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*New  
Tools*

*Innovative  
Technology*

*Application  
Flexibility*

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**CeBIT High-end  
Announcement**

**Ian Miller**

**Vice President, Marketing, IBM eServer xSeries**

**March 23, 2001**

# eServer on the Intel Platform

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- ▶ Keeping our promise to help customers build server e-infrastructures for Internet's 'heavy lifting'
- ▶ Unleashing full power of eServer brand to aggressively pursue high-end Intel segment
- ▶ Beginning year-long campaign to communicate unique position for Microsoft® Windows® 2000 Datacenter Server

# What's New?

*IBM scales to new heights with Intel<sup>®</sup>-based servers and record setting benchmark solutions for Datacenter*

## New Servers

Four completely refreshed and newly expanded server platforms delivering unmatched capabilities

- ▶ 4-way, 8-way and 64-way servers

## New Datacenter Services

Including the industry's most comprehensive 99.99% high availability guarantee\*

- ▶ High Availability Services
- ▶ Operational Support Servers
- ▶ Deployment Services
- ▶ Testing Services
- ▶ Disaster Recovery Services

IBM X-architecture

## New Power

IBM, Intel and Microsoft collaborate to deliver powerful new performance benchmarks

- ▶ SuperNova
- ▶ Tsunami
- ▶ TPC-H

\* The High Availability Services for business critical systems offering for an availability guarantee is only offered for eligible xSeries environments a this time. IBM reserves the right to change the terms and conditions of the offering at any time, without notice.

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***IBM Scales to New Heights with  
Intel-based Servers and Record  
Setting Benchmark Solutions for  
Datacenter***

**IBM eServer xSeries delivers scalability from  
1 to 64 processors**

**Windows 2000  
Datacenter Server**

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**Tikiri Wanduragala**

IBM EMEA

# Today's Scaling Paradigms

Scaling-Up

64 proc, 64GB

2 proc, 4 GB



single node

**Architecture:**

- › Scale by adding processors
- › Partition large systems into scalable nodes

**Pro's:**

- › Fits today's application architecture
- › Minimal change to operations
- › Simple, shared systems resources

**Con's:**

- › Higher up front investment
- › Limited OS and application support
- › Potential memory/disk bottlenecks

**Architecture:**

- › Scale by adding servers in a highly managed environment
- › Divide processing across multiple OS instances

**Pro's:**

- › Low-cost building blocks
- › Pay-as-you-grow scalability
- › Few resource bottlenecks

**Con's:**

- › Limited SMP growth
- › Requires applications be capable of multi-node scaling
- › High availability attributes



multi node

Scaling-Out

# New xSeries Servers

*Pentium® III Xeon™ 700/900 MHz\* Processors*



## **x370**

Mainframe inspired 8-way server for crushing workloads requiring near-zero downtime



## **x430**

Flexible and partitionable 64-way enterprise server for running one or more operating systems



## **x250**

High performance 4-way server for business critical applications subject to rapid growth



## **x350**

Powerful 4-way infrastructure node with high availability features ideal for constrained data centers

\* MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance.



# IBM's Competitive Advantage



xSeries 430

- ▶ Superior scale-up solution
- ▶ Proven reliability
- ▶ Large customer base
- ▶ Balanced architecture
- ▶ Switch fabric fibre channel
- ▶ Fault tolerance



Summit-based Systems

- ▶ Best of both worlds
- ▶ Scale-up 16-way SMP
- ▶ Scale-out with phys partitioning
- ▶ Mainframe availability attributes
- ▶ Revolutionary economic model for enterprise computing



xSeries 370

- ▶ Superior scale-out solution
- ▶ Low cost building blocks
- ▶ Pay-as-you-grow scalability
- ▶ IBM Director for single console management
- ▶ Most flexible MS platform

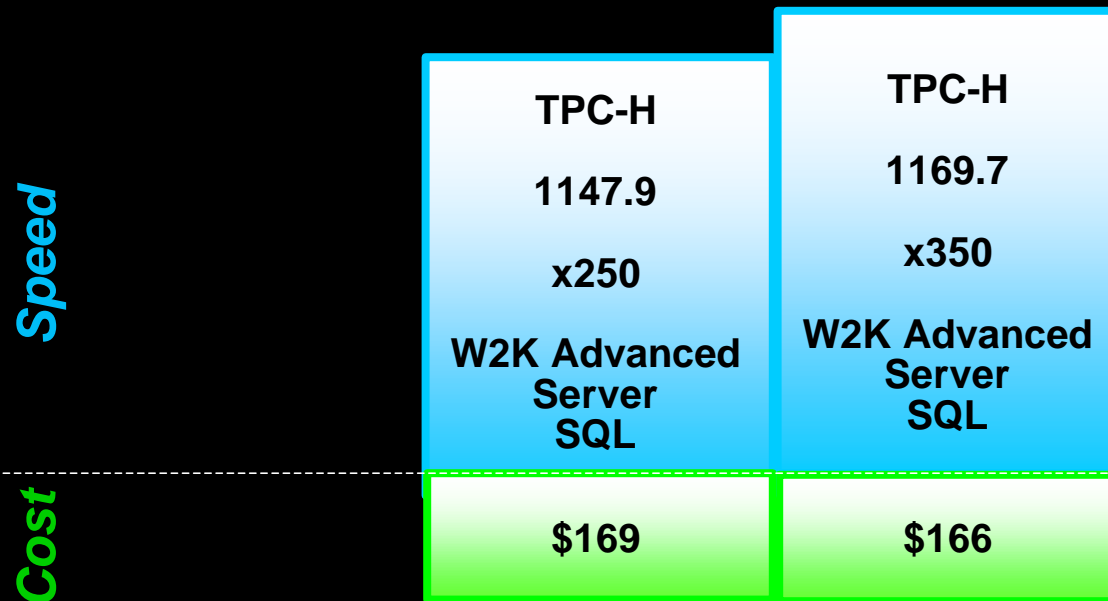
*Coming  
2H01!*

Scaling-Up

Scaling-Out

# New Power For Advanced Server

TPC-H models a decision support system, which analyzes online transaction processing information for use in business decisions.



TPC-H Results referenced: IBM xSeries 250: 1147.9QphH@100GB, \$169/QphH@100GB, available April 13, 2001; xSeries 350: 1169.7QphH@100GB, \$166/QphH@100GB, available May 31, 2001. TPC-H Benchmark, QppH QthH and QphH are trademarks of the Transaction Processing Performance Council. Data is current as of March 23, 2001.

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# New Datacenter Solutions

*With the new xSeries, IBM extends its leadership position in Datacenter solutions!*



- ▶ **Eight new x370 Datacenter configurations deliver the rock-solid foundation for mission-critical computing**
  - Mainframe inspired X-architecture innovations deliver unmatched availability
  - Only xSeries delivers proven Datacenter scalability to 32 nodes
- ▶ **Flexible storage solutions to manage customer data**
  - Industry leading, open, industry standard storage solutions
    - IBM FASTT 500 Fibre Channel, IBM SHARK, EMC
  - Complete integrated SAN solution offerings
- ▶ **IBM / Microsoft partnership delivers a range of application support**
  - xSeries primary partner on next version of Datacenter (code-named Whistler)
  - Forthcoming Whistler Beta program for x430

**Result: Extensive selection of customizable solutions!  
Over 1000 possible Datacenter configurations available today!**

# New Datacenter Services

## *Mainframe-class Services for Robust Datacenter Solutions*

### **High Availability Services**

End-to-end support across systems, network & even applications

- ▶ Readiness Workshop
- ▶ Availability Assessment
- ▶ Tailored Package Solutions
- ▶ 99.99% Availability Guarantees on eligible xSeries models (US only)

### **Operational Support Services**

Expert support to manage complex systems and reduce cost of ownership

- ▶ Server Health Management
- ▶ Server Service Level Management
- ▶ Server Accounting Management
- ▶ SupportLine
- ▶ Account Advocate (not available in all countries)

### **Deployment & Migration Services**

MS certified specialists to provide enterprise and xSeries expertise & experience in Datacenter implementation

- ▶ IBM Enterprise Services for Microsoft Technologies (ESMT)
- ▶ IBM xSeries Servers & Microsoft Windows 2000

### **Testing Services**

Proof-of-concept testing to assure stable & reliable environment

- ▶ IBM Testing Services

### **Disaster Recovery Services**

Continuous operations support in case of business disruptions

- ▶ Business Continuity & Recovery Services



# Cutting-Edge Datacenter Benchmarks

## “SuperNova”

### 32-node x370 Cluster

256 900 MHz Pentium III  
Xeon Processors

- ▶ Microsoft Windows 2000 Datacenter Server
- ▶ Microsoft SQL Server 2000 Enterprise Edition
- ▶ 16 GB ECC SDRAM per server
- ▶ 220 Disks per server node with 116TB\* total storage



688221

▶ 36% Faster Than Compaq

505302

▶ 4x the Performance  
at 60% of the Cost

156873

IBM

Compaq

Sun

\* When referring to hard disk drive storage capacity, GB equals one billion bytes and TB equals one trillion bytes.

TPC-C results referenced: IBM eServer xSeries 370; 688,220.9 tpmC, \$28.89/tpmC, available 5/31/01; Compaq 8500-700-92P: 505,302.77 tpmC, \$19.8/tpmC, available 11/30/00 ; Sun Starfire Enterprise 10000: 156,873.03 tpmC, \$48.81/tpmC, available 2/28/01; TPC Benchmark, TPC-C, \$/tpmC and tpmC are trademarks of the Transaction Processing Performance Council. Data is current as of March 23, 2001. TPC-C is a definitive on-line transaction processing measurement for new orders, inventory management, and other debit/credit entries. For more information see [www.tpc.org](http://www.tpc.org). Data on competitive products obtained from publicly available information and is subject to change without notice. Contact the manufacturer for the most recent information.

## What our Alliance Partners are Saying...

"The success of these new additions to the xSeries product range is testament to a product strategy that is without competition in terms of technology leadership and value", said Baan's Leen van der Maas, Vice President Strategic Alliances. "The iBaan solutions address the business needs of the entire value-chain, with powerful e-business solutions that help engineering and manufacturing companies transition to the Internet. We need partners like IBM, who are fully committed to delivering solutions and working with the industry leaders like Microsoft [with its] Windows 2000 Datacenter, to help us bring these solutions quickly to market."

# Real-World Datacenter Benchmark



***“Tsunami”***

***4-node x370 Cluster***

**32 900 MHz Pentium III Xeon  
Processors**

- ▶ Microsoft Windows 2000 Datacenter Server
- ▶ Microsoft SQL Server 2000 Enterprise Edition
- ▶ 32 GB ECC SDRAM per server
- ▶ 182 Disks per server node with 9.1TB total storage

***121,319 tpmC***

TPC-C result referenced: IBM eServer xSeries 370: 121,319.23 tpmC, \$25.47/tpmC, available May 31, 2001.  
TPC Benchmark, TPC-C, \$/tpmC and tpmC are trademarks of the Transaction Processing Performance Council. Data is current as of March 23, 2001.

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# SuperNova Benchmark

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**Brian Ball**

**Chief Technology Officer, Microsoft EMEA**



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**Anand Chandrasekher**

**Vice President, Architecture Group, Intel Corp.**

# Introducing . . .

## *The Latest Exciting Addition for Servers*

- ▶ **The new Pentium® III Xeon™ processor for mid-tier and back-end performance platforms**
  - 900MHz/100 MHz front side bus/ 2MB L2 cache
- ▶ **Extends Intel's Pentium III Xeon performance leadership position**
  - Holds 4 of the top 5 TPC-C benchmarks
  - Holds the top 10 spots of price/performance
- ▶ **Scalable to 4-way, 8-way, and beyond**



# The New 900MHz Pentium® III Xeon™ Processor

## Pentium® III Xeon™ Processor Designed for 4/8-way and Beyond

Speed: 900MHz with 100MHz system bus  
Cache: 2MB Advanced Transfer Cache

Memory: 4-Way up to 16GB - SDRAM  
8-Way up to 32GB – SDRAM  
clusters >64GB - SDRAM

I/O: 64bit/66MHz and 64bit/33MHz  
RAS: Hot swap, hot plug, redundant  
PCI Hot Plug

Density: 4-Way, 4U  
8-Way, 7U

## Outstanding Performance and Value vs. RISC

Pentium III Xeon  
processor based  
servers deliver OS and  
application choice

Provides significant  
performance boost within  
existing Pentium III Xeon  
processor infrastructure



*Features that further extend IA leadership in the  
back-end server environment*

# Summary

- ▶ **The Pentium® III Xeon™ processor @ 900 MHz provides outstanding performance leadership and scalability to power demanding mid-range and back-end enterprise platforms**
- ▶ **Industry-standard systems powered by the Pentium® III Xeon™ processor allow customers greater choice of operating systems and applications**
- ▶ **Extends IA presence in the back-end enterprise segment by providing unparalleled value vs. proprietary RISC-based systems**



***Intel is raising the performance level for server platforms throughout 2001***

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## IMPORTANT NOTES AND TRADEMARKS

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2. MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance.
3. When referring to hard disk drive storage capacity, GB equals one billion bytes and TB equals one trillion bytes. Total user-accessible capacity may vary depending on operating environments.

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