

Novosti u system X svijetu

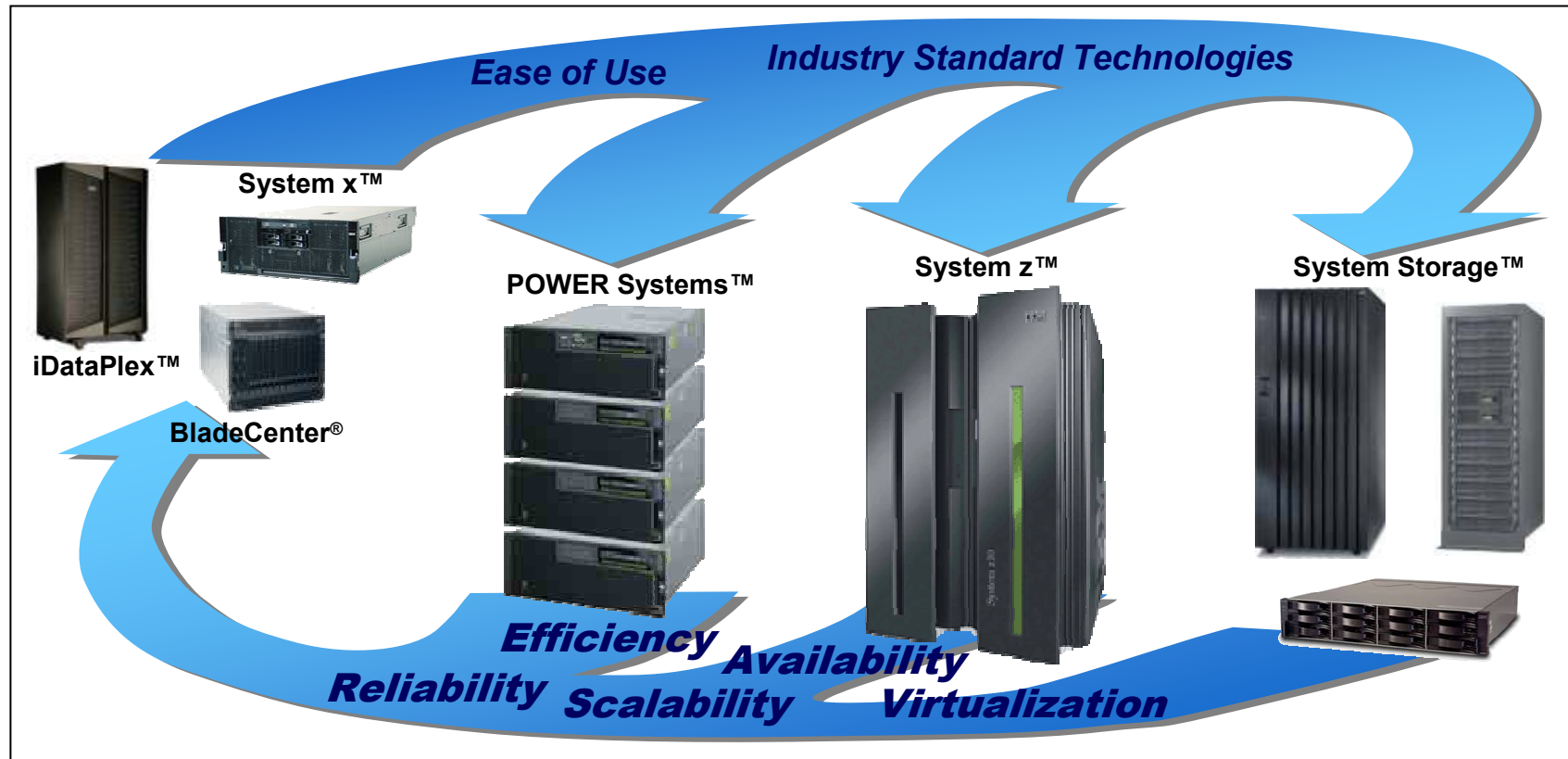
Haris Kulenović, System x Client Technical Specialist, IBM SEE



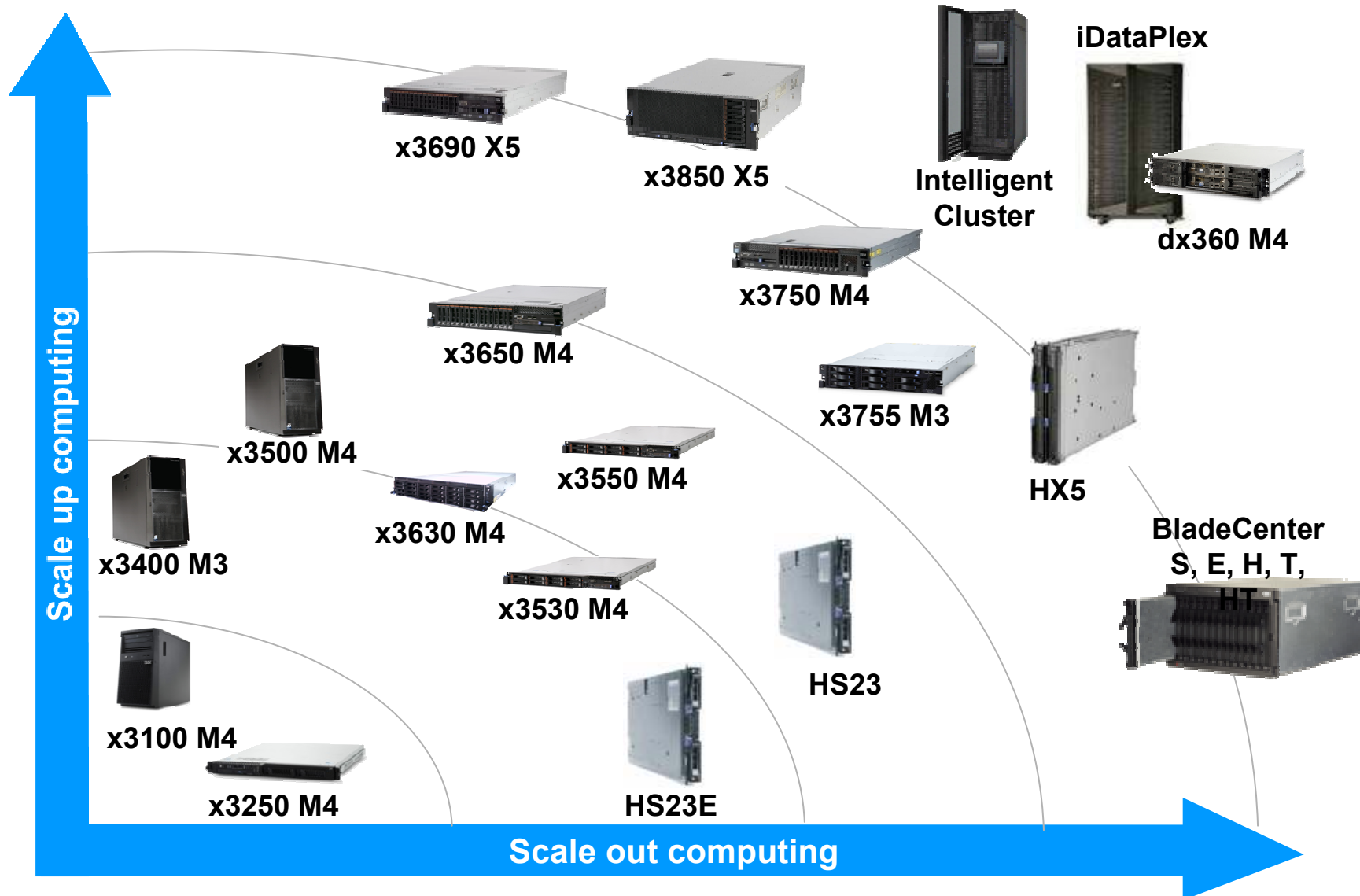
System x is one component of the IBM server ecosystem

IBM X-Architecture™

A design blueprint for building proven IBM innovation into the industry-standard System x product line



System x and BladeCenter portfolio



Take advantage of the benefits of System x technology

Quality

- Predictive Failure Analysis
- New Light Path Diagnostics
- Redundant HS disks, fans and power
- Tool-less design

Lower the risk of virtualizing your business-critical applications

Value

- Feature on Demand
- New management module
 - Fast boot time & remote presence
- High efficiency thermal and power design

The capabilities you need now and the ability to scale as your business needs grow

Performance

- eXFlash
- Slotless, multi-vendor flexible networking
- Integrated RAID card
- Significant performance boost

Pool your IT resources to put data and computing power where it's needed most

M4 Rack Server Positioning

Workloads Next Generation Today Form Factor Product Features

Business Critical

Maximum 2 Socket
Performance & Uptime

- 80% more processing power
- Up to 768 GB of memory
- Slot-less 10Gb networking
- Flexible RAID down design
- Low-cost, high-performance solid-state storage with eXFlash

Flagship
2U/2S



x3650 M4

- Cloud
- Virtualization
- ERP appl. server
- POS
- VDI
- Database

Compact
1U/2S



x3550 M4

- Dense performance
- POS
- Banking & financial
- Cloud

General business

Value 2-socket

Cost Balanced
2 Socket Performance

- 28% more processing power
- Up to 384 GB of memory
- Maximum storage capacity
- Upgradable networking
- Embedded RAID

Storage rich
2U/2S



x3630 M4

- Web
- Database
- Virtualization
- Cloud
- Virtual Storage
- Hadoop

Storage Rich
1U/2S



x3530 M4

- Entry virtualization
- Dense
- Banking
- Web services
- POS

Entry

Cost optimized
1 Socket design

- Low entry price point
- Up to 32 GB of memory
- Integrated ServeRAID

Entry
1U/1S

x3250 M3



x3250 M4

- Single applications
- Small office server
- File & Print

System x3650M4/x3550M4

Innovative Design with New Features



10x

10GbE NIC Has been design in to new M4 servers

4x

RAID bandwidth increased from PCIe Gen2 x4 to Gen3 x8

3x

Memory capacity increased from 288GB to 768GB
Memory Speed increased from 1333MHz to 1600MHz

2x

Disk capacity from 8TB to 16TB w/ Tape & ODD for x3650M4
from 4TB to 8TB w/ ODD for x3550M4
RAID cache increased from 512MB to 1GB

82%

Performance Improvement

+82.02% SPECfp_rate_base2006
+68.97% SPECint_rate_base2006
+50.48% SAP-2T



Ultimate in Uptime Predictive Failure Analysis & Light Path Diagnostics

Predictive Failure Analysis & Light Path Diagnostics: A key component in the IBM System x range of servers is the ability to monitor the health of server components (PFA) and quickly identify & fix any issues before they take down the server (Light Path Diagnostics). These features provide the ability to either hot-swap the component (if applicable) or schedule downtime at low-impact times for the component to be changed or refreshed



Front of Light Path Diagnostics Panel
Amber light indicates there is a problem with the server



Pop-Out Light Path Diagnostics Panel
Indicates what subsystem has problem



Light Path Diagnostics Component Level Lights
Indicates what individual component has PFA alert or has failed



Feature on Demand (FoD) Overview

FoD is the capability to activate or “unlock” features integrated in System x products. The feature is in the firmware or software but “locked” until the activation key is installed.

Benefits

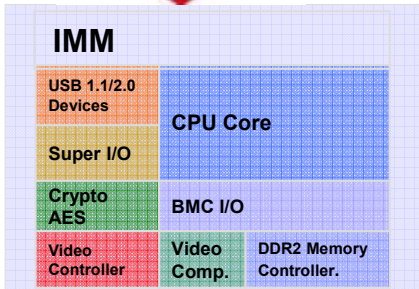
- Feature keys for the FoD can be purchased just like other options
- You buy the features you need now with the ability to grow your system later without costly rip and replace (Pay as You Grow)
- Allows for upgrades in the field
- Secure and customer friendly process -- Easy to use process for customers or IBM Business Partners (BPs)
- Feature activation can be done on server or chassis at the time of the server/chassis sale or at a later time
- FoD enables ease of installation, reduced inventory, and faster fulfillment of options

IBM Systems Management Framework



Unified Extensible Firmware Interface (UEFI)

- Single consistent system level code stack with advance setup and configuration
- Next-gen replacement for BIOS-based firmware provides richer management experience
- Removes limit on number of adapter cards - important to virtualized environments



Integrated Management Module (IMM2)

- Remote control to manage, monitor, and troubleshoot from any corner of the world
- Standards-based alerting to enable “out-of-the-box” integration into enterprise management environments



IBM ToolsCenter

- Reduces complexity of choosing, finding, and learning management tools via single website
- Ability to create bootable media (CD, DVD or USB) w/updates customized for clients' systems
- Common look and feel across tool set reduces training



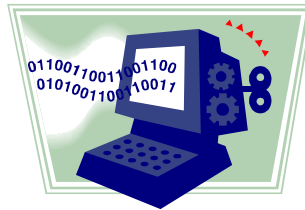
IBM Systems Director

- Easy-to-use, powerful tools for managing both physical and virtual resources
- Delivers broad cross-platform support including IBM Power Systems, System z, storage and non-IBM x86 servers
- Use of a shared, common agent with Tivoli provides simpler integration of Systems Director and select Tivoli products

Innovative design of the new IMMv2

Feature on Demand for IMMv2

- Three levels of manageability
 - **Basic**
 - **Standard***
 - Remote Presence
 - **Advanced***
 - Mobile interface



Enhanced Security

- CRTM (core root of trust measurement) on boot.
- TPM inside IMMv2 (trusted platform module)
- IMMv2 accepts only trusted signed updates
- Runtime firmware measurements with attestation



Improvements in IMMv2 HW Design

*requires upgrade fee

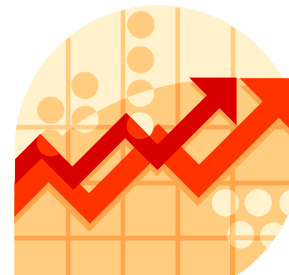
Easy Serviceability

- Text Logs
- Alerting
- First Failure Data Capture



Performance & Reliability

- More responsive
- Faster Power On
- IMM-UEFI Decoupled Boot
- Responsibility for flash device management

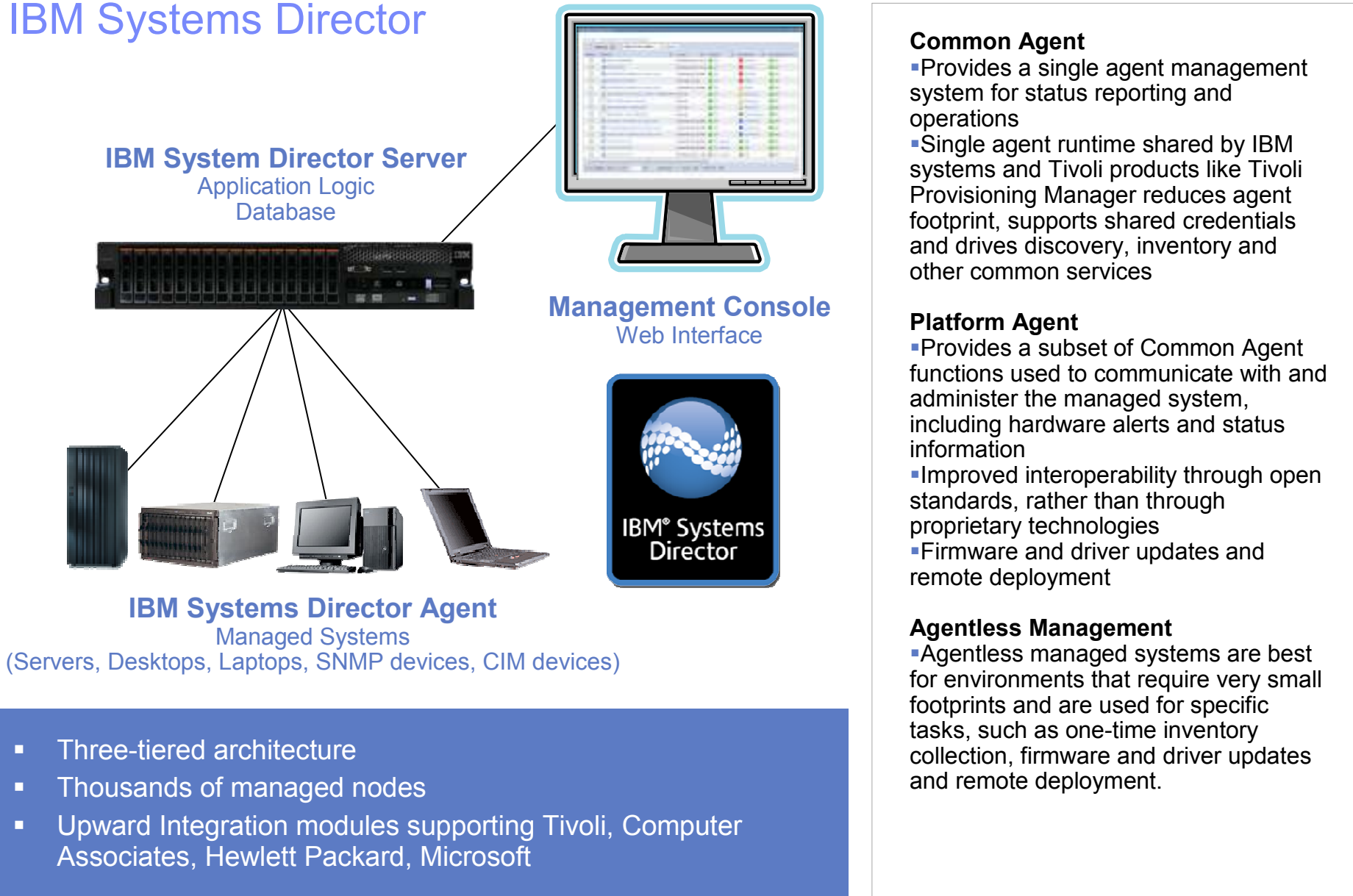


IBM Tools Center

Task	Tool	Function
Deployment	ServerGuide	Simplifies the process of installing and configuring IBM System x and BladeCenter servers
	Start Now Advisor	BladeCenter express configuration and deployment tool
	Bootable Media Creator	Create Custom Bootable Firmware media for DVD, CD and USB memory key
	Scripting Toolkit	Create custom hardware deployment solutions for Windows and Linux installations
Configuration	Advanced Setting Utility	Modify your firmware settings from the command line on multiple operating system platforms
	Storage Configuration Manager	Storage management tool for both internal and external storage subsystem for IBM System x and BladeCenter
Updates	UpdateXpress System Packs	An integration-tested bundle of online, updateable firmware and device driver updates for your server
Diagnostics	Dynamic System Analysis	Collects and analyzes system information to aid in diagnosing system problems



IBM Systems Director



Common Agent

- Provides a single agent management system for status reporting and operations
- Single agent runtime shared by IBM systems and Tivoli products like Tivoli Provisioning Manager reduces agent footprint, supports shared credentials and drives discovery, inventory and other common services

Platform Agent

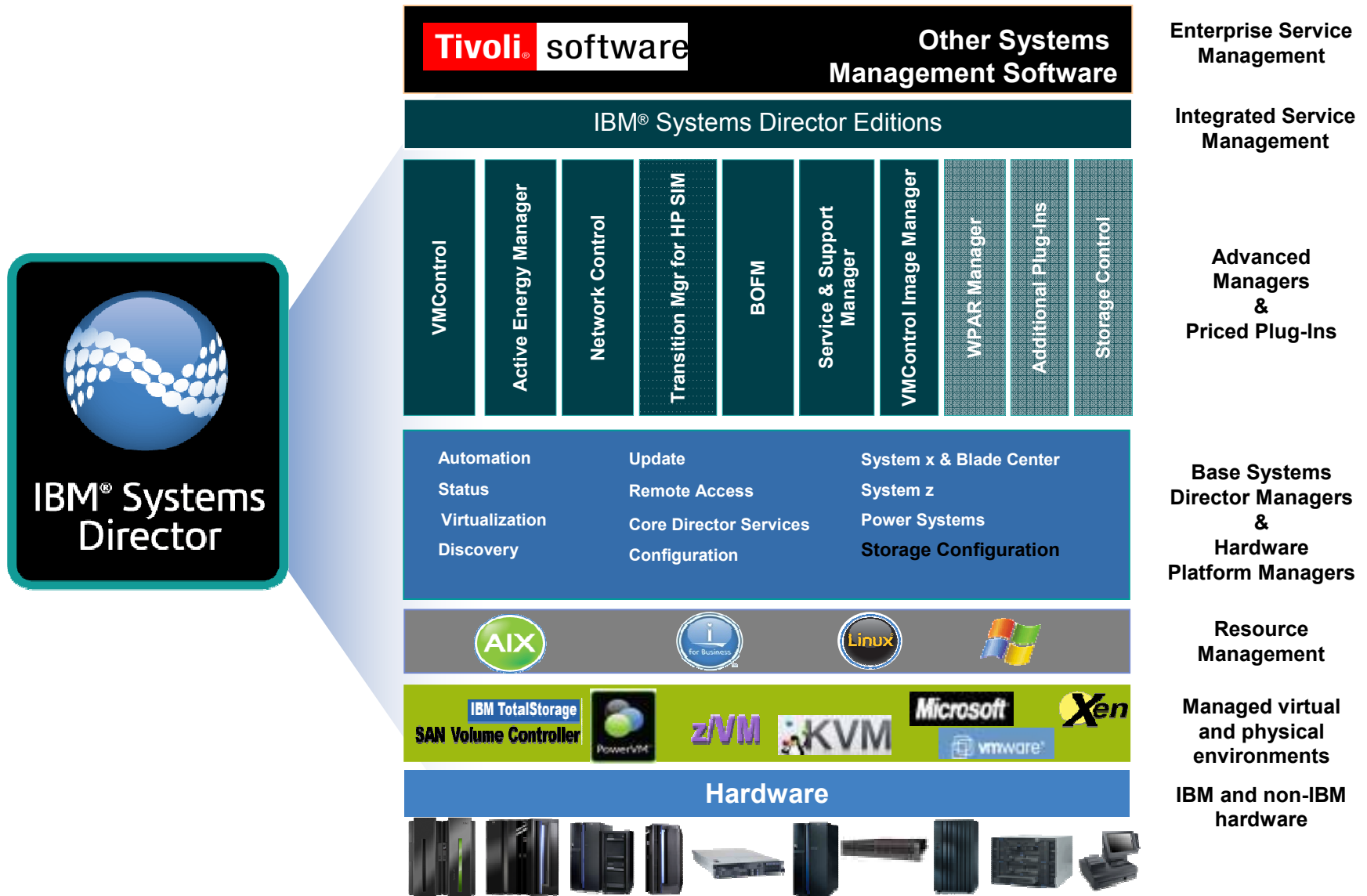
- Provides a subset of Common Agent functions used to communicate with and administer the managed system, including hardware alerts and status information
- Improved interoperability through open standards, rather than through proprietary technologies
- Firmware and driver updates and remote deployment

Agentless Management

- Agentless managed systems are best for environments that require very small footprints and are used for specific tasks, such as one-time inventory collection, firmware and driver updates and remote deployment.

- Three-tiered architecture
- Thousands of managed nodes
- Upward Integration modules supporting Tivoli, Computer Associates, Hewlett Packard, Microsoft

IBM Systems Director offers end-to-end platform management



IBM Systems Director Portfolio: Comprehensive management of IT

- Base component (console, management server and agents) with multiple plug-ins
- Includes tools to discover, monitor and manage physical and virtual IT resources, enabling alignment of IT resources with business requirements and processes
- Integrates with 3rd party management platforms



IBM Systems Director VMControl

Reduces cost and substantially simplifies the management of virtual environments across multiple virtualization technologies and hardware platforms

IBM Systems Director Active Energy Manager

Reduces energy costs and usage by monitoring and managing power and cooling needs of IBM servers and storage

IBM Systems Director Network Control

Simplifies network management by discovering, monitoring, managing, and troubleshooting network hardware devices in the computing environment.

IBM Systems Director Storage Control

Manages both server and storage systems from a single management console.

IBM System x3750 M4

The x3750 M4 is a 4 socket server featuring a streamlined design, optimized for price/performance, with advanced flexibility and expandability. The x3750 M4 provides maximum storage density, flexible PCI and 10GbE networking options in a 2U form factor.



Workloads

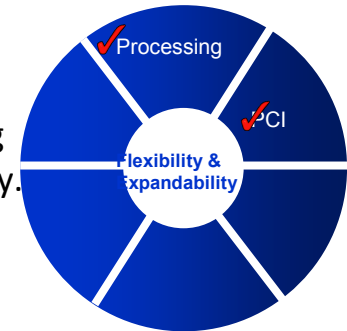
- High Performance Computing
- Floating Point computations
- Small/Medium DBs requiring fast I/O

Key Features

- Full support for Intel Xeon E5-4600 processors
- 4 sockets, 48 DIMM slots in a 2U form factor
- 2+2 socket design
- Mix and match internal storage with up to 16 HDD or 32 eXFlash drives
- Integrated 10GbE Networking with options for fiber or copper
- Up to 8 PCIe I/O slots with a 5 + 3 design.

IBM System x3750 M4 – Pay-As-You-Grow Features

Pay-As-You-Grow: The x3750 M4 offers a 2+2 socket design enabling pay-as-you-grow processing and memory scalability as well as a 5+3 PCIe expansion riser providing I/O flexibility and scalability. Ultra-dense design incorporates ultimate flexibility and expandability within a 2U form factor



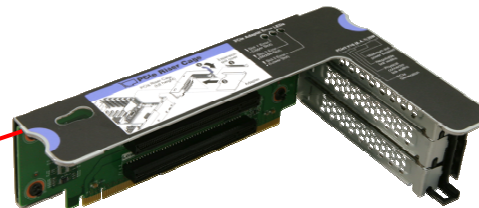
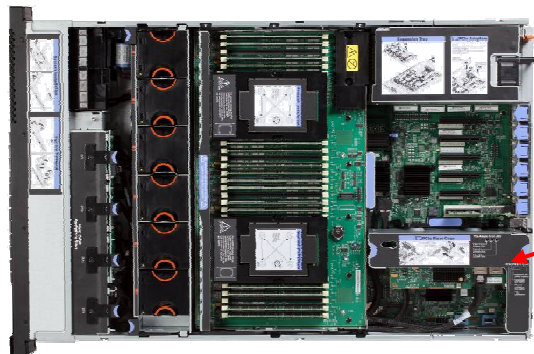
x3750 M4 - 2 socket configuration
Provides 2S and 24 DIMM



Processor and Memory expansion
Just hold handle and dock into place



x3750 M4 - 4 socket configuration
Provides 4S and 48 DIMM



PCIe Expansion Riser
Increases PCIe capabilities to 3 additional FH/HL cards providing I/O scalability and flexibility

eX5 is RIGHT for your workloads today, and tomorrow

Memory Expansion and Scaling with MAX5



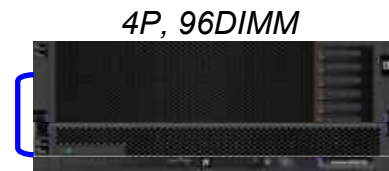
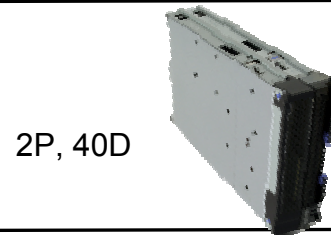
8P, 192DIMM

Native (QPI) Scaling

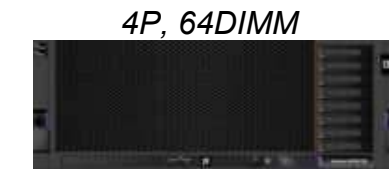


8P, 128DIMM

Memory Expansion with MAX5



Base System



IBM Systems solution for SAP HANA

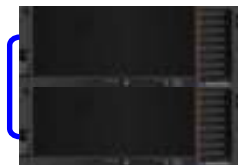
Hardware and software solution which integrates SAP HANA with IBM eX5 servers delivered as an optimized hardware appliance

For businesses who need timely answers to vital business questions

- **HANA helps deliver**
 - Super-charged analytics performance
 - Scalable to support the largest SAP installations

- **Resulting in**
 - Faster access to data and information with near real-time visibility into business operations
 - Improved management decision-making capability
 - Support growing numbers of users with a stable, improved query response
 - Lower Total Cost of Ownership for SAP computing environment

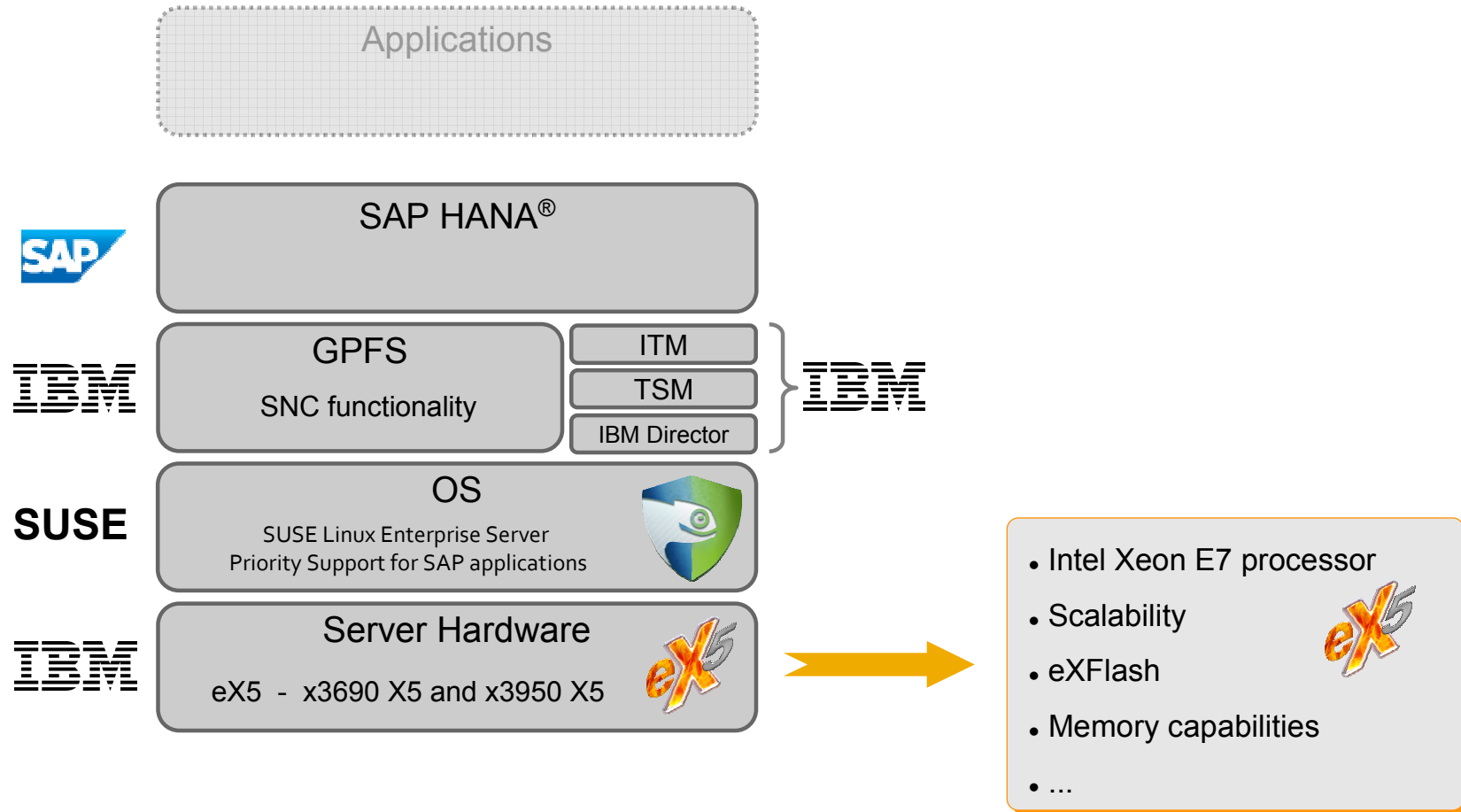
- **Solution Components**
 - IBM x3950 X5 and x3690 X5 servers
 - Novell SLES for SAP
 - IBM General Parallel File System (GPFS)
 - SAP HANA*
 - IBM Services



Systems Deliver Real-Time Analytics

IBM System x Workload Optimized Solution for SAP HANA®

The Infrastructure for the SAP HANA software



Introducing iDataPlex

Fast, Cool, Dense, Flexible. TCO without compromise!

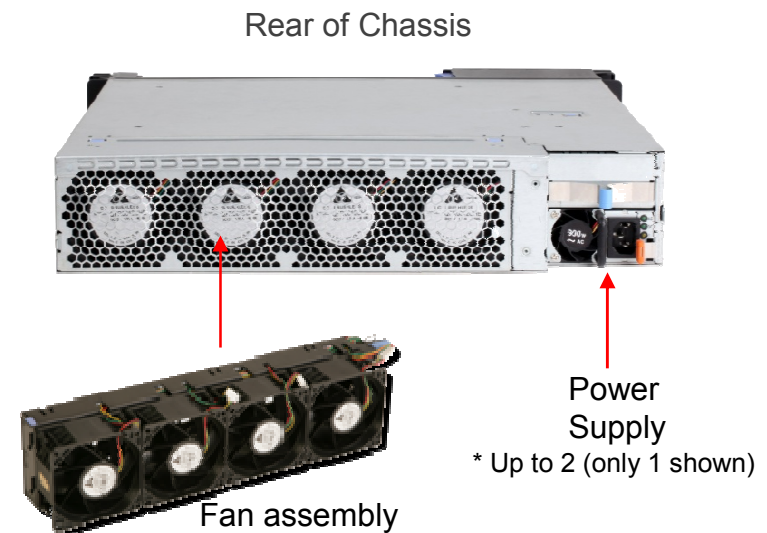
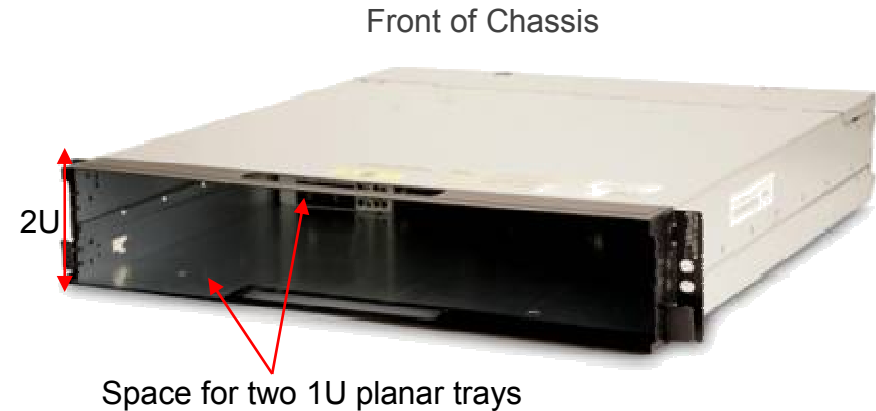
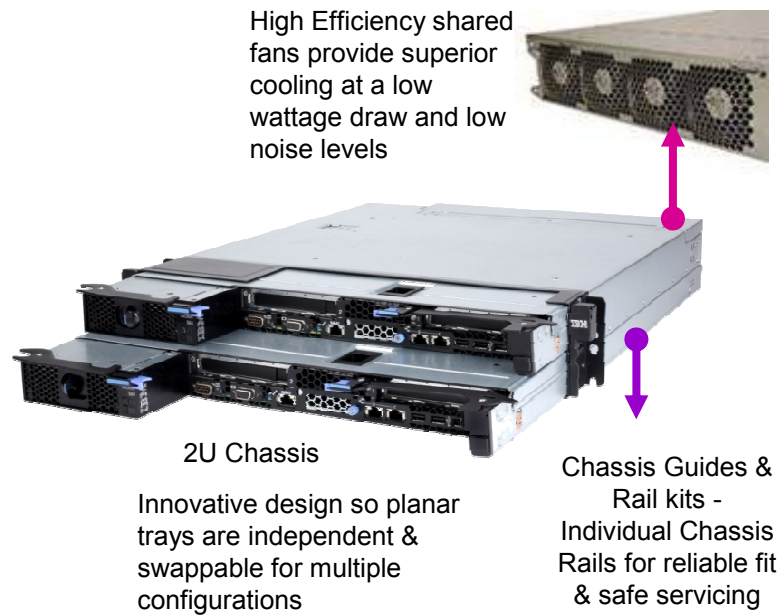
- **iDataPlex is:**
 - Optimized both mechanically as a half-depth server solution and component-wise for **maximum power and cooling efficiency**
 - Designed to **maximize utilization** of Data Center floor space, power and cooling infrastructure with Industry-standards based server platform.
 - **Easy to maintain** with individually serviceable servers, front access hard drives/cabling
 - Configurable for **customer-specific** compute, storage, or I/O needs and delivered **pre-configured** for rapid deployment
 - Shares **common tools** across the System x portfolio for management at the node, rack or Data Center level



IBM iDataPlex dx360 M4

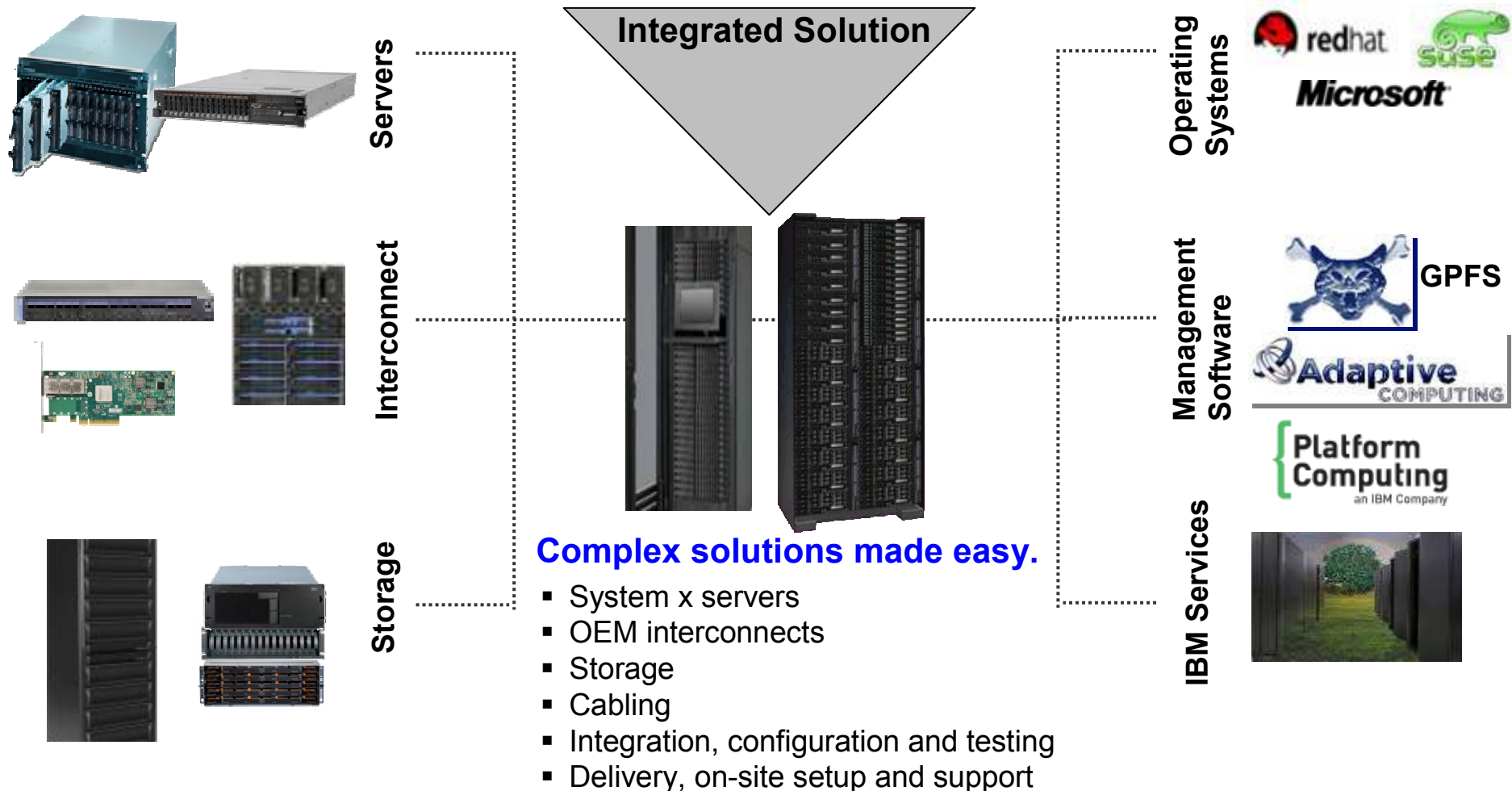
Designed for Serviceability, Flexibility and High Density

- All-front access eliminates accessing rear of chassis
- Swappable server trays in chassis
- Chassis docks directly into power
- Chassis guides keep upper servers in place
- Rack-side pockets for cables provide highly efficient cable routing



IBM Intelligent Cluster

What is a Cluster?: A multi-server system, comprised of interconnected servers, networking and storage devices, and unified systems management software to accomplish a specific purpose.



IBM Intelligent Cluster and System x new offerings

New Technology Smartly Optimized

New Features

- High Performance GPFS Storage Server (Scalable HPC Storage Solution)
- IBM System Networking Switches
- IBM Platform HPC Software
- Mellanox Full FDR capable 324 port Switch
- Brocade Ethernet Switches
- New Intel Xeon Phi support
- New NVIDIA Tesla and VGX GPUs

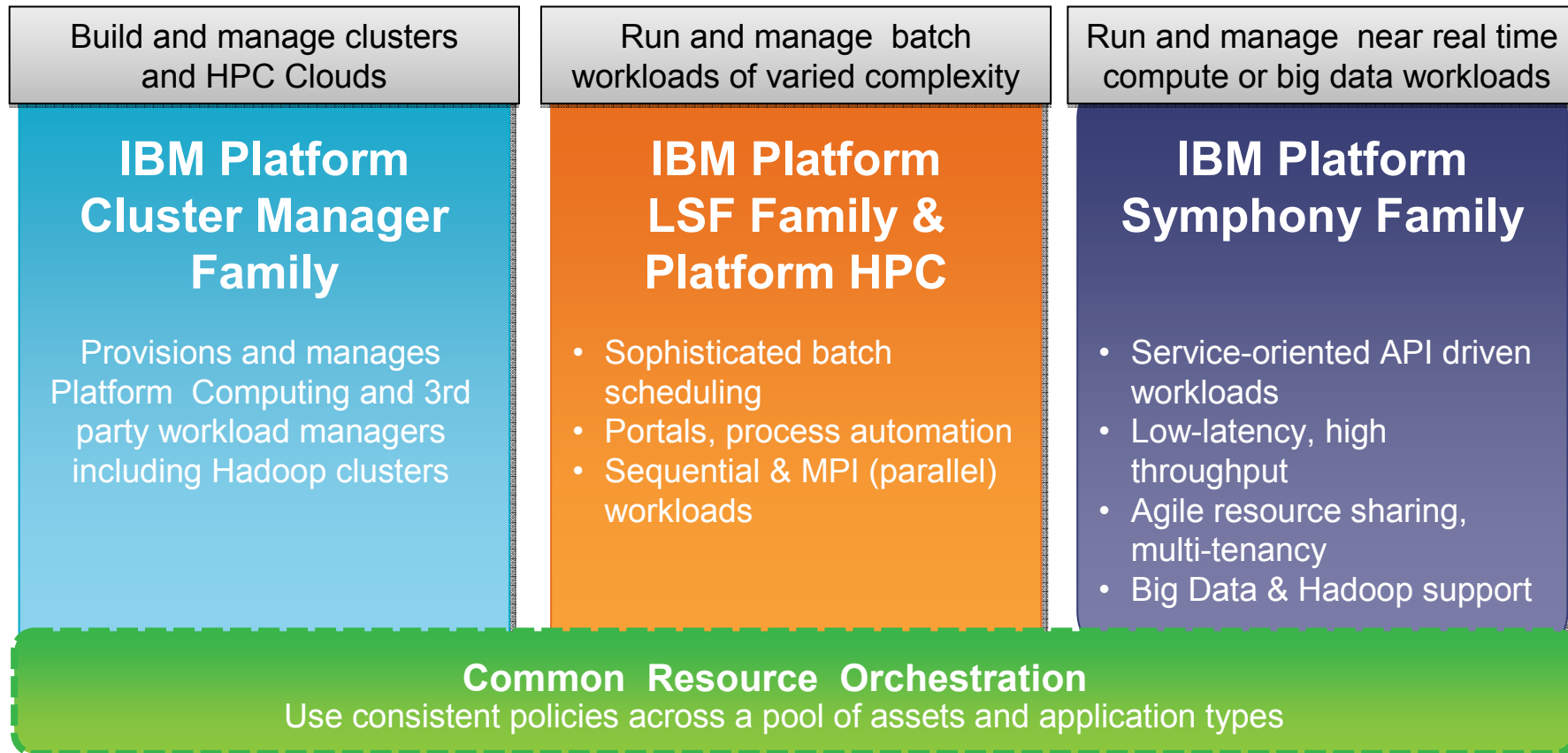
Platform Computing



Benefits

- GPFS Storage Server – An organic IBM High Performance storage solution based on proven and entrenched GPFS software, designed for Multi-Peta Byte HPC clients
- IBM Platform Computing offers solutions to pool technical computing resources, manage them efficiently and get the most out of IT investment
 - Solutions are heterogeneous – smarter tools are needed to optimize results
- The new co-processor from Intel and latest GPUs from NVIDIA change what is possible with x86 systems
- New networking additions across Infiniband and Ethernet aimed at high bandwidth and low latency

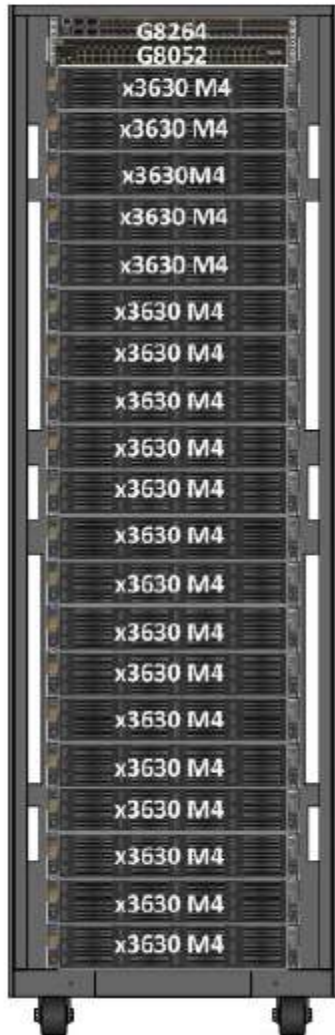
A complete range of solutions for Technical Computing challenges



- Clusters
- Grid
- HPC Cloud



Hadoop Hardware Foundation



Rack-Level Features

- ✓ Up to 20 System x3630 M4 data nodes
- ✓ Up to 840TB storage
- ✓ Up to 320 cores
- ✓ Up to 7,680GB memory
- ✓ Up to two 10Gb Ethernet (IBM G8264) switches
- ✓ Scalable to multi-rack configurations

Available Enterprise and Performance Features

- ✓ Redundant storage
- ✓ Redundant networking
- ✓ High performance cores
- ✓ Increased memory
- ✓ High performance networking

IBM System x Networking Solutions

System x commitment to provide top to bottom rack solutions.....

- Networking leadership through Virtualization enablers
- Single point of contact for product and service
- End to end tested Server + Networking solution
- Open standard equals ease of migration / upgrade
- Choice through multiple industry leading networking vendor solutions
- Industry leading IBM Service and Support (same as System x Server)



IBM System x Networking Solutions

10GbE/40GbE



IBM RackSwitch G8264 & G8264T
(10Gb SFP+ or Base-T with 40Gb Uplinks)
Optimized for High-Performance Computing



IBM RackSwitch G8316 (40GbE)
1st cost efficient 40Gb Ethernet Aggregation Switch

Market leadership

10GbE



Juniper Networks EX4500 Ethernet Switch
10GbE Data Center and Aggregation switch



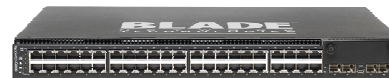
IBM RackSwitch G8124E
Bringing Virtual Fabric to System x rack servers

Market trend / future proofing

1GbE/10GbE



IBM Ethernet Switch J48E (Juniper 1/10GbE)
High speed Virtual Chassis



IBM RackSwitch G8000 & G8052 (1/10GbE)
Upgradeable entry switch

Extend Coverage in market sweet spot

1GbE



Juniper EX2200 (1GbE)
Cost effective 1GbE Top of Rack Switch

Campus Networking and Entry Datacenter

