

X86 Market View

Bricks, Blades, Energy & Virtualisation

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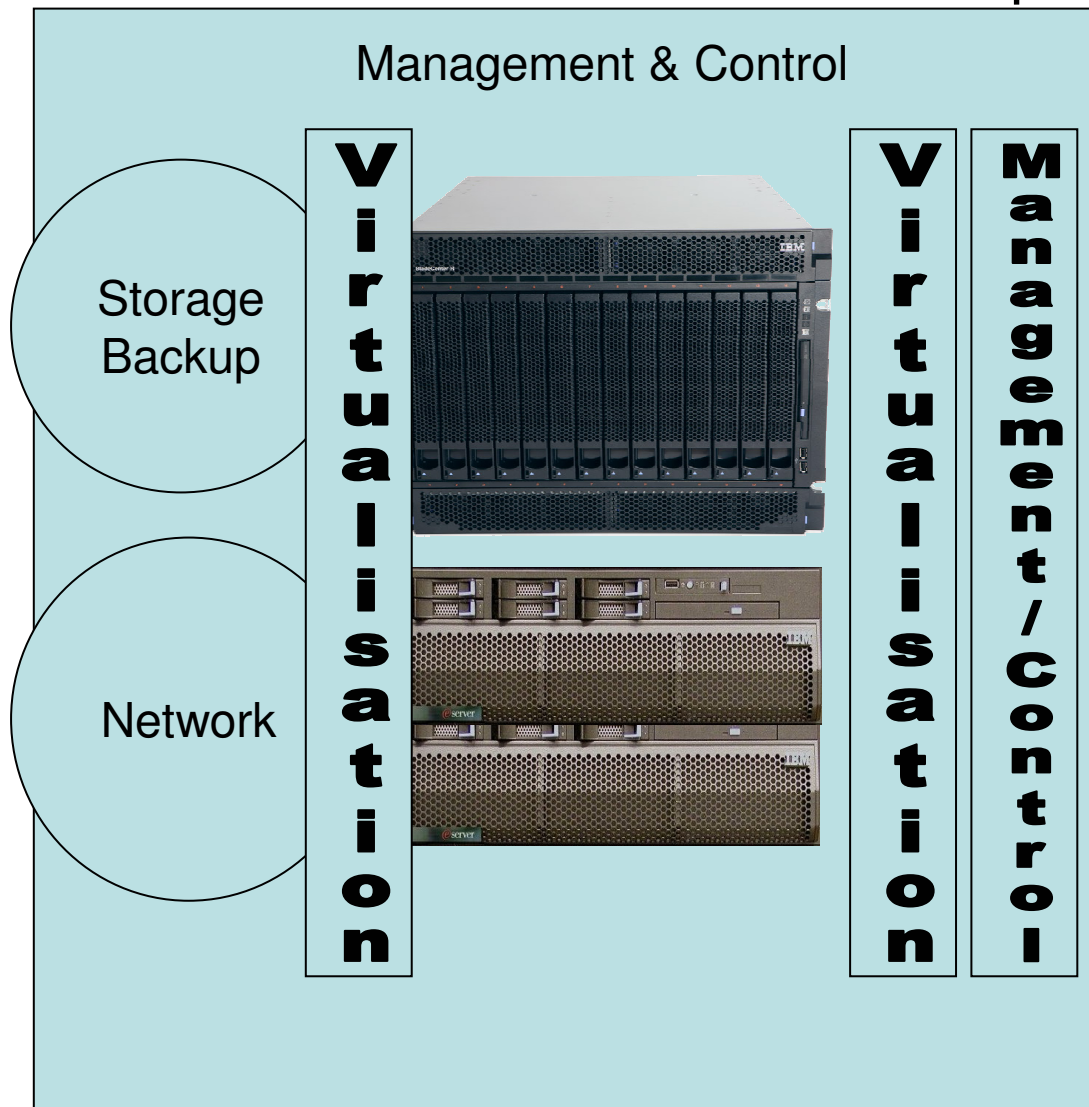
The Event Driven World

Customer Concerns

- x86 Servers operating at 4-15% staff operating at 100%
- Reduce cost?
- How do I handle the complexity of my infrastructure?
- How do I consolidate my server infrastructure?
- How do I keep pace with changes in technology?
- How do I manage all this IT with the staff I have?
- **Green - Efficiency?**
- **Security?**
- How do I contain and manage my x86 server estate?

- What if a Server is a File? -

Combining Bricks & Blades The Smart Flexible Computing Platform



Management & Control

Integrate/Consolidate

- Switches
- Cables/Connections
- Servers

Virtualise

- OS/Apps
- Network
- Storage

Management & Control

- Standardisation
- Automation
- Multi-level

Reliability

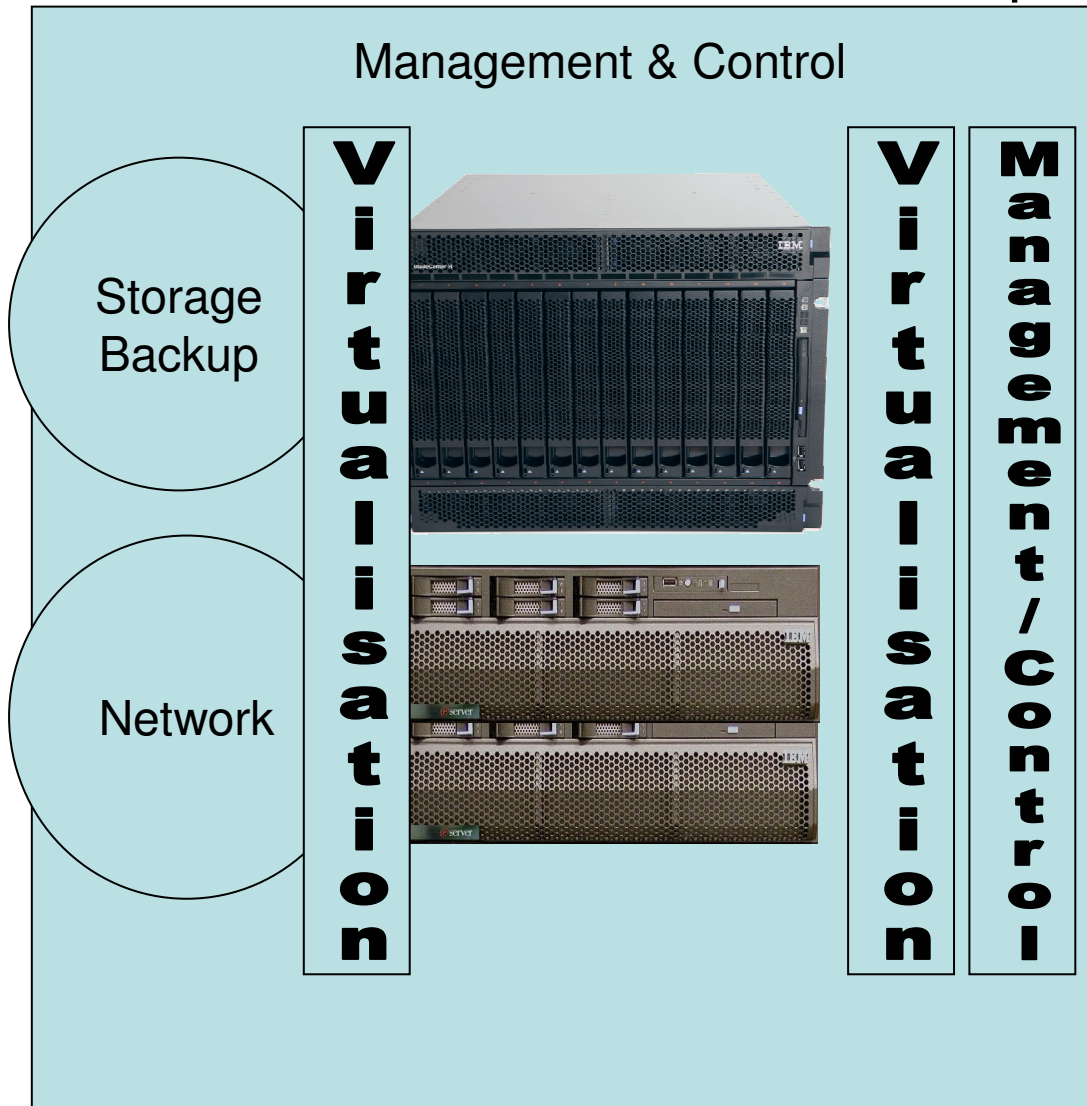
No Single point of failure
Disaster recovery
Backup

Match your SW Environment

Scale up or out
HW independent
Flexible

Combining Bricks & Blades

The Smart Flexible Computing Platform



IBM Advantage

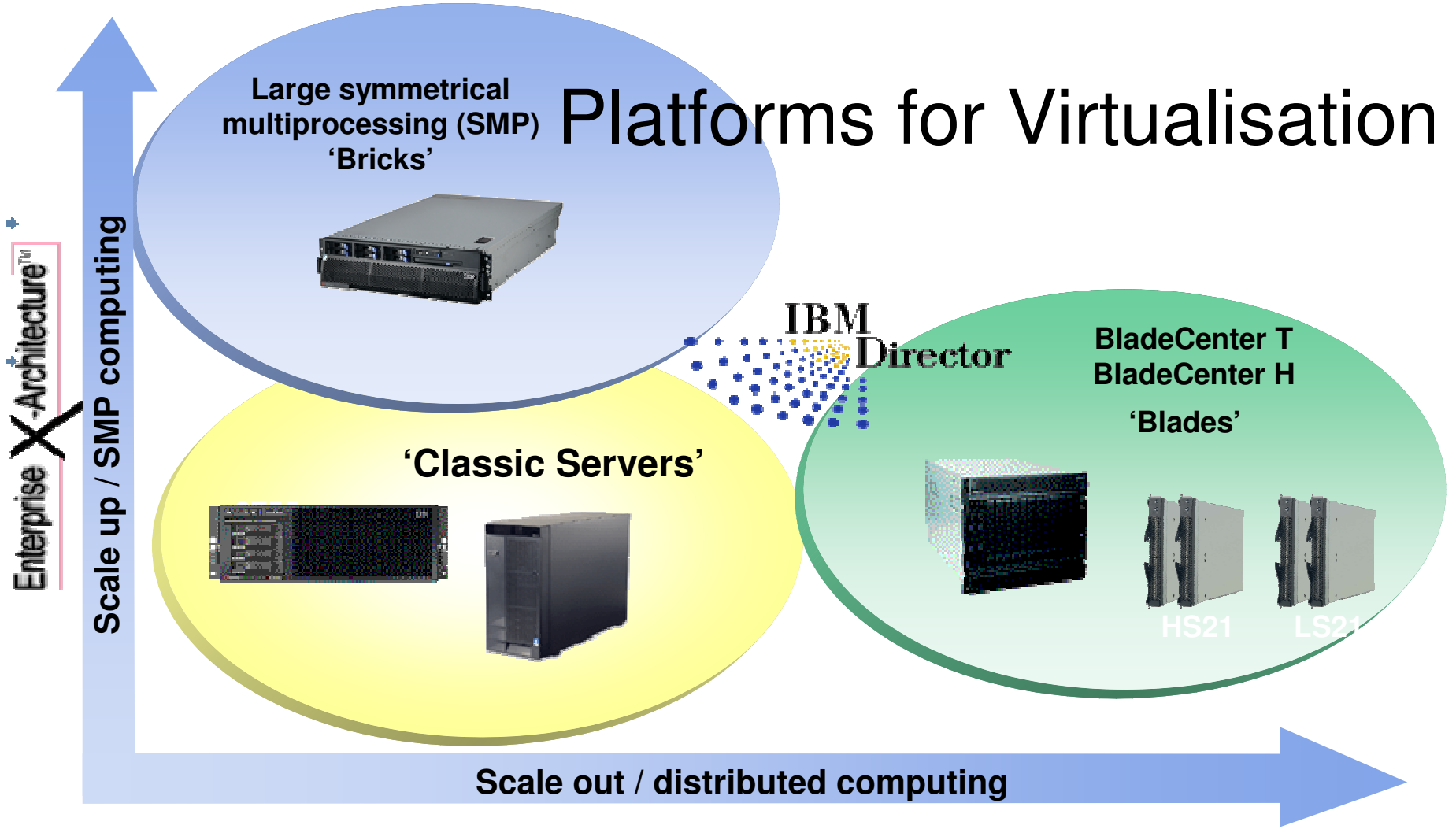
- Blades
 - Stable Compatible Platform since 2002
 - Choice
 - Processors
 - Switches
 - Chassis
 - Energy Efficiency

IBM Advantage

- Bricks
 - Industry Leading Scalability
 - Industry Leading Performance
 - Optimised Memory System
 - Virtualisation ready
 - Proven Platform since 2001
 - Energy Efficiency

Brick Blade Combination
No Single Point of Failure
Energy & Systems Management
Scale-up Scale-out
Investment/Technology Protection

Platforms for Virtualisation



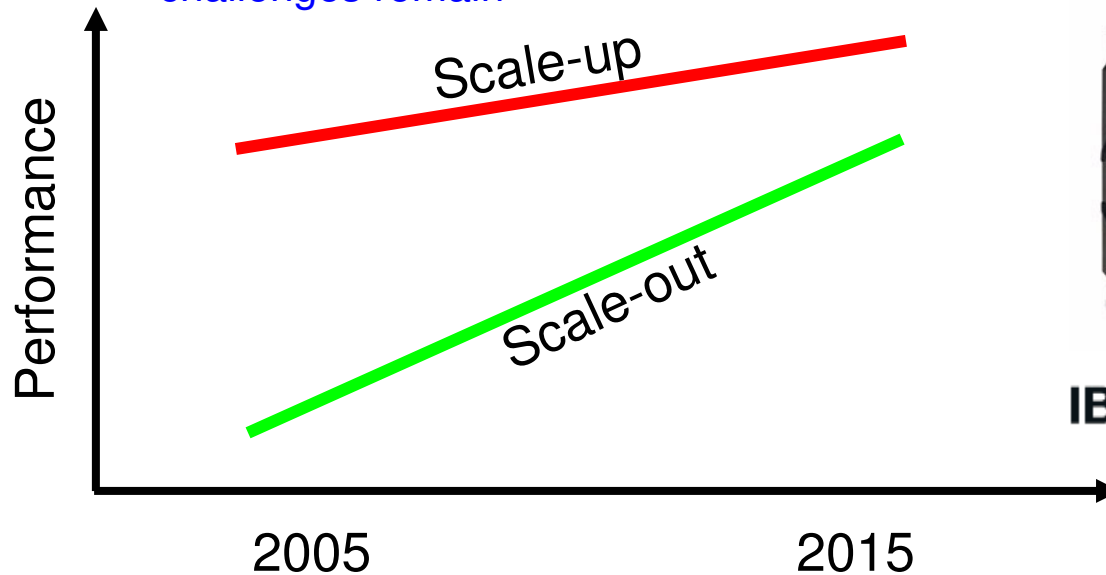
Source: IDC

Virtualisation – The Killer Application

- “Build your own server”
- Increase workloads by combining applications
- Reduce physical population of servers
- Reduce management by automating tasks
- SW server – break link with HW

Scale-Out Versus Scale-Up

Scale-out performance starts to approach scale-up performance, but significant challenges remain



IBM server BladeCenter

- Low-cost, scale-out systems are increasing in performance
- Significant challenges remain for running high-end applications on scale-out systems
 - **Management and virtualization**
 - **High Availability**
 - **RAS – Reliability Availability Serviceability**
 - **Power & Heat**

IBM System x3950 M2

The Next Generation of X-Architecture

- Intel® Quad Core Xeon processor for greater peak protection
- Outstanding performance leveraging both the advancements of the X4 Architecture and the new Intel® Core™ Microarchitecture
- Easy to expand and scale with Scalability Wizard
- Greater Memory support in junction with VMware 3.1 128GB memory support
- Secure design with the onboard Trusted Platform Module (TPM) that
- Delivers embedded virtualization with the new VMware ESX 3i on board



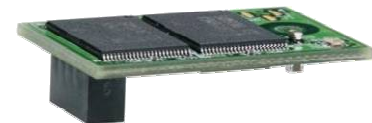
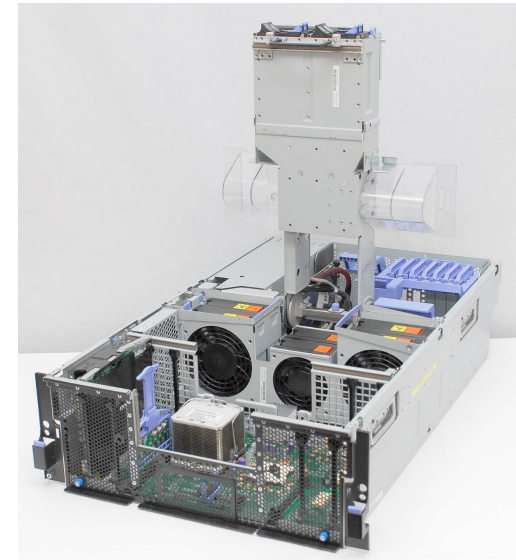
IBM System x3950 M2 – Server Consolidation

Industry Leading Virtualisation Platform

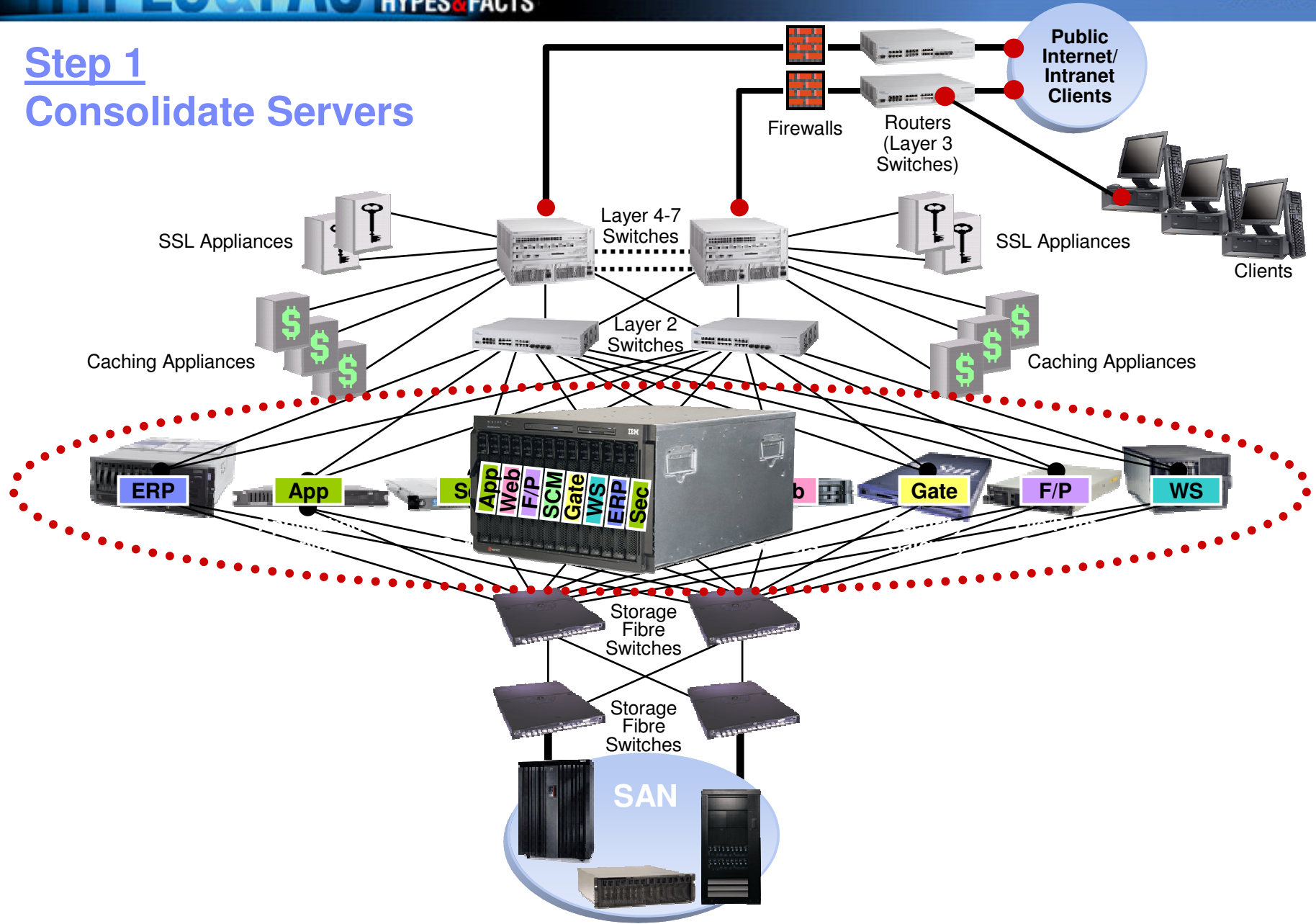


"This is the game changer here: an IBM data-class machine with four quad-core processors ... running an embedded hypervisor.

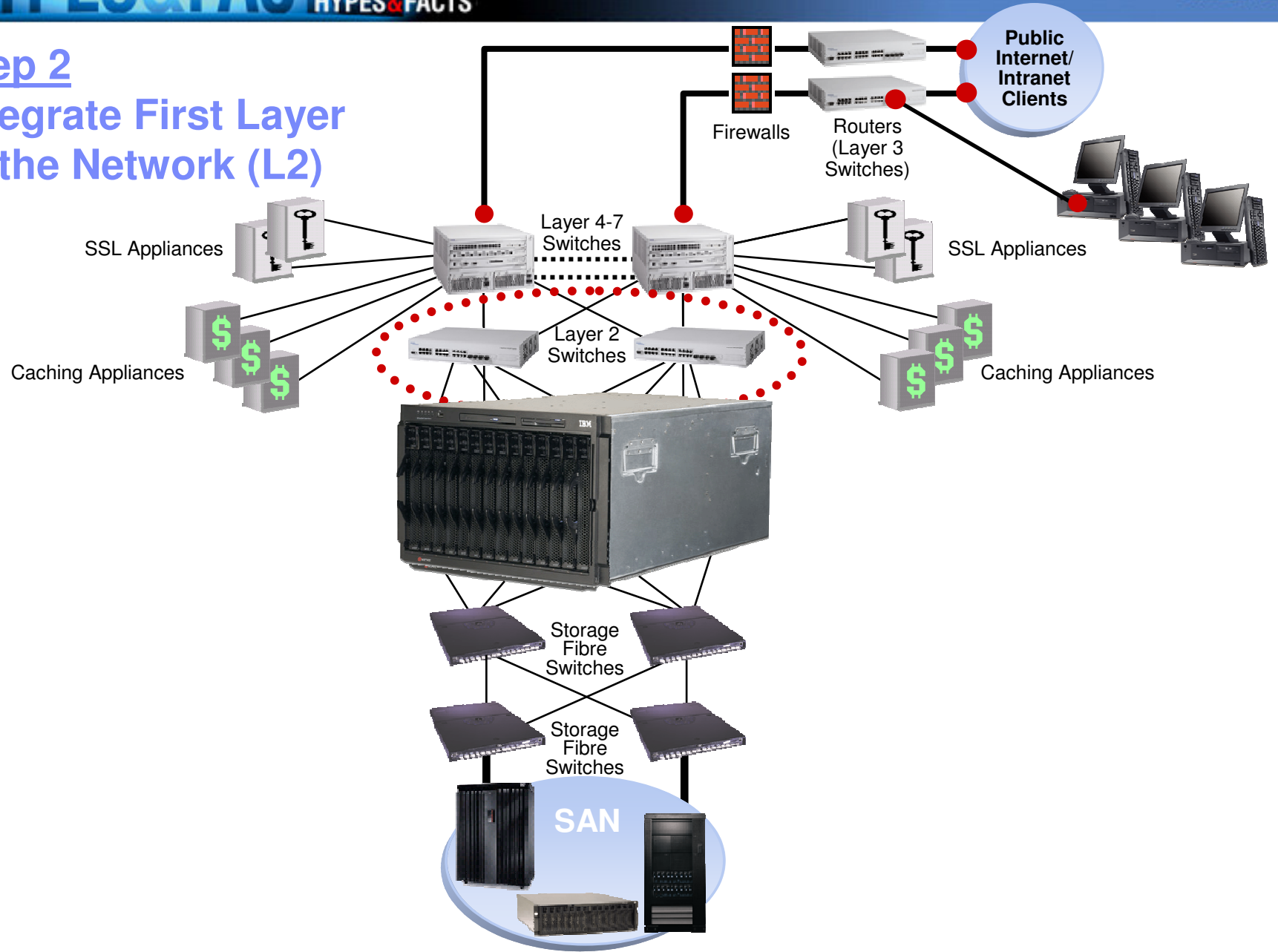
Mark Schlack
vice president of Editorial, Storage and
Windows Media Groups, TechTarget Inc.



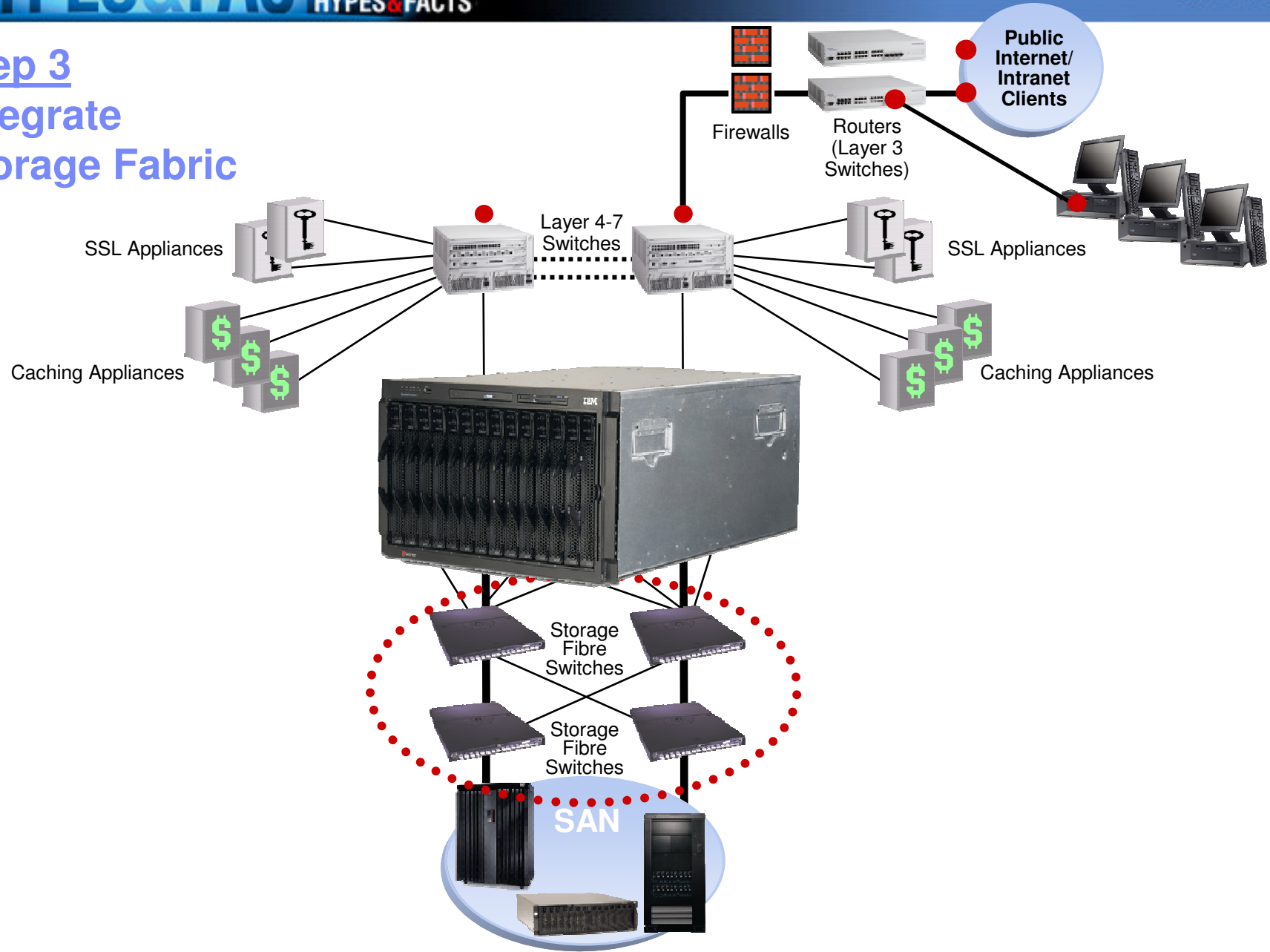
Step 1 Consolidate Servers



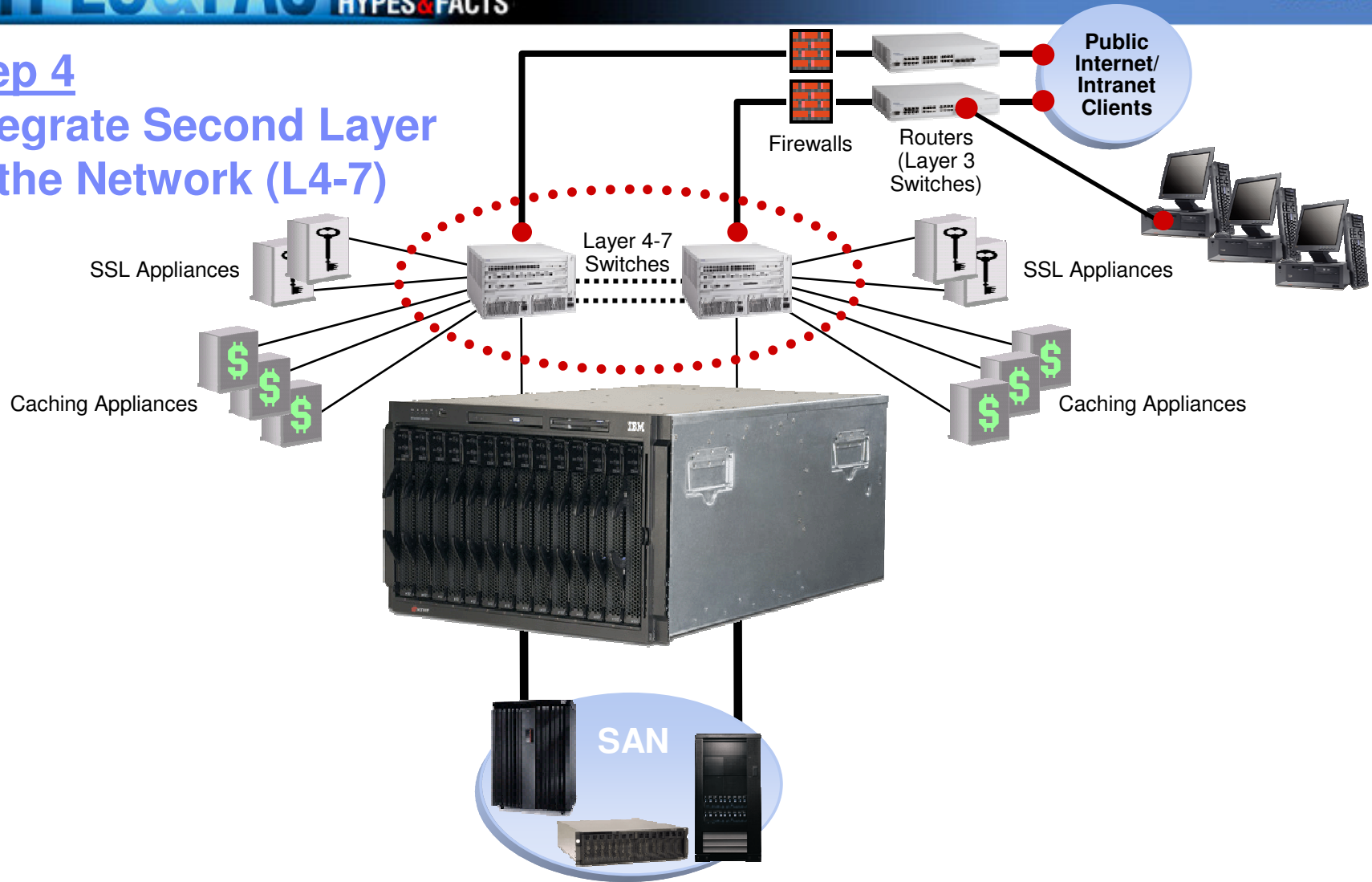
Step 2 Integrate First Layer of the Network (L2)



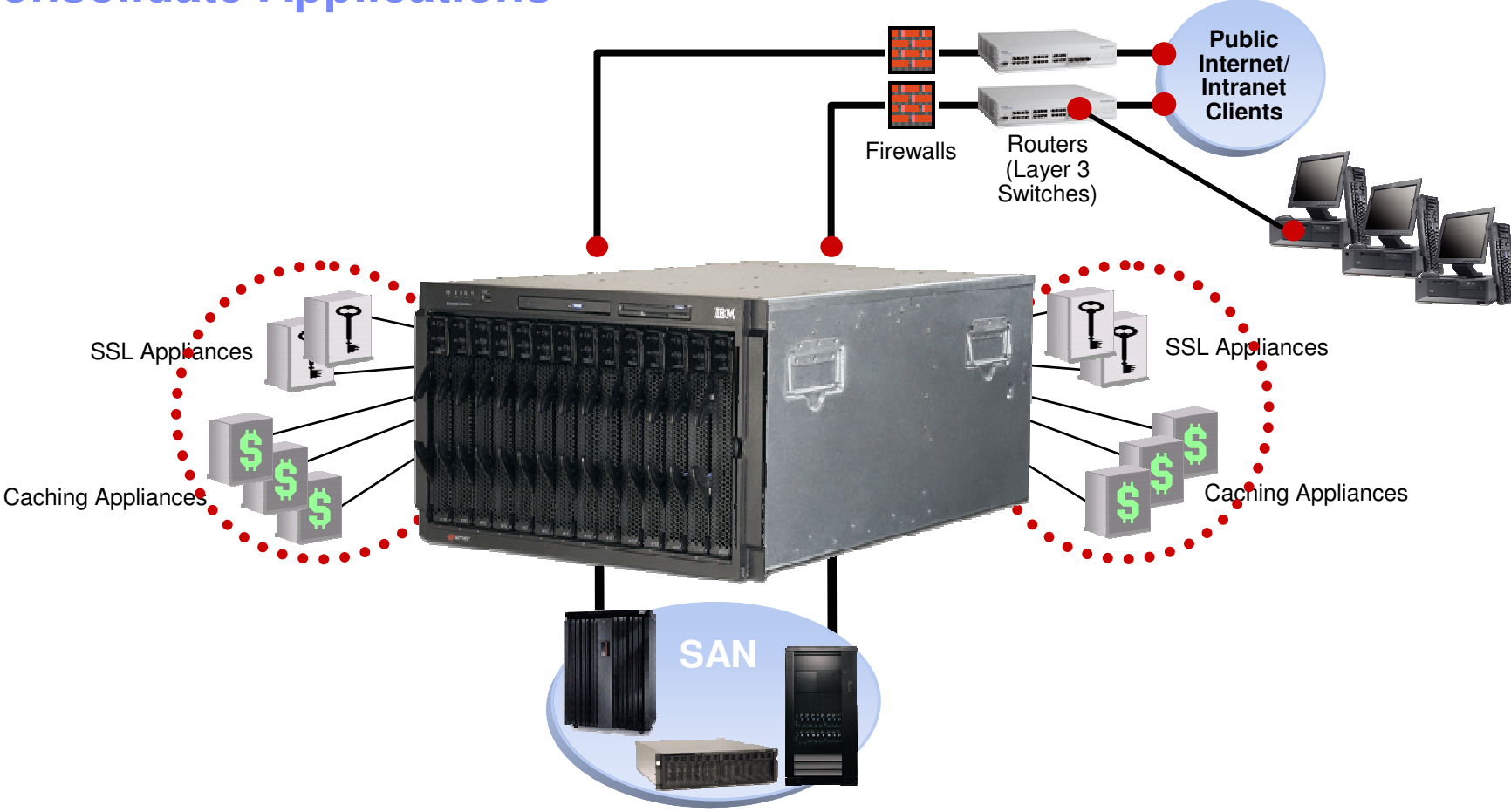
Step 3 Integrate Storage Fabric



Step 4 Integrate Second Layer of the Network (L4-7)



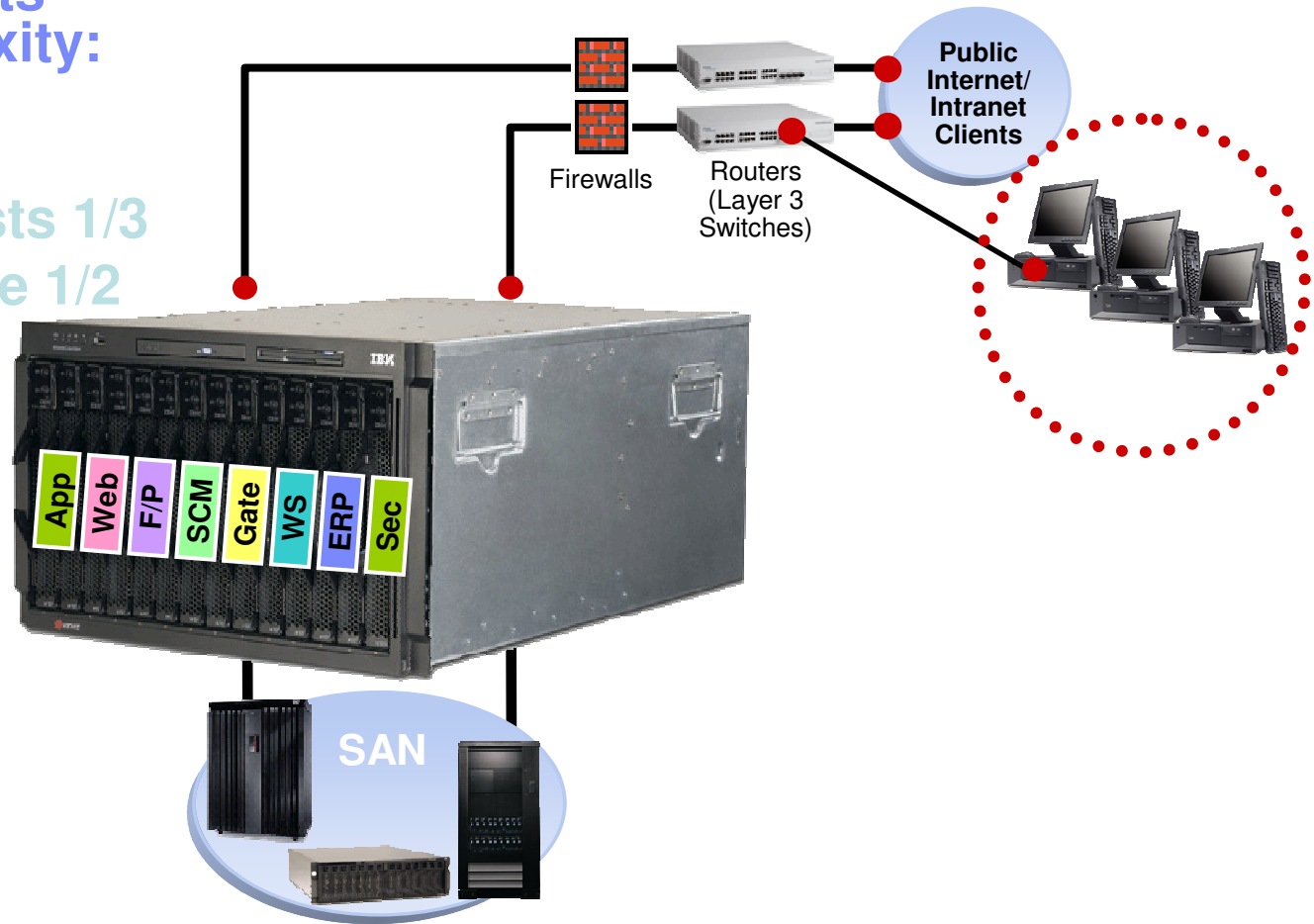
Step 5 Consolidate Applications



Result Step 6

BladeCenter Clients Consolidate Collapses Complexity:

- Reduce costs 1/4
- Reduce power costs 1/3
- Reduce floor space 1/2
- Integrate into 1



Extend blade benefits to your entire business

Chassis tailored to your specific needs



IBM BladeCenter S
*Distributed, small office,
easy to configure*



IBM BladeCenter E
*Best energy efficiency,
best density*



IBM BladeCenter H
High performance



IBM BladeCenter T
Ruggedized



IBM BladeCenter HT
*Ruggedized,
high performance*

- **A common set of blades**
- **A common set of industry-standard switches and I/O fabrics**
- **A common management infrastructure**

Introducing IBM BladeCenter S

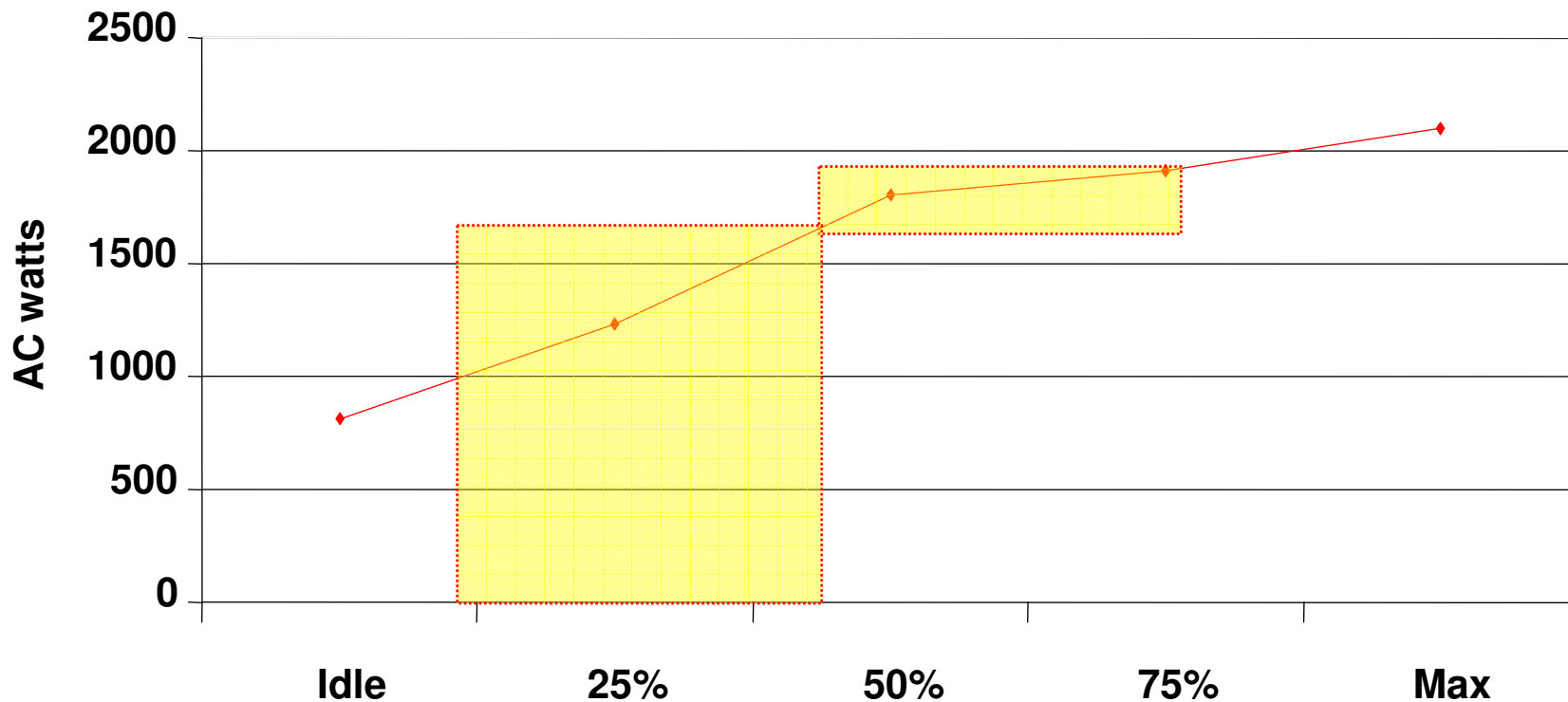
All-in-one gets you up and running fast

- **Integrated** business-in-a box foundation with configurable shared storage
- **Big IT results** even from the smallest IT staffs to deliver big IT results
- **Easy** with “select-and-click” configurability
- **Office-friendly** 240v power
- **Grows** with your business
- **Optimised** for small office environments



Power, Can Virtualization Help?

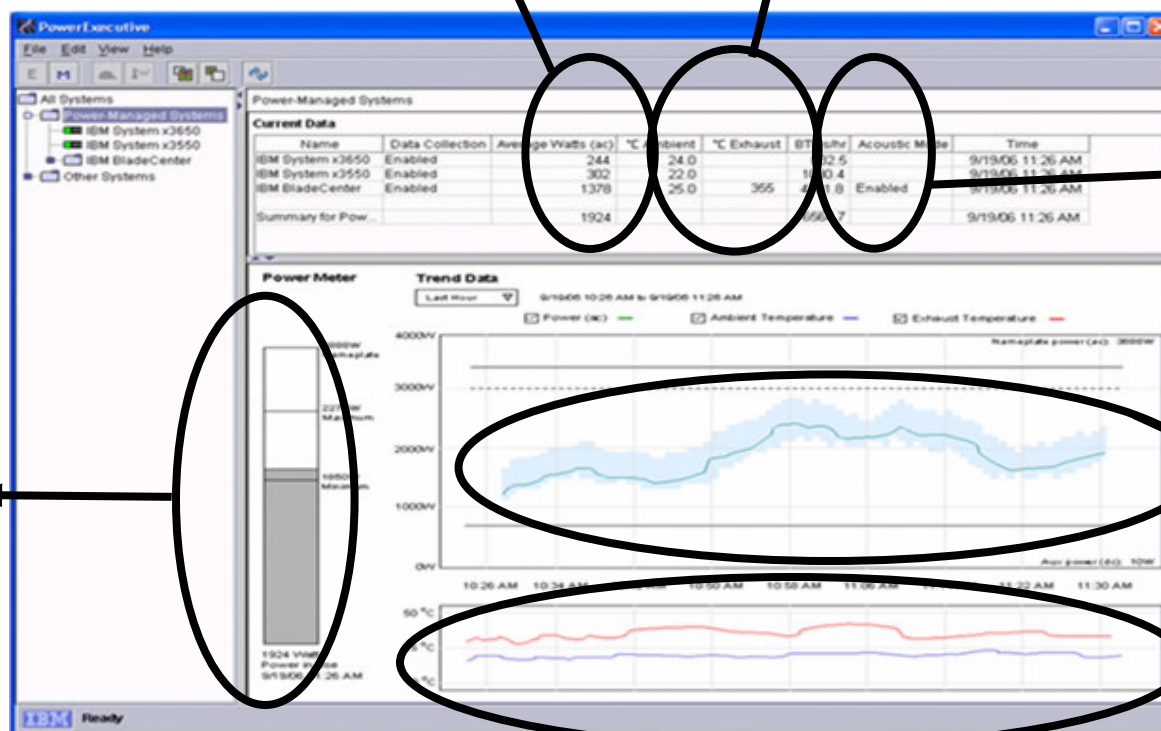
- Typical Intel type server utilization is quite low (15 - 40%)
- Virtualisation can increase utilization and unlock new processing capability for scale up and scale out without adding to power at the rack level



Simple, powerful and easy power management

Compare actual vs. name plate power at system level

View inlet and exhaust temperature



Track heat emitted

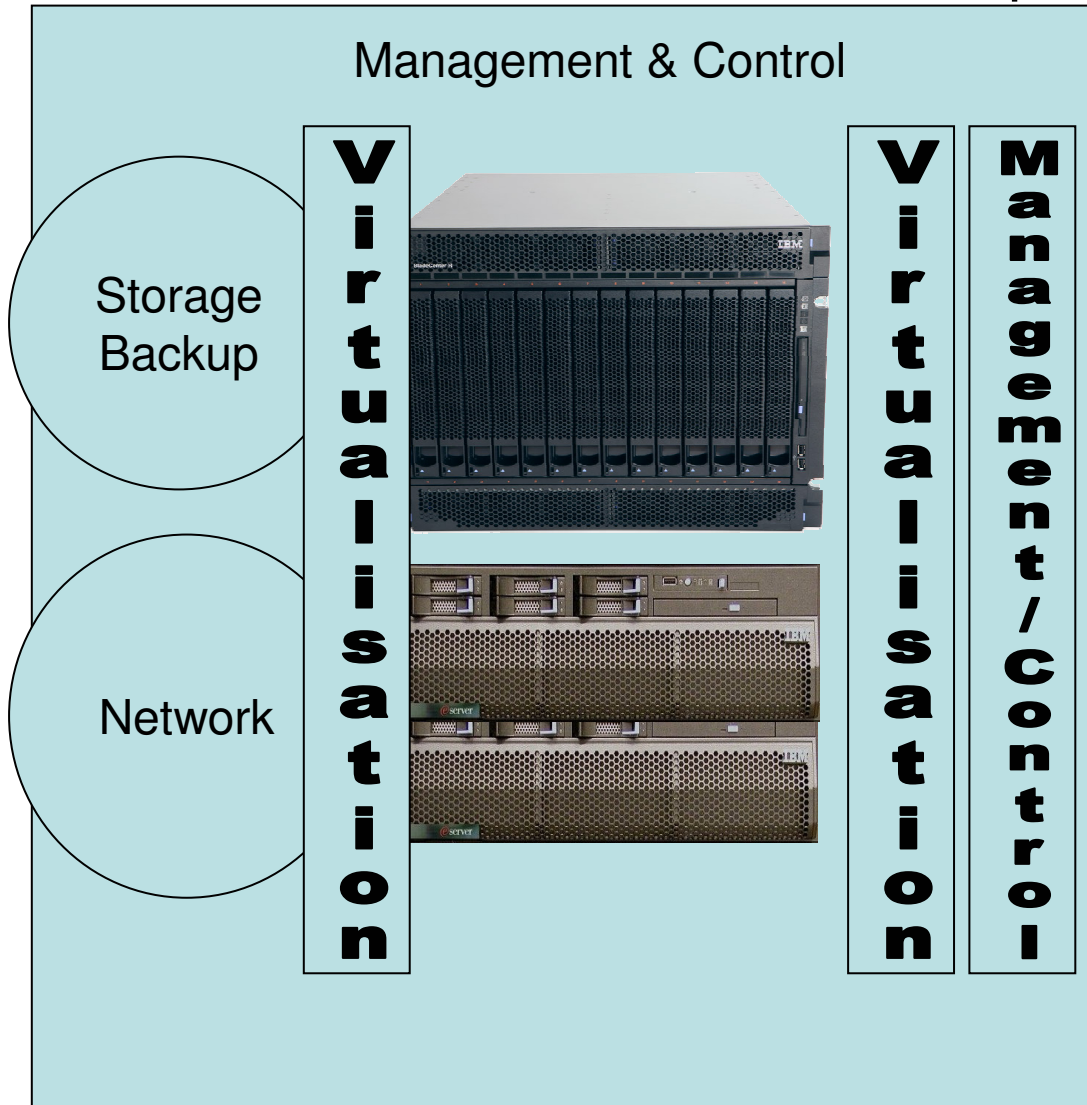
Compare rack actual power vs. label power

Trend power use over time

Trend temperature over time

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The Smart Flexible Computing Platform



Integrate/Consolidate

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- Storage

Consolidate

- File/Print
- Applications
- Databases

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- Standardisation
- Automation
- Multi-level

Reliability

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