



Big data: veliki podaci, velika prilika

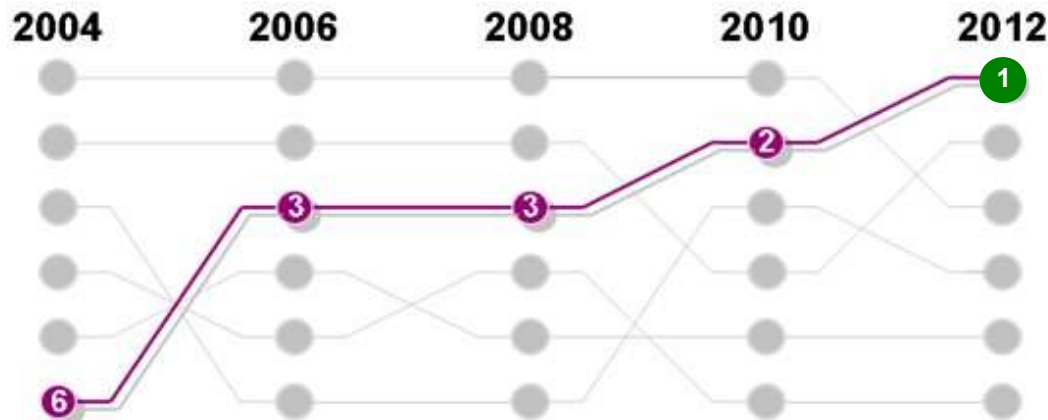
**IBM PureFlex –
ekspertni integrirani sustav**



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Technology is the leading force for impacting business



Factors impacting organizations:

1. Technology factors
2. People skills
3. Market factors
4. Macro-economic factors
5. Regulatory concerns
6. Globalization

Source: IBM CEO Study 2012

71% of CEOs identify technology as the most important external force impacting their organizations*



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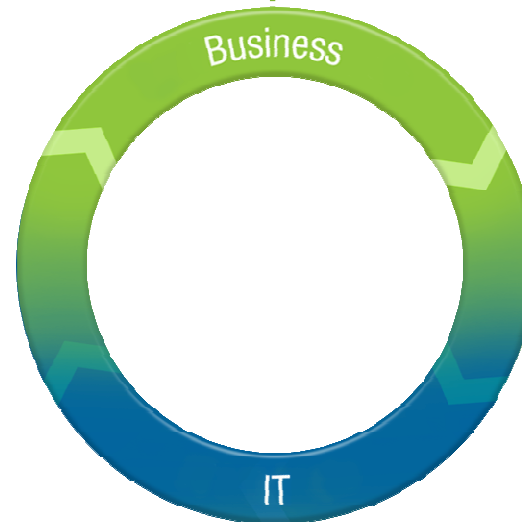


IT must break through budget and resource barriers

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

Takes months:

- Specify/Design
- Integrate
- Procure
- Deploy

Development Operations

Takes 30-90 days:

- Provision
- Configure

Ongoing Effort

Takes months and requires downtime:

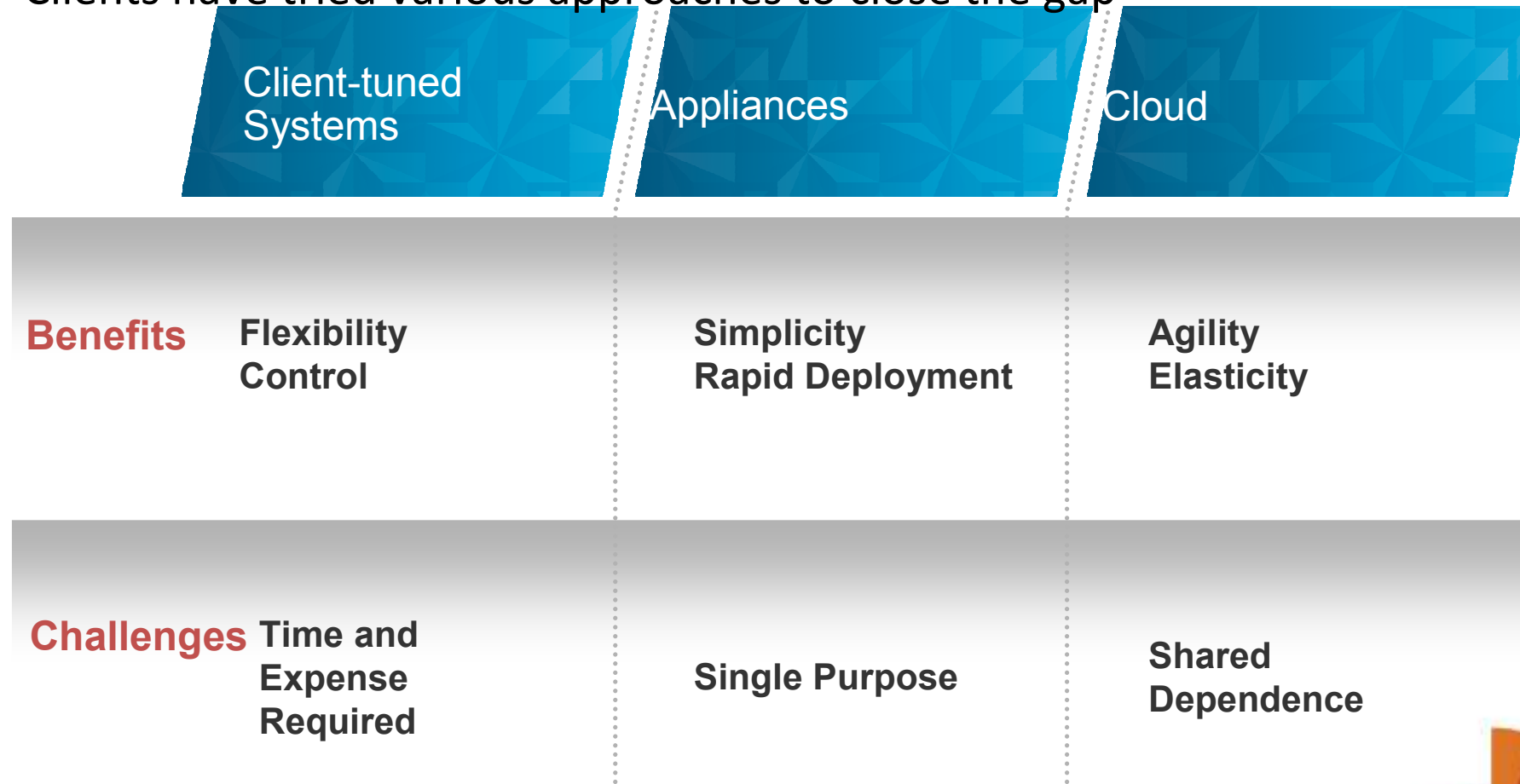
- Customize/Tune
- Maintain
- Scale
- Upgrade
- Manage



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Clients have tried various approaches to close the gap



What if you could have the best of all three?



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It is time for a new class of expert integrated systems

PureSystems

Built-in Expertise

Capturing and automating what experts do



Integration by Design

Deeply integrating and tuning hardware and software

Simplified Experience

Making every part of the IT lifecycle easier



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Announcements in 2012

April 11, 2012

Flex System



PureFlex



PureApplication



Oct 9, 2012

PureData



Nov 13, 2012

Flex System



PureFlex



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IBM PureSystems



What's Inside? An evolution in design, a revolution in experience

IBM Flex System

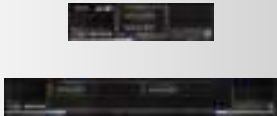
Chassis

14 half-wide bays for nodes



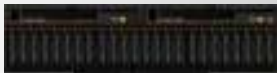
Compute Nodes

Power 2S/4S*
x86 2S/4S



Storage Node

V7000
Expansion inside or outside chassis



Management Appliance



Networking

10/40GbE, FCoE, IB
8/16Gb FC



Expansion

PCIe
Storage



IBM PureFlex System

Pre-configured, pre-integrated **infrastructure systems** with compute, storage, networking, physical and virtual management, and entry cloud management with **integrated expertise.**



IBM PureApplication System

Pre-configured, pre-integrated **platform systems** with middleware designed for transactional web applications and enabled for cloud with **integrated expertise.**



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For infrastructure, two different client needs

Blade Replacement- Going Beyond Blades

Flex System



- Separately purchased components
- An entry point for clients to start with compute and networking
- Management and storage optional
- Client or partner tuned

Integrated Infrastructure & Cloud - Expert integrated System

PureFlex



- Factory integration of Compute, Storage, Networking, and Management
- Cloud ready with SmartCloud Entry
- Single point of service and support



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IBM PureFlex System – Integrates these **NEW** capabilities

PureFlex



Integrated Infrastructure

Delivering Infrastructure Services

- Integrated V7000 storage node
- More compute options
 - x86-x440, x220
 - p260 with POWER7+
- Flex System Manager enhancements
 - Mobile Management
 - Configuration Patterns
- Further switch options
 - 10 GB scalable switch
 - Brocade Switch also now available
- Ordering system improvements
- Lab services options
 - Intro
 - Virtualized
 - Cloud



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Simplified management experience with advanced automation

Reduced risk through integrated platform management



System infrastructure

Management



Management



Networking



Storage



Virtualization

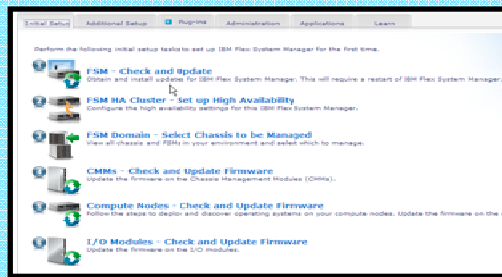


Compute

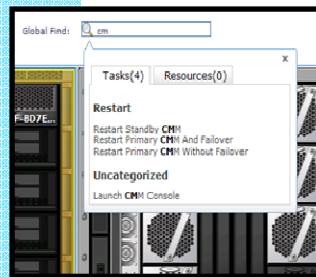


- New user interface and configuration automation brings new components online faster
- Cross-resource integration and automation enables transformation from managing resources to managing applications, services and workloads
- Works with the management you have - other IBM platform tools, Tivoli and 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



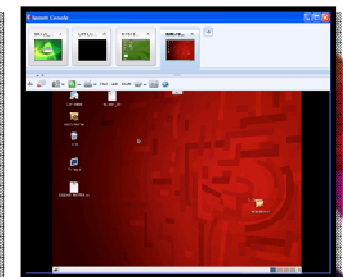
Global Find



Chassis Map



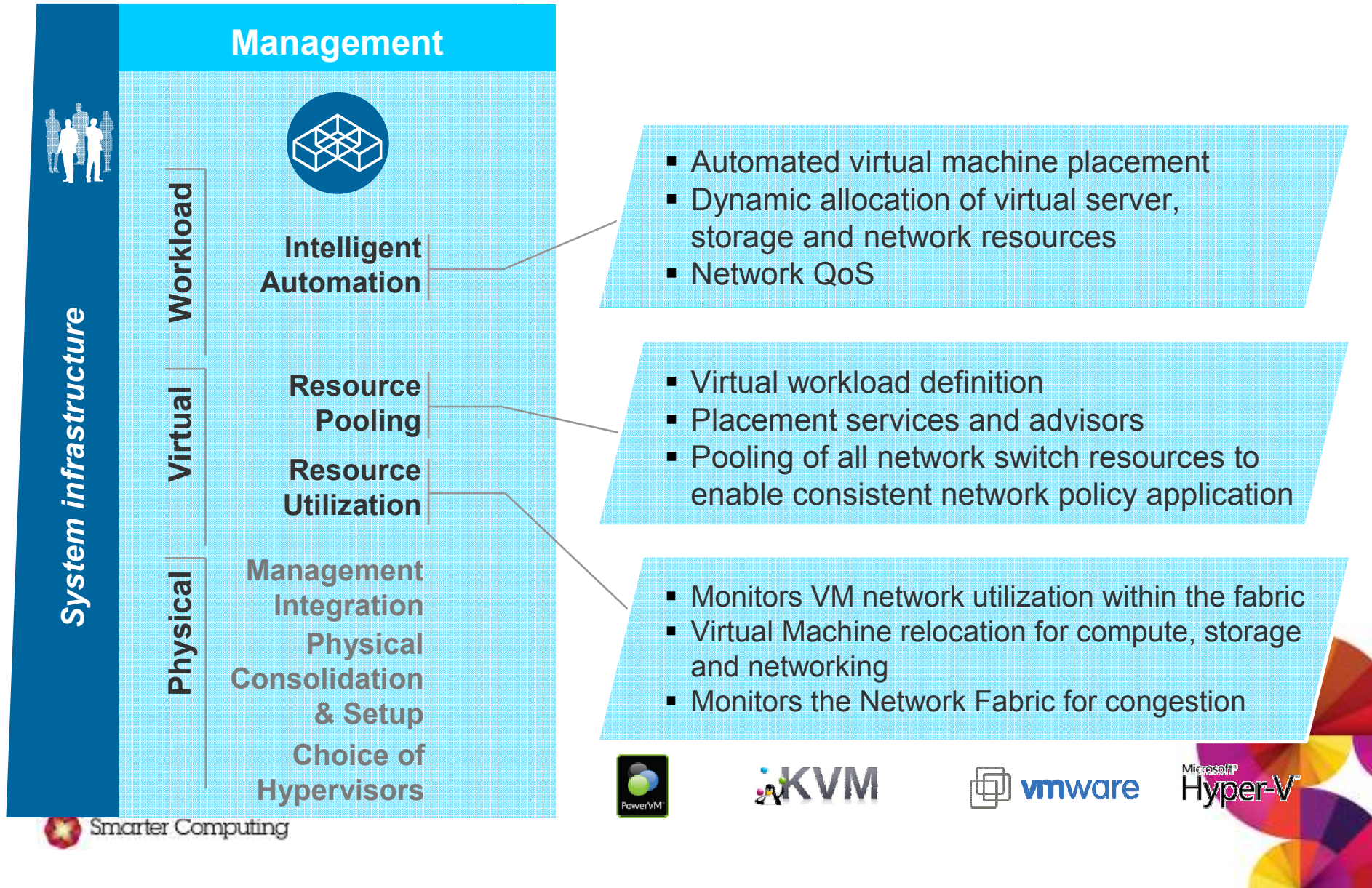
Remote Presence



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Simplified Virtualization Management experience



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IBM Flex System Manager™ – simple to deploy, simple to secure and providing more efficiency in management

Simple to:

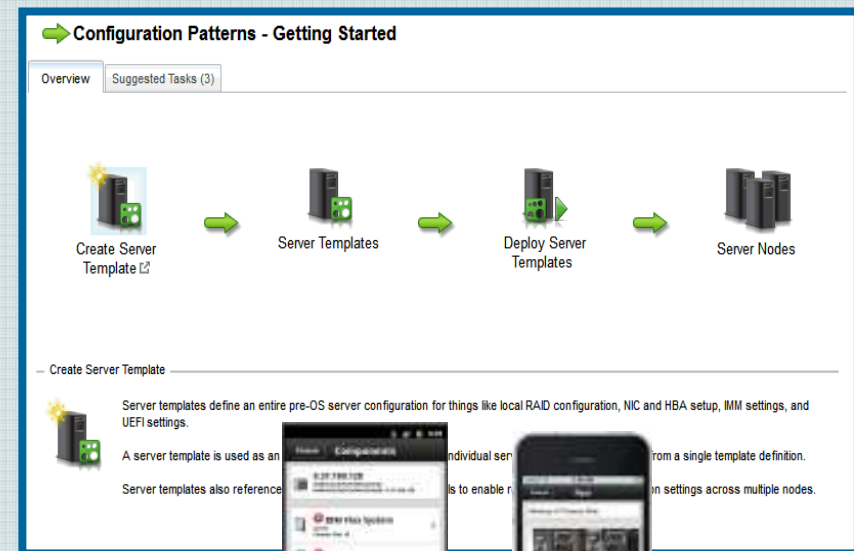
Deploy – Configuration patterns,
Bare metal deployment

Secure – Centralized security

Efficient to Manage:

Mobile management

Integrated storage support



IBM Flex System Advantages: Simplicity and Efficiency



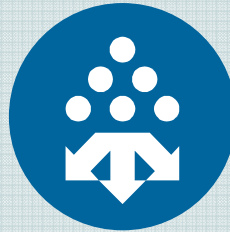
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IBM Flex System. Beyond blades.

Simple

- Components designed to work together
- Management integration
- Flex System Manager recognizes new resources for rapid use



Open

- 4 operating systems
- 4 hypervisors
- Tens of thousands of applications

Flex System

Flexible

- Choice of networking
- Choice of storage
- Choice of compute



Efficient

- No compromise design
- Twice the virtual machine density



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Enterprise Chassis Design

Networking



Infrastructure supporting multi fabrics, Ethernet, FCoE, Fibre Channel

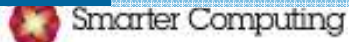
Energy efficient cooling and power system

Multi-chassis management

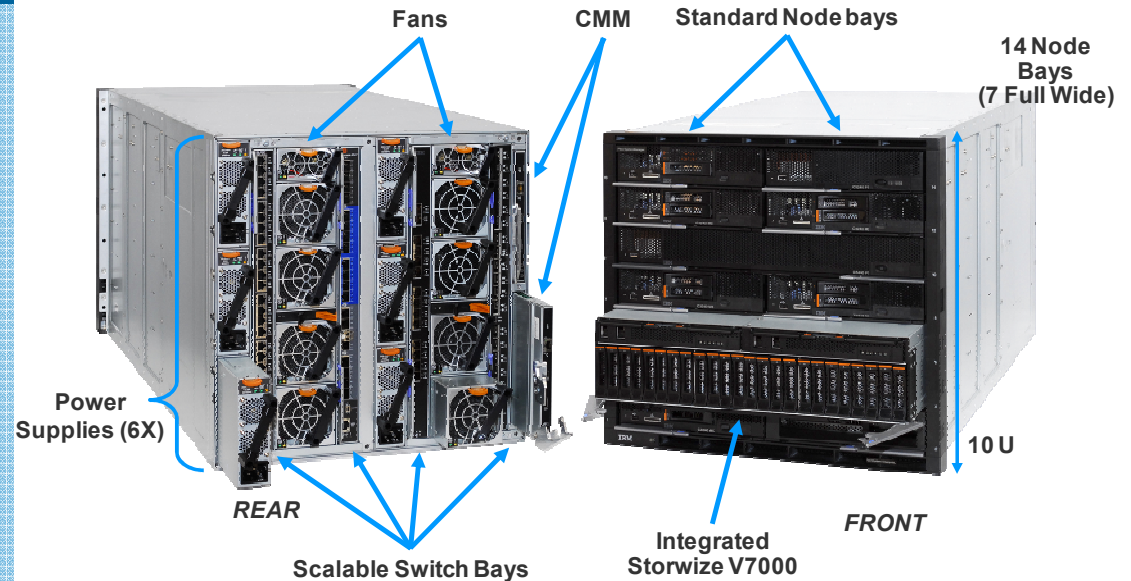
Easy to use with integrated single-point management

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

System infrastructure



IBM Flex System Enterprise 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



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IBM Flex System Enterprise Chassis Front View

Size: 10 U
19" Rack

14 Node Bays
(7 Full Wide)

Nodes:

- Power
- Intel
- Flex System Mgr



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IBM Flex System Advantages: Flexibility and Openness

New Compute Node Choices: Leading edge compute technologies deliver an open architecture, operating system and hypervisor choice



IBM Flex System x220
Enhanced



IBM Flex System p260
Enhanced



IBM Flex System x240



IBM Flex System p24L



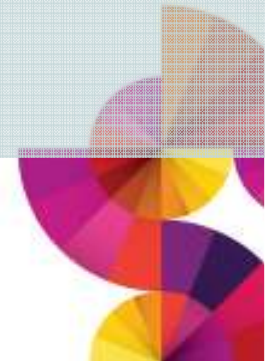
IBM Flex System x440
New



IBM Flex System p460



IBM Flex System
PCI expansion node
Storage expansion node



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IBM Flex System x240 - Enterprise Class



Compute



System infrastructure

- 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



IBM Flex System x240

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

2x IO Mezzanine Cards

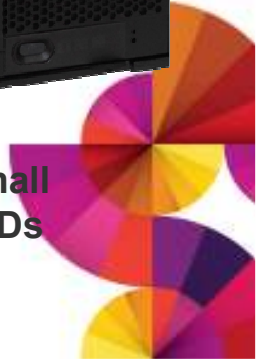
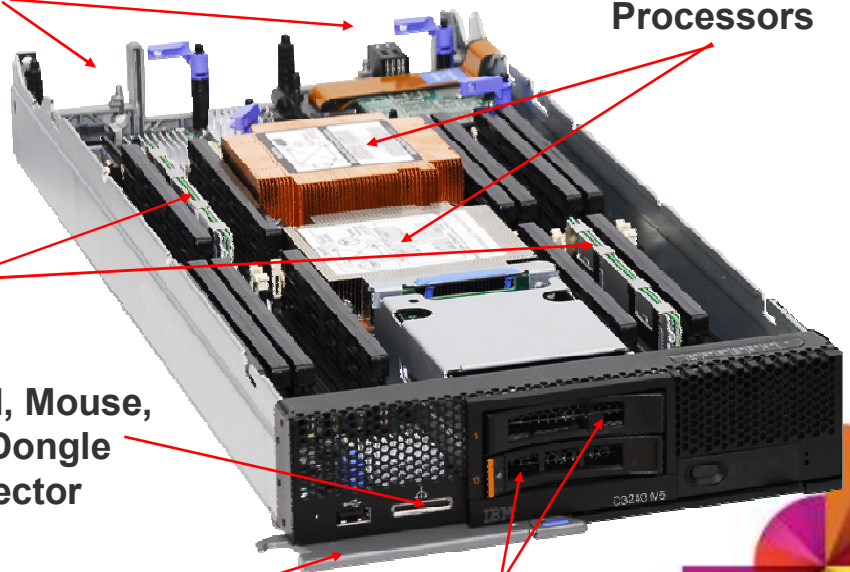
2x Intel E5 2600 Processors

24 LP DIMMs

Keyboard, Mouse, Video Dongle connector

Release latch

2x Hot Swap, Small Form Factor HDDs



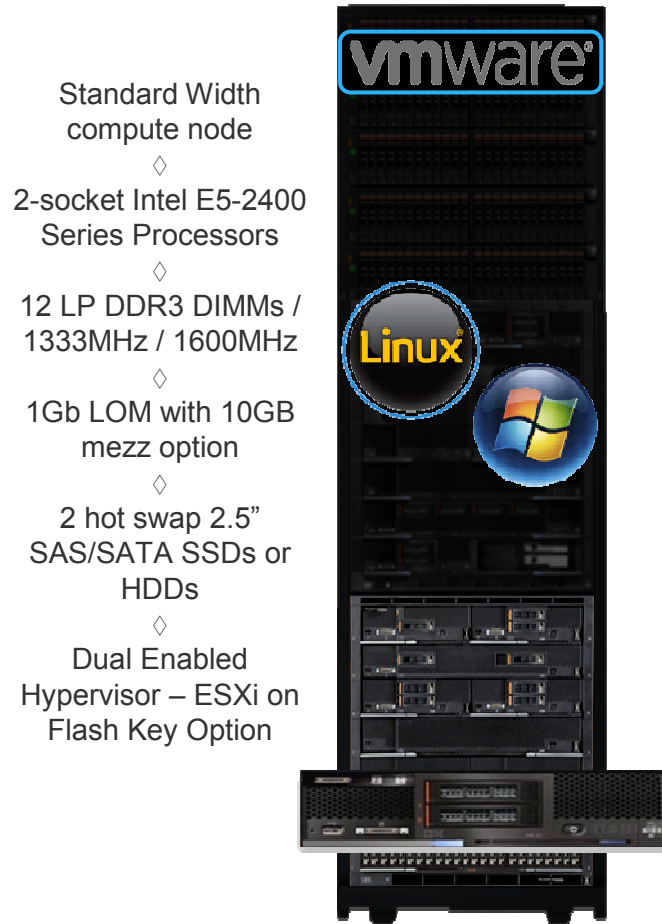
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IBM Flex System x220 Compute Node

Entry cost optimized compute, designed for energy-efficiency



Servers



Standard Width
compute node

2-socket Intel E5-2400
Series Processors

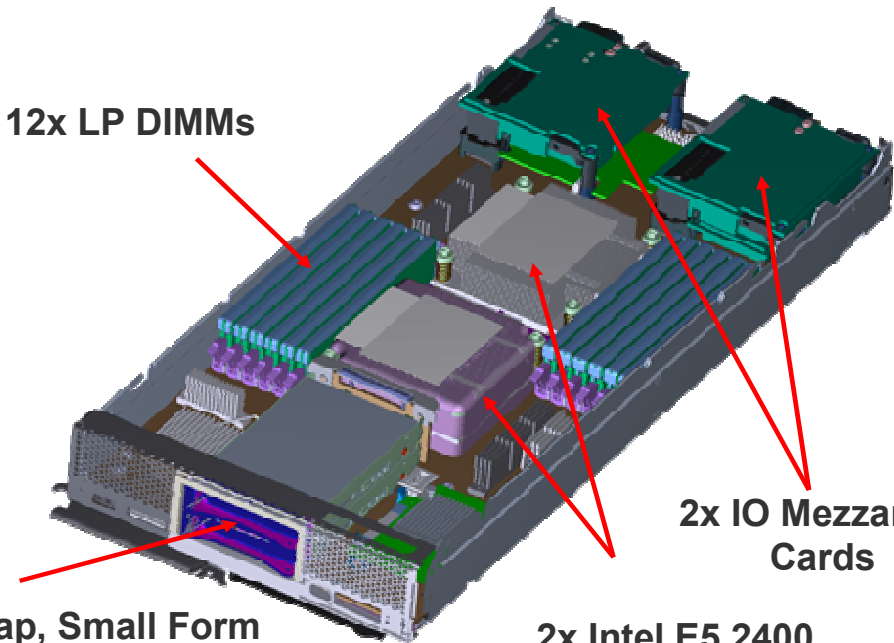
12 LP DDR3 DIMMs /
1333MHz / 1600MHz

1Gb LOM with 10GB
mezz option

2 hot swap 2.5"
SAS/SATA SSDs or
HDDs

Dual Enabled
Hypervisor – ESXi on
Flash Key Option

12x LP DIMMs



2x Hot Swap, Small Form
Factor HDDs

2x Intel E5 2400
Processors

2x IO Mezzanine
Cards



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IBM Flex System x440 Compute Node

Delivers maximum CPU, memory, and IO performance, ideal for database and virtualization



- Full Width compute node
- ◇
- 4-socket Intel E5-4600 Series Processors
- ◇
- 48 LP DDR3 DIMMs / 1333MHz / 1600MHz
- ◇
- 4 x10GbE Ports with 2 more mezz option bays
- ◇
- 2 hot swap 2.5" SAS/SATA SSDs or HDDs
- ◇
- Dual Enabled Hypervisor – ESXi on Flash Key Option

48x LP DIMMs

4x IO Mezzanine Cards

4x Intel E5 4600 Processors

2x Hot Swap, Small Form Factor HDDs





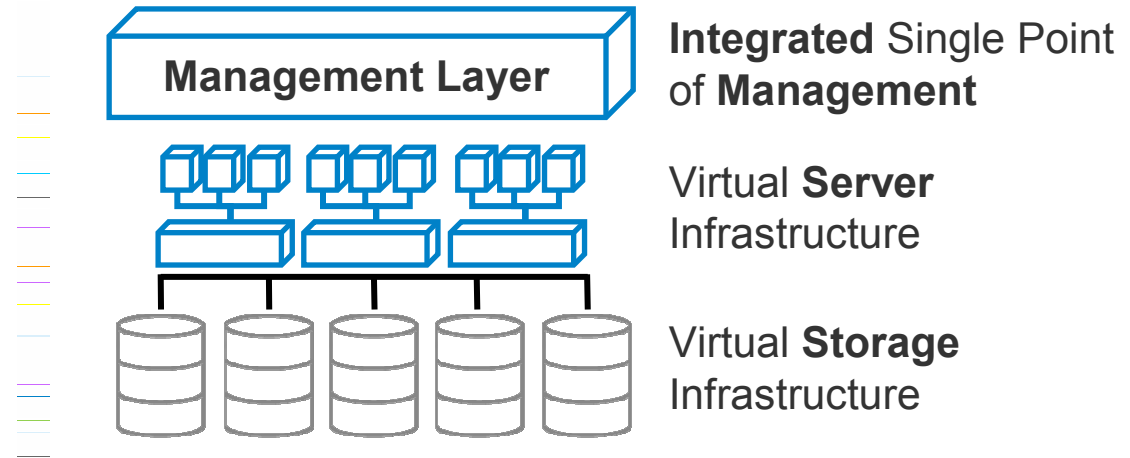
Storage is essential to an integrated platform
The Storwize V7000 is born virtualized



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.



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




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Storage that is virtualized – Storwize V7000

Storage



Double high / full wide
Thin Provisioning, Flash Copy,
and Easy Tier

External Virtualization
Metro / Global Mirroring

High Perf. Shared Block Storage

Scalable Storage up to 240 SFF
(HDD and SSD)

Cluster-able to four systems and
4x the bandwidth performance

FCoE, FC, & iSCSI host protocol
options

System infrastructure



IBM V7000
Storage
Node

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

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

Balances high performance and costs for mixed workloads

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



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Integrated IBM Flex System V7000 Storage Node:

Simple, seamless integration delivers new data center efficiencies

Simpler storage administration

Simpler to manage 3rd Party storage

Optimizes performance and costs for mixed workloads: **up to 200% higher performance** with automatic migration to SSDs

Stores **up to 5x more active primary data** in the same physical disk space using IBM Real-time Compression



IBM Flex System Advantages: Simplicity and Efficiency



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Full breadth of Networking offerings

Networking

Simplifies network deployment via integrated management

◇

Reduces network complexity via convergence and intelligent fabric monitoring

◇

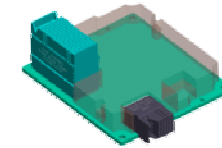
Improves network performance via uncompromised IO throughput

◇

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

System infrastructure

IBM Networking Offerings



- Scalable Switch modules for Next Generation Platform.
- 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"> • 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 	<ul style="list-style-type: none"> • 20 port 8Gb • 20 port 8Gb Pass Thru • 48 port 16Gb 	<ul style="list-style-type: none"> • QDR Switch upgrade: FDR
Adapter	<ul style="list-style-type: none"> • 4 port 1Gb - Broadcom • 4 port 10Gb - Emulex • 2 port 10Gb - Mellanox 	<ul style="list-style-type: none"> • 2 port 8Gb - Qlogic • 2 port 8Gb - Emulex • 2 port 16Gb - Brocade 	<ul style="list-style-type: none"> • QDR & FDR Adapter



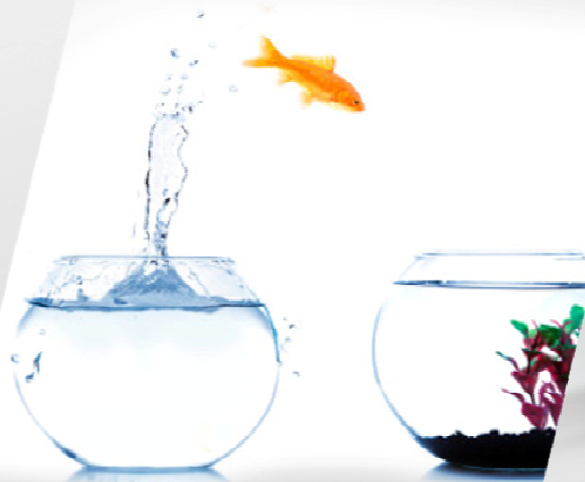
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Why choose IBM & IBM PureFlex System?

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

