more** virtual machines for the same license cost

Minimize Cost

- **50% less** VMware license cost on eX5 for same number of virtual machines
- Save **over \$1M** USD in external database storage costs

Simplify Deployment

- Leverage IBM Lab Services experts to configure and install hardware and software
- Workload Optimized solutions reduce deployment from **months to days**
- IBM Systems Director provides **automated image deployment** and pre-configured server identity





eX5 leadership for an evolving marketplace with increasing demands

5th Gen: Breakthrough performance, ultimate flexibility, simpler management

4th Gen: First x86 server to break 1 Million tpmC

3rd Gen: First x86 server with Hot-swap memory

2nd Gen: First x86 server with 100 #1 Benchmarks

1st Gen: First x86 server with scalable 16 processor design



**2010
5th Generation**



**2007
4th
Generation**



**2005
3rd
Generation**



**2003
2nd
Generation**



**2001
1st
Generation**



FCM 2010



The new thinking from IBM... Introducing the eX5 Portfolio



System x3850 X5



BladeCenter HX5



System x3690 X5

MAX5

Maximum memory scaling independent of processors



eXFlash

Extreme IOPs SSD storage



FlexNode

Scheduled provisioning

One 4-Socket System

Two 2-Socket Systems





Simplify Deployment

- **Deploy virtual or physical systems easily** by using Automated Image Deployment with Tivoli Provisioning Manager (TPM)
- NEW** ▪ **Pre-configure server identity** for BladeCenter HX5 with Open Fabric Manager
- NEW** ▪ **Remotely re-purpose eX5 systems** using Node Partitioning feature eX5 systems remotely
- NEW** ▪ **Setup automatic recovery** parameters of an eX5 system
 - **Automatic update** using hands-off retrieval of update package
- NEW** ▪ **System guardian capability** with new Integrated Service Advisor for “call home” capabilities
 - **Minimizing security-related** downtime with eX5 hardware security and available IBM solutions from Tivoli and/or IBM Virtual Server Security for VMware



* IBM Systems Director 6.1 can help save 34% in administrative costs.

["Challenges of Operational Management for Enterprise Server Installations." International Technology Group, © 2008](#)



48 Cores

Submitter	System Description	VMmark Version & Score	Processors	Published Date
HP	HP ProLiant DL785 G6 VMware ESX v4.0	VMmark v1.1.1 53.73 @ 35 tiles View Disclosure	8 sockets 48 total cores 48 total threads	08/25/09
HP	HP ProLiant DL785 G6 VMware ESX v4.0	VMmark v1.1.1 47.77 @ 30 tiles View Disclosure	8 sockets 48 total cores 48 total threads	08/11/09
NEC	NEC Express5800/A1160 VMware ESX v4.0	VMmark v1.1.1 34.05@24 tiles View Disclosure	8 sockets 48 total cores 48 total threads	07/28/09
IBM	IBM System x3950 M2 VMware ESX v4.0	VMmark v1.1 33.85@24 tiles View Disclosure	8 sockets 48 total cores 48 total threads	06/16/09

32 Cores

Submitter	System Description	VMmark Version & Score	Processors	Published Date
IBM	IBM System x3850 X5 VMware ESXi v4.0 build 240223	VMmark v1.1.1 70.78@48 tiles View Disclosure	4 sockets 32 total cores 64 total threads	04/06/10
HP	HP ProLiant DL785 G5 VMware ESX v4.0	VMmark v1.1 31.56@21 tiles View Disclosure	8 sockets 32 total cores 32 total threads	06/02/09
Unisys	Unisys ES7000 Model 7405B	VMmark v1.1 30.86@20 tiles	8 sockets 32 total cores	05/19/09



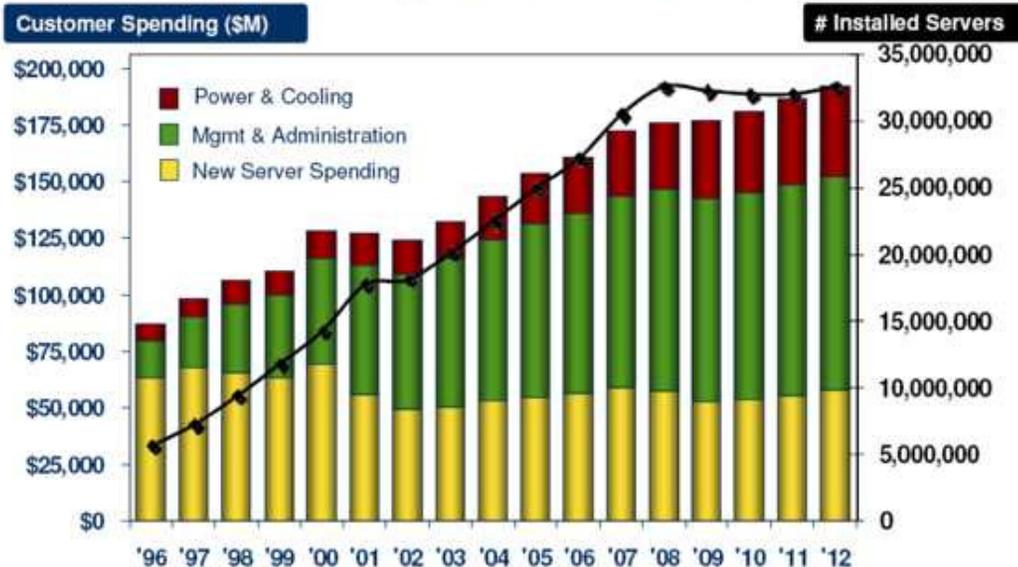
Integrated Systems Management





Budgets are Consumed by Administration and Power Costs

WW Spending on Servers, Power and Cooling, and Management/Administration



Source: IDC, Virtualization 2.0: The Next Phase in Customer Adoption, Doc #204904, Dec 2006

Expenses for server management and administration are nearly *twice* the capital expense for server purchases

Energy costs have grown to *half* of hardware costs

Both administrative and energy costs continue to grow rapidly



- The innovative hardware, tools and systems management of the new generation servers can help you achieve *breakthrough productivity gains* through automation, optimization and energy management
- IBM Systems Director 6.1 can help *save 34% to 42%* in administrative costs when compared with unmanaged environments¹

¹"Challenges of Operational Management for Enterprise Server Installations," International Technology Group, © 2008



The New Strategy – Exploiting Tivoli and Systems Software Synergy

Collectively deliver a comprehensive Integrated Service Management solution

IBM® Systems Director

Detailed platform management of IBM systems

- ✓ Consolidated management across systems
- ✓ Integrated physical and virtual management
- ✓ Automated physical and virtual provisioning



IBM Systems Director

Business Services

Middleware

Network

Operating System

Hardware

IBM Tivoli

IBM Tivoli®

Integrated visibility, control & automation across heterogeneous business and technology assets

- ✓ Align IT operations with the business
- ✓ Govern and control the business
- ✓ Optimize the business

Tivoli



IBM Service Management

Enabling quality service delivery and business innovation



Visibility:
*See your
Business*

*Respond faster and
make better decisions*



Control:
*Manage your
Business*

*Manage risk and
compliance*



Automation:
*Improve your
Business*

*Lower costs and
build agility*



Comprehensive Capabilities, Built on Best Practices

IBM Service Management

Best Practices, Methodologies, and Services

Service Management Platform

Service
Delivery &
Process
Automation

Service
Availability &
Performance
Management

Storage
Management

Security, Risk,
&
Compliance

Datacenter
Transformation

Asset
Management

Network
&
Service
Assurance

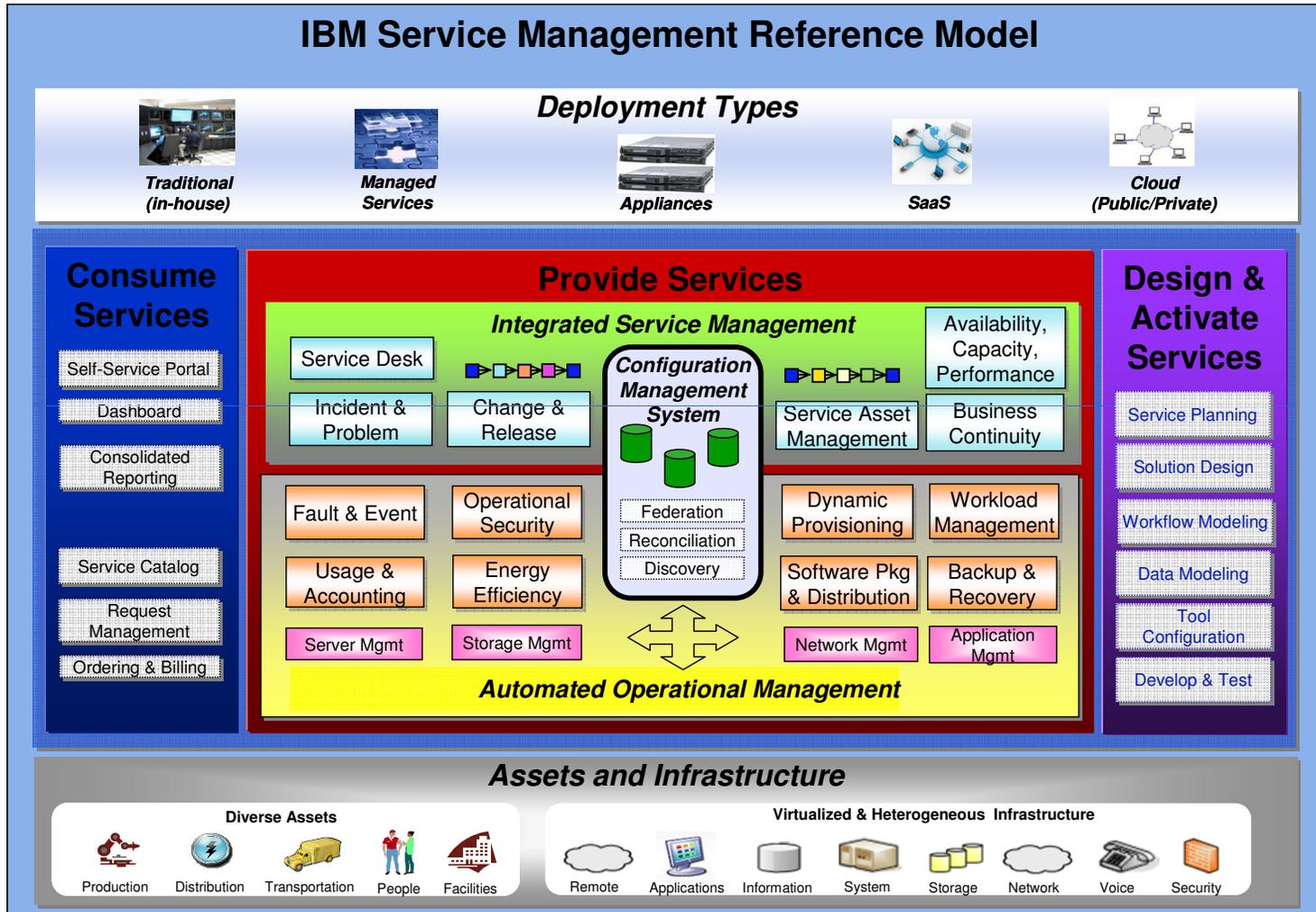
Visibility

Control

Automation



A Comprehensive Solution





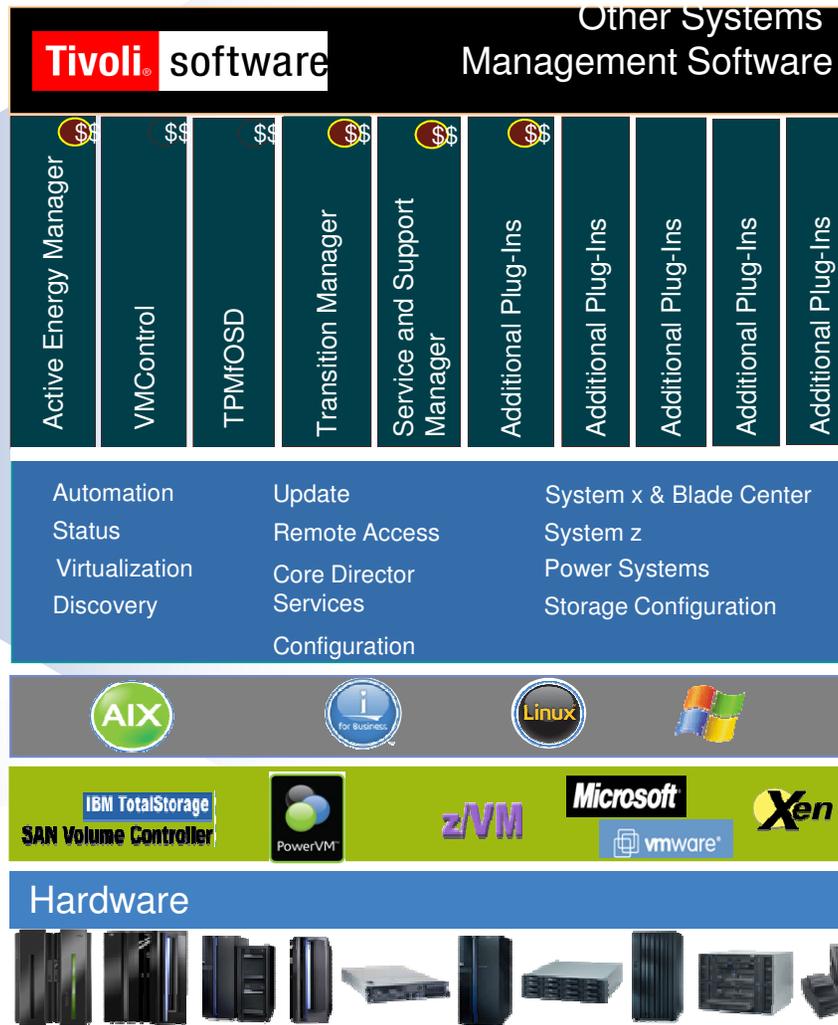
IBM Systems Director Overview

End-to-end Management



Platform Management

- Navigator for IBM i
- AIX web console
- HMC web console
- Remote Access



Enterprise Service Management

Advanced Managers & Priced Plug-Ins

Base Systems Director Managers & Hardware Platform Managers Resource Management

Managed virtual and physical environments

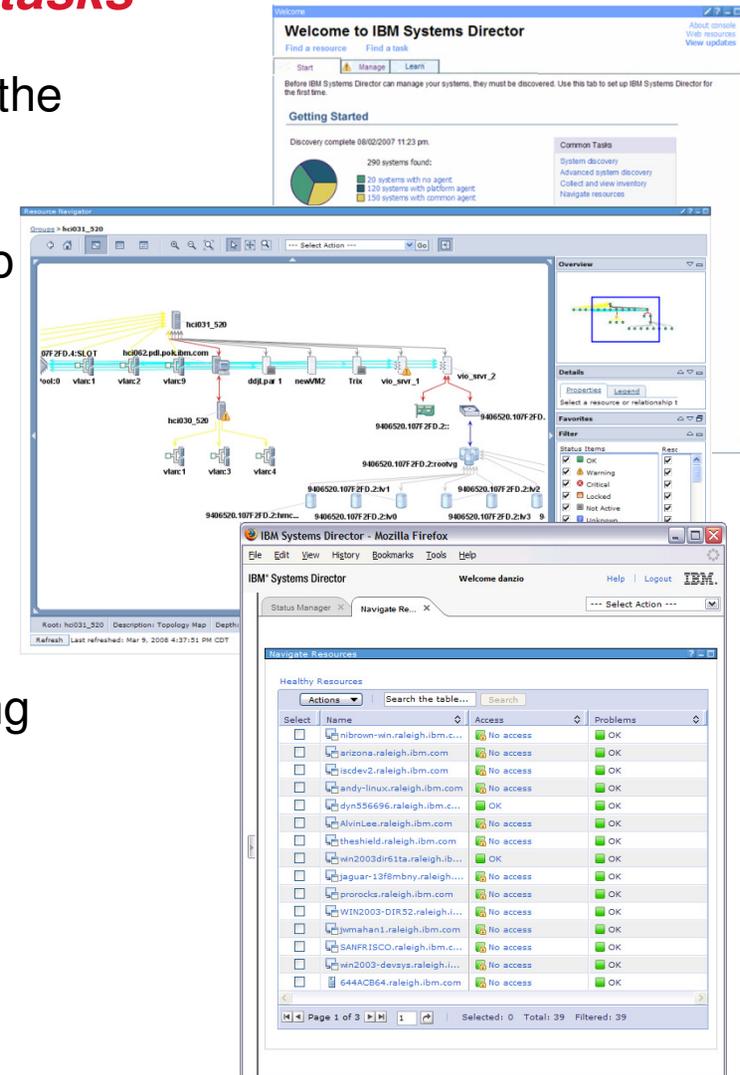
IBM and non-IBM hardware



IBM Systems Director Overview

Consistent user experience with common tasks

- Discover, navigate and illustrate systems on the network, visualize detailed inventory and relationships
- Identify problematic systems and drill down to the root cause
- Update firmware, drivers, and operating systems, and orchestrate the installation process
- Update plug-ins to add new functions to the base capabilities
- Monitor systems in real time and set critical thresholds to notify administrators of emerging problems
- Configure settings of a target system and create a configuration plan to deploy these settings to similar systems
- Reduce virtualization complexity
- Manage energy





IBM Systems Director Managers

- IBM Systems Director Server
- Discovery
- Status
- Update
- Automation
- Configuration
- Virtualization
- Remote Access
- Storage
- BladeCenter and System x
- Power Systems
- System z
- Various plugins ***

Welcome to IBM® Systems Director I'm a 5.20 user; how do I use 6.1.0?
About
Web resources
View updates

Find a resource Find a task

Start **Manage** Learn

IBM® Systems Director contains the following plug-ins. Depending on its "readiness," the plug-in might be ready to use, or might require additional setup and configuration.

- IBM Systems Director Server 6.1.0**
Ready
Manage Users
- Discovery Manager 6.1.0**
No access to 6 systems. 48 Systems have no inventory collected.
System Discovery View systems needing access
Navigate Resources View and Collect Inventory
- Status Manager 6.1.0**
Ready
Health Summary Monitors
- Update Manager 6.1.0**
Ready
Getting Started with Updates Check for Updates
- Automation Manager 6.1.0**
Ready
Automation Plans Active and Scheduled Jobs
- Configuration Manager 6.1.0**
Ready
Plans Configuration templates
- Virtualization Manager 6.1.0**
Ready
Set up virtualization manager Virtual Servers and Hosts
- Remote Access 6.1.0**
Ready
Setup Remote Control
- Storage Management 6.1.0**
Ready
SMI-S Providers Systems And Volumes
Storage Subsystems And Volumes
- BladeCenter and System x Management 6.1.0**
Additional plug-ins are required before BladeCenter chassis can be fully managed.
Setup required for I/O module plug-ins Blade servers and chassis
Servers and service processors
- Power Systems Management 6.1.0**
Ready
AIX/Linux virtual servers IBM i virtual servers
- System z Management 6.1.0**
Ready
z/VM hosts Linux on System z

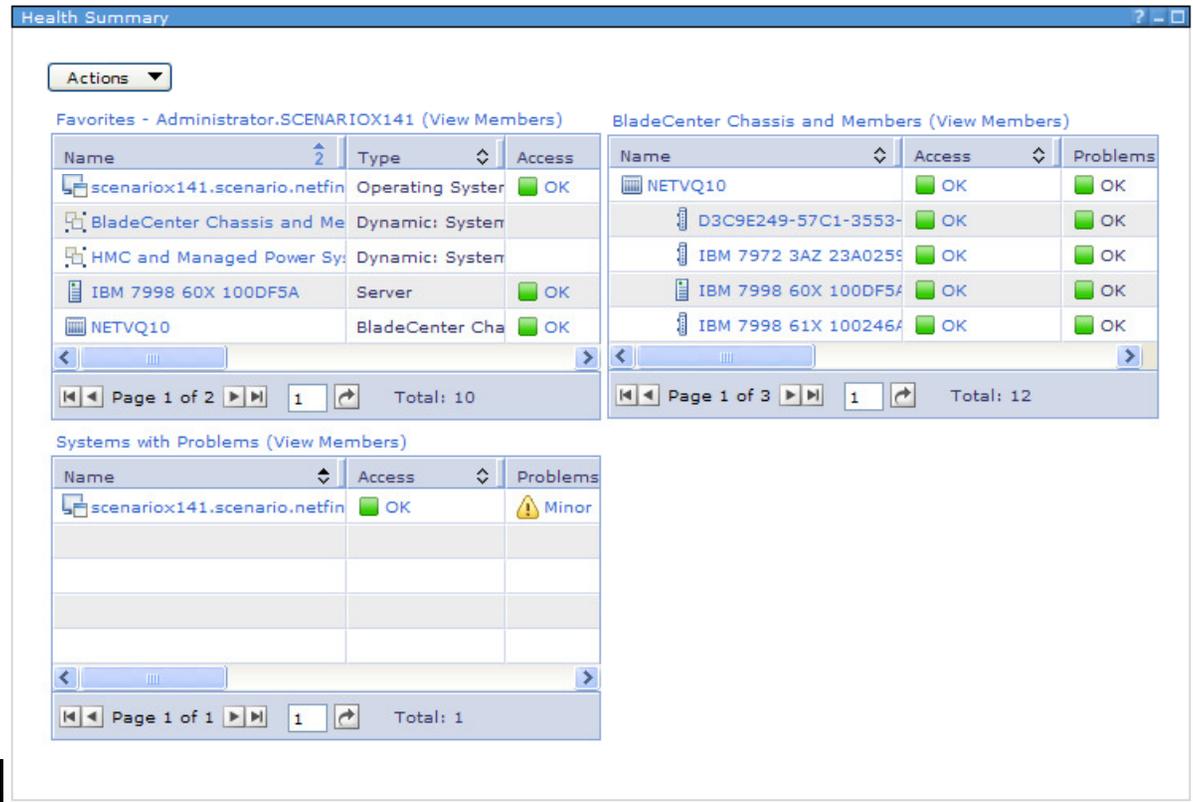
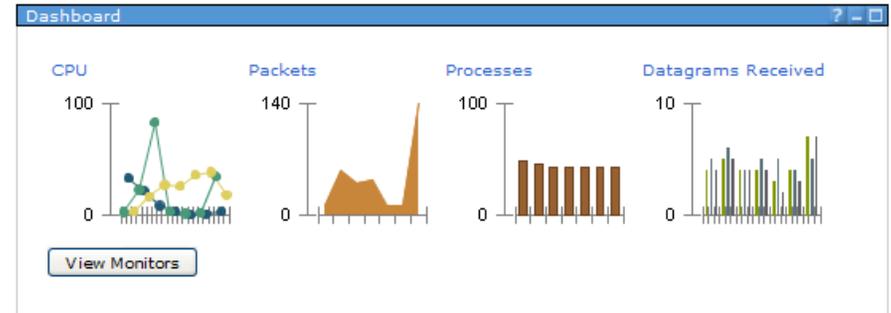
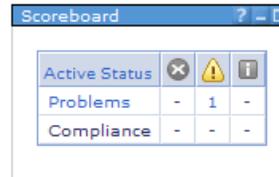
Refresh Last refreshed: October 1, 2008 7:19:55 AM UTC

All Tasks Grouped by Managers



Focus on Health, Status, Automation

- **Health summary** →
 - Favorite systems
 - Critical monitors
 - Group thumbnails
- Monitoring
 - Monitor resources
 - Thresholds
 - Events
 - Update Compliance
- Automation Plans
 - Notify
 - Run commands
 - Trigger tasks





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Monitor View

This page displays the Common Monitors monitors.
otto01.austin.ibm.com

Actions | Search the table... Search

Select	Name	Monitor Name	Monitor Type	Threshold St	Current	Warn
<input type="checkbox"/>	otto01.austin.ibm.com	Active Virtual Memory (%)	Individual		126%	
<input type="checkbox"/>	otto01.austin.ibm.com	Active Virtual Memory (4K Pages)	Individual		564814	
<input type="checkbox"/>	otto01.austin.ibm.com	CPU Utilization	Individual	Activated	1.19%	>= 85
<input type="checkbox"/>	otto01.austin.ibm.com	Disk % Space Used	Individual		86.89%	
<input type="checkbox"/>	otto01.austin.ibm.com	Disk Space Remaining	Individual		67 Megabytes Fr	
<input type="checkbox"/>	otto01.austin.ibm.com	Disk Space Used	Individual		444 Megabytes U	
<input type="checkbox"/>	otto01.austin.ibm.com	IP Packets Received with Errors/sec	Individual		0 Packets/sec	
<input type="checkbox"/>	otto01.austin.ibm.com	IP Packets Received/sec	Individual		26 Packets/sec	
<input type="checkbox"/>	otto01.austin.ibm.com	IP Packets Sent/sec	Individual		22.77 Packets/se	
<input type="checkbox"/>	otto01.austin.ibm.com	IPv6 Error Packets Received/sec	Individual		0 Packets/secon	
<input type="checkbox"/>	otto01.austin.ibm.com	IPv6 Packets Received/sec	Individual		0 Packets/secon	
<input type="checkbox"/>	otto01.austin.ibm.com	IPv6 Packets Sent/sec	Individual		0 Packets/secon	
<input type="checkbox"/>	otto01.austin.ibm.com	Memory Usage				
<input type="checkbox"/>	otto01.austin.ibm.com	Paging Space Free (%)				
<input type="checkbox"/>	otto01.austin.ibm.com	Paging Space Remai				

Page 1 of 2 | Selected: 0 Total: 23

Threshold

Selected Monitor is CPU Utilization

Threshold Options

Monitor values that are too high:

Critical: 95

Warning: 85

Monitor values that are too low:

Warning:

Critical: 1

OK Cancel

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Summary page for single view

Integrated actions for download, distribute, install and uninstall



Focus on Health, Status, Automation

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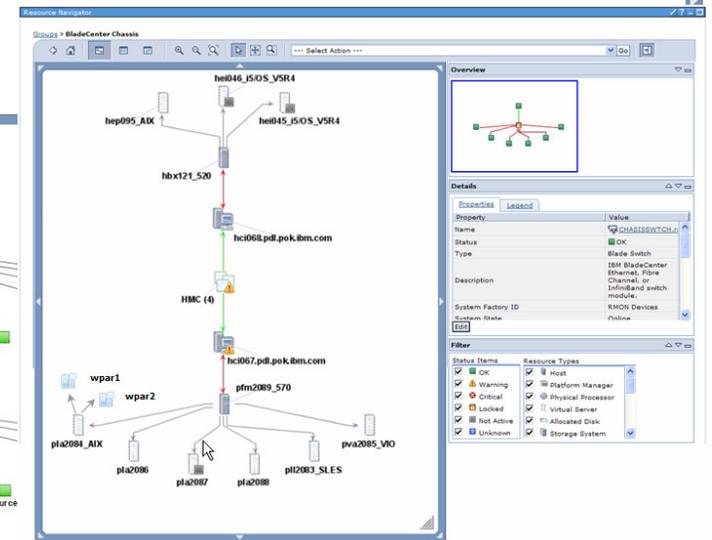
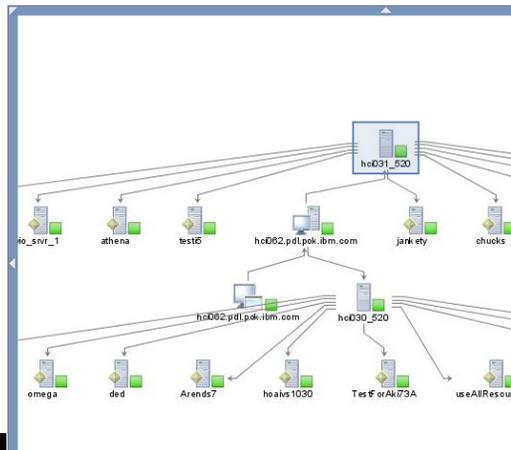
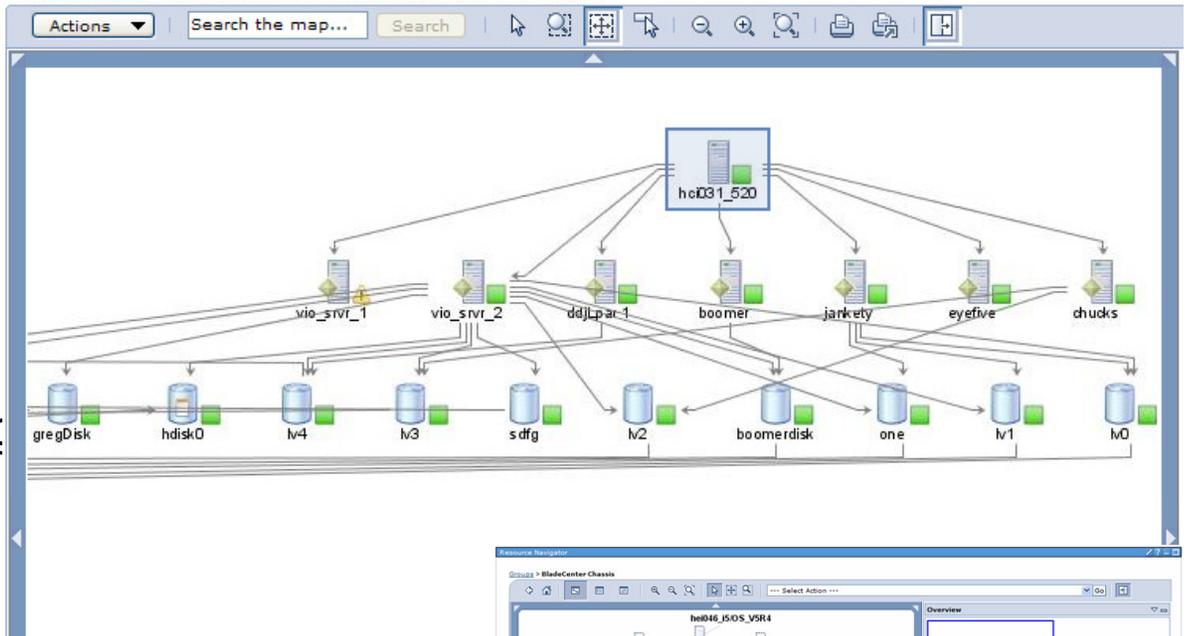
The screenshot displays the IBM Systems Director Automation Manager interface. The main window shows a summary of automation jobs within the last 30 days, including a section for 'Scheduled Jobs' with statistics on scheduled, completed, and failed jobs. Below this, there are sections for 'Upcoming job runs' and 'Most recent job runs'. Two overlapping windows are shown in the foreground: one for 'Create Action' with a list of actions like 'Start a program on a system' and 'Send an e-mail to a mobile phone', and another for 'Automation Plans' configuration, showing event filters and thresholds.



Easy to Navigate Power Systems

- Power Systems summary
 - Launch-point
 - Familiar
 - Intuitive groups
- Drilldown to properties
 - Search
 - Finger-tip troubleshooting
 - Contextual tasks
 - Inventory
- **View topology map**
 - Relationships
 - Dependencies
- Launch embedded tasks

HMC and Managed Systems > hci031_520 (Virtualization Common)





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 - Relationships
 - Dependencies
- **Launch embedded tasks**
 - IBM i, HMC, AIX



The screenshots illustrate the navigation and management capabilities of the IBM Systems Director interface. The top window shows the 'Navigate Resources' page for a specific system, with an 'Actions' menu that includes options like 'AIX Management', 'Automation', 'Inventory', and 'Power On/Off'. The middle window shows the main console with a 'Work Management' window open, displaying active jobs and their status. The bottom window shows a detailed view of the 'IBM Systems Director Console for AIX', including system metrics, a 'Virtual Memory' chart, and a table of system resources.



Simply Virtual

Multi-Platform Management

- Multi-Platform Management
 - Virtual Servers and Hosts
 - HMC and Systems
 - Life-cycle management
 - Topology Maps
- Edit virtual resources
 - Edit Hosts
 - Edit Virtual Servers
 - GUI or command line
- Relocate
 - Live relocation
 - Plan for relocation
- Deploy
 - Virtual Appliances
 - AIX, Linux on z
- Configure



Virtual Servers and Hosts (View Members)

Select	Name	State	Access	Problems	Compliance	IP Address	CPU Utilizati	Processors
<input checked="" type="checkbox"/>	vsmesx1-host	Running	OK	OK	OK	9.5.23.51	1%	2
<input type="checkbox"/>	2003Server_Base	Stopped	OK	OK	OK		0%	2
<input type="checkbox"/>	2003Server_gwr59a	Suspended	OK	OK	OK		0%	2
<input type="checkbox"/>	bws_fc8	Suspended	OK	OK	OK		0%	1
<input type="checkbox"/>	hatteras	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	Ken	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	MIKE	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	rh5install	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	testgreg	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	vm1	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	vsmesx2-host	Running	OK	OK	OK	9.5.23.53	2%	2
<input type="checkbox"/>	Dan	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	gary	Suspended	OK	OK	OK		0%	1
<input type="checkbox"/>	Greg	Stopped	OK	OK	OK		0%	2
<input type="checkbox"/>	gwrtest	Stopped	OK	OK	OK		0%	2
<input type="checkbox"/>	vm2	Suspended	OK	OK	OK		0%	1
<input type="checkbox"/>	wlmcwew	Started	OK	OK	OK		1%	2
<input type="checkbox"/>	vsmesx3-host	Running	OK	Information	OK	9.5.23.11	5%	2

Create Virtual Server

Welcome to the C

This wizard will he tasks:

- Selectin
- Providin
- Choosin
- Selectin
- Setting
- Selectin
- Selectin
- Selectin

Resource Navigator

Overview

Details

Status Items

- OK
- Warning
- Critical
- Locked
- Not Active
- Unknown
- Maintenance Mode

Root: hci031_520 | Description: Topology Map | Depth: 3 | Resources: 29 | Relationships: 70 | Selected: 0

Refresh | Last refreshed: Mar 9, 2008 4:37:51 PM CDT

Simply Virtual

- Multi-Platform Management
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- **Edit virtual resources**
 - Edit Hosts
 - Edit Virtual Servers →
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The screenshot displays the 'Edit Host' window with the 'Processor' tab selected. It shows a table of processor allocations across the host for various virtual servers. Below the table, a detailed view for the virtual server 'mpotestaix5' is shown, including processor mode, shared priority, and processor/processing unit settings.

Virtual Server	Shared	Minimum Proce:	Assigned Proce:	Maximum Proce:	Sharing Priority	Minimum P
mpotestaix5	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
hy21vs1	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix2	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix3	<input checked="" type="checkbox"/>	1	1	1	None(capped)	
mptestaix1	<input checked="" type="checkbox"/>	1	1	1	None(capped)	
pva0021.pdl.p...	<input checked="" type="checkbox"/>	1	4	4	Medium(128)	
pll0023_SuSE10	<input type="checkbox"/>	1	2	4	None(capped)	
zjltest1	<input type="checkbox"/>	1	1	2	None(capped)	

Processor mode: Use Shared Processors
Shared priority: Medium(128)

Processors	Processing units
Minimum: 1 (1-4)	Minimum: 0.1 (0.1-0.2)
Assigned: 1 (1-4)	Assigned: 0.1 (0.1-0.2)
Maximum: 4 (1-4)	Maximum: 4 (0.1-4)

Energy Management

- **Energy Usage Summary**
- Monitoring, automation
 - power and temperature values
 - Trend Data
 - Watt-Hour Meter
- Configuring Energy
 - Power capping
 - Power savings mode
 - Configure PDU
- Update PDU firmware
- Topology Map
 - System “plugged into” PDU



Active Energy Manager Settings

Work with active energy managed resources. View energy status. Monitor power and temperature values. Configure energy settings and automate tasks in response to energy events.

Status

Top 5 highest average input power values in the past 30 days

24 hours	753w Corporate
600w BamBam	656w MidwestSales
550w Accounting 4	606w SouthSales
549w Accounting 2	600w BamBam
530w 40 others	599w Engineerin

Top 5 highest ambient temperature values in the past 30 days

24 hours	30C Corporate
25C BamBam	28C MidwestSales
24C Accounting 4	28C SouthSales
23C Accounting 2	28C BamBam
20C 40 others	25C Engineering

Status Tasks

- Access event log
- View problems

Monitor

Navigate the list of active energy managed resources. Right-click a resource to view active energy properties and perform energy tasks.

Active Energy Managed Resources (View Members)

Name	Type	Description
0B4F0000-F1C6-11DA-8D...	Server	brownout22
BSOCLANCEY	SystemChassis	
hfactor261.raleigh.ibm.com	Virtual Server	
IBM 8676 L2X KPFRZD8	Server	

Page 1 of 2 | Total: 7 Filtered: 7

Monitor Tasks

- View trend data
- Calculate energy cost
- View data monitors

Manage

Set power caps and power saver mode. Configure energy-related metering devices.

The number of resources using Active Energy management functions

Currently	Within last 24 hours
25 Power cap	34 Power cap
17 Group power cap	23 Group power cap
2 Power saver	12 Power saver

Management Tasks

- Work with power policies
- Set power cap
- Set power savings options
- Configure metering device

Automate

Create automation plans to run in response to energy events.

Event automation

Specify actions to take in response to energy events.

Automation Tasks

- Manage thresholds

License

Beta period expires on Jan 13, 2009 (in 146 days).

Active Energy Manager home page

Go to the product home page to purchase the full license.

Active Energy management functions have been used on 65 resources in the past 24 hours.

Energy Management

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- Topology Map
 - System “plugged into” PDU

The screenshot shows two overlapping windows from an energy management system. The top window is titled "Energy Cost Calculator" and contains a "Target" section with a dropdown menu set to "brownout221.rchland.ibm.com" and a "Calculate Energy Cost" button. Below this is an "Energy" section featuring a semi-circular gauge with values 0, 0.323, 0.647, and 0.97. To the right of the gauge is a grey arrow pointing right. Below the gauge is an "Energy Cost" section listing: Price per kilowatt-hour: \$0.14, Cooling rate multiplier: 1.5, Nameplate energy cost: \$0.34, and Metered energy cost: \$0.15. The bottom window is titled "Trend Data" and shows two line graphs. The top graph, "Average Input Power", plots power in Watts (0 to 4800) against time from 10:10:00 to 11:10:00. The bottom graph, "Ambient temperature", plots Celsius Percent (0 to 100) against the same time period.

This page displays the Active Energy Monitors monitors.

0B4F0000-F1C6-11DA-8D44-0...

Select	Name	Monitor Name	Monitor Type	Threshold St	Current
<input type="checkbox"/>	0B4F0000-F1C6-	Ambient Temperature	Individual		25.00
<input type="checkbox"/>	0B4F0000-F1C6-	Average Input Power	Individual		449.40
<input type="checkbox"/>	0B4F0000-F1C6-	Average Output Power	Individual		428.00
<input type="checkbox"/>	0B4F0000-F1C6-	Effective CPU Speed	Individual		100.00
<input type="checkbox"/>	0B4F0000-F1C6-	Exhaust Temperature	Individual		40.00



Energy Management

- Energy Usage Summary
- Monitoring, automation
 - power and temperature values
 - Trend Data
 - Watt-Hour Meter
- **Configuring Energy**
 - Power capping
 - Power savings mode →
 - Configure PDU
- Update PDU firmware
- Topology Map
 - System “plugged into” PDU

Power Capping

Choose either an absolute power cap, or a percentage of the available power cap.

Activate Power Capping Deactivate Power Capping

Power cap type:
Absolute value (Watts) ▾

Power cap value:
212W W
816W

Targets:

Name	Current power cap	Power Capping
0B4F0000-F1C6-11DA-8D44-00	500W (47.68%)	Active

Page 1 of 1 1 Total: 1

Save Close

Active Energy Manager Resources (View Members)

Actions Search th

Name
0B4F0000-F1C6-11DA-8D44-00
BC-HTNew
BSOCLANCEY
E45D1DD7-60C1-3604-8282

Page 1 of 4 1

- Related Resources
- Topology Perspectives
- Create Group
- Remove...
- Rename...
- Add to
 - Energy
 - Energy Cost Calculator
 - Trend Data
 - Manage Power
- Inventory
- Power On/Off
- Release Management
- Security
- System Configuration
- System Status and Health
- Properties



Tivoli Provisioning Manager for OS Deployment

- IBM Systems Director Edition

OS Deployment for System x and BladeCenter servers

Integrated Solutions Console

Welcome Administrator Help | Logout

View: All tasks

- Welcome
- My Startup Pages
- Find a Task
- Find a Resource
- Navigate Resources

Automation

Availability

Inventory

Release Management

- OS Deployment**
- Blade Servers
 - Hardware Configurations
 - OS Configurations
 - Software Modules
 - Deployment Schemes
- Updates
- Agents

Security

System Configuration

System Status and Health

Task Management

Settings

Navigate Re... x TPM for OS ... x

- Virtualization Manager** 6.1.0
Ready
Set up virtualization manager Virtual Servers and Hosts
- Remote Access** 6.1.0
Ready
Setup Remote Control
- Storage Management** 6.1.0
Ready
SMI-S Providers Systems And Volumes
Storage Subsystems And Volumes
- BladeCenter and System x Management** 6.1.0
Ready
View I/O module plug-ins Blade servers and chassis
Servers and service processors
- Power Systems Management** 6.1.0
Ready
AIX/Linux virtual servers IBM i virtual servers
- System z Management** 6.1.0
Ready
z/VM hosts Linux on System z
HMC and managed system z servers
- TPM for OS Deployment**
Error communicating with parent OS deployment server.

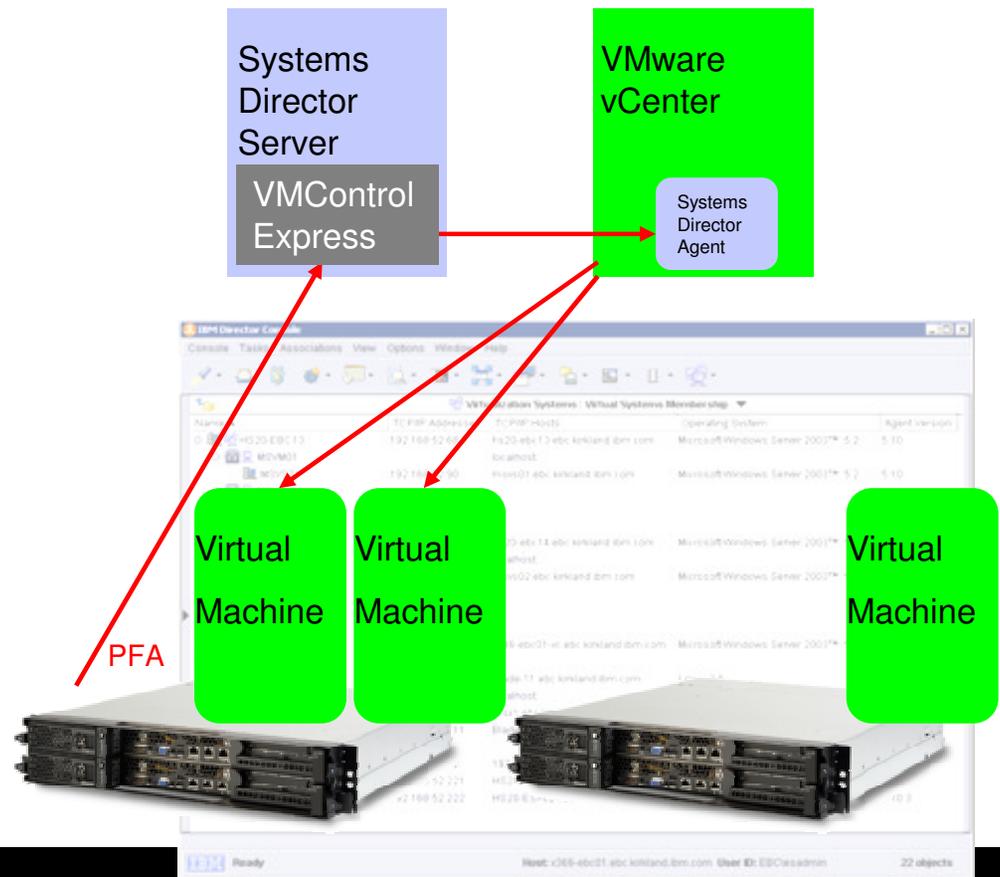
Refresh Last refreshed: 22 October 2008 13:01:07 o'clock CEST

- ❑ Systems Director 6.1 plug-in to rapidly and confidently deploy Operating Systems and images on PCs or servers
- ❑ Delivers the ability to automate bare metal provisioning, from firmware and driver updates to operating system deployment
- ❑ Reduces image administration and network deployment costs
- ❑ Minimizes local and remote image storage costs
- ❑ Hardware configuration (BIOS update, RAID, firmware updates, etc.)



Systems Director VMControl Express for x86

- VMControl Express is a free Systems Director plug-in available for download
- VMControl Express extends the virtualization management of Systems Director, combining with base Systems Director to provide virtual server life cycle management for
 - VMware ESX
 - VMware ESXi with vCenter
 - Microsoft Hyper-V
 - SLES 10 with Xen
 - RHEL 5.2 with Xen
- Provide linkage between Systems Director server and VMware VirtualCenter 2.5 or vCenter 4.0 to
 - Use a single tool--Systems Director--to manage both physical and VMware virtual servers
 - Use System Director automation to link physical alerts to VMware advanced functions such as VMotion™



Enhancing IBM Systems Director Value with Module Plug-Ins

- ❑ IBM Systems Director **Active Energy Manager** to monitor and manage energy usage
- ❑ BladeCenter **Open Fabric Manager** to preconfigure blade servers and provide automated failover
- ❑ **Tivoli Provisioning Manager** for OS Deployment – IBM Systems Director Edition for bare-metal provisioning
- ❑ IBM Systems Director **VMControl Express** for virtual server lifecycle management and integration with VMware vCenter
- ❑ IBM Systems Director **Network Control** to monitor and manage network hardware devices and effectively manage your computing environment with a single integrated management tool
- ❑ IBM Systems Director **Service and Support Manager** to capture service information and report electronically to IBM support
- ❑ IBM Systems Director **Transition Manager for HP® SIM** to leverage knowledge of HP SIM to quickly learn to manage with Systems Director



IBM Systems Director



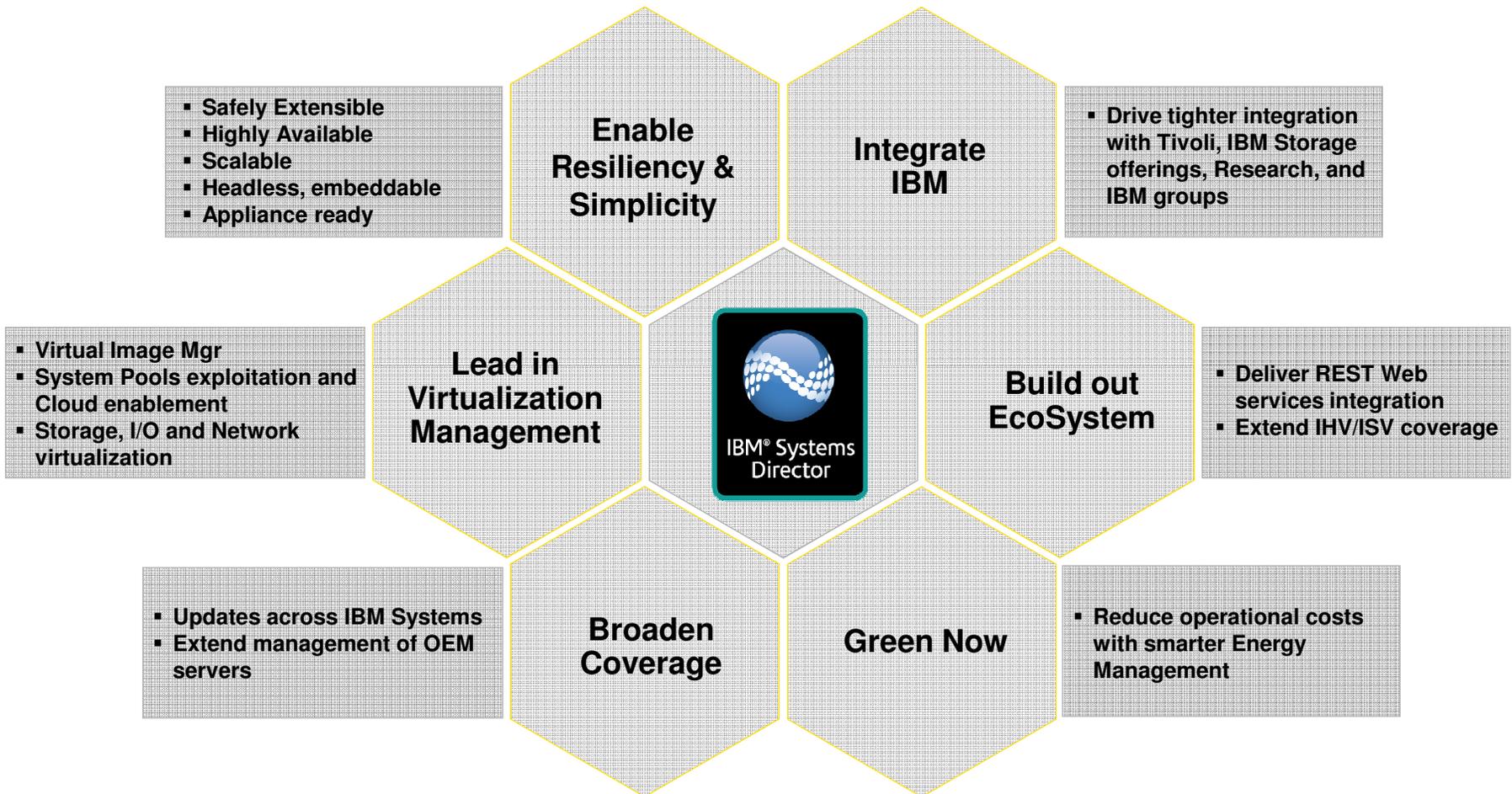
**ToolsCenter
IBM Service Advisor**



**IMM
UEFI**



IBM Systems Director Strategy – in a Nutshell



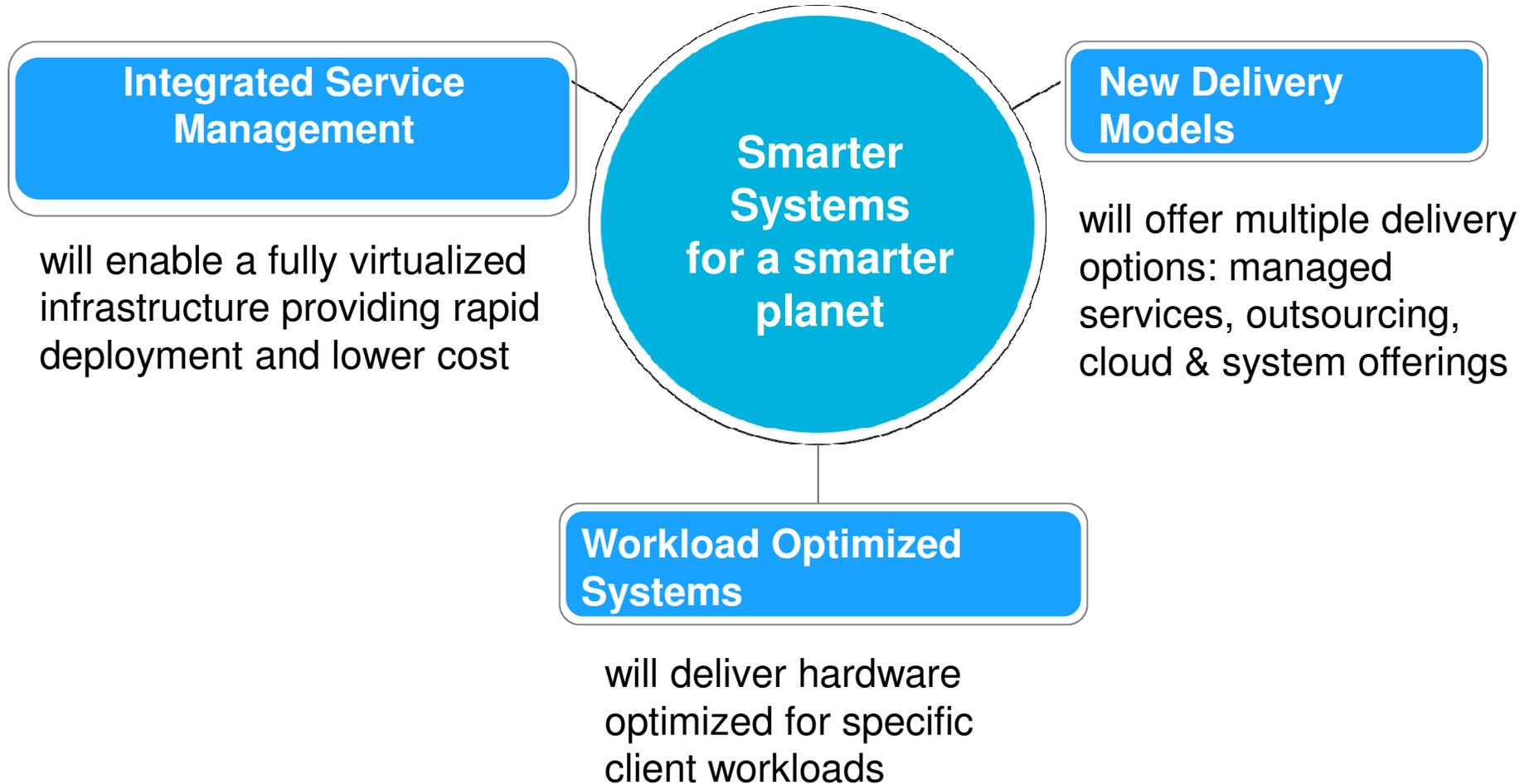


Putting It All Together



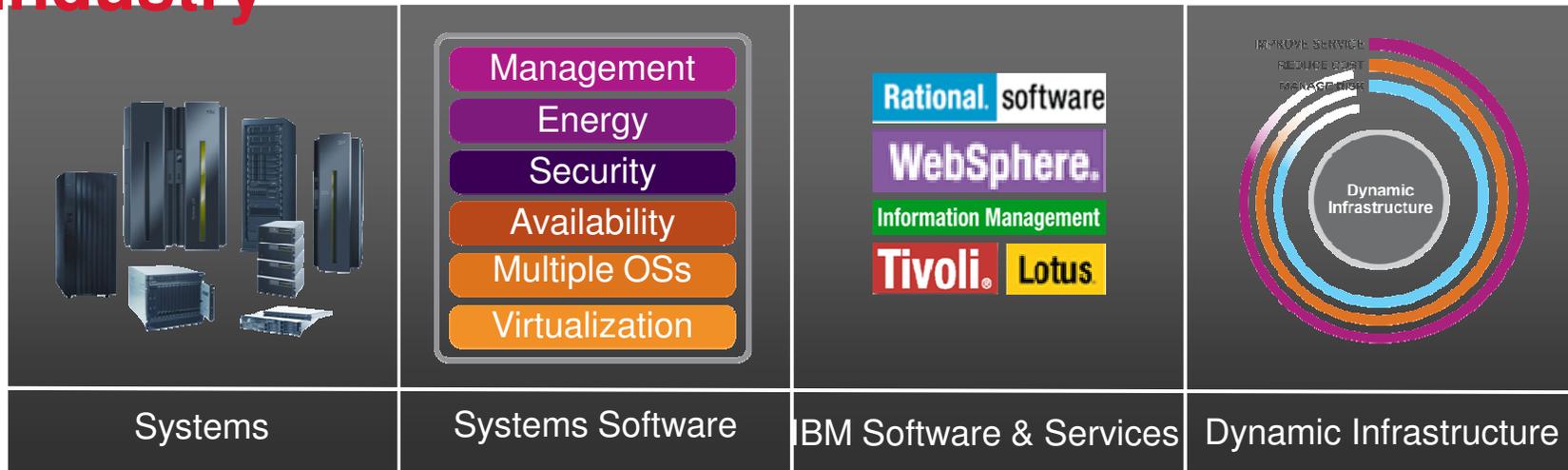


IBM delivers an end-to-end solution





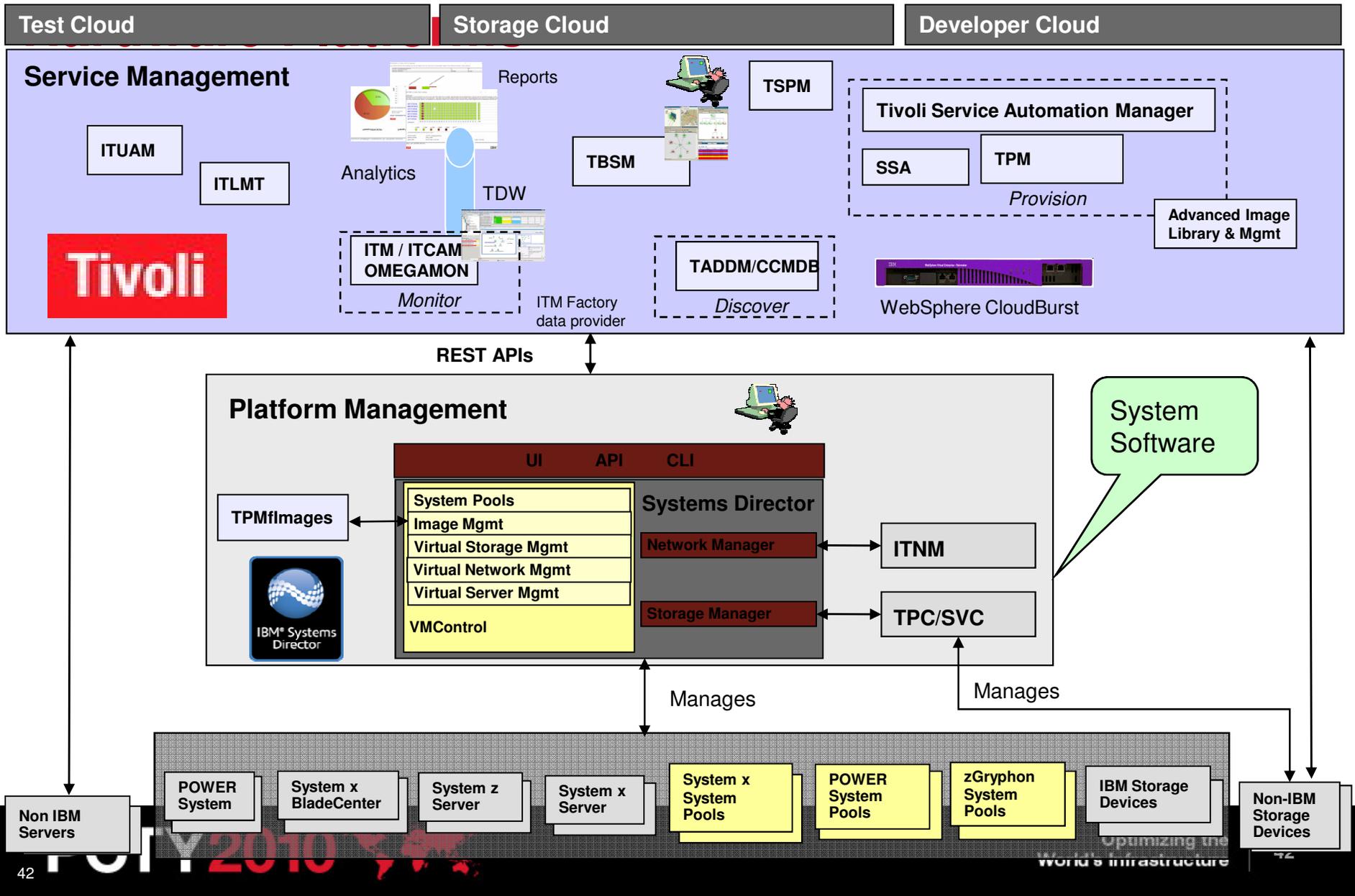
IBM is Setting the Infrastructure Agenda for the Industry



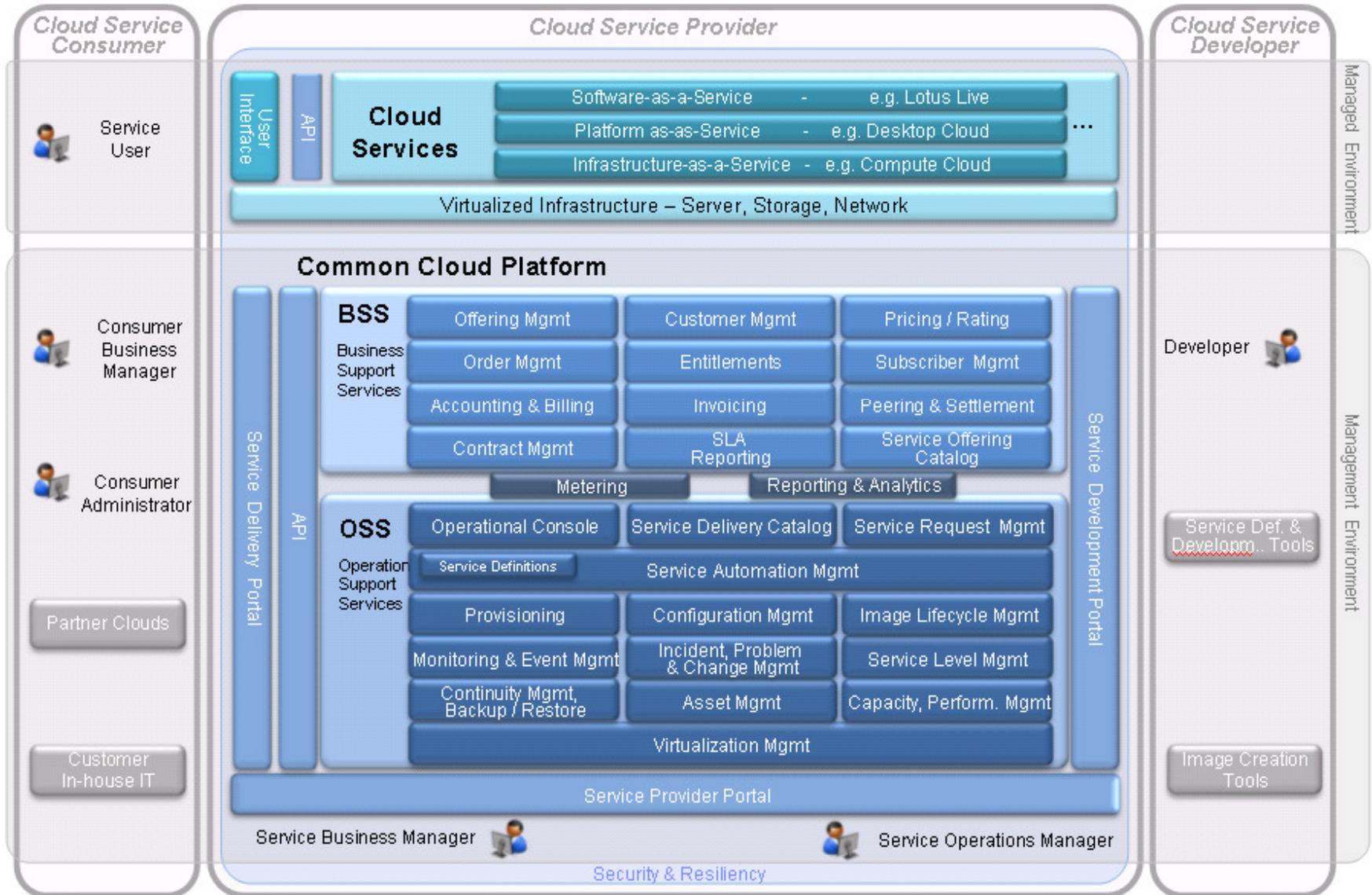
Delivering business value by helping clients improve service, reduce cost and manage risk

- ❑ Systems that are fit for purpose
- ❑ Technology and expertise to drive business advantage
- ❑ Leading management, energy, security, resiliency and virtualization and consolidation capabilities
- ❑ Breadth of IBM to provide end-to-end business solutions

IBM's Goal: Single Software Stack across



Cloud Computing Functional Architecture





Masking the Complexities with a Simple Web Front UI

Tivoli Service Automation Manager Welcome Bill Man About Help Logout IBM

Home > Request a New Service > Virtual Server Management

My Requests

Resolved (104) Failed (27) Queued (2) In Progress (1) Waiting on Approval (1) **Total (135)**

My Projects

Operational (22) Draft (2) In Transition (1) **Total (25)**

My Approvals

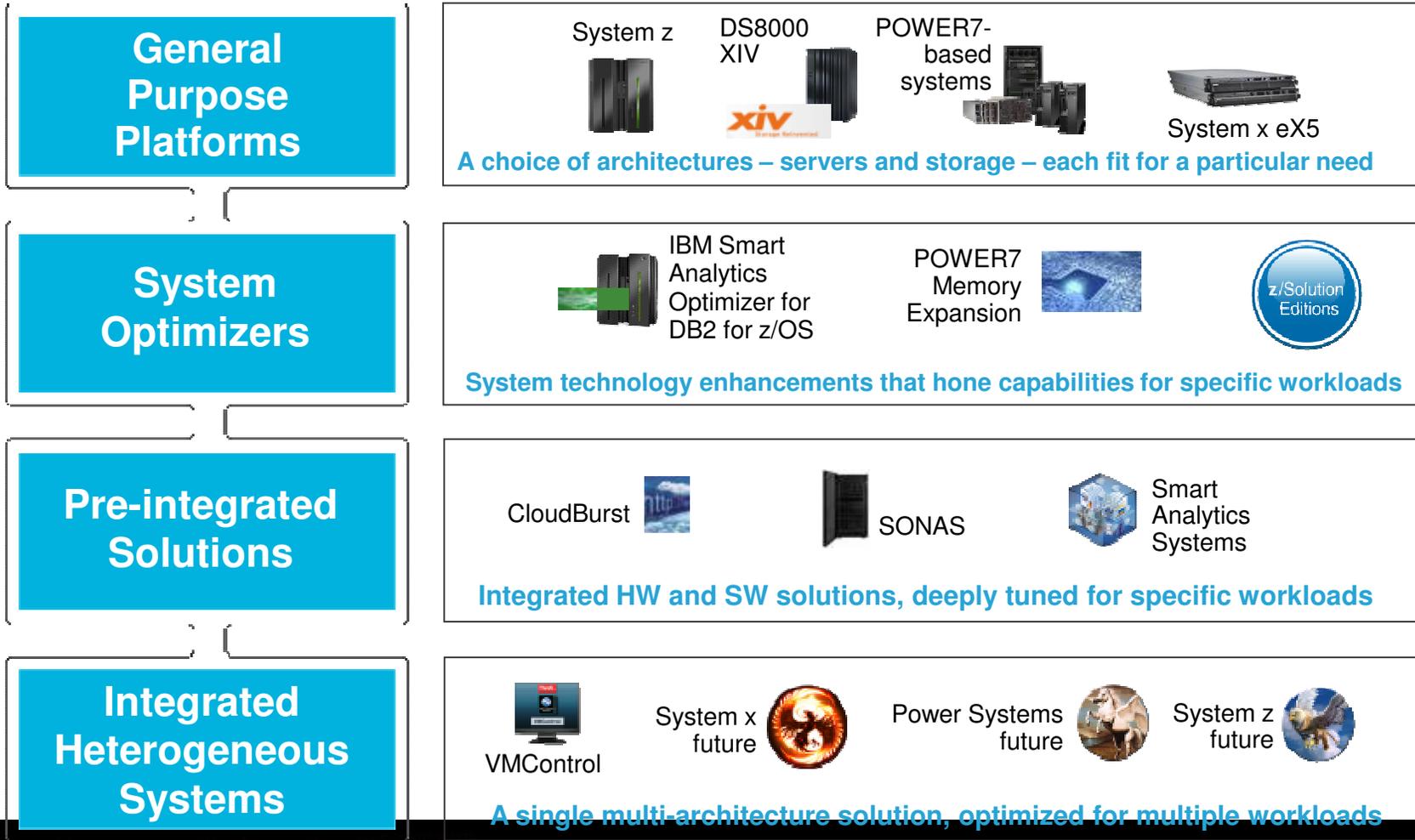
Recent Activity: Modify User wally 10/14/2009

Main Content Area:

- Backup and Restore Server Image
- Manage Users
- Modify Server
- Cancel Project: Use this task to cancel a project. All of its virtual servers will be returned and made available for other users. Any saved images will also be deleted.
- Cancel WebSphere CloudBurst Project: The virtual system created upon WebSphere CloudBurst Pattern deployment and all of its virtual servers are deleted.
- Create Project with System p LPAR Servers: Provision one or more System p LPARs containing a software image.
- Create Project with Xen Servers: Provision one or more Xen virtual servers containing a software image.
- Create Project with z/VM Linux Servers: Provision one or more z/VM Linux virtual servers containing a software image.
- Manage Image Library
- Modify Project
- Create Project with KVM Servers: Provision one or more KVM virtual servers containing a software image.
- Create Project with VMware Servers: Provision one or more VMware virtual machines containing a software image.
- Create Project with a WebSphere CloudBurst Pattern: Provisions a WebSphere CloudBurst Pattern to a set of virtual servers in a WebSphere CloudBurst cloud group.

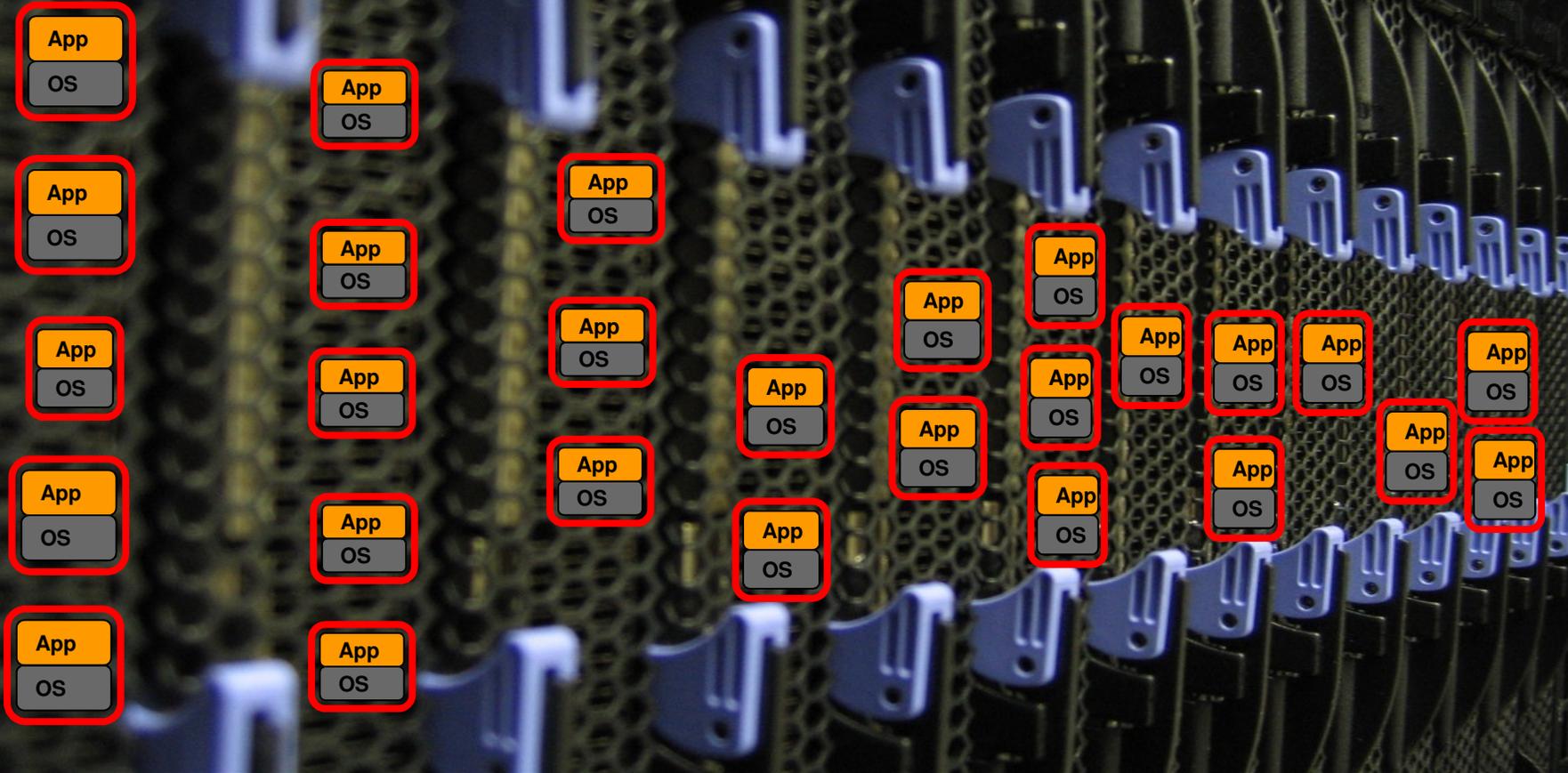


Deliver a spectrum of offerings optimized to address the requirements of different workloads while providing choice to our clients





Enhance Your Data Center Control with *Integrated Service Management*



Virtualized SAN and Network Infrastructure



Thank You

Benjamin Lim | limkwb@sg.ibm.com

