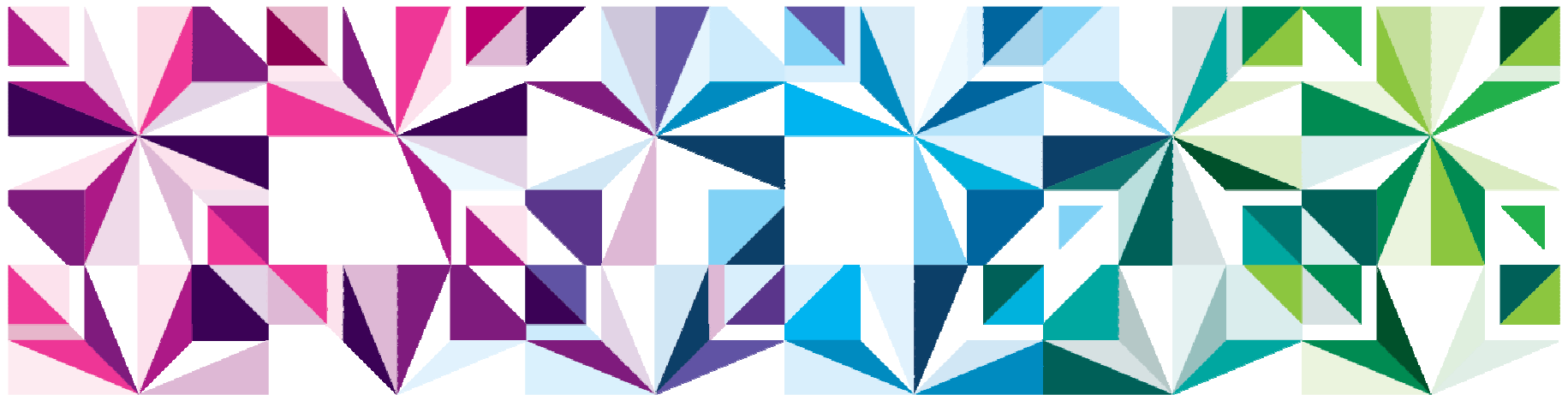**Expert**
integrated systems

IBM.

Rethink **IT.**
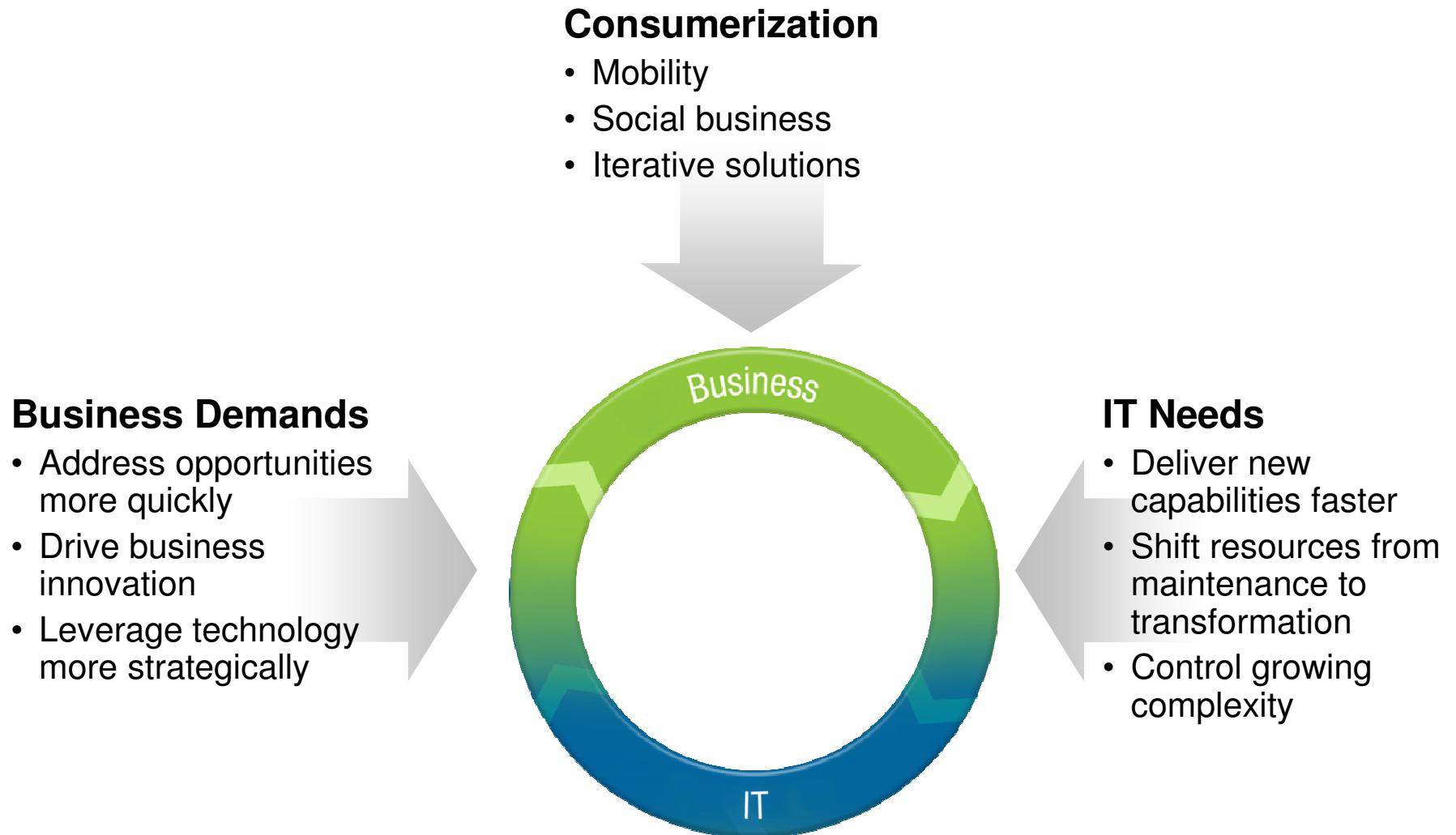**Reinvent** Business.
Smart, Secure and Ready for Business

IBM PureSystems

IBM PureFlex System and PureApplication System

Leticia Muñoz y Fernando Violante
Systems & Tecnology Group - IBM Uruguay

What are today's pressures and realities

Consumerization

- Mobility
- Social business
- Iterative solutions

Business Demands

- Address opportunities more quickly
- Drive business innovation
- Leverage technology more strategically

Business

IT

IT Needs

- Deliver new capabilities faster
- Shift resources from maintenance to transformation
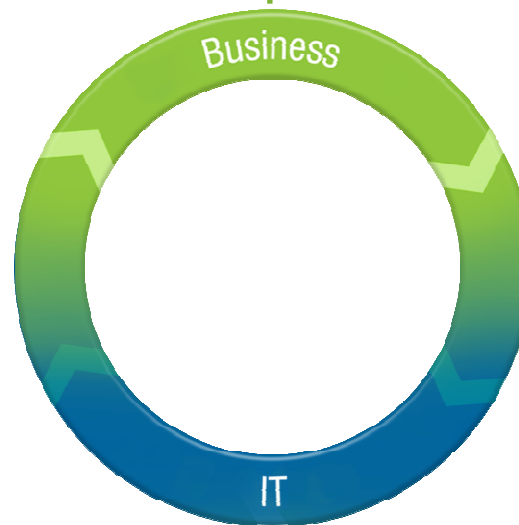- Control growing complexity

You experience the barriers of time, cost and risk today
Aligning IT and business goals

Business Goals
Grow top and bottom line by:

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

Business

IT

IT Reality

Getting Up and Running
Takes months:
- Specify/Design
- Procure
- Integrate
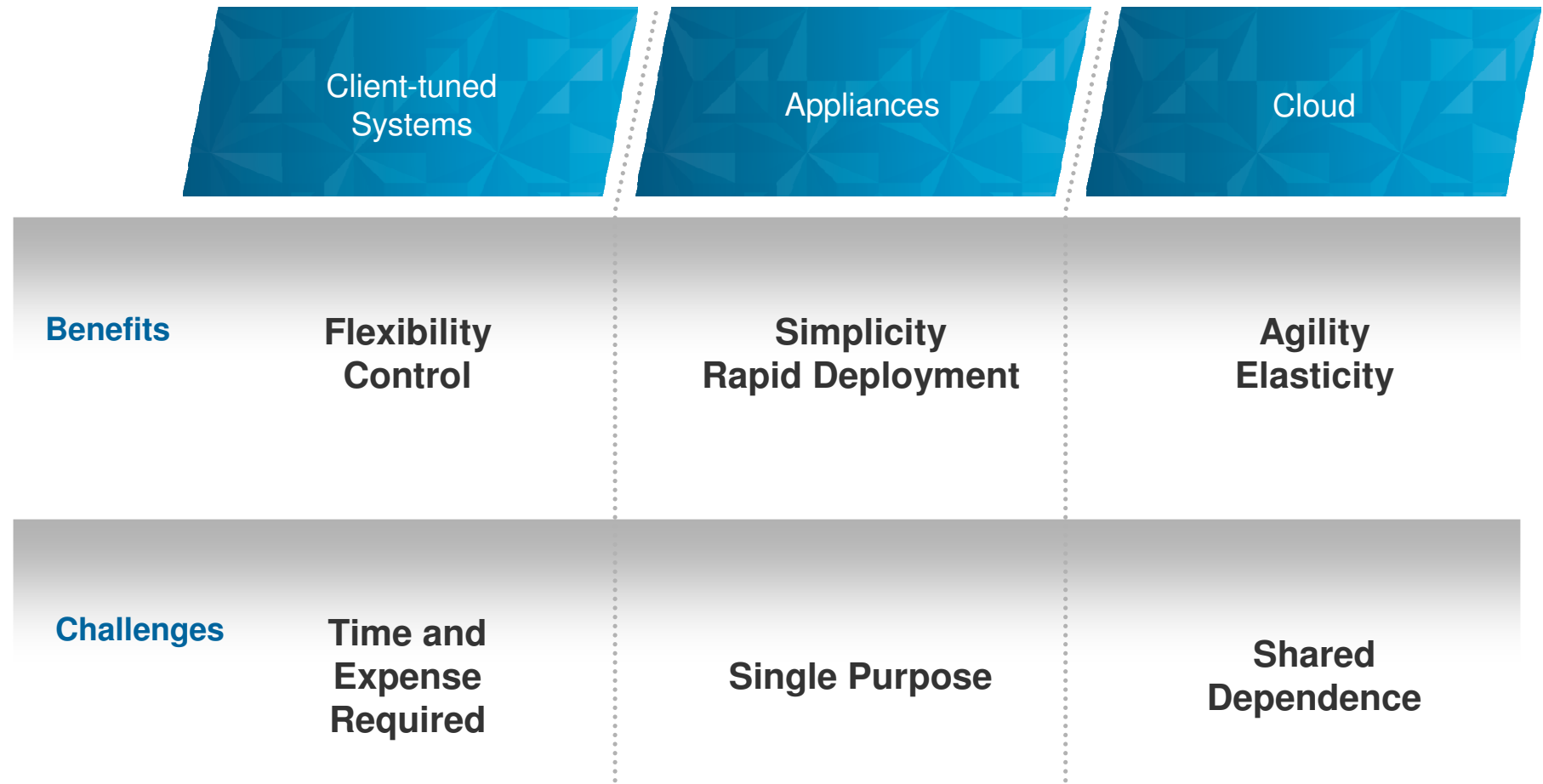- Deploy

Development Operations
Takes 30-90 days:
- Provision
- Configure

Ongoing Effort
Takes months and requires downtime:
- Customize/Tune
- Scale
- Manage
- Maintain
- Upgrade

Clients have tried various approaches to close the gap

	Client-tuned Systems	Appliances	Cloud
Benefits	Flexibility Control	Simplicity Rapid Deployment	Agility Elasticity
Challenges	Time and Expense Required	Single Purpose	Shared Dependence

What if you could have the best of all three?

The time has come for a new breed of systems

Built-in Expertise

Capturing and automating what experts do – from the infrastructure to the application

Integration by Design

Deeply integrating and tuning hardware and software – in a single, ready-to-go system

Built-in Expertise
Business
Expert integrated systems
Integration by Design
IT
Simplified Experience

Fundamentally changing the experience and economics of IT

Simplified Experience

Making every part of the IT lifecycle easier
Integrated management of the entire system
A broad open ecosystem of optimized solutions

Announcing IBM PureSystems

The first members of a new family of expert integrated systems with:

- *Built-in expertise* to address complex business and operational tasks automatically
- *Integration by design* to tune systems for optimal performance and efficiency
- *Simplified experience* from design to purchase to maintenance

IBM PureFlex System

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

New

- Factory integrated and optimized system infrastructure
- Integrated management
- Automation and optimization expertise

IBM PureApplication System

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

New

- Expert designed, integrated and optimized application aware platform
- Platform patterns of expertise
- Simplified management with a single console

IBM PureSystems "patterns of expertise"

Patterns of Expertise: Proven best practices and expertise for complex tasks learned from decades of client and partner engagements that are captured, lab tested and optimized and then built into the system

Patterns deliver superior results:

- **Agility:** Faster time-to-value
- **Efficiency:** Reduced costs and resources
- **Simplicity:** Simpler skills requirements
- **Control:** Lower risk and errors

Through *unmatched expertise* in:

- System design
- Infrastructure management
- Application deployment
- Data management
- Datacenter management

- High availability and scalability
- Security
- Storage optimization
- Networking

IBM PureSystems are integrated by design

Deployment

Middleware

Applications

Development

Management

Virtualization

Storage

Networking

Servers
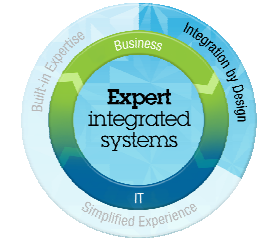
Optimizes the complete solution stack:

- All hardware and software components integrated and optimized

- Born virtualized and ready for cloud

- Storage tuned to data needs

- Hardware directly tuned to the software

- System resource allocation uniquely optimized per selected pattern for each application workload

9

IBM PureSystems simplified experience
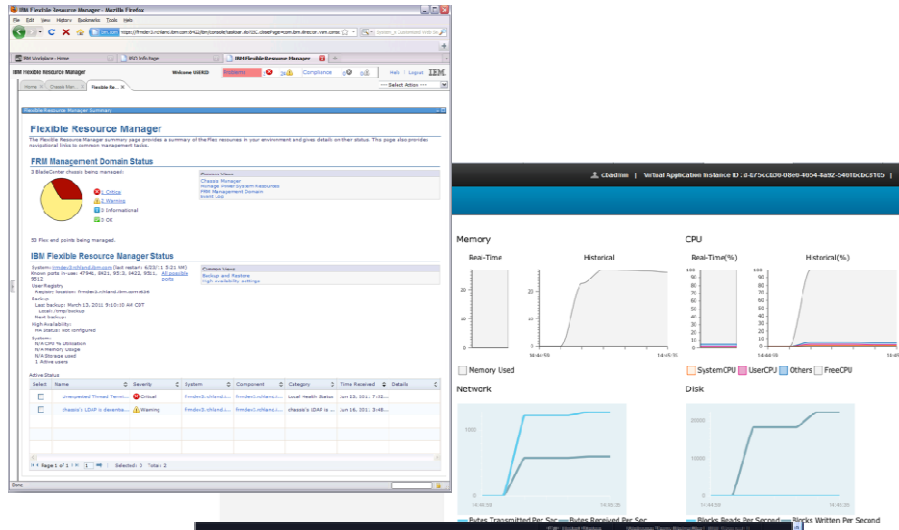
New client experience:

- Single product streamlines ordering, tracking, receiving, installing and running

- Factory installed, fully packaged solutions drive simple setup (pull it out of the box, plug it in and boot it up)

- Management integration across system

- Single point of contact for support

- Upgrade with zero downtime based on integrated patches and system design

- A broad open ecosystem of optimized solutions

Supported by the broadest ecosystem

- Solutions from 100+ leading partners

- Over 100 leading packaged applications available

- Solution Showcase simplifies application deployment

- Build once also use for private and public cloud deployments

- Certified through 'Ready for IBM PureSystems' program

Smarter Computing

The IT infrastructure that enables a Smarter Planet

Client-optimized system:

highly customizable systems designed to deliver the best in class capabilities uniquely tailored for the client's environment

Expert integrated systems:

combine the flexibility of a general purpose system with the simplicity of an appliance – and integrated expertise throughout

System z

Freedom through design

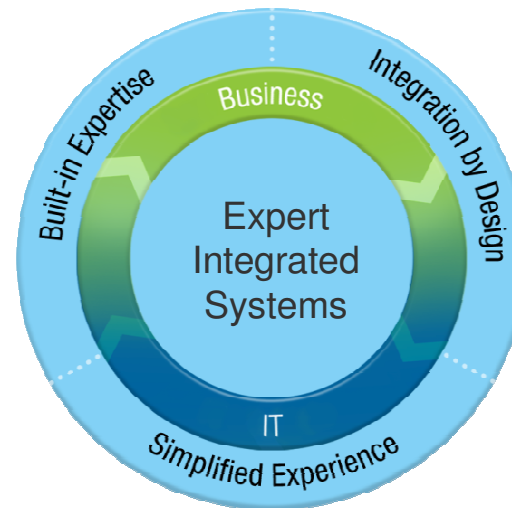**Power Systems**

Performance redefined

System x

Defining the next generation of x86 servers

IBM Storage

Expect more from your Storage

Built-in Expertise

Business

Integration by Design

Expert Integrated Systems

IT

Simplified Experience

IBM PureApplication System

IBM PureFlex System

Simplified experience
Reduce time, effort and risk throughout the solution lifecycle

Expert Integrated Systems

Business • Integration by Design
Built-in Expertise • IT
Simplified Experience

Starts at Acquisition: A continuum of value from building blocks to systems
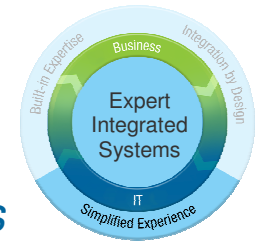
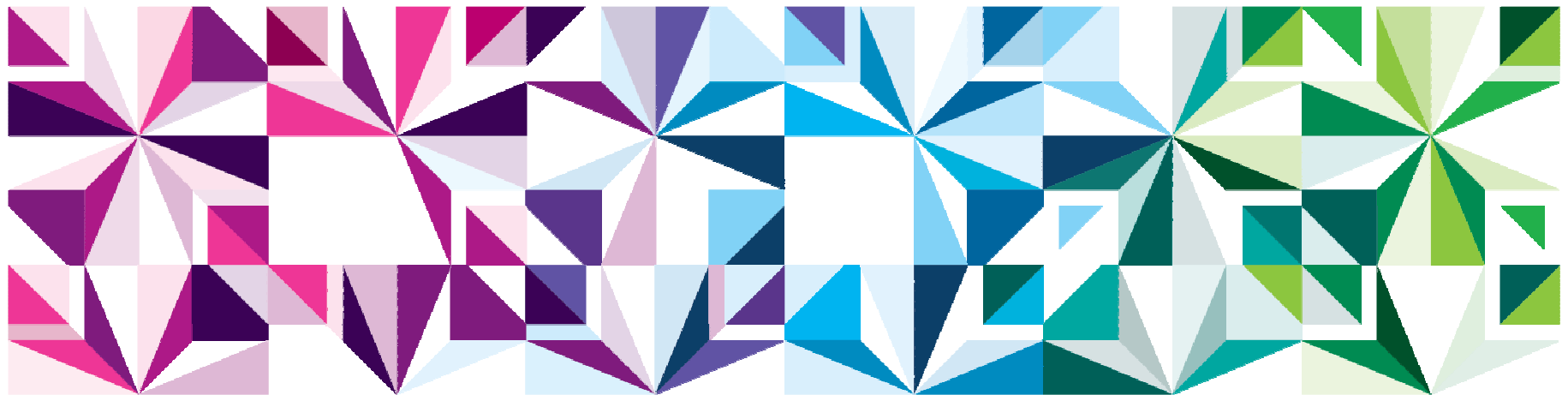| **IBM Flex System**	**IBM PureFlex System**	**IBM PureApplication System**
Chassis 14 half-wide bays for nodes	Pre-configured, pre-integrated **infrastructure systems** with compute, storage, networking, physical and virtual management, and entry cloud management with **integrated expertise.**	Pre-configured, pre-integrated **platform systems** with middleware designed for transactional web applications and enabled for cloud with **integrated expertise.**
Compute Nodes Power 2S/4S* x86 2S/4S		
Storage Node V7000 Expansion inside or outside chassis		
Management Appliance Optional		
Networking 10/40GbE, FCoE, IB 8/16Gb FC		
Expansion PCIe Storage		
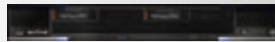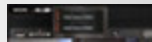
Expert
integrated systems

IBM

IBM Flex System and IBM PureFlex System
Product Overview

IBM PureFlex System is Integrated by design

Flexible and open choice in a fully integrated system
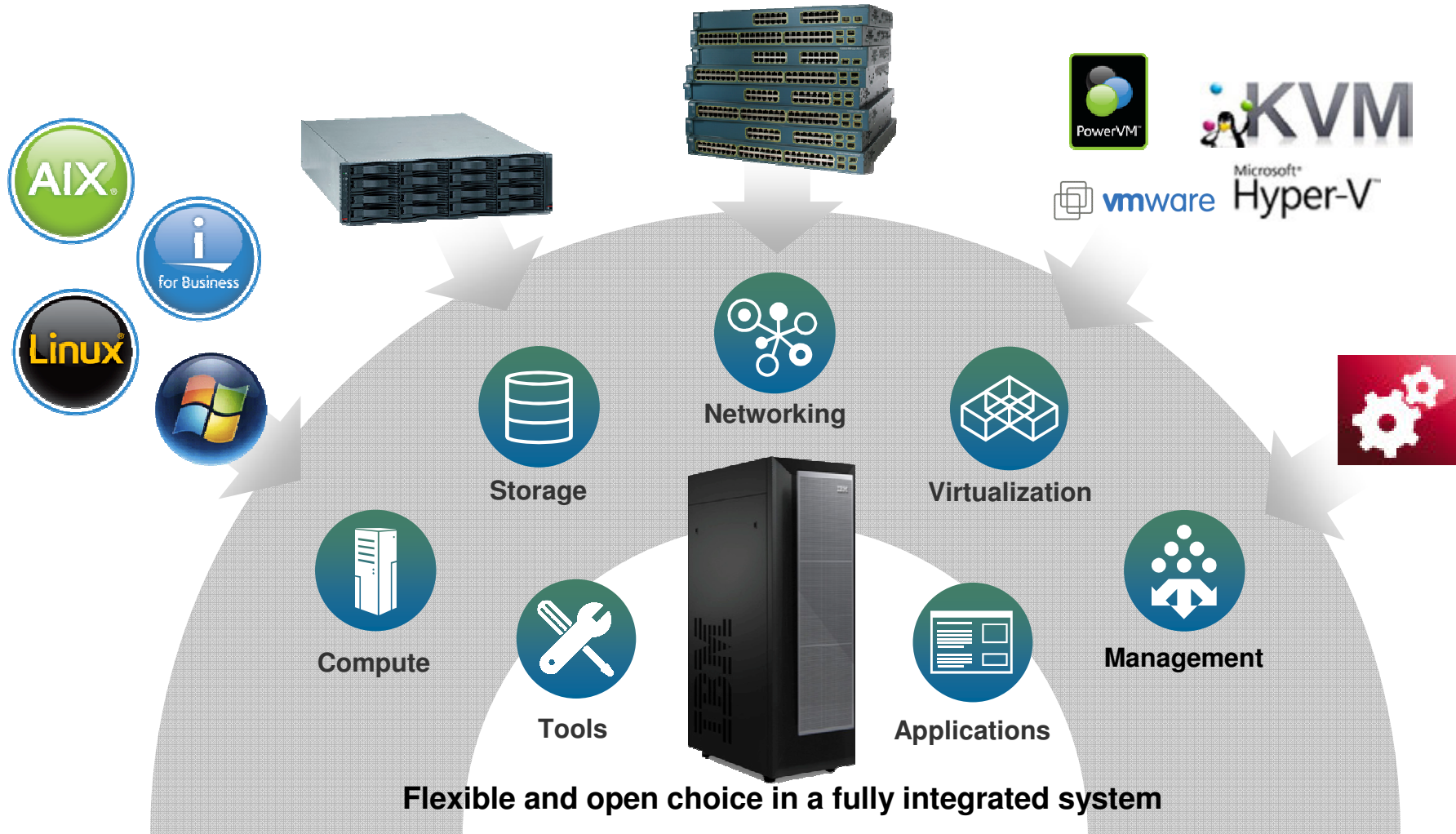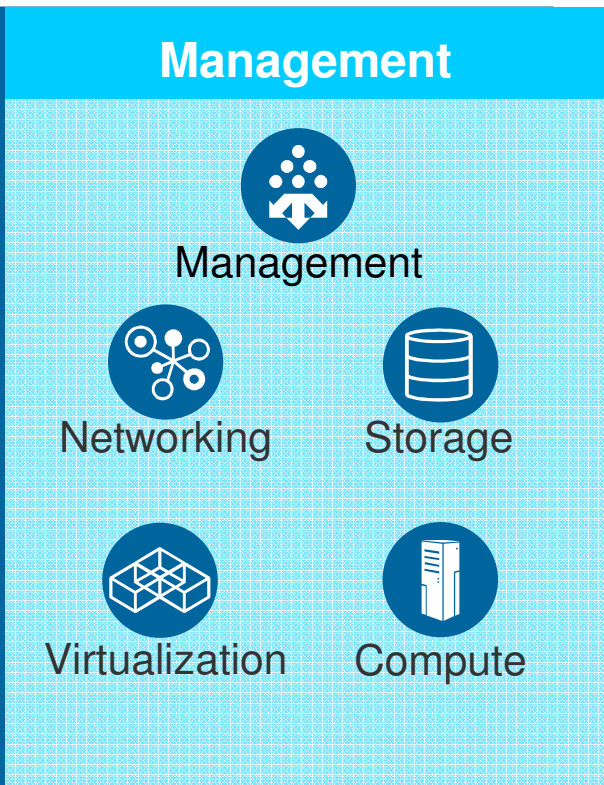
Simplified management experience with advanced automation

Reduced risk through integrated platform management

Management

Management

Networking   **Storage**

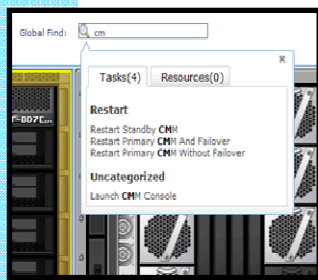**Virtualization**   **Compute**

System infrastructure

- 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
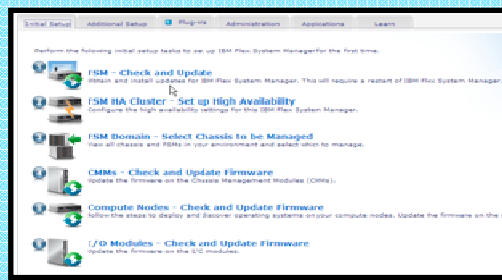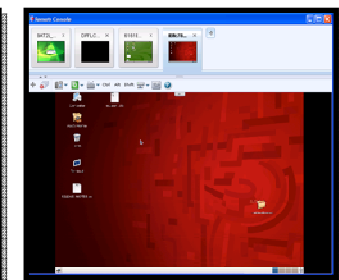
Setup Wizards   **Global Find**   **Chassis Map**   **Remote Presence**

Chassis Designed for flexibility and future advancements
More than just a container

The Problem:

A chassis designed to handle technology changes in server, storage, and networking that provides the **flexibility** and **investment protection** your datacenter needs for **today** and **tomorrow.**

IBM's Next Generation Chassis Delivers:

Flexible Building Blocks

- Designed to handle server technology, storage technology, and networking technology for the next decade of workloads

Energy Efficiency

- Scalable power supplies that are extremely efficient, achieving Energy Star status
- Chassis designed for energy efficient processors, as well as energy efficient memory

Investment Protection

- The IBM Flex System chassis was designed for multiple generations of technology, protecting the customers investment

Enterprise Chassis Design
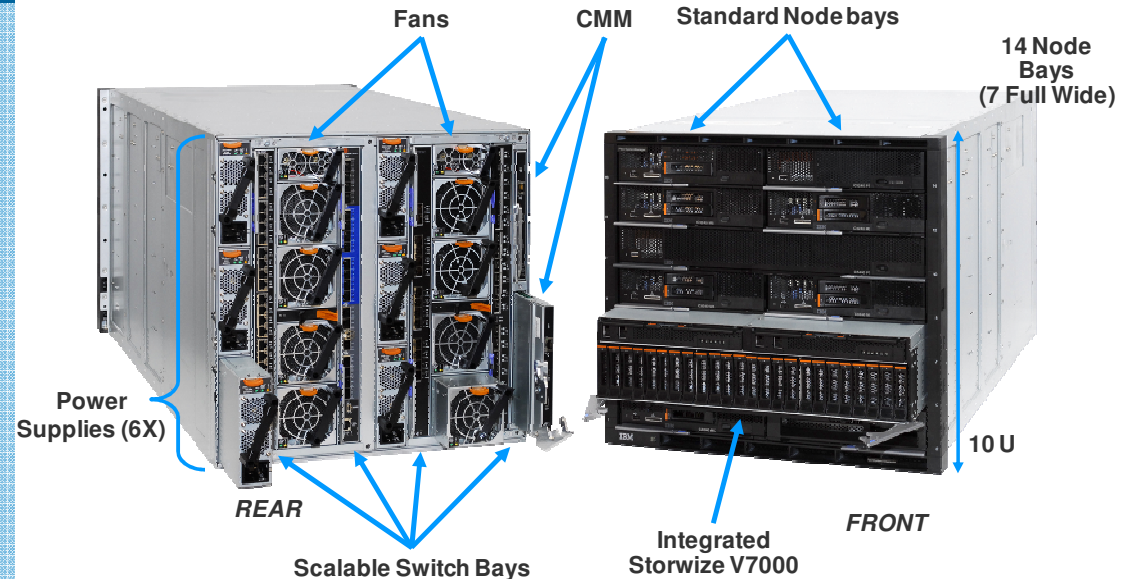
Chassis

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

Fans   CMM   Standard Node bays

14 Node Bays (7 Full Wide)

Power Supplies (6X)

REAR

Scalable Switch Bays

Integrated Storwize V7000

10 U

FRONT

- 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

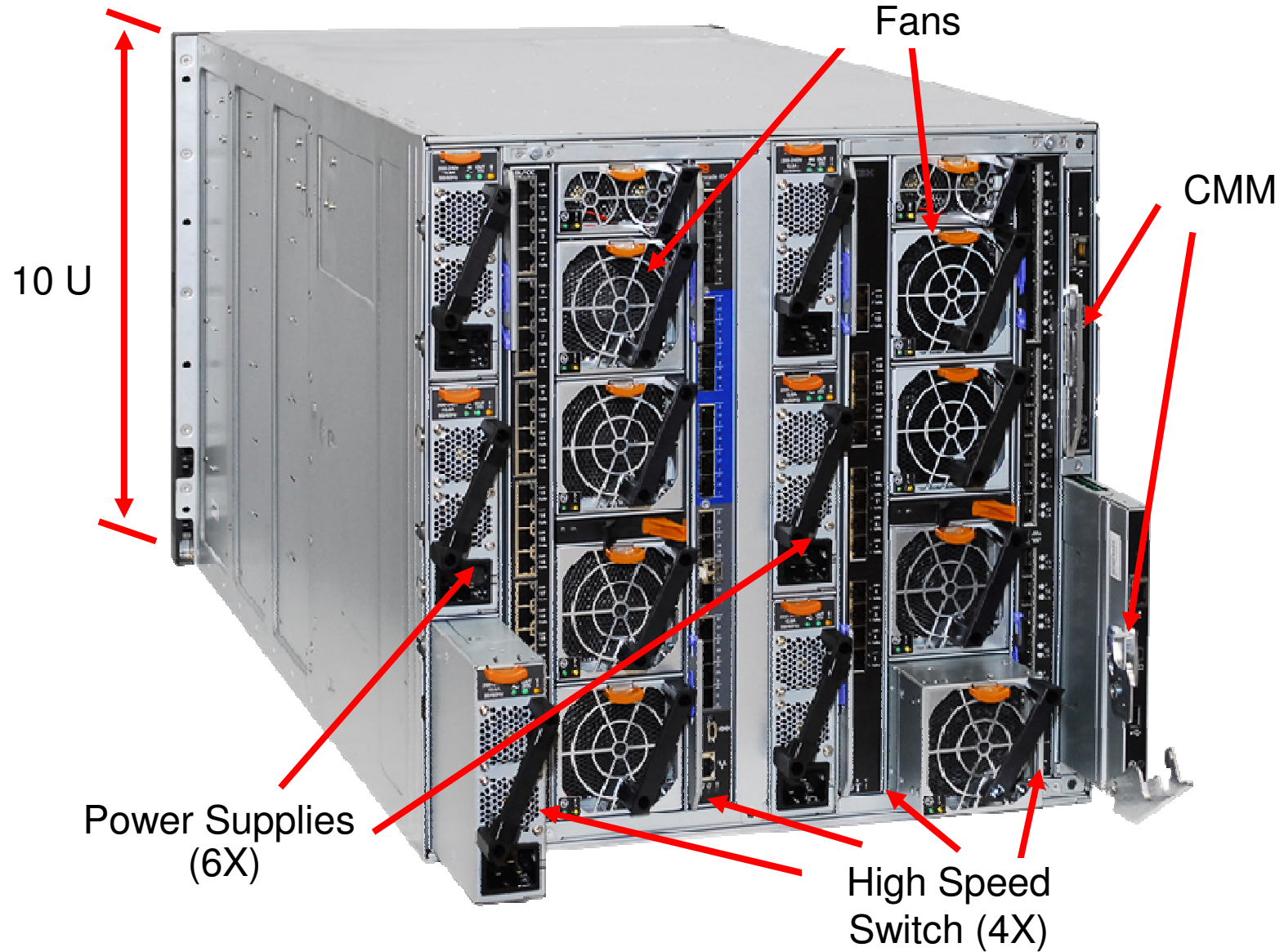# IBM Flex System Enterprise Chassis Front View

Size: 10 U
19" Rack

14 Node Bays
(7 Full Wide)

Nodes:
- Power
- Intel
- Flex System Mgr

Flex System Mgr	IBM Flex System x240
Filler	Filler
Filler	Filler
IBM Flex System p260	IBM Flex System p260
IBM Flex System p460 (Full Width)	
Filler	Filler
IBM Flex System x240	Filler

IBM Flex System Enterprise Chassis Rear View

Fans

CMM

10 U

Power Supplies
(6X)

High Speed
Switch (4X)

Compute Designed with Expertise
More than just compute

The Problem:

No industry player offers the **flexibility** to design your datacenter for the diversity of workloads you run **today** and **tomorrow.**

IBM's Next Generation Compute Delivers:

Heterogeneous Workloads

- Designed for the next decade of workloads, avoiding rip and replace
- Support for Power7, x86, and multi-tier environments

Heterogeneous Hypervisor s

- Regardless of your platform virtualization environment, IBM Flex System offers industry leading technologies
- Support for PowerVM, Vmware, KVM, and HyperV

Expertise for Workloads

- Virtualization and Cloud (dual hypervisor keys)
- Low Latency/High IOPs (320GB/s)
- High Performance (40GB uplinks)
- Business Analytics (dedicated storage)

Diverse offerings to match the diverse workloads

Compute

System infrastructure

System Portfolio tuned to workloads

◇

Reduce acquisition costs through virtualization consolidation

◇

Maximum platform capability provides deployment flexibility

IBM Flex System x240

IBM Flex System p260

IBM Flex System p460

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
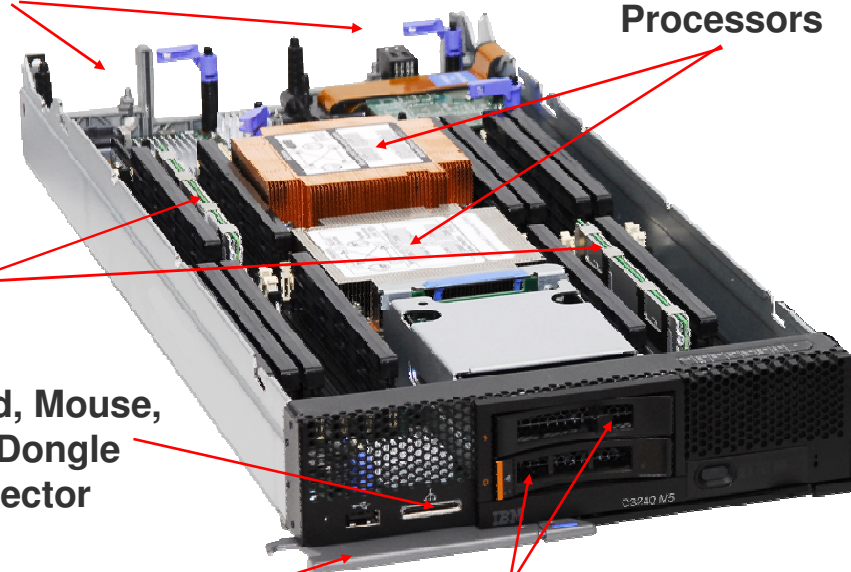
2x IO Mezzanine Cards

2x Intel E5 2600 Processors

24 LP DIMMs

Keyboard, Mouse, Video Dongle connector

Release latch

2x Hot Swap, Small Form Factor HDDs

23

© 2012 IBM Corporation

IBM Flex System p260

Compute

System infrastructure

Standard Width compute node

◇

2-socket POWER7®

◇

64-bit POWER7® processor

◇

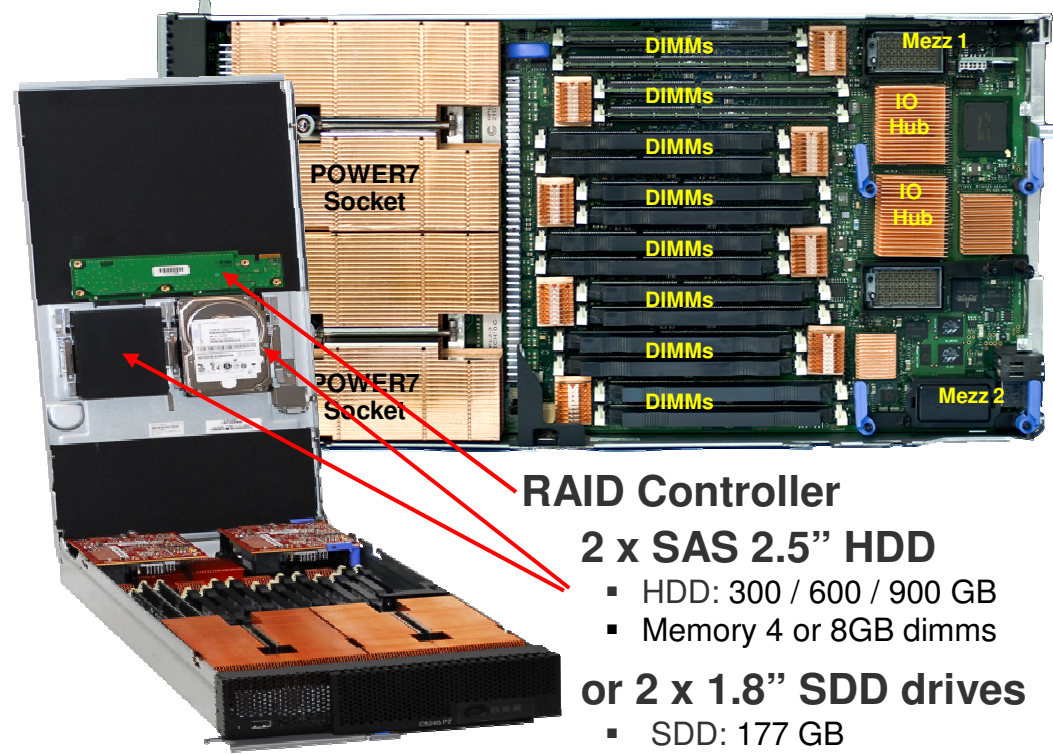16 core : 2 Socket x8 core

◇

16 DIMMs DDR3, 1066 MHz, 256GB Max

◇

Dual Mezz cards and IO Hubs

IBM Flex System p260

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

- DIMMs
- Mezz 1
- IO Hub
- POWER7 Socket
- IO Hub
- POWER7 Socket
- Mezz 2

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

24

Expert integrated systems

IBM Flex System p460

Compute

System infrastructure

Full Width compute node

◇

4-socket POWER7®

◇

64-bit POWER7® processor

◇
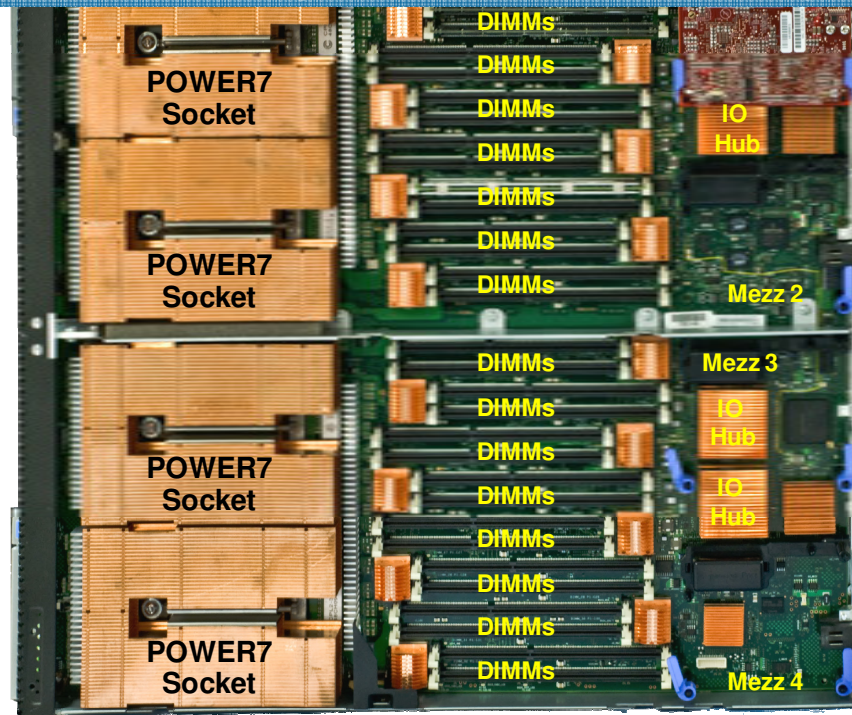
32 core : 4 Socket x8 core

◇

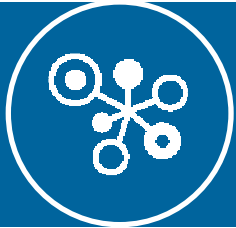32 DIMMs DDR3, 1066 MHz, 512GB Max

◇

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

POWER7 Socket
POWER7 Socket
POWER7 Socket
POWER7 Socket
DIMMs
IO Hub
IO Hub
Mezz 2
Mezz 3
Mezz 4

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

Optimized, Automated and Integrated network architecture
Fits within your existing and future environment

The Problem:

Today's networking offerings lack the flexibility to meet the **demands** of the next decade of I/O. Clients are often burdened **now** with the costs of technology for **tomorrow**.

Extreme Flexibility
- Designed to meet port and bandwidth requirements for next decade
- Pay for what you need today with Features on Demand (FoD)

Highest Performance
- First 40Gb capable Ethernet Switch
- First 16Gb capable SAN Switch
- First 56Gb capable Infiniband FDR switch
- Up to 220Gb uplink BW and <1microsec latency

Standards based Convergence
- 10Gb iSCSI and FCoE offering
- First 40Gb end to end FCoE offering (post GA)
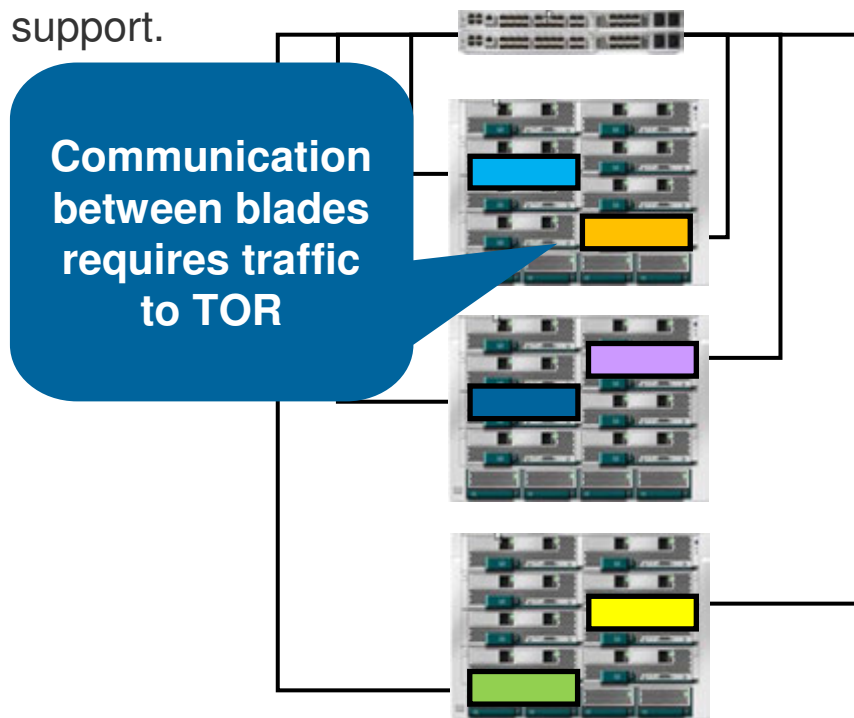- Standard based for seamless integration

Network Switching and Why it Matters

The Problem:

Blade to blade **communication** flows north-south through the TOR, causing **latency** from request / response traffic. Added network latency will impact the overall **workload** the servers can support.

Communication between blades requires traffic to TOR

## The Flex System Difference:

Do more with your servers and **reduce** network delays. Node to Node communication happens **within** the chassis.

Communication is contained within chassis running at 10GB Ethernet

Why this matters:

- Reduces switch latency
- Additional servers needed to overcome performance loss in network delays
- Low latency, web-serving, and database apps create significant server to server chatter and stress on the network
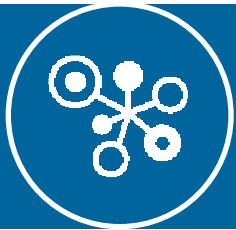
Integrated Network Management with Network Control

- 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
☑	elm8a105	Related Resources ▶		OK
☐	elm8a77.	Topology Perspectives ▶		OK
☐	elm8a88.	Create Group		OK
☐	elm8a89.	Manage MIBs...		OK
☐	eSAN BC	Remove...		OK
☐	eSAN Blac	Rename...		OK

SNMP Browser

Add to ▶
Inventory ▶
Release Management ▶
Security ▶
System Configuration ▶
System Status and Health ▶
Properties

Active Status
Event Log
Manage MIBs
Monitors
Network Diagnostics
Thresholds
Compliance Policy
Compliance Issues

Page 1 of 1 | 1 | Selected: 1 Tot

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*

Networking

System infrastructure

IBM 10Gb Virtual Fabric Switch

14 internal ports

Logical partition 1

14 internal ports

Logical partition 2

14 internal ports

Logical partition 3

Pool of uplink 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

- 1st Upgrade via FoD: Enables 2nd 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

- 2nd upgrade via FoD: Enables 3rd set of fourteen internal 10Gb ports (one to each server) and four external 10Gb ports
- Capable of supporting a six port card in future

Flexible networking solution, allowing for best price/performance

IBM 10Gb Switch: Wired for up to 16 10Gb ports per node and twenty two external ports
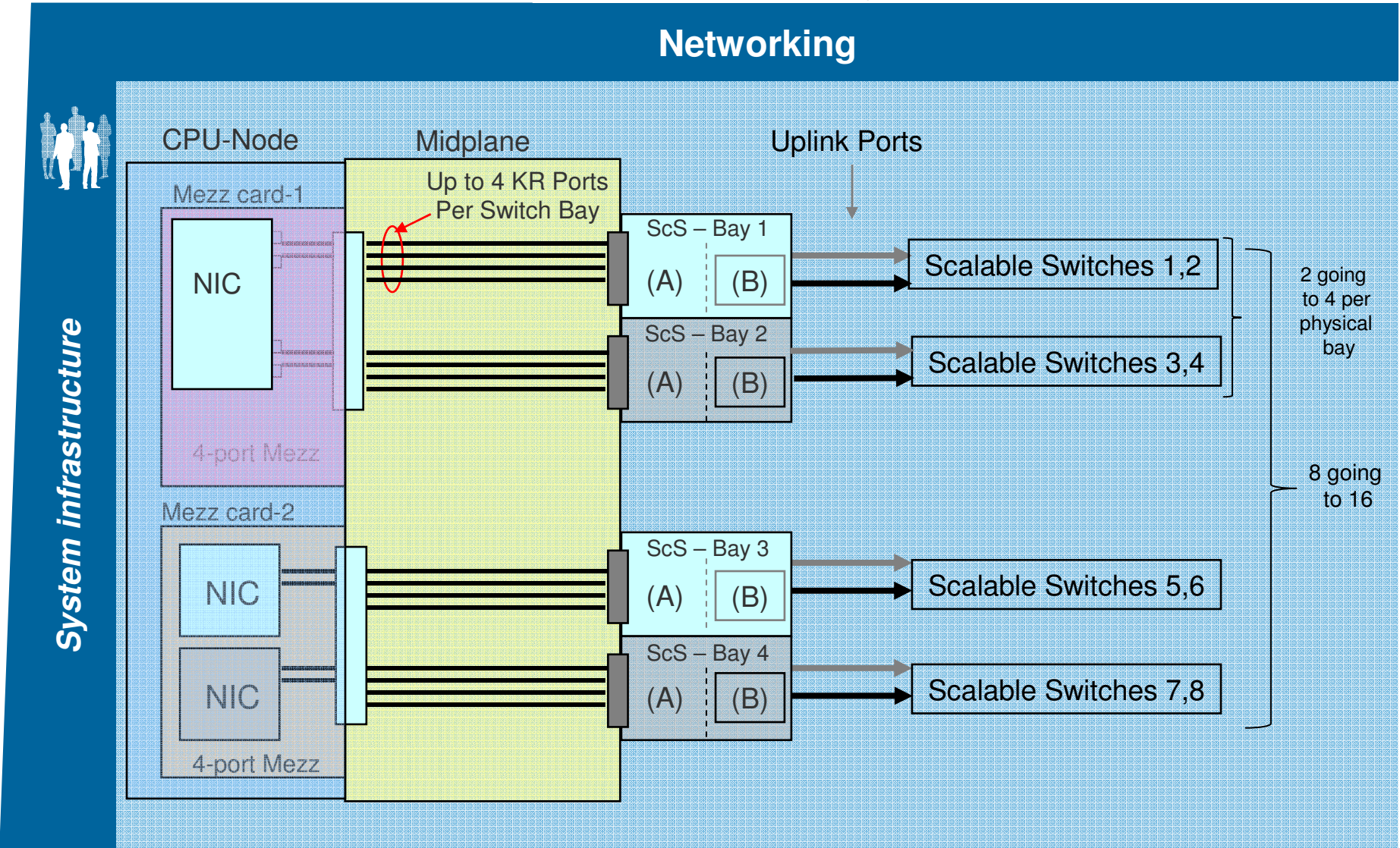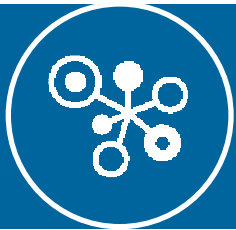
## IBM Flex System 10Gb Virtual Fabric Scalable Switch

- IBM 10Gb Scalable Switch for IBM Flex System Chassis
- One, two, or three 10G ports per server – selectable by software license
  - Base Switch: 14 x 10Gb server port and 10 x 10Gb uplinks
  - Switch upgrade 1: 28 x 10Gb server ports and 16 x 10Gb uplinks. 40Gb uplinks enabled.
  - Switch upgrade 2: 42 x 10Gb server ports and 22 x 10Gb uplinks. 40Gb uplinks enabled.
    - 1.28 Tbps – first 1Tbps+ blade switch
    - 5+ Tbps per chassis

Full featured, Scalable bandwidth bringing convergence and simplicity to Datacenter applications

Two 40 G uplink ports. Each port can also be converted to 4*10G using QSFP to SFP+ cable
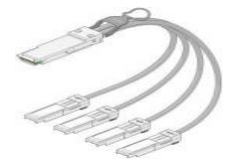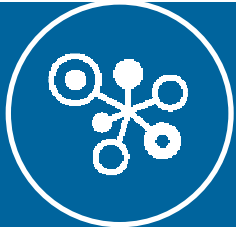
IBM Flex System 1Gb Scalable Switch Module
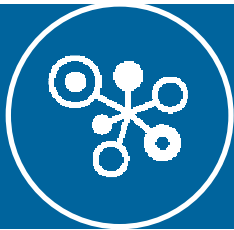
- BNT 1Gb Switch Modules for next generation Chassis
  - Base Switch: 14 x 1Gb server port and 10 x 1Gb uplinks
  - Switch upgrade 1: Doubles the ports to 28 x 1Gb server ports and 20 x 1Gb uplinks.
  - Switch upgrade 2: Adds 4 x 10Gb uplinks enabled.
  - RJ45 connectivity for 1Gb Ports

Integrates into current 1Gb Datacenter architecture with 10Gb uplinks for future expansion

IBM Flex System 10Gb Virtual Fabric Scalable Switch with FC

- Compass plus FCoE and native FC
- Uplinks
    - 12 Omni Ports : 10Gb ETH or 8Gb FC
    - 2 10Gb ETH
    - 2 40Gb ETH
- Downlinks
    - Same as Compass : Up to 42 10Gb
- FC Features
    - NPIV
    - FCF Gateway
    - FC Services
    - N Port, F port, E port
- Native FC connectivity to FC SANs (using NPIV mode)

2 10Gb ETH Ports

12 Omni Ports : 10Gb ETH or 8Gb FC

Two 40 G uplink ports. Each port can also be converted to 4*10G using QSFP to SFP+ cable
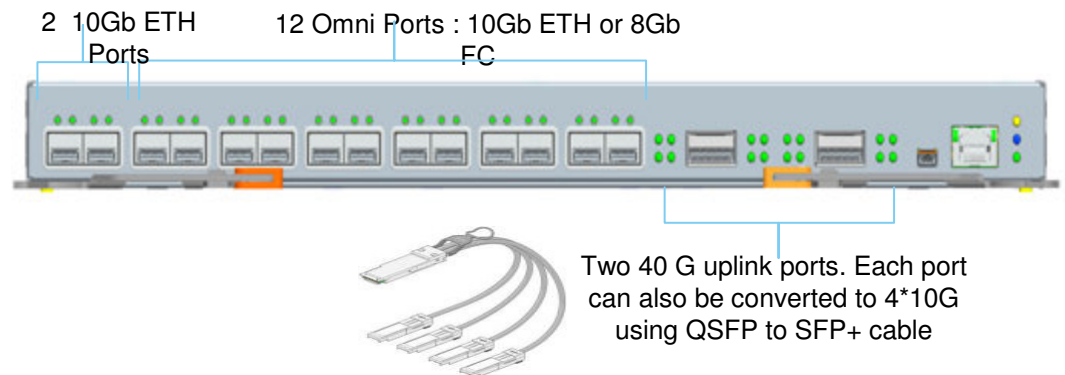
IBM Flex System 10GbE Pass-Through Module

Unmanaged 10GbE Pass-through module for next generation IBM Flex System chassis

- 14 Internal server ports
- 14 External SFP+ ports

Simple, low cost connectivity to the datacenter core
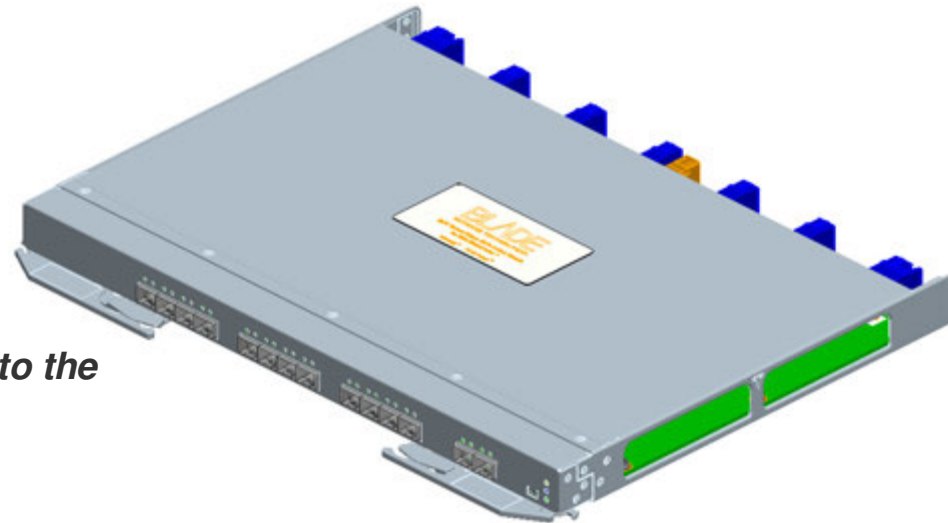
Full breadth of Networking offerings

Networking

Simplifies network deployment via integrated management

◇

Reduces network complexity via convergence and intelligent fabric monitoring

◇

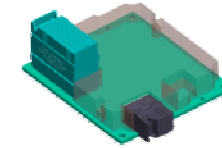Improves network performance via uncompromised IO throughput

◇

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

System infrastructure

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	• 52 port 1Gb Switch
	    Base: 14/10 (internal/external)
	    Upgrade: 14/10
	    Upgrade: four 10Gb uplinks
	• 64 port 10Gb Ethernet Switch
	    Base: 14/10
	    Upgrade: 14/8 (two 40Gb uplink)
	    Upgrade: 14/4
	• 1/10Gb Pass Thru
		• 20 port 8Gb
		• 20 port 8Gb Pass Thru
		• 48 port 16Gb
			• QDR Switch upgrade: FDR

Adapter	• 4 port 1Gb - Broadcom • 4 port 10Gb - Emulex • 2 port 10Gb – Mellanox	• 2 port 8Gb – Qlogic • 2 port 8Gb – Emulex • 2 port 16Gb – Brocade	• QDR & FDR Adapter

*Available at launch

Storage is essential to an integrated platform
Storwize V7000 and PureFlex System V7000 storage are virtualized

The Problem:

Digital data has grown 10x from 2007 to 2011, causing storage requirements to grow 20 - 40% per year.

This growth has made the **integration**, **management**, and **virtualization** of storage resources critical.

Management Layer

Integrated Single Point of **Management**

Virtual **Server** Infrastructure

Virtual **Storage** Infrastructure
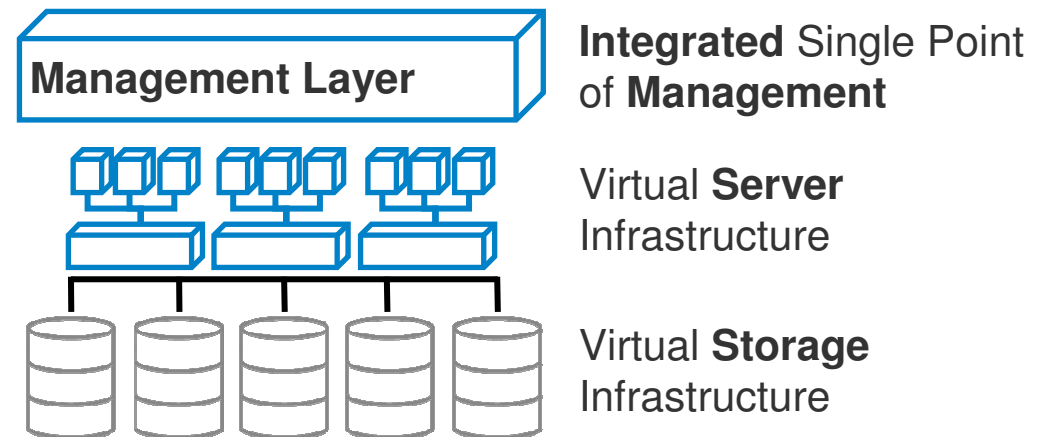
Virtualized Servers Require Virtualized Storage
- Consolidate diverse storage infrastructure
- Common Access point
- Single point of management and provisioning
- Can serve as a bridge from traditional infrastructures to cloud

IBM Flex System V7000 – Different (and Better) by Design…

IBM Flex System V7000

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 70% higher utilization of newly deployed and preexisting storage assets

- **Automated intelligent data placement with EasyTier™**
    - **Up to 3X performance** improvement with **as little as 2% SSD** capacity
    - "Learns" and adapts to dynamic, mixed workload environments automatically

- **Active Cloud Engine™**
    - Automated, policy-based file movement
    - Reduces cost and increases availability by moving files to the proper tier

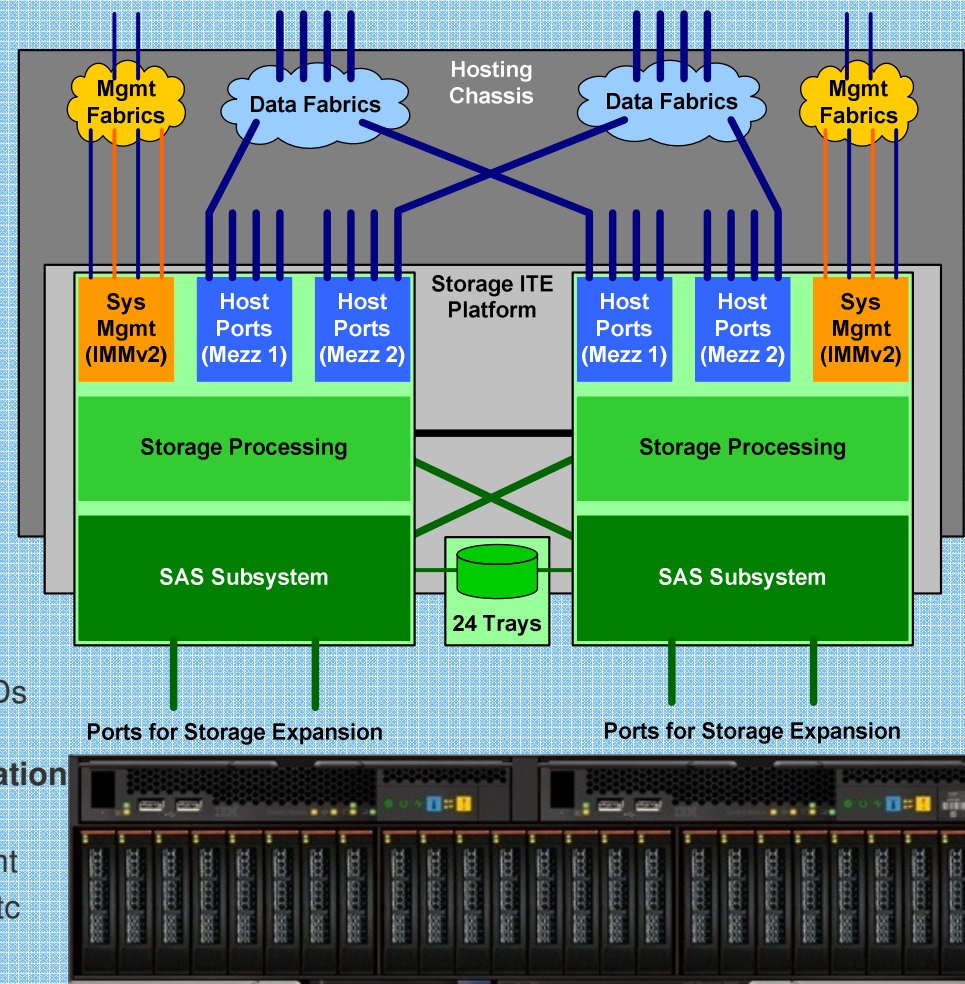# Storage Node Design Overview

Storage

System infrastructure

- **In Chassis Enterprise Storage**
  - Double high / double wide node
  - Dual hot swappable controllers for HA
  - Shared storage for multiple CPU nodes
  - High performance/ high function storage
    - Midrange class performance
  - FCoE & iSCSI block storage
    - FC block storage as well
  - NAS file storage (future)

- **24 HDDs/SSDs – 2.5" hot swap disk trays**
  - Via dual SAS paths to both controllers
  - Add'l storage via Storage Disk Expansion
  - Automated FW for hot spot data migration
    - Migrate content between SSDs and HDDs

- **Chassis and Management Appliance Integration**
  - Tight integration with chassis mgmt
  - Tight integration for storage and fabric mgmt
    - VM provisioning, copy svcs, mirroring, etc

Mgmt Fabrics
Data Fabrics
Hosting Chassis
Data Fabrics
Mgmt Fabrics

Sys Mgmt (IMMv2)
Host Ports (Mezz 1)
Host Ports (Mezz 2)
Storage ITE Platform
Host Ports (Mezz 1)
Host Ports (Mezz 2)
Sys Mgmt (IMMv2)

Storage Processing
Storage Processing

SAS Subsystem
24 Trays
SAS Subsystem

Ports for Storage Expansion
Ports for Storage Expansion

Enterprise Storage Flexibility

Storage

Simplifies storage administration with a single user interface and common CLI through a tightly integrated management console

◇

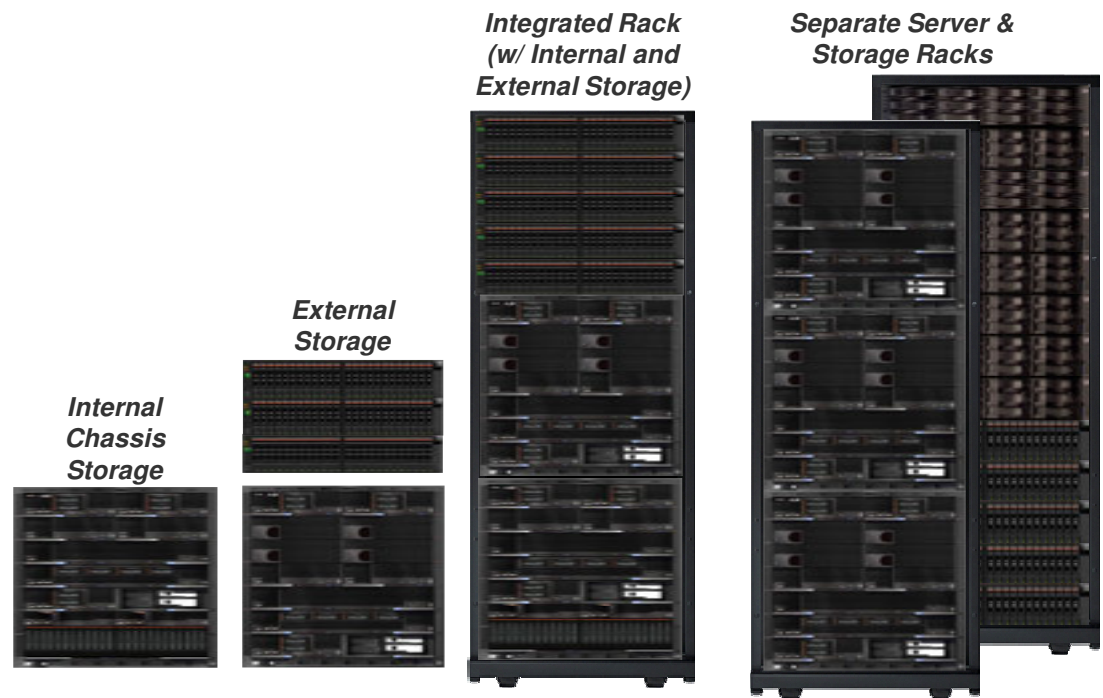Virtualizes third-party storage with non-disruptive migration of the current storage infrastructure

◇

Balances high performance and cost for mixed workloads

◇

Protects data for business continuity and disaster recovery with built-in local and remote replication and snapshot functions

System infrastructure

IBM Flex System extends the Storwize capabilities: Maximum performance and flexibility, integrated management and ease of use for customer for all customer configurations

Full spectrum of servers and storage options

Integrated Rack (w/ Internal and External Storage)

Separate Server & Storage Racks

External Storage

Internal Chassis Storage

39

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.

Additional plug-ins to activate

There are no plug-ins to

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

Refresh Last refreshed: January 18, 2012 12:05:37 PM CST

✅ **IBM Flex System Manager™** 1.1.0
Ready
Chassis Manager   Management Domain

ℹ️ **IBM Flex System Manager™ Server** 6.3.1
1 User does not have access to any resources
Manage Users

ℹ️ **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   Acquire
Update   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

Storage Management

Storage Manage

This pages shows a summary of

IBM Flex System Manager Storag

🟩 Running

❓ Why isn't IBM Flex System Manage   Control "running"

Capacity Summary
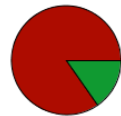
🟩 4488 GB Total configured capacity (to volumes)
🟥 24973 GB Total available capacity (for volumes)

Storage Tasks

*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		29468	1	22
Total	24973				

Storage system not being discovered? Learn more

License

IBM Flex System Manager Storage Control 4.2.2.94
Installed

End-to-end capacity view of all storage

Details by storage type

IBM PureFlex System storage, virtualization, and management

Storage

System infrastructure

Starting Level
IBM Flex System FSM Chassis Map
- Single point of management starting point for IBM Flex System
- Physical navigation, central launch point for IBM Flex System management

Upper Level
IBM Flex System FSM Storage Control
- Integrated management with a Systems and Storage perspective
- Manage storage across your data center connected to IBM Flex System

Detailed Level
V7000 Storage User Interface
Detailed disk setup (RAID arrays, LUNs)
- Advanced disk features (Easy Tier, Mirroring, Clustering, Virtualization)
- Inherent in every Storwize V7000 and IBM Flex System V7000 Storage Node
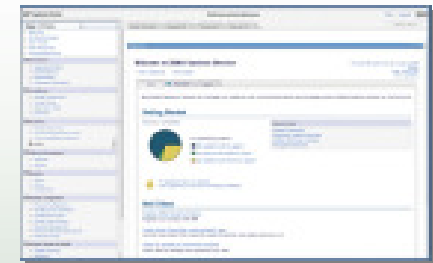
Upgrade Level
TPC Storage Productivity Center
Integrated management with a SAN-wide perspective
- For clients looking for advanced analytics and management of data center SAN with other, perhaps heterogeneous storage
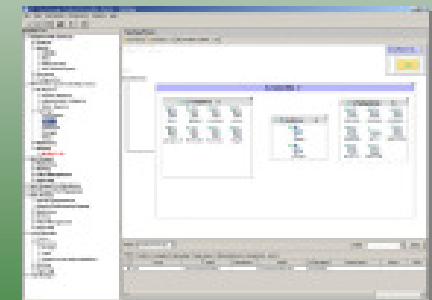

IBM FlexSystem Chassis Map
IBM Flex System Single point of management

IBM Flex System FSM Storage Control
Integrated server, storage, networking mgmt

V7000 Easy-to-use management GUI
Detailed Storage Setup

Tivoli Storage Productivity Center
Integrated SAN-wide management

IBM PureFlex System Storage interoperability

Storage

System infrastructure

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 3rd 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

FSM

Other storage Virtualization options

Storwize V7000

IBM Flex System V7000 Storage Node

IBM SVC

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
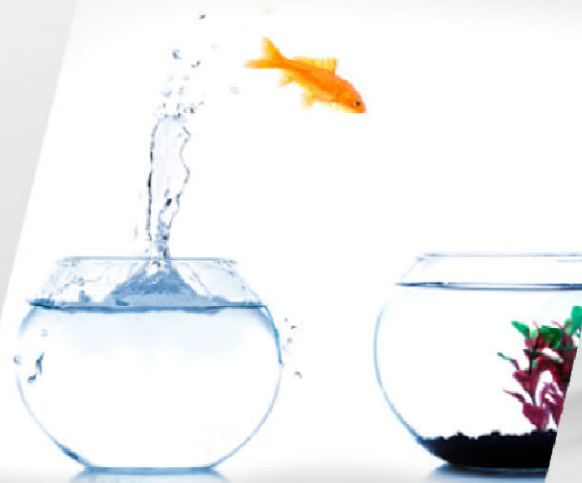Included in Base Director

EMC, HP, Dell

Why choose IBM & IBM PureFlex System?

Unique Integration and Optimization

Complete systems that are easy to develop, deploy and manage

Enable workloads to run efficiently in an agile business environment

Integrate into your current IT infrastructure through open standards

The world's premier single-source provider for IT solutions

ibm.com/smartcloud