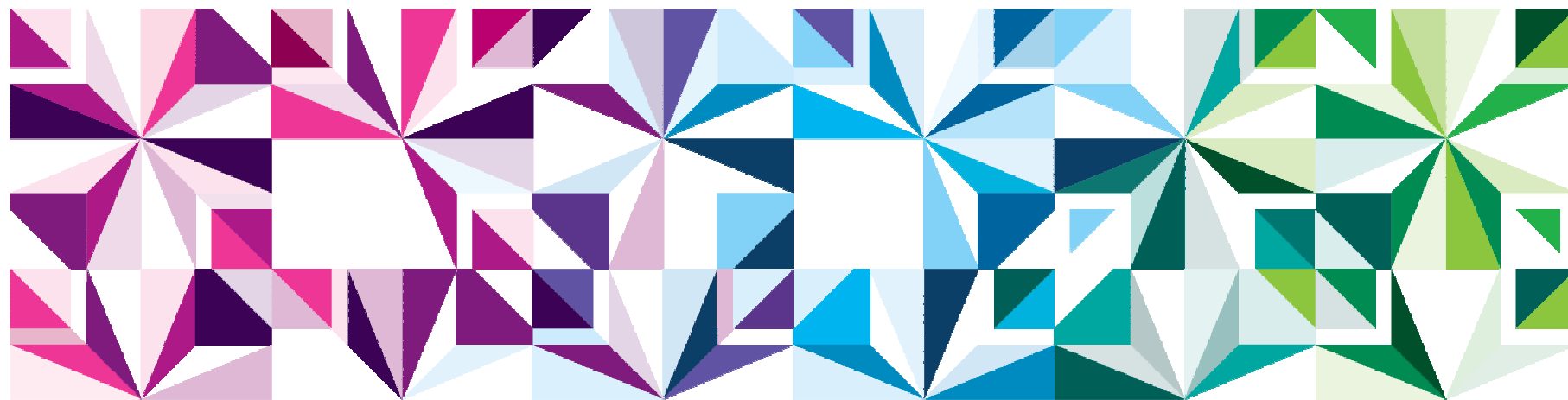


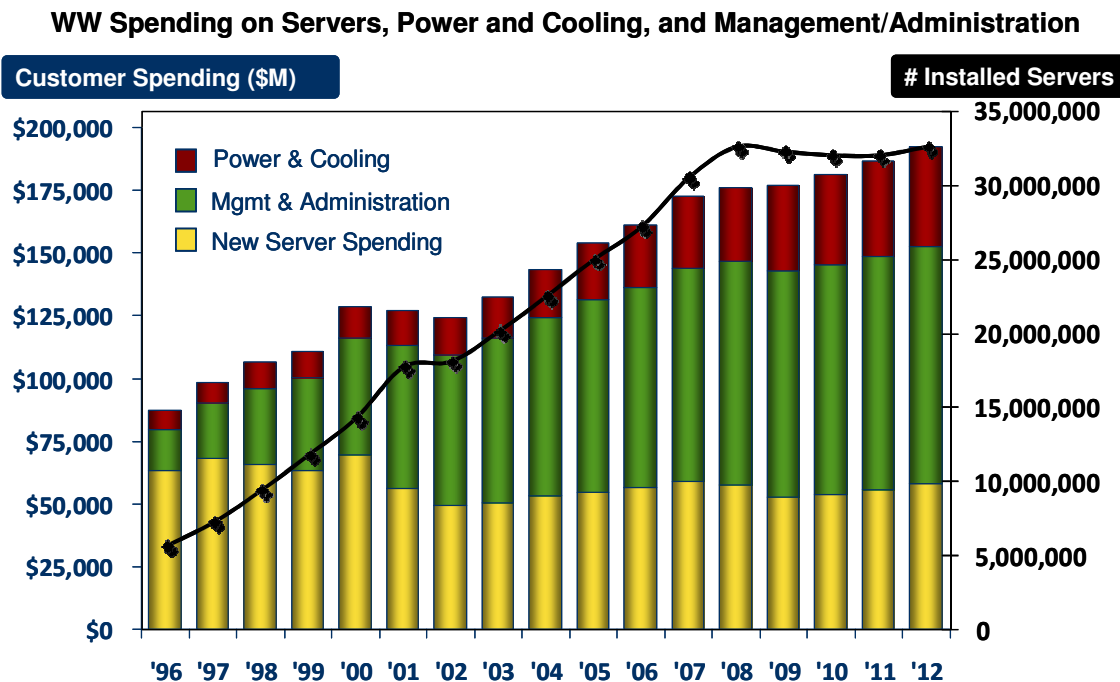
Bill Melton  
PureFlex Tiger Team  
meltonw@us.ibm.com

# IBM PureFlex™ System



# IT has felt the impact of the new economic conditions

- Organizations have had to change their IT strategy.
- They must do more with less, fully utilize every resource and automate wherever possible.
- Management & Administration costs yield largest area for reduction opportunities



Servers



# IT must break through budget and resource barriers

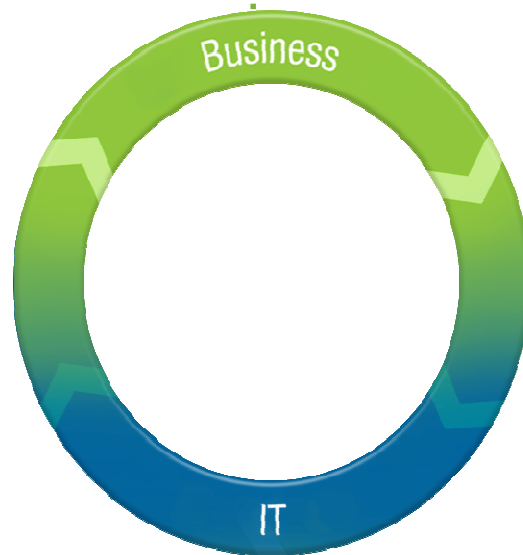
## Business Goals

Grow top and bottom line by:

- Driving business innovation
- Make new markets
- Respond to competitive threats
- Enhance the customer experience

## Typical Results:

- 23% of new IT projects (worldwide) deploy late
- 55% experience application downtime for major infrastructure upgrades once deployed



## IT Reality

### Getting Up and Running

- 2-3 months to specify and procure
- 2-3 months to integrate, configure and deploy

### Development Operations

- 3-6 months to go from development to production

### Ongoing Effort

- 1-3 months to troubleshoot and tune
- Ongoing effort and downtime to maintain, scale and upgrade

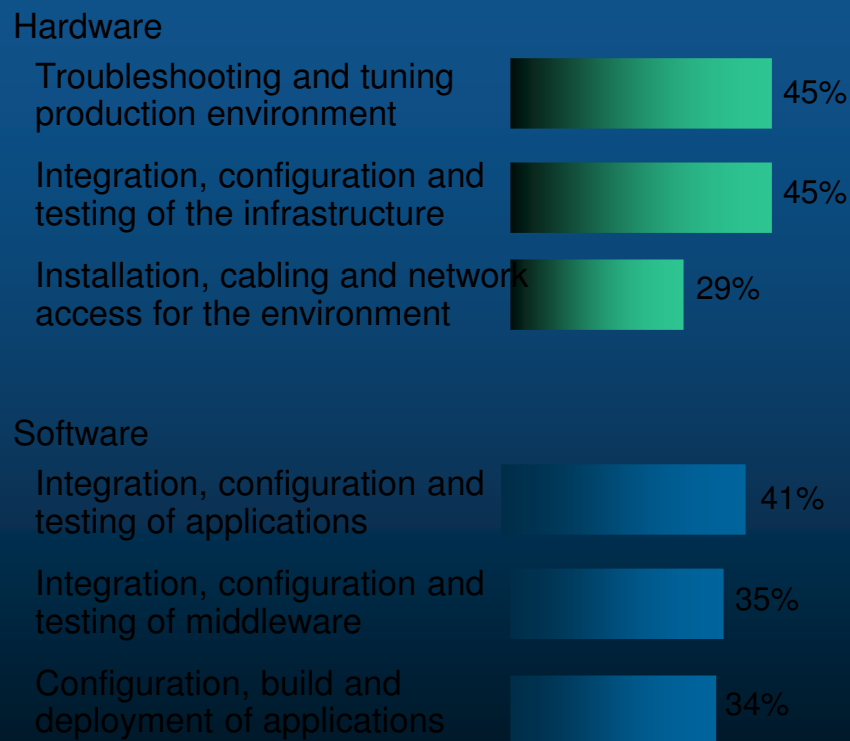
# Clients struggle to overcome barriers of time, cost and risk

## Typical IT Project Time and Budget

Phase	Time (days)	Budget
Specify/design	73 - 96	14% - 16%
Procure	57 - 112	19% - 21%
Implement	74 - 93	12%
Configure/test	74 - 80	10% - 11%
Cluster & HA	66 - 104	11% - 12%
Backup	44 - 108	10%
Tune	89 - 98	9% - 10%
Management	67 - 110	9 - 10%

*34% of new IT projects (US) deploy late*

## Top Causes of Project Delays



From a commissioned study conducted by Forrester Consulting on behalf of IBM

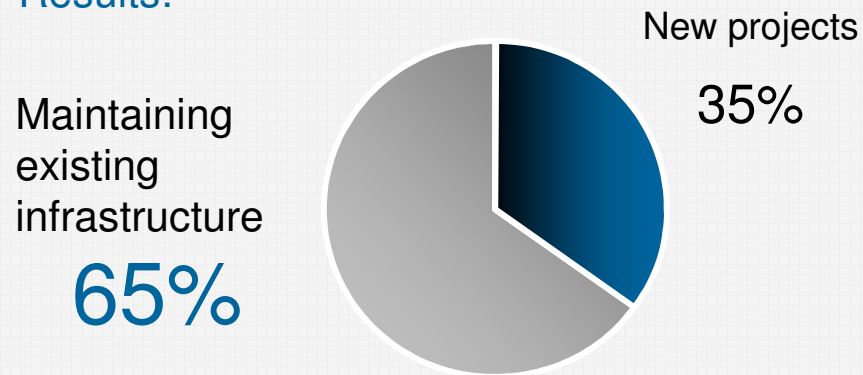
# Only 1 in 5 can allocate more than half their IT budget to innovation

## Least efficient data centers

### Use of new technology:

- 43% first and fast technology adoption
- 1% move virtual machines to meet desired outcomes
- 21% use storage virtualization
- 3% use a storage service catalog (tiered storage)

### Results:

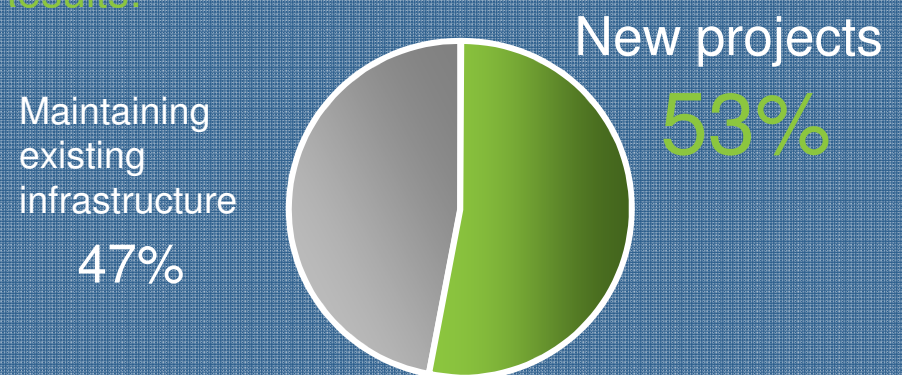


## Most efficient data centers

### Use of new technology:

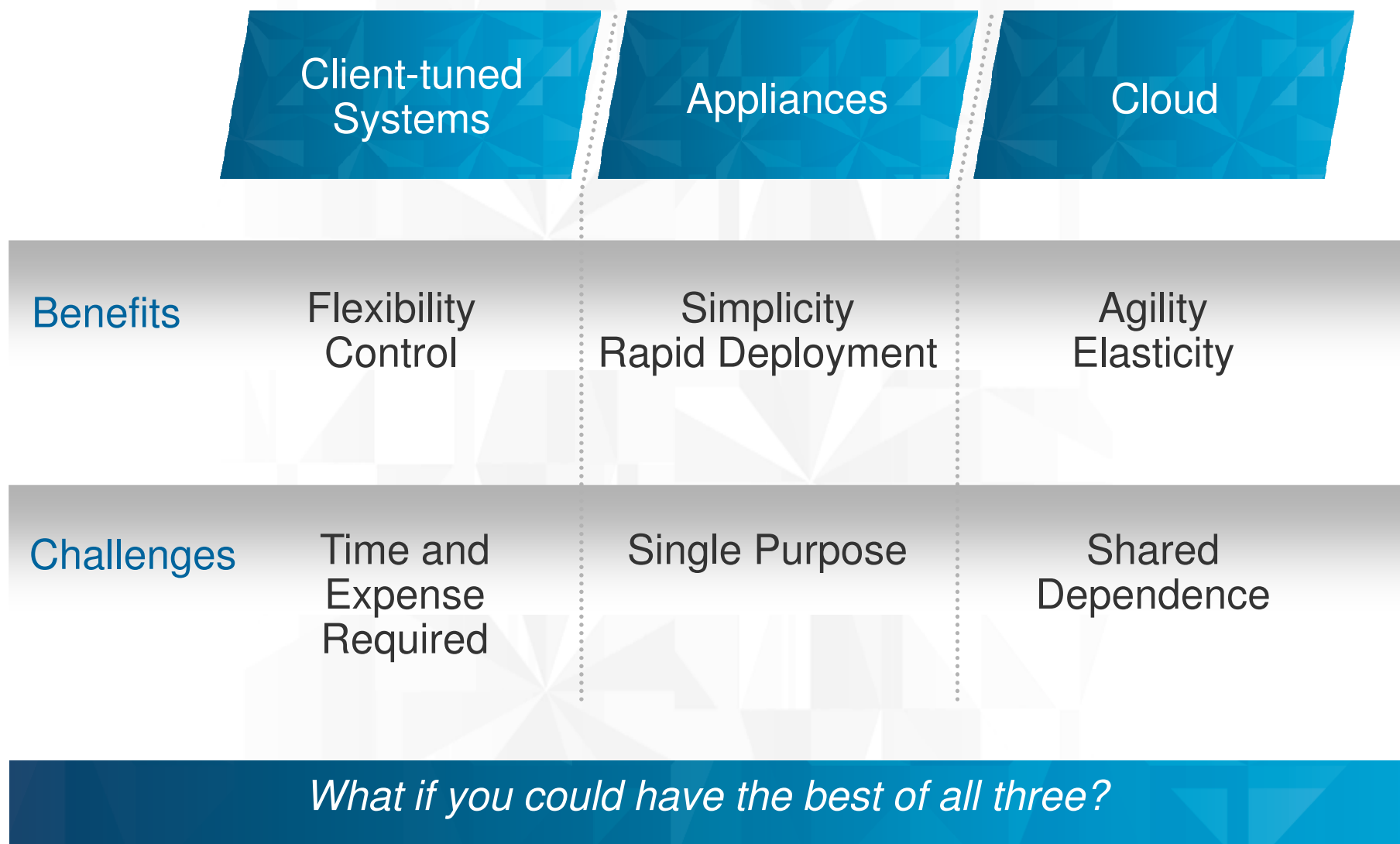
- 86% first and fast technology adoption
- 58% move virtual machines to meet desired outcomes
- 93% use storage virtualization
- 87% use a storage service catalog (tiered storage)

### Results:



Source: 2012 IBM Data Center Study: [www.ibm.com/data-center/study](http://www.ibm.com/data-center/study) ( <http://www.ibm.com/data-center/study> )

## Clients have tried various approaches to close the gap



The time has come for a new breed of systems

*Systems with integrated expertise and built for cloud*

# PureSystems

## Built-in Expertise

*Capturing and automating what experts do – from infrastructure patterns to application patterns*



## Integration by Design

*Deeply integrating and tuning hardware and software – in a ready-to-go workload optimized system*

## Simplified Experience

*Making every part of the IT lifecycle easier - with integrated management of the entire system and a broad open ecosystem of optimized solutions*

# Announcing the first two members of the IBM PureSystems family

## PureFlex

**Infrastructure System:**  
*Expert at sensing and anticipating resource needs to optimize your infrastructure*



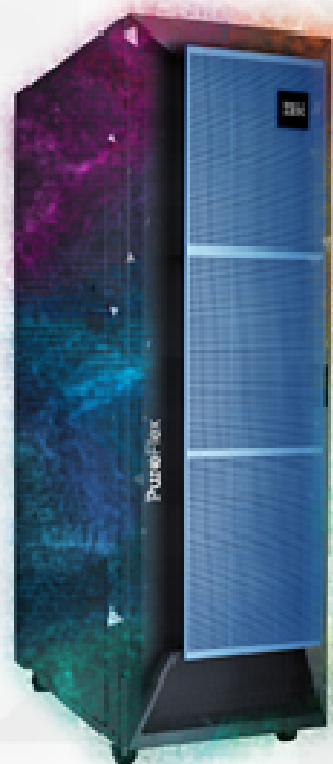
## PureApplication

**Platform System:**  
*Expert at optimally deploying and running applications for rapid time-to-value*



**Built-in expertise ■ Integration by design ■ Simplified experience**





The anatomy of  
the IBM PureFlex System

What's inside?

# Enterprise Chassis Design

## Chassis



System infrastructure

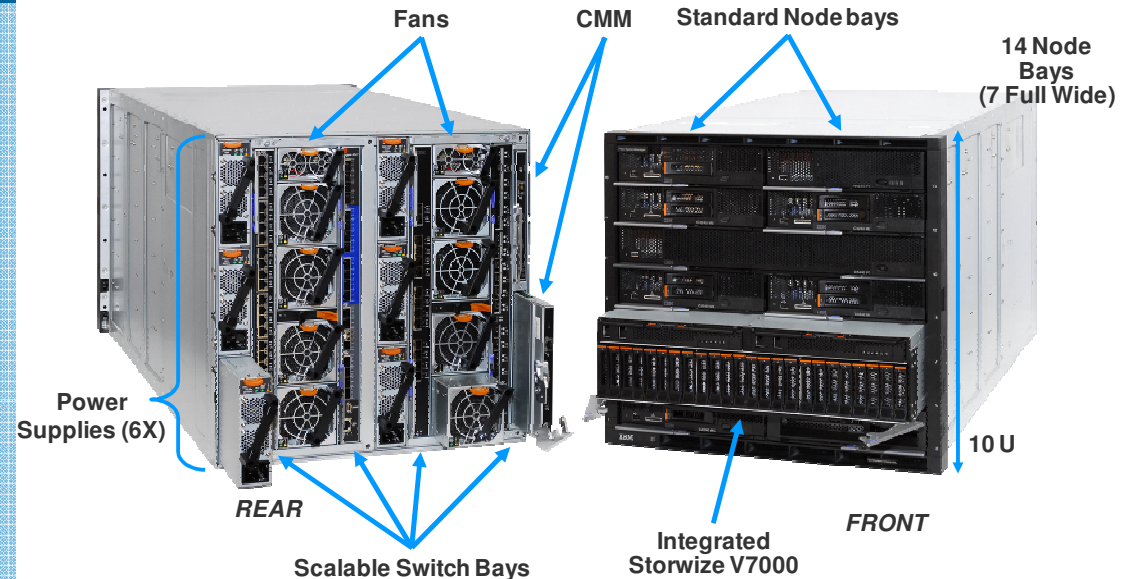
Infrastructure to support the compute, storage and networking components

Energy efficient cooling and power system

Easy to use with integrated single-point management

Designed to support future advancements in I/O, processors, memory, and storage

## IBM Flex System Chassis



- 4 scalable switch bays
- 10U Chassis, 14 bays
- Standard and Full width node support
- Up to 6 2500W power supplies N+N or N+1 configurations
- Up to 8 cooling fans (scalable)
- Integrated chassis management through CME

## Integrated Compute Nodes

No Compromise designs for full performance





- ▶ Support multiple architectures using up to 14 POWER7 or x86 nodes per chassis
- ▶ Support for applications across 4 operating environments
- ▶ Secure startup for both physical and virtual environments

## Diverse offerings to match the diverse workloads

**System infrastructure**

**Compute**



System Portfolio tuned to workloads

◇

Reduce acquisition costs through virtualization consolidation

◇

Maximum platform capability provides deployment flexibility



**IBM Flex System x240**



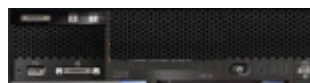
**IBM Flex System x220**



**IBM Flex System p260**



**IBM Flex System p460**



**IBM Flex System p24L**

# IBM Flex System x240 - Enterprise Class

## Compute



Standard Width compute node

2-socket Sandy Bridge-EP

24 LP DDR3 DIMMs /  
1333MHz / 1600MHz

10Gb Converged LOM

2 hot swap 2.5" SAS/SATA  
SSDs or HDDs

Dual Enabled Hypervisor –  
ESXi on Flash Key Option



System infrastructure



IBM Flex System x240

*Uncompromised Compute, IO, and Storage performance, designed for mainstream virtualization, and a broad range of workloads*

2x IO Mezzanine Cards

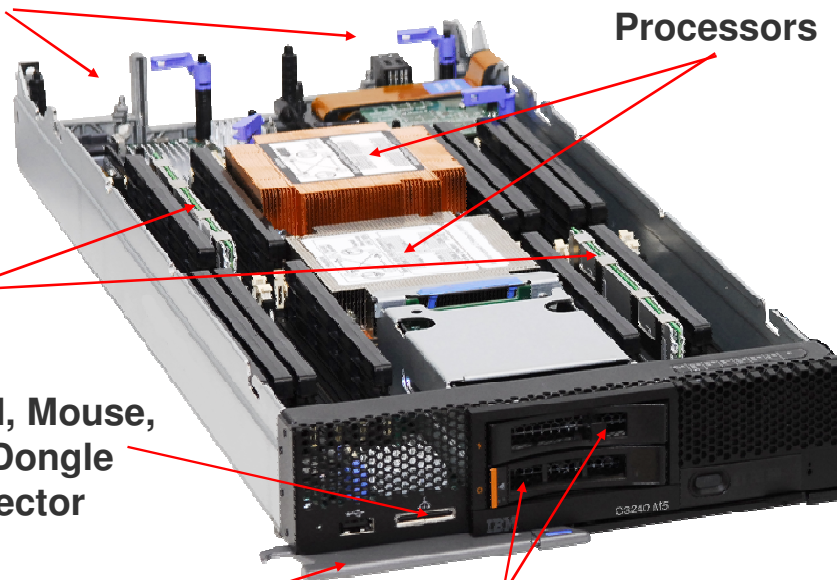
2x Intel E5 2600  
Processors

24 LP  
DIMMs

Keyboard, Mouse,  
Video Dongle  
connector

Release latch

2x Hot Swap, Small  
Form Factor HDDs



# IBM Flex System x220 - Value Class

## Compute



Standard Width compute node



2-socket Sandy Bridge-EN



12 LP DDR3 DIMMs /  
1333MHz / 1600MHz



1G base with FoD to 10Gb



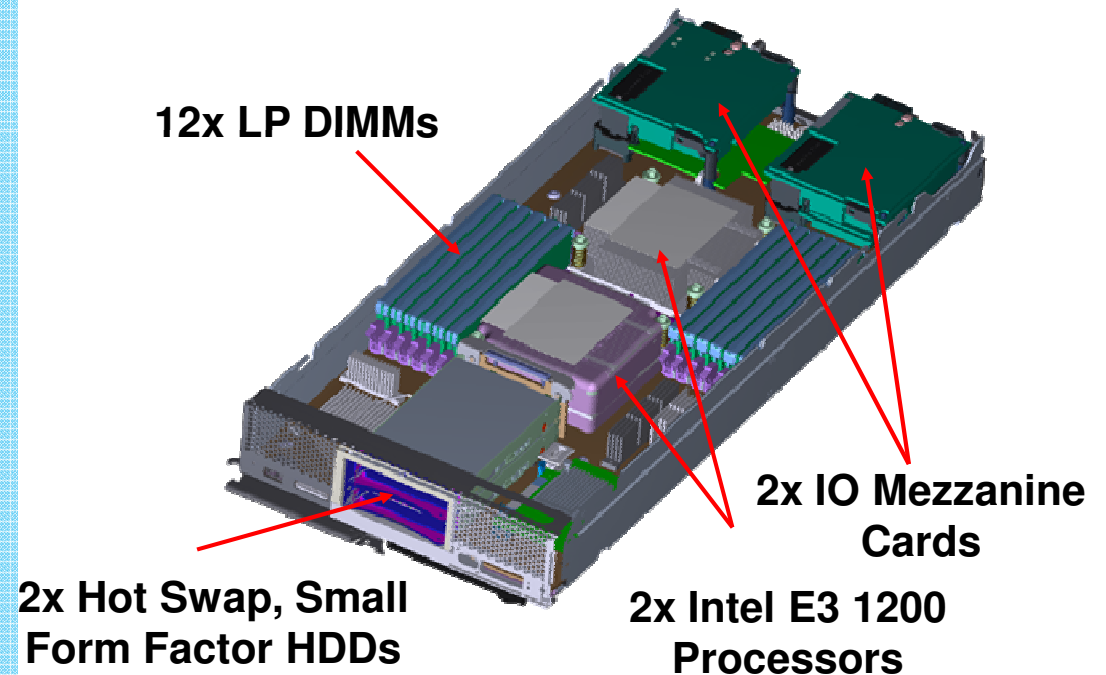
2 hot swap 2.5" SAS/SATA  
SSDs or HDDs

System infrastructure



IBM 2S EN Compute Node

*Entry cost optimized compute, designed for energy-efficiency, ideal for native and point application workloads*



# IBM Flex System p260

## Compute



Standard Width compute node

◇  
2-socket POWER7®

◇  
64-bit POWER7® processor

◇  
16 core : 2 Socket x8 core

◇  
16 DIMMs DDR3, 1066 MHz, 256GB Max

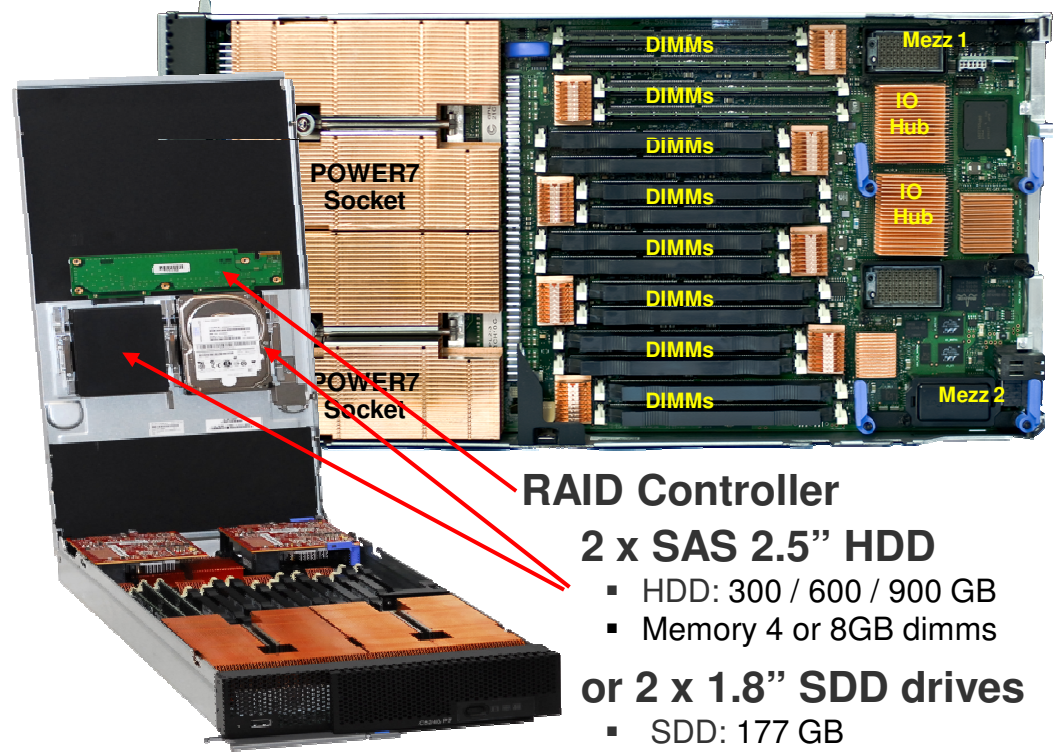
◇  
Dual Mezz cards and IO Hubs

System infrastructure



IBM Flex System p260

*Power is Performance Redefined  
Delivers over 30% greater performance with  
similar density and energy use of the previous  
POWER7 blades*



### RAID Controller

#### 2 x SAS 2.5" HDD

- HDD: 300 / 600 / 900 GB
- Memory 4 or 8GB dimms

#### or 2 x 1.8" SDD drives

- SDD: 177 GB
- 2 / 4 / 8 / 16 GB dimms

# IBM Flex System p460

## Compute



System infrastructure

Full Width compute node

◇  
4-socket POWER7®

◇  
64-bit POWER7® processor

◇  
32 core : 4 Socket x8 core

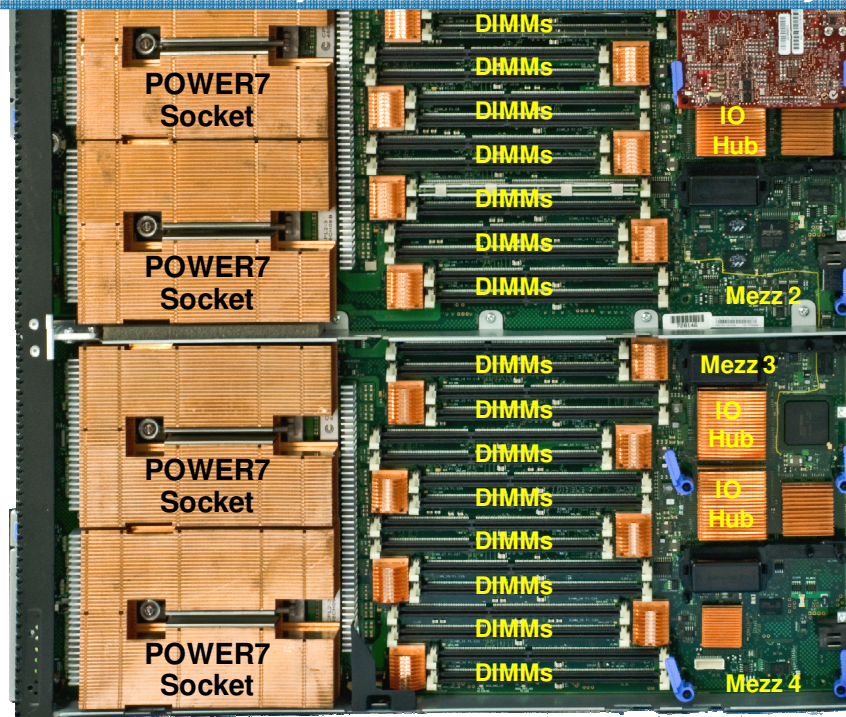
◇  
32 DIMMs DDR3, 1066  
MHz, 512GB Max

◇  
Quad Mezz cards and IO  
Hubs



IBM Flex  
System p460

*Power is Performance Redefined  
The same 4-socket server technology behind  
Watson, is now enhanced and available on  
Power Compute Node for IBM Flex System*



\*HDD or SSD – Mounted on cover (located over memory)



## Integrated Storage

Store more for less



- ▶ Virtualize existing storage - IBM's or competitor's - and migrate data without disruption
- ▶ Optimize application performance with Flash storage and Intelligent Storage Tiering
- ▶ Double storage efficiency and improve transactional performance up to 300%

## Storage – Different (and Better) by Design...

### IBM Flex System Storage



System infrastructure

- **Open, multi-vendor virtualization based on proven technology**
  - Over 20,000 installations worldwide
  - Unmatched interoperability and investment protection
  - Low switching costs
  - Seamless, transparent migration with no service disruption
  - Up to 30% higher utilization of newly deployed and preexisting storage assets
- **Automated intelligent data placement with EasyTier™**
  - **Up to 3X performance** improvement with **as little as 10-15% SSD** capacity
  - “Learns” and adapts to dynamic, mixed workload environments automatically



# IBM PureFlex System Storage interoperability

## Storage

**IBM Flex System V7000 Storage Node**

- ✓ Integrated virtualized IBM Flex System Storage

**IBM Flex System Storage Virtualization**

- ✓ Virtualize external Storage for greater data center efficiency and utilization
- ✓ Avail in: Storwize V7000, IBM Flex System V7000, & SVC

**IBM Flex System Storage Interoperability**

- ✓ Broad set of IBM storage supported with IBM Flex System
- ✓ Interop with 3<sup>rd</sup> party via Virtualization

**IBM Flex System FSM Storage Control**

- ✓ Discovery and Inventory
- ✓ Monitoring and Alerts
- ✓ Configuration
- ✓ Provisioning

**IBM Flex System FSM Advanced**

- ✓ Integrated virtualization management across server, storage, network
- ✓ Image repository and management  
Storage provisioning for image creation, deployment, and cloning
- ✓ System Pools
- ✓ Integrated management of storage in lifecycle of defining and managing system pools
- ✓ Virtual Image Cloning
- ✓ Integrated storage provisioning and virtual image placement for new virtual machines

*Centralized management to reduces costs and complexity across server and storage*

## IBM Flex System Chassis

**Direct Interoperability or via Storage Virtualization**

**Via Storage Virtualization**

**DS8100, DS8300, DS8700, DS8800, XIV, Storwize V7000**

**DS3400, DS3500, DS4100, DS4200, DS4300, DS4400, DS4500, DS4700, DS4800, DS5020, DS5100, DS5300, N3600, N3700, DS6800**

**EMC, HP, Dell**

Included in Base Director

# Integrated Storage Management

Storwize V7000 and PureFlex System V7000 storage are virtualized

IBM Flex System Manager™ contains the following plug-ins. Depending on its 'readiness', the plug-in might be ready to use, or might require additional setup and configuration.

- Refresh Last refreshed: January 18, 2012 12:05:37 PM CST
- ✔ **IBM Flex System Manager™ 1.1.0**  
 Ready  
 Chassis Manager Management Domain
  - i **IBM Flex System Manager™ Server 6.3.1**  
 1 User does not have access to any resources  
 Manage Users
  - i **Discovery Manager 6.3.1**  
 8 Systems have no inventory collected.  
 System Discovery Resource Explorer  
 View and Collect Inventory
  - ✔ **Status Manager 6.3.1**  
 Ready  
 Health Summary Monitors
  - ✔ **Update Manager 6.3.1**  
 Ready  
 Flex System Manager - Check and Update Acquire Updates  
 Show and Install Updates
  - ✔ **Automation Manager 6.3.1**  
 Ready  
 Event Automation Plans Active and Scheduled Jobs
  - ✔ **Configuration Manager 6.3.1**  
 Ready  
 Configuration Plans Configuration Templates
  - ✔ **Active Energy Manager 4.4.1**  
 Active Energy Manager is ready.  
 Deactivate
  - ✔ **Remote Access 6.3.1**  
 Ready  
 Setup Remote Control
  - ✔ **Storage Management 6.3.1**  
 Ready, IBM Flex System Manager Storage Control (4.2.2.94) installed  
 SMI-S Providers Systems And Volumes  
 Storage Subsystems And Volumes

**Additional plug-ins to activate**

There are no plug-ins to activate.

After purchasing a plug-in, Features on Demand Keys are required.

End-to-end capacity view of all storage

### Storage Management

This page shows a summary of the storage system based on the last discovery and inventory process.

**IBM Flex System Manager Storage**

✔ Running

? Why isn't IBM Flex System Manager Storage Control "running"

#### Capacity Summary

■ 4488 GB Total configured capacity (to volumes)  
■ 24973 GB Total available capacity (for volumes)

\*Actual available capacity may be less due to RAID overhead

#### Capacity Details

Location	Available GB	Usable GB	RAW GB	Systems	Disk Drives
Local Storage	0	0	0	1	3
BladeCenter Storage	0	0	0	0	0
Network Storage	24973	0	29468	1	22
<b>Total</b>	<b>24973</b>				

Storage system not being discovered? [Learn more](#)

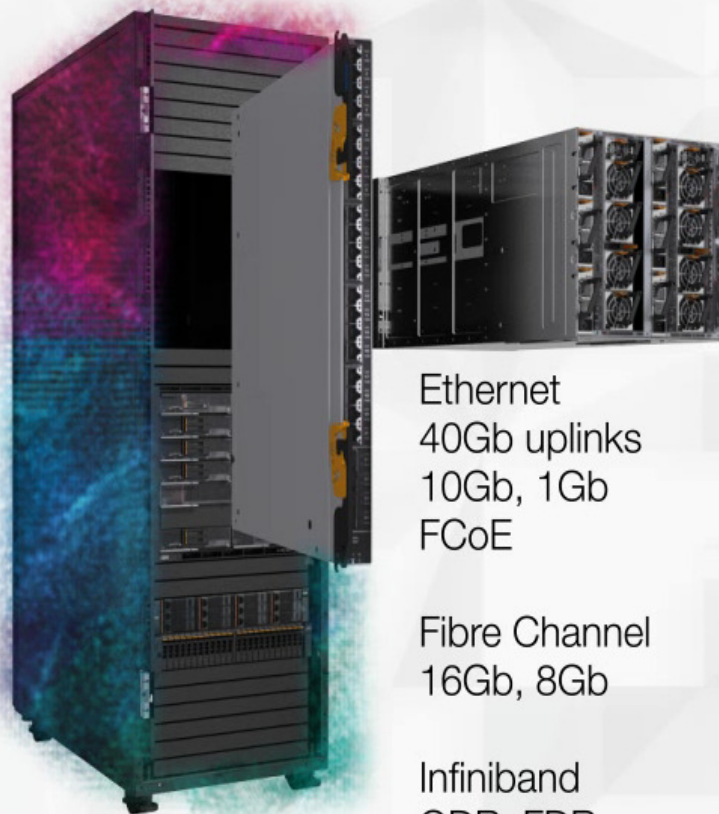
#### License

IBM Flex System Manager Storage Control 4.2.2.94 Installed

Details by storage type

## Integrated Systems Networking

Pay as you grow scalability



Ethernet  
40Gb uplinks  
10Gb, 1Gb  
FCoE

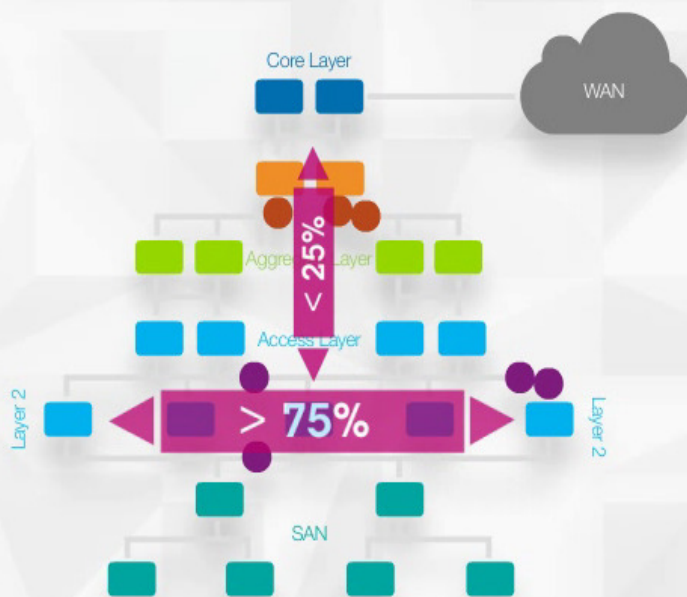
Fibre Channel  
16Gb, 8Gb

Infiniband  
QDR, FDR

- ▶ Low latency, terabit switching and network bandwidth-on-demand
- ▶ Virtual Machine Ready networking
- ▶ 80Gb of Ethernet bandwidth and network intelligence to every compute and storage node

## Integrated Networking...Design Matters

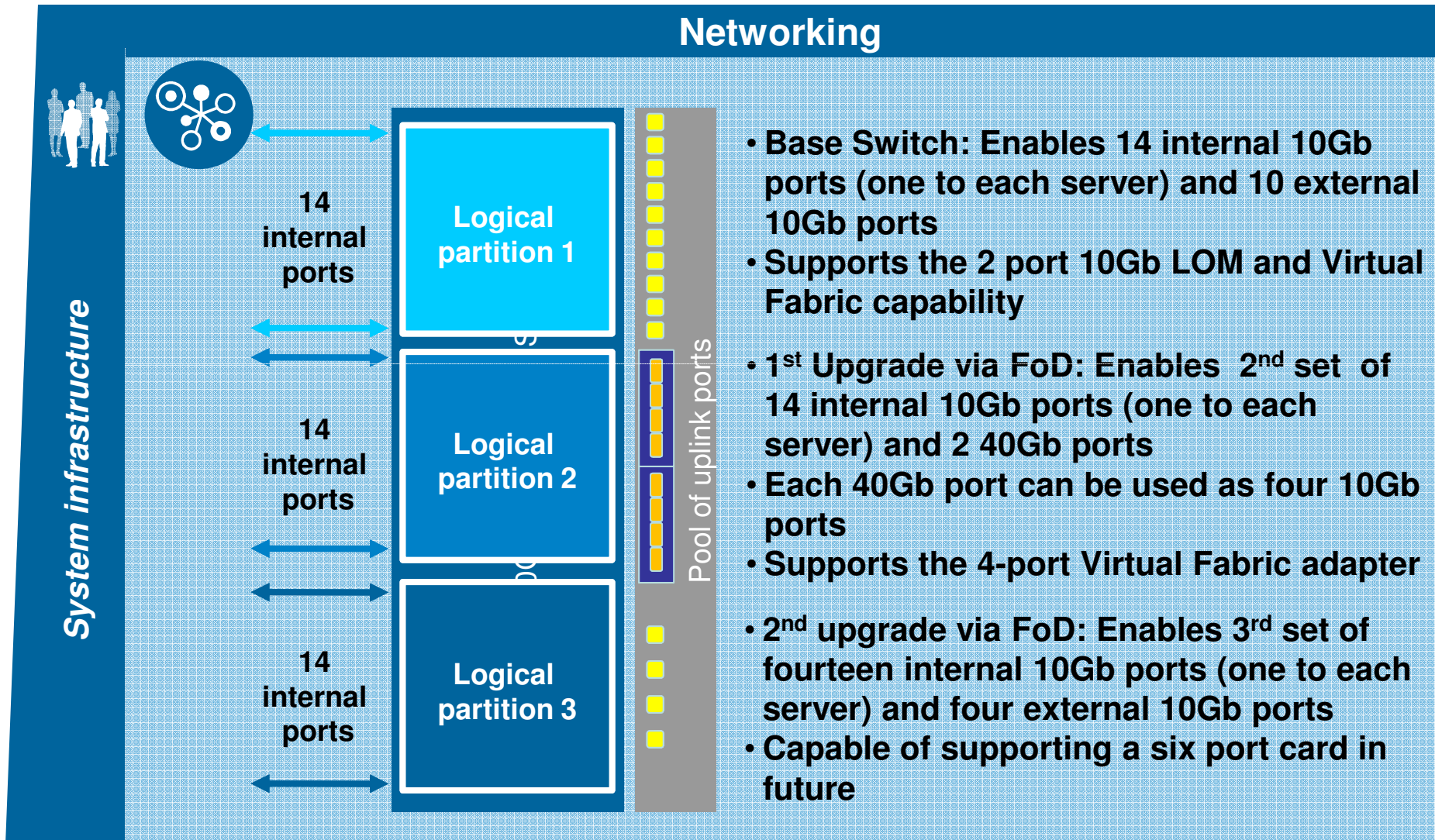
Scale-in Systems Networking designed for virtualization and cloud



- ▶ **1/2** the latency by avoiding most top of rack traffic
- ▶ Fewer servers required to overcome bottlenecks
- ▶ Faster VM migrations for better pooling and cloud performance

# Next generation flexibility: Scale for Bandwidth, Ports, or Both

*IBM 10Gb Switch: Wired for up to three 10Gb ports per node and twenty two external ports*



- **Base Switch:** Enables 14 internal 10Gb ports (one to each server) and 10 external 10Gb ports
- Supports the 2 port 10Gb LOM and Virtual Fabric capability
- **1<sup>st</sup> Upgrade via FoD:** Enables 2<sup>nd</sup> set of 14 internal 10Gb ports (one to each server) and 2 40Gb ports
- Each 40Gb port can be used as four 10Gb ports
- Supports the 4-port Virtual Fabric adapter
- **2<sup>nd</sup> upgrade via FoD:** Enables 3<sup>rd</sup> set of fourteen internal 10Gb ports (one to each server) and four external 10Gb ports
- Capable of supporting a six port card in future

# Full breadth of Networking offerings

Networking

System infrastructure

Simplifies network deployment via integrated management

◇

Reduces network complexity via convergence and intelligent fabric monitoring

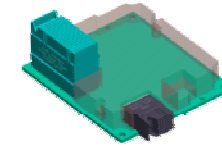
◇

Improves network performance via uncompromised IO throughput

◇

Fits with existing infrastructure and scales with Customer's IO needs

## IBM Networking Offerings

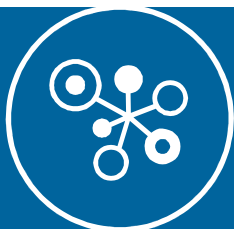


- Scalable Switch modules for the IBM Flex System chassis
- Four Scalable switches per chassis
- Capable to provide up to 16 virtual switch partitions per chassis
- Feature on Demand port upgrades for switches

	Ethernet & FCoE	Fibre Channel	InfiniBand
Switch	<ul style="list-style-type: none"> <li>• 52 port 1Gb Switch Base: 14/10 (internal/external) Upgrade: 14/10 Upgrade: four 10Gb uplinks</li> <li>• 64 port 10Gb Ethernet Switch Base: 14/10 Upgrade: 14/8 (two 40Gb uplink) Upgrade: 14/4</li> <li>• 1/10Gb Pass Thru</li> </ul>	<ul style="list-style-type: none"> <li>• 20 port 8Gb</li> <li>• 20 port 8Gb Pass Thru</li> <li>• 48 port 16Gb</li> </ul>	<ul style="list-style-type: none"> <li>• QDR Switch upgrade: FDR</li> </ul>
Adapter	<ul style="list-style-type: none"> <li>• 4 port 1Gb - Broadcom</li> <li>• 4 port 10Gb - Emulex</li> <li>• 2 port 10Gb - Mellanox</li> </ul>	<ul style="list-style-type: none"> <li>• 2 port 8Gb - Qlogic</li> <li>• 2 port 8Gb - Emulex</li> <li>• 2 port 16Gb - Brocade</li> </ul>	<ul style="list-style-type: none"> <li>• QDR &amp; FDR Adapter</li> </ul>

\*Available at launch





## Integrated Network Management with Network Control



- Logical network management – allows management of port profiles, VLANs, ACLs and QoS in virtualized, live-migration environments
- Leverages 802.1Qbg standards in integrated switches and PowerVM, KVM and IBM “Osiris” vSwitch for VMware (standards-based alternative to Cisco’s proprietary VN-Tag)
- Optional Fabric Management extends QoS Management providing advanced monitoring, VM priority and rate limiting
- Network monitoring at a glance via network topology perspectives with the ability to see the components affected by network outages
- Enable end-to-end network and virtualization management
- Graphical view of L2 network connectivity using topology perspective

**Network Management**  
This page shows the summary of the network devices in your environment based on the last discovery and inventory process.

**Status**  
Problem status for 6 network devices.

Common tasks  
System discovery  
Advanced system discovery

6 devices with no inventory co

**Manage**  
1 Fibre Channel over Ethernet  
5 Ethernet switches

**Navigate Resources**

Groups > All Network Systems (View Members)

Actions | Search the table... Search

Select	Name	Access	Problems
<input checked="" type="checkbox"/>	elmsa105		OK
<input type="checkbox"/>	elmsa77		OK
<input type="checkbox"/>	elmsa88		OK
<input type="checkbox"/>	elmsa89		OK
<input type="checkbox"/>	eSAN BC		OK
<input type="checkbox"/>	eSAN Blac		OK

Context menu options:  
 Related Resources  
 Topology Perspectives  
 Create Group  
 Manage MIBs...  
 Remove...  
 Rename...  
 SNMP Browser  
 Add to  
 Inventory  
 Release Management  
 Security  
 System Configuration  
 System Status and Health  
 Properties

System Status and Health sub-menu:  
 Active Status  
 Event Log  
 Manage MIBs  
 Monitors  
 Network Diagnostic  
 Thresholds  
 Compliance Policy  
 Compliance Issues

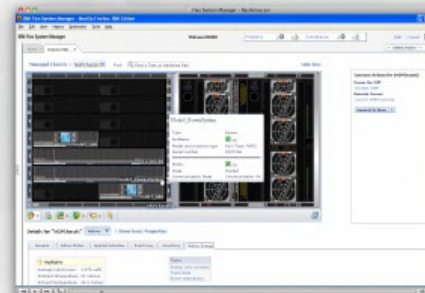
Page 1 of 1 | Selected: 1

## Simplified Management Experience

Management integration across all physical and virtual resources



Flex System Manager



- ▶ Single management console for all resources
- ▶ Manage workloads while the system automatically manages resources
- ▶ Thousands of end points at your fingertips with Quick Find

# Simplified management experience with advanced automation

*Reduced risk through integrated platform management*



System infrastructure

## Management



Management



Networking



Storage

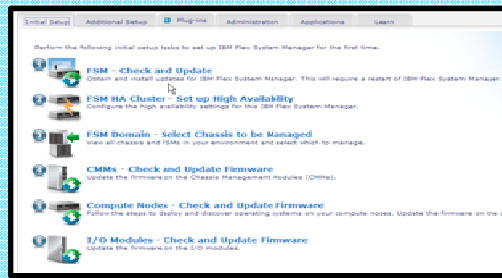


Virtualization

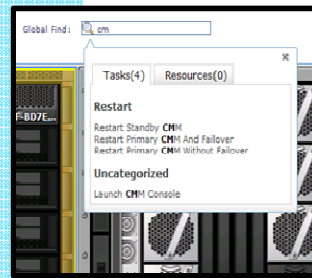


Compute

## Setup Wizards



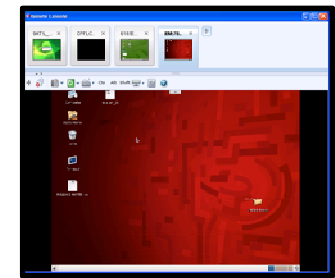
## Global Find



## Chassis Map



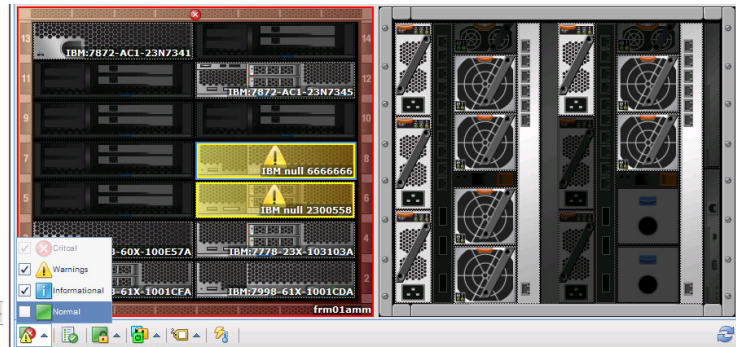
## Remote Presence



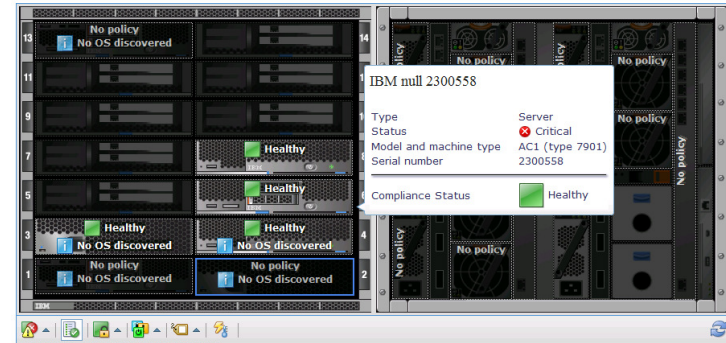
- New user interface and configuration automation brings new components online faster\*
- Cross-resource integration and automation enables transformation from managing resources to managing applications, services and workloads
- Works with the management you have - other IBM platform tools, Tivoli and third party enterprise management (e.g., CA, BMC, HP, etc.)
- Easier monitoring, alerts and problem management through automated resolution processes with integrated expertise

# PureFlex “Chassis Map” – 6 view overlays

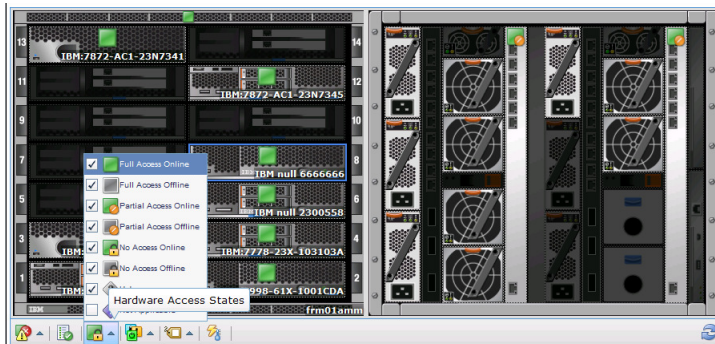
“Status Information” – toggle and settings



“Compliance, Firmware & Notifications” – toggle



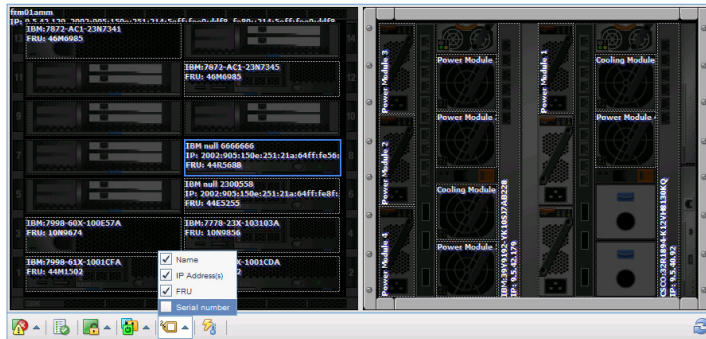
“Hardware Access States” – toggle and settings



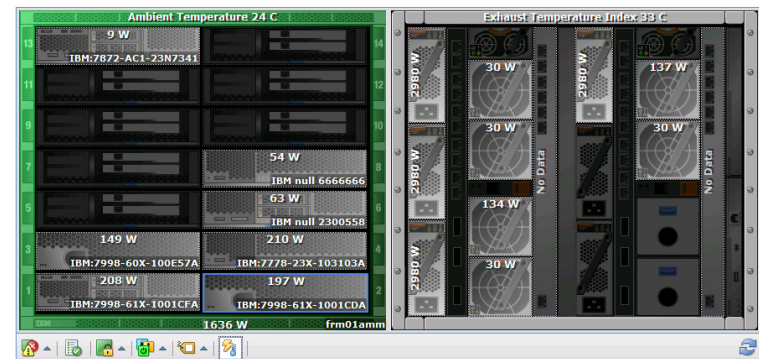
“Highlight Front Panel LEDs” – toggle and settings



“Component Names and Properties” – toggle and settings

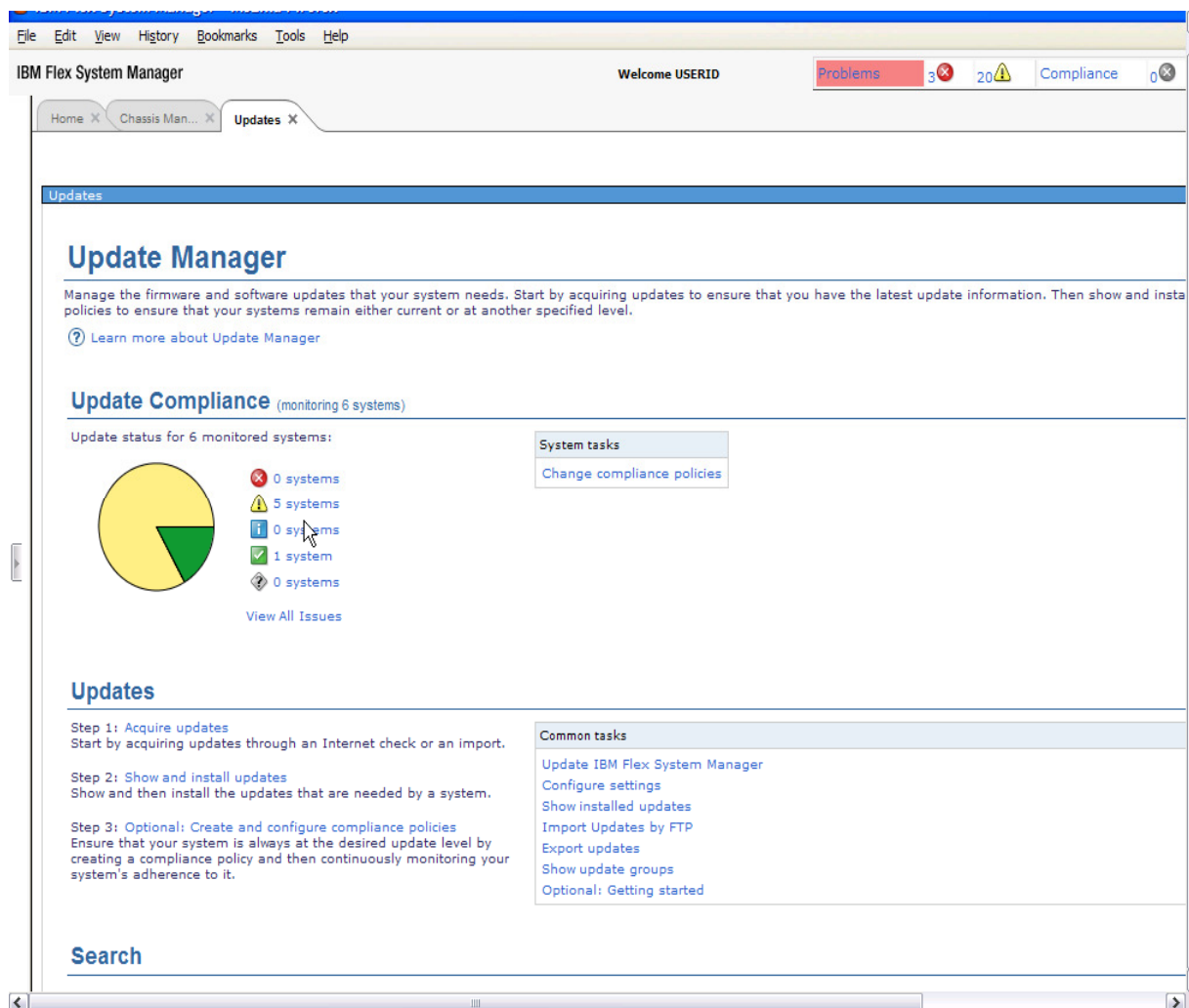


Thermal and Power Metrics – toggle



# IBM Flex System - Update Manager

- Manage updates for many IBM platforms using the same interface
  - Automatically check for new updates
  - Show and install updates needed by your systems
- Monitor system compliance
  - Create compliance policies to automatically notify you when a system is out of date
  - Show and resolve compliance issues to install the missing updates



# Compliance status

- System status will be changed when system is out of compliance
- Status will match the highest severity update
- Click on view all issues to see all issues across all monitored systems

### System Compliance (monitoring 3 systems)

Update status for 3 monitored systems:

- ✘ 2 systems
- ⚠ 0 systems
- i 0 systems
- ✔ 1 system

[View All Issues](#)

#### Resources with Critical Problems

Select	Name	Access	Compliance
<input type="checkbox"/>	kalispell.rchland.ibm.com	OK	<span style="color: red;">✘</span> Critical
<input type="checkbox"/>	IBM 8811GHU LKRXNT7	OK	<span style="color: red;">✘</span> Critical

The compliance policy for this resource has resulted in the following issues.

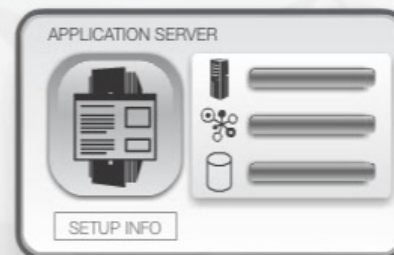
#### Update install issues:

Select	System	Update	Issue	Recommendation
<input type="checkbox"/>	2 systems	Virtualization Manager	Update "Virtualization Manager" is not installed.	Install update "Virtualization Manager"
<input type="checkbox"/>	2 systems	Discovery Manager	Update "Discovery Manager" is not installed.	Install update "Discovery Manager"
<input type="checkbox"/>	2 systems	Update Manager	Update "Update Manager" is not installed.	Install update "Update Manager"
<input type="checkbox"/>	2 systems	Configuration Manager	Update "Configuration Manager" is not installed.	Install update "Configuration Manager"
<input type="checkbox"/>	2 systems	Status Manager	Update "Status Manager" is not installed.	Install update "Status Manager"
<input type="checkbox"/>	2 systems	Director Server Core Manager	Update "Director Server Core Manager" is not installed.	Install update "Director Server Core Manager"
<input type="checkbox"/>	2 systems	System z Manager	Update "System z Manager" is not installed.	Install update "System z Manager"
<input type="checkbox"/>	2 systems	Power Systems Manager	Update "Power Systems Manager" is not installed.	Install update "Power Systems Manager"
<input type="checkbox"/>	2 systems	Storage Manager	Update "Storage Manager" is not installed.	Install update "Storage Manager"
<input type="checkbox"/>	2 systems	Remote Access Manager	Update "Remote Access Manager" is not installed.	Install update "Remote Access Manager"
<input type="checkbox"/>	2 systems	Automation Manager	Update "Automation Manager" is not installed.	Install update "Automation Manager"
<input type="checkbox"/>	2 systems	System x and BladeCenter Manager	Update "System x and BladeCenter Manager" is not installed.	Install update "System x and BladeCenter Manager"

Page 1 of 1 | Selected: 0 Total: 12 Filtered: 12

## Virtualization Expertise

Virtualize all resources for highest utilization



- ▶ 54% more virtual machines per compute node
- ▶ Support for tens of thousands of applications across 4 hypervisors
- ▶ Virtualize all resources and automatically manages with highest utilization

# Virtualization management

## ■ Discover, Visualize and Monitor Virtual Servers

- Host and Virtual Server Discovery
- Topology Maps showing relationships
- Virtual Resource Monitoring
- Host and Virtual Server Status
- Thresholds

Select	Name	State	Access	Problems	Compliance	IP Address	CPU Utilization	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

## ■ Virtual Server Lifecycle Management

- Create/Delete Virtual Servers
- Dynamically Edit Virtual Servers

The screenshot shows the 'Create Virtual Server' wizard in the IBM Tivoli Virtualization Manager. The wizard is currently at the 'Welcome' step. Below the wizard, a network topology map is displayed, showing various components like hosts (hci031\_520, hci030\_520), virtual machines (newVM2, Trix), and network devices (9406520.107F2FD.2:iv1, etc.). The map includes a legend for status items such as 'Warning', 'Critical', 'Locked', 'Not Active', 'Unknown', and 'Maintenance Mode'.

## ■ Basic Virtual Server Mobility

- Move Virtual Server
- Evacuate Host
- Relocation Plans

## ■ Cross Platform Consistency

- VMware ESX
- VMware vCenter
- Hyper-V
- KVM
- PowerVM



# Advanced virtualization

## *Automate the virtualized environment with system pools*

- Intelligent Virtual Machine Placement Services
- Dynamic Workload Mobility
- Integrated Storage and Network Management
- Automation policy control for workloads
  - Advise – VMControl recommends actions and requires confirmation
  - Automate – VMControl automates actions
- Availability Automations
  - Automate relocation of virtual workloads in response to predicted host system failures without disruption
  - Restart virtual workloads when a host fails
  - Automate remote restart of virtual workloads in response to host failures with minimal disruption
- Energy Automations
  - Allows the pool to relocate VM's to minimum hosts
  - Minimum number of hosts reduce overall energy bill
- Performance Automations
  - Allows pool to spread VM's for optimum performance

The screenshot displays the 'Dashboard - SysPool1' interface. It is divided into several sections:

- Scoreboard:** A table showing system health metrics.
 

Active Status	Value	Warning	Info
Hardware	1	-	-
Virtualization	-	3	-
LED	-	2	-
Threshold	-	1	-
Compliance	-	2	-
- Monitors:** A table showing resource utilization with line graphs.
 

Monitor	Value	(Avg, Peak)
CPU Utilization %		70%, 90%
Memory Utilization		25%, 85%
Disk Utilization		60%, 80%
Packets In/Sec		600,900
- Workloads:** A table listing various workloads and their status.
 

Workload	State	Problems	Compliance	CPU Utilization
Linux Good	Active	OK	OK	30%
Service	Suspended	OK	OK	0%
Sales App	Active	OK	Warning	40%
Web Site	Active	OK	OK	80%
My App	Active	OK	OK	30%
IXIplus	Active	Warning	OK	95%
TestApp A	Active	OK	Warning	20%
TestApp B	Active	OK	OK	30%
App Tool A	Active	OK	OK	30%
- Resources:** A section for the system pool.
 

Type: Power6 system pool  
Description: this is a description  
Prop3:  
Prop4:  
State: Active

Resource usage details:

Resource	Free	Allocated	Maintenance Mode	Largest Slice	Total
Processors	18	550	3	2	571
Memory	200 GB	30 TB	30 GB	3 GB	3230 GB
Virtual Disk	40 TB	687 TB	30 GB	-	675 TB
Virtual LAN	12	340	10	-	362
Hosts	4	98	3	-	105
Storage	34 TB	254 TB	-	1 TB	1 TB

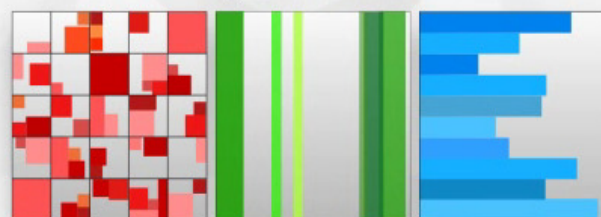
## Designed for Cloud

Dramatically Improve System Utilization



Flex System Manager

### System Pools



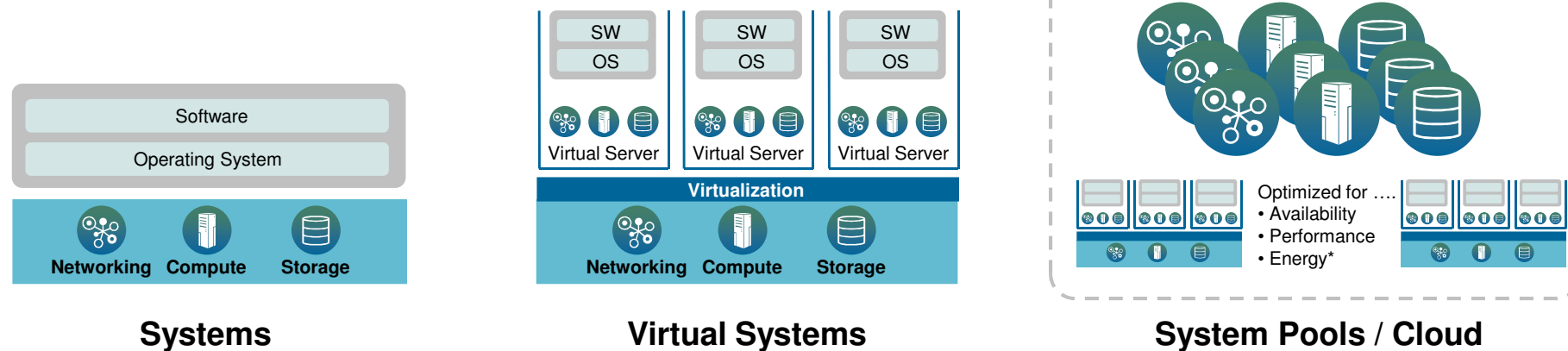
Compute      Network      Storage

- ▶ 4-click setup for rapid deployment
- ▶ Cloud management across multiple architectures and hypervisor environments
- ▶ Speed SAP server provisioning from weeks to minutes

Designed for Cloud with resource pooling and automated provisioning expertise

*Dramatically improve system utilization and administrator productivity*

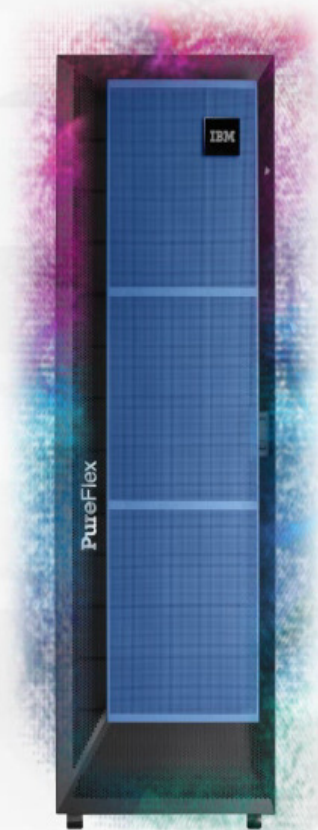
- **Manage Services** instead of Servers, Network and Storage
- **System Pools\*** are a set of resources that make up a service and can be acted upon as a group for Placement, Maintenance, etc.
- Provisioning of CPU, memory, storage\* and networking\* with **automatic virtual machine placement and optimization**
- Utilization monitoring and policies to **support performance, utilization or energy\* optimized pooling**



Manage a pool of system resources or a cloud as simply as managing a single system

## A Complete Infrastructure System

An evolution in design, a revolution in experience



Built-in expertise

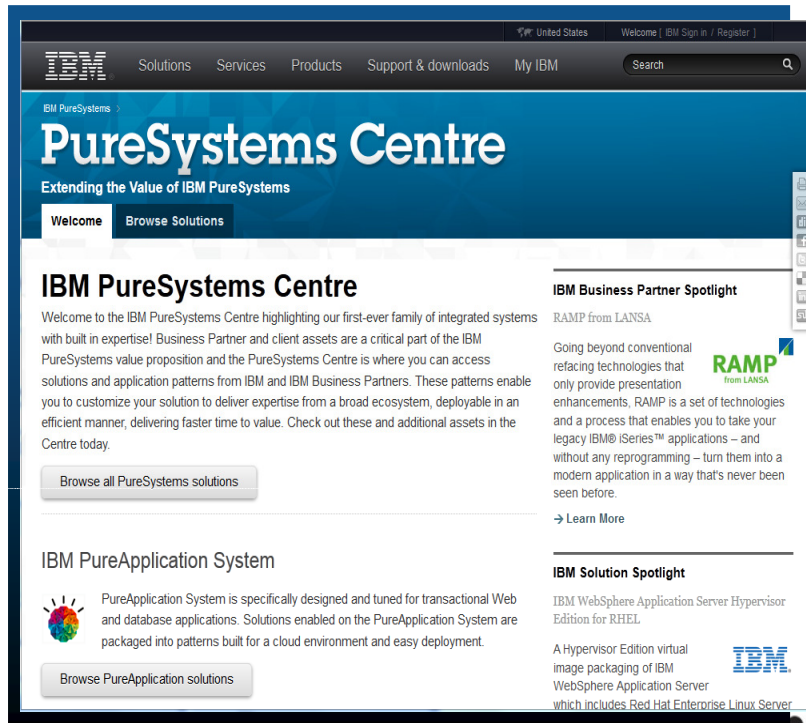
Integration by design

Simplified experience

# Runs tens of thousands of applications, with over 150 optimized for PureSystems



# Extensibility from the broadest ecosystem is made easy



## New IBM PureSystems Centre:

- Gain access to a broad community of IBM and certified partner expertise
- Download optimized, deployable application patterns from 100+ leading ISV partners
- Search by solution area, industry or system
- Download fixes and patches
- Access to developer community



*Also run your existing applications today\**

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