

vmware®

vmworld 2011 Snapshot

Your City

Your
Cloud.

Why Virtualise on IBM eX5?

Jonathan Patterson

Systems and Technology Group – Cloud Sales

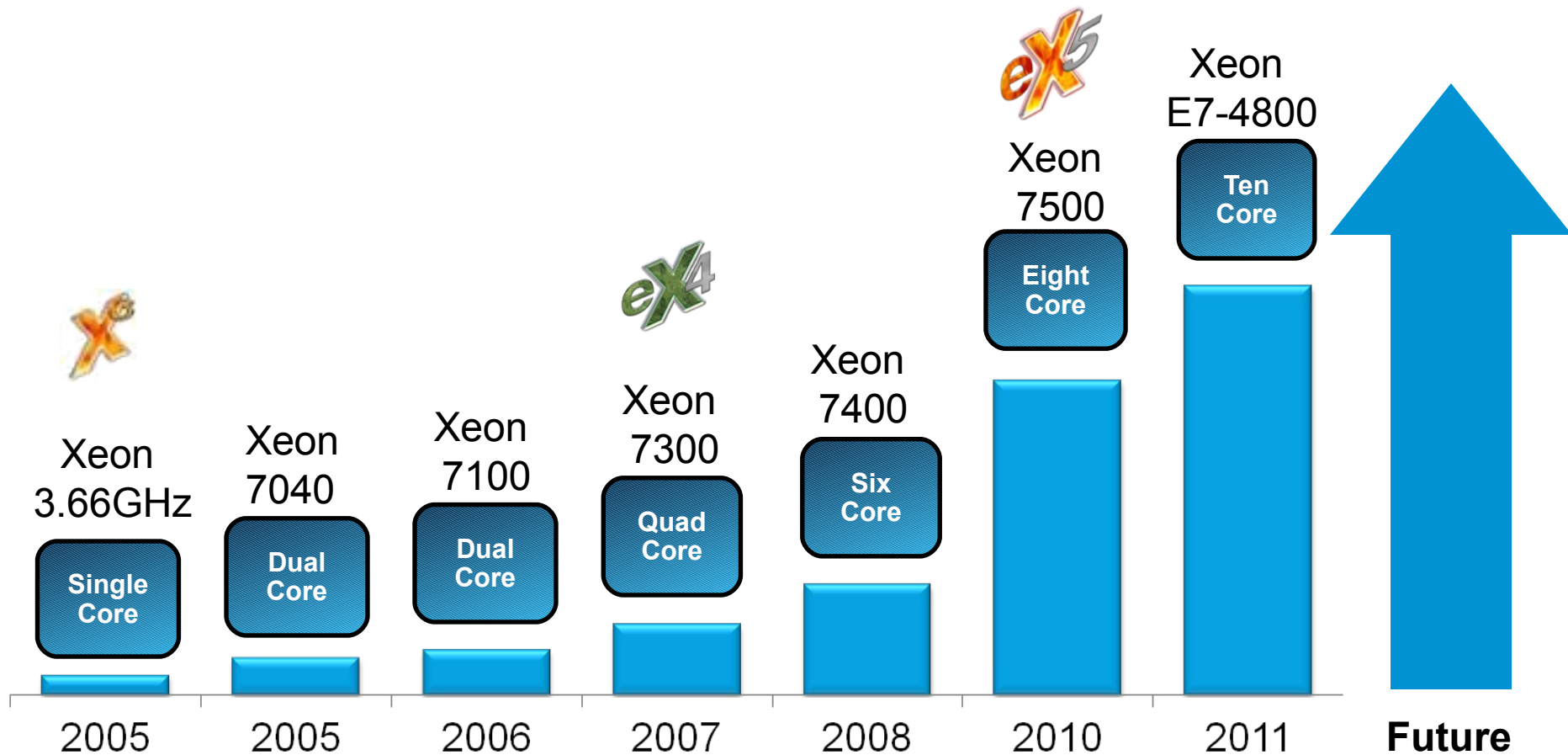
Specialist

jpatterson@uk.ibm.com

In partnership with



4 socket Intel® Xeon® Processor Historical Performance



20x Increase in Database Performance since 2005

eX5 innovation for an evolving marketplace with increasing demands

2nd Gen: First x86 server with 100 #1 Benchmarks

1st Gen: First x86 server with scalable 16 processor design

3rd Gen: First x86 server with Hot-swap memory

4th Gen: First x86 server to break 1 Million tpmC

5th Gen: Breakthrough performance ultimate flexibility, simpler management

2001
1st
Generation



2003
2nd
Generation



2005
3rd Generation



2007
4th
Generation



2010
5th Generation



The new thinking from IBM... Introducing the eX5 Portfolio



System x3850 X5



BladeCenter HX5



System x3690 X5

MAX5

Maximum memory scaling independent of processors



eXFlash

Extreme IOPs SSD storage



FlexNode

Scheduled

One 4-Socket System



Two 2-Socket Systems



Maximize memory with MAX5

MAX5 enables eX5 systems to support twice the DIMMs per system, exceeding x86 limitations

- More memory enables companies to support:
 - More virtual machines
 - Larger virtual machines
 - Bigger databases

- More memory can deliver:
 - Improved database performance
 - Greater server utilization
 - Reduced ISV per CPU licensing



BladeCenter HX5 with MAX5
2-socket, 40 DIMMs



System x3690 X5 with MAX5
2-socket, 64 DIMMs



System x3850 X5 with MAX5
4-socket, 96 DIMMs

Processing

Memory & I/O

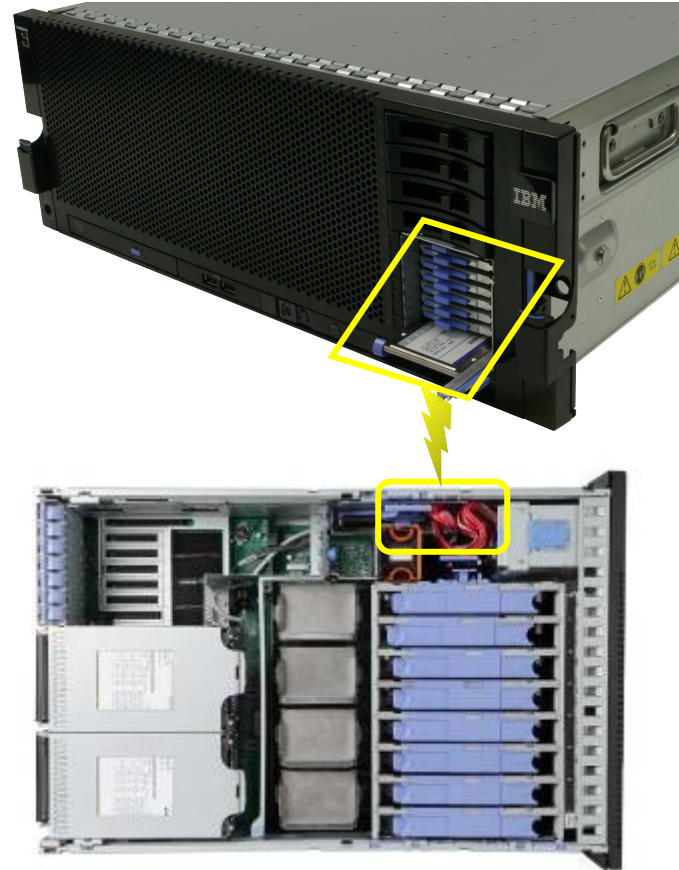
**MORE, LARGER,
MISSION-CRITICAL
VIRTUAL MACHINES**



eXFlash - the new standard in storage performance

eXFlash delivers integrated solid-state disk technology and a high-speed controller architecture.

- eXFlash supported on x3850 and x3690 eX5
- Standard 1.8" drive form factor
- 50GB or 200GB capacity per drive => 1.6TB per eXFlash
- IOPS and MB/s performance than SATA/SAS HDDs
- Cost per IOP vs. traditional HDDs = 0.07 v 1.4 \$ per IOP
- Hot swappable RAID capability.
- Much lower energy consumption than traditional HDD arrays.
- 64 x reliability versus spinning disks.



eXFlash delivers integrated high performance IOPS

Only eX5 can deliver the fast access to data required for high quality of service in multi user database environments

Customer requirement: Fast data access with 240K IOPS

THE PROBLEM

Industry standard

- x 80 JBODS with 800 spinning disks
- x Each with 300 IOPS
- x Cost \$1153K over 3 years



THE SOLUTION

eXFlash

- ✓ 1x eXFlash for self contained fast (240K) IOPS solution
- ✓ No additional parts required
- ✓ 97% less expensive and
- ✓ 99% less power



FlexNode – advantages and use cases

FlexNode enables you to dynamically transform a single into two distinct systems—and then back again

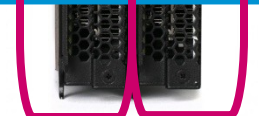
- **Optimize workloads:** Run interactive applications by day on a 2S and batch jobs by night on 4S system

One 4S System

Two 2S Systems

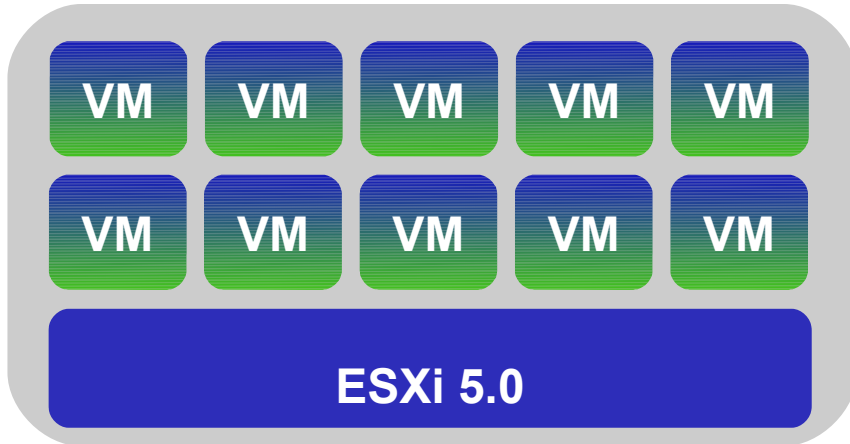
• have to predict their total demand from LOB's, not the split of 2 socket to 4

• automatically reboots as a dual socket server should a CPU fail.



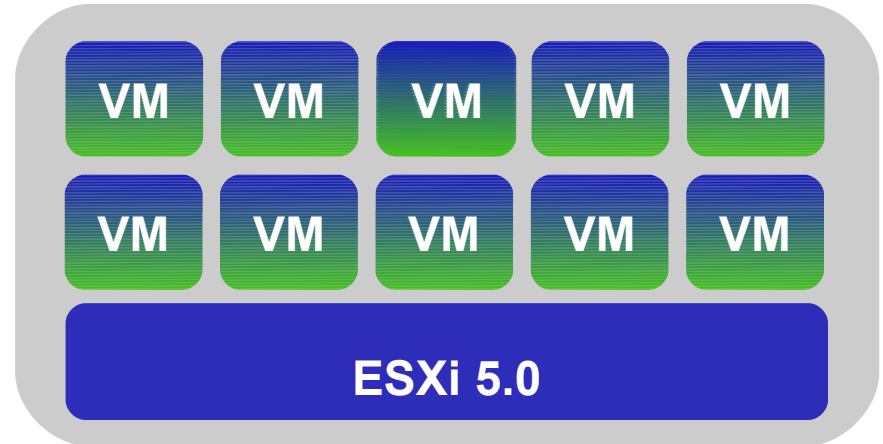
Host Reliability is key - MCA-R

Isolates Memory faults to only the Virtual Machine affected



**UNCORRECTABLE MEMORY
REBOOT SERVER**

**AMD Opteron
Server**



**UNCORRECTABLE MEMORY
VM GETS RESTARTED**

IBM X5 Server

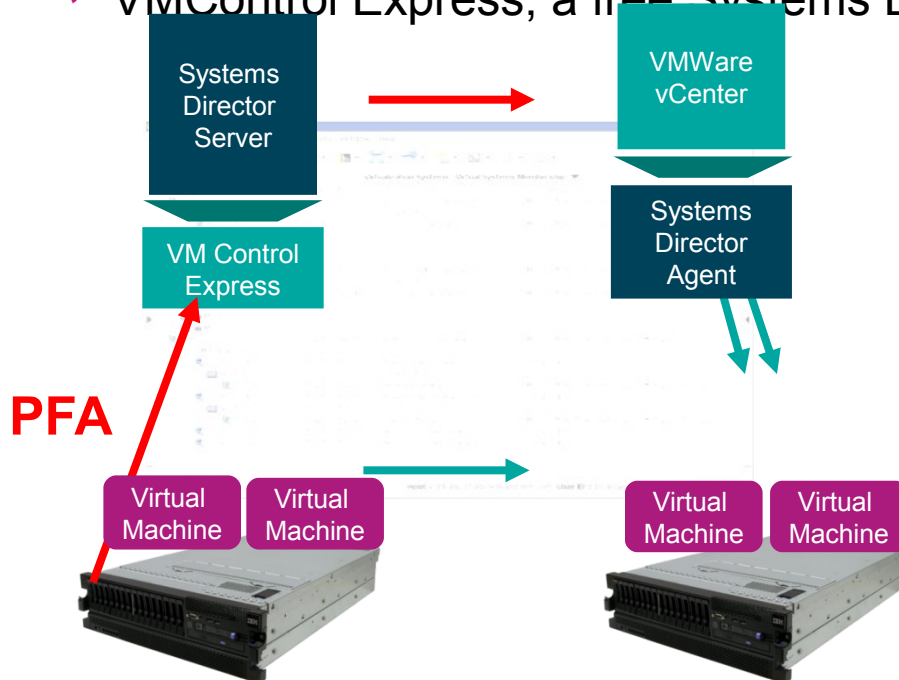


IBM VMControl

Monitors hardware and automates smart movement of workloads ahead of potential hardware failure

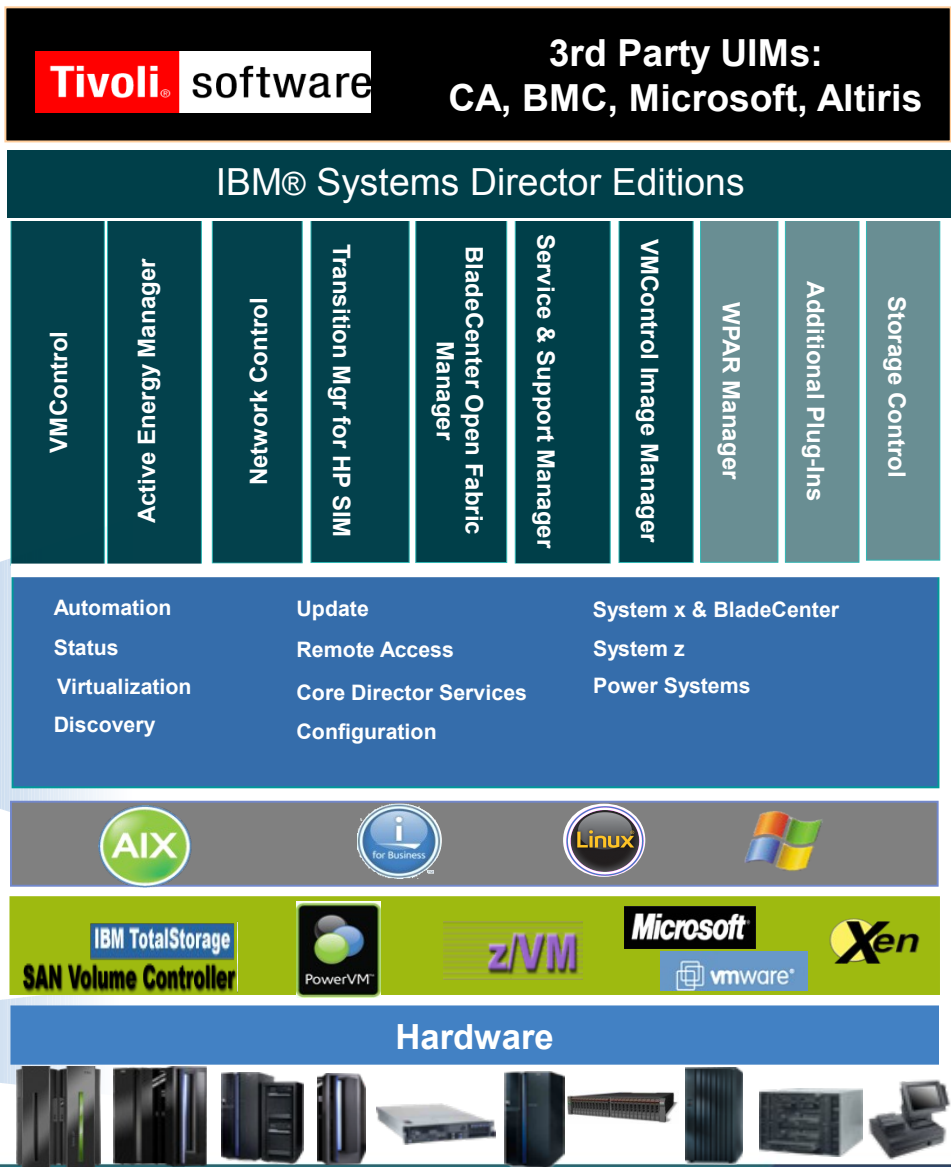
VMControl delivers:

- ✓ A tool to manage the health of the physical estate and interface with the Virtual estate
- ✓ System Director automation plans to link physical alerts to VMware VMotion™
- ✓ VMControl Express, a free Systems Director plug-in available for download



	PFA	DELL	HP	IBM
Hardware		Yes	Yes	Yes
Disk		Yes	Yes	Yes
Memory		No	Yes	Yes
CPU		No	No	Yes
Fan		No	No	Yes
VRM		No	No	Yes
Pwr supply		No	No	Yes

IBM Systems Director Base and Agent



Enterprise Service Management

Integrated Service Management

Advanced Managers & Priced Plug-Ins

Base Systems Director Managers & Hardware Platform Managers Resource Management

Managed virtual and physical environments

IBM and non-IBM hardware

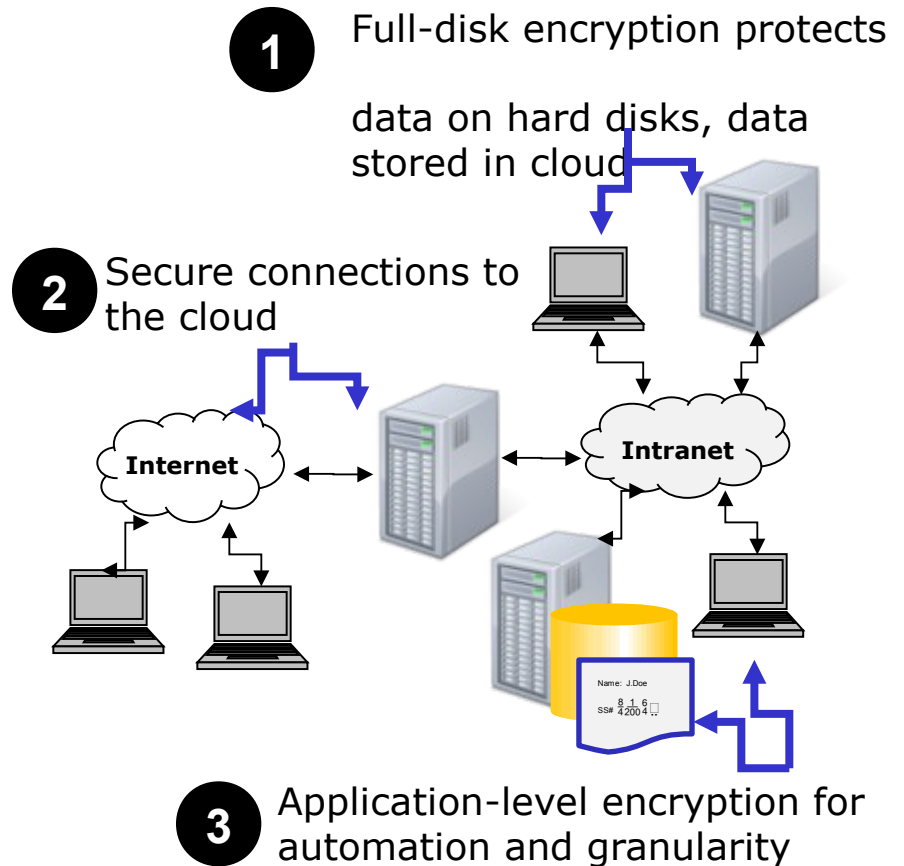
Base Director

Agents

Hardware Accelerated Encryption

For IBM eX5 Servers with Xeon E7 Processors & ESX 4.1 U1 and later

- 1 Full disk encryption software protects data automatically during saving to disk
- 2 Secure transactions used pervasively in ecommerce, banking, etc.
- 3 Most enterprise and many cloud applications offer options to use encryption to secure information and protect confidentiality



Database, HTTPS, Storage. Physical or Virtualized

Supported scaling options

Memory Expansion with two MAX5 and QPI Scaling

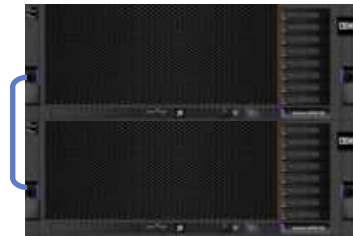


System x3850 X5
8 socket 192 DIMM

QPI Scaling



BladeCenter HX5
4 socket 32 DIMM



System x3850 X5
8 socket 128 DIMM

Memory Expansion with one MAX5



BladeCenter HX5
2 socket 40 DIMM



System x3690 X5
2 socket 64 DIMM



System x3850 X5
4 socket 96 DIMM

Base System



BladeCenter HX5
2 socket 16 DIMM



System x3690 X5
2 socket 32 DIMM



System x3850 X5
4 socket 64 DIMM



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Thank you & Questions?

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