OOW 2013

The Best Platform for Big Data and Oracle Database 12c

FUJITSU

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Overview

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- 1. Fujitsu: Quick Introduction
- 2. Big Data and a New Challenge
- 3. Speed
- 4. Big Data and Oracle Database 12c
- 5. Fujitsu Technologies
- 6. Customer Cases
- Summary
- Raffle

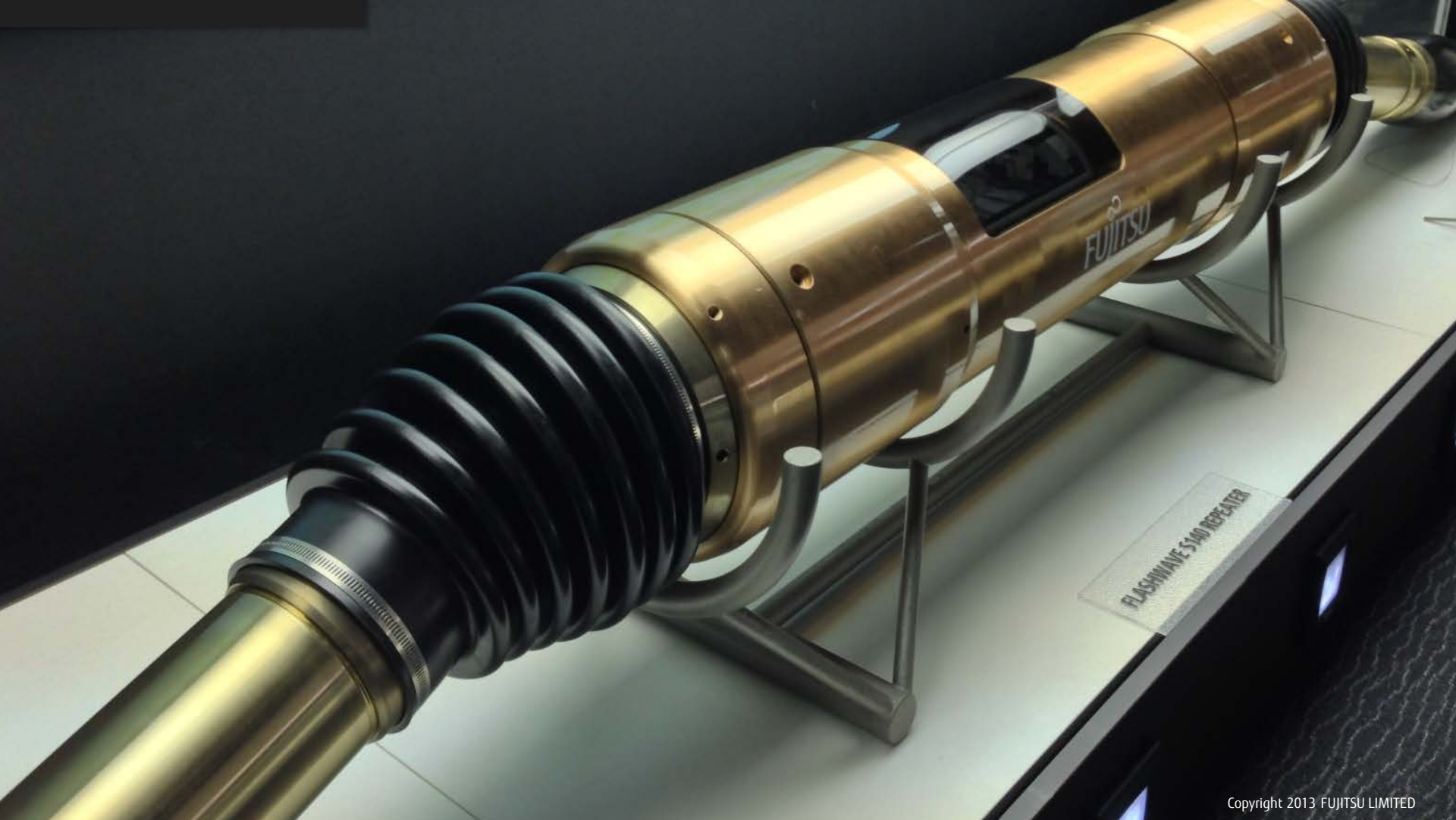
Chapter 1

Fujitsu: Quick Introduction

Fujitsu: #1 IT Company in Japan

FUJITSU

- Server: #1 in Japan
- Smartphone: #2 in Japan
- The K computer: World #1 Supercomputer 2011
- Cloud Computing and Big Data
- We are Fujitsu, We are Amdahl.



Fujitsu, a Socially Responsible Company

21st Century Achievement Award Computerworld Went to Fujitsu

Fujitsu STYLISTIC Q572

FUJITSU

Your Professional BusinessPad

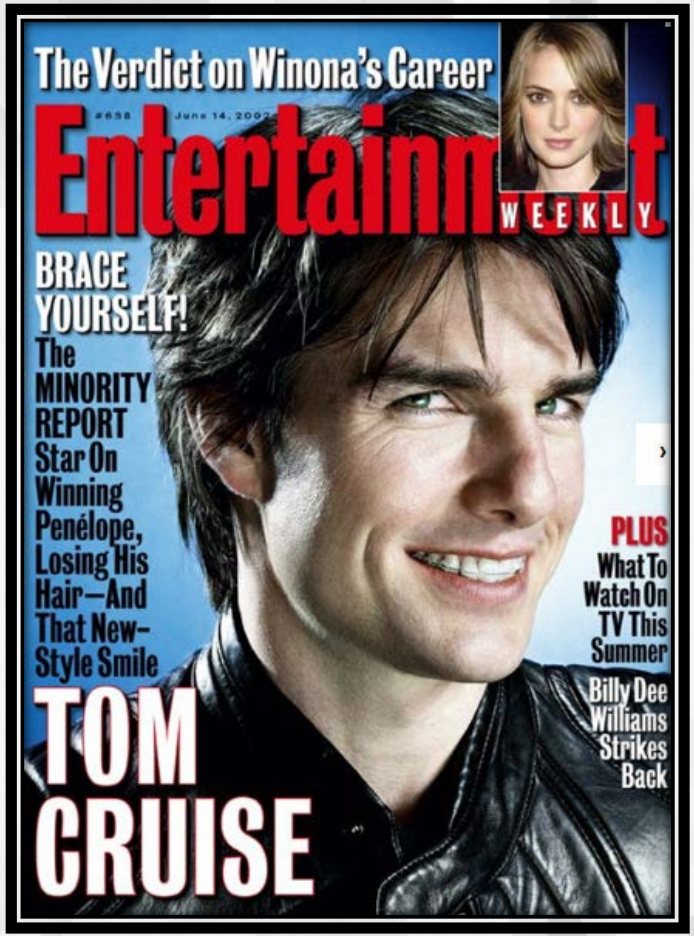
- Highest Security
- Swappable Battery
- Maximum Connectivity
- Active Pen Input

Chapter 1 Summary

Fujitsu Has *Everything* You Need.

Chapter 2

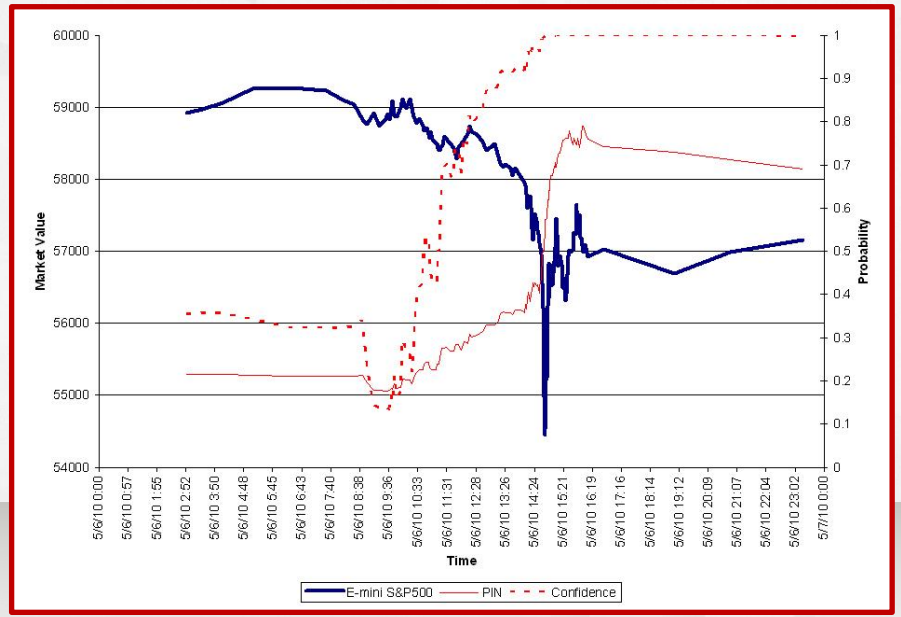
Big Data and a New Challenge



Source: www.drfrangella.com

Flash Crash

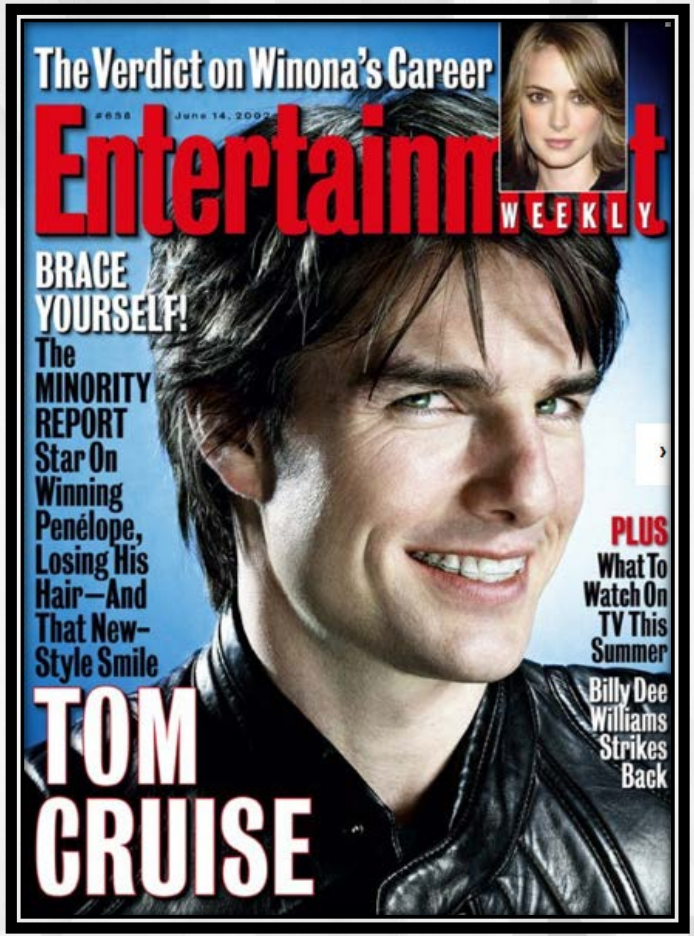
- May 6, 2010



Source:www.wikipedia.org

- Apr 23, 2013

Source:twitter.com



Source: www.drfrangella.com

Chapter 2 Summary

- Humans Can't Catch Up with Our Own Technology.
- Races: Computer vs. Computer
- To Win a Race, We Need *a Computer with Speed*.
- Speed is the Key.

Chapter 3

Speed

Case Example

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You are buying a modem, "M100" from either

Fujitoo M100

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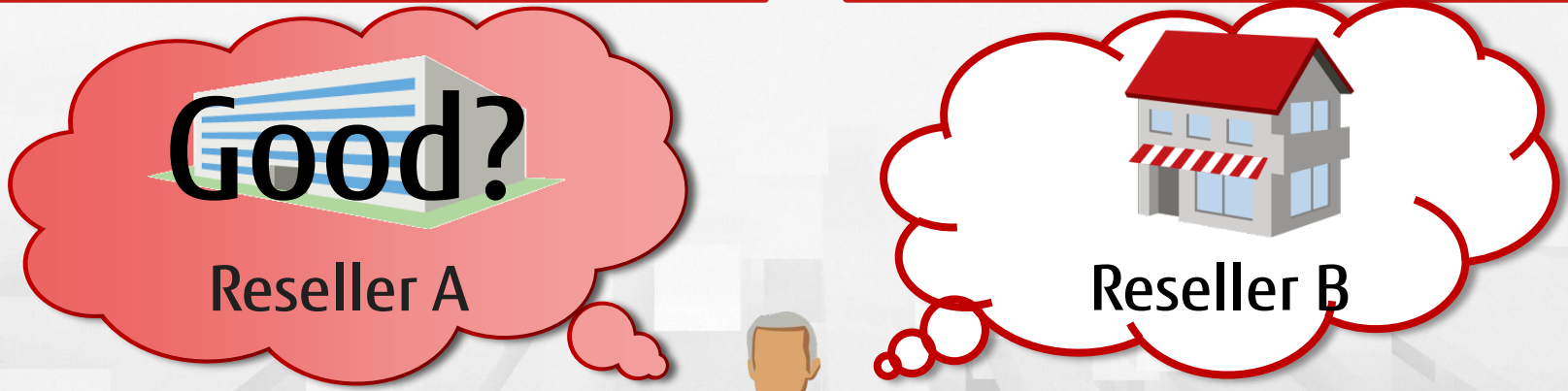
A	B
Closes **20,000** incidents/month.	Closes **1,000** incidents/month.



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A	B
Closes one incident in average **3 days**.	Closes one incident in average **1 hour**.

Speed

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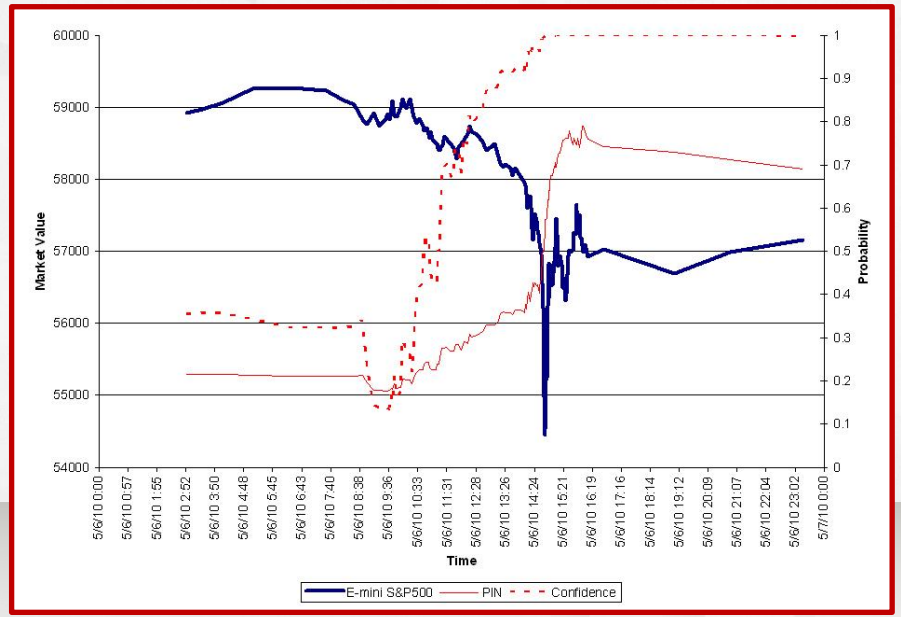
- ***Latency:***
  Response Time to Input/Inquiry

- ***Throughput:***
  Amount of Work per Unit Time

Flash Crash

- May 6, 2010



Source:www.wikipedia.org

- Apr 23, 2013

Source:twitter.com

Chapter 3 Summary

- Speed is *Latency and Throughput*.
- Pay more attention to Latency.
- Speed is Money, literally.
- Don't save a million to lose a billion.

Chapter 4

Speeding up Big Data and Oracle Database 12c

— Powered by Fujitsu —

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Big Data = Latency + Throughput

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Big Data

= Big Memory
+ High Speed Data Transfer
+ High Speed Processing

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Demonstration

- Big Data / Fujitsu M10 -

Fujitsu M10

- Product lineup that meets any business needs

All models support Oracle Solaris 11 and 10

Fujitsu M10-1

1 socket
(Max: 16 cores)

Fujitsu M10-4

4 sockets
(Max: 64 cores)

Fujitsu M10-4S

4-socket Building Block can scale up to 64 sockets
(Max: 1,024 cores)

Rain fall coverage area by sensor density

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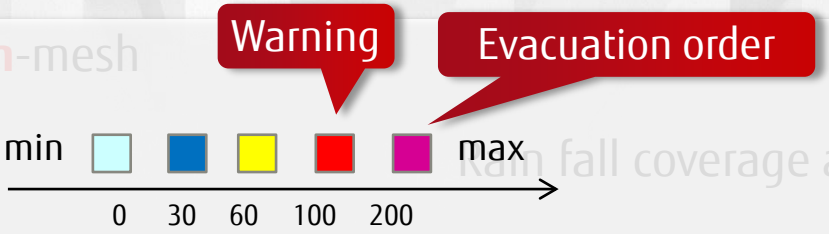

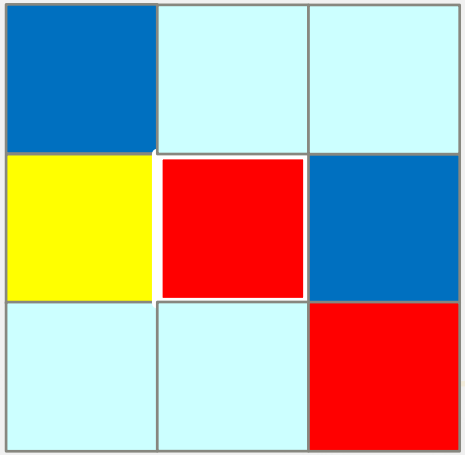

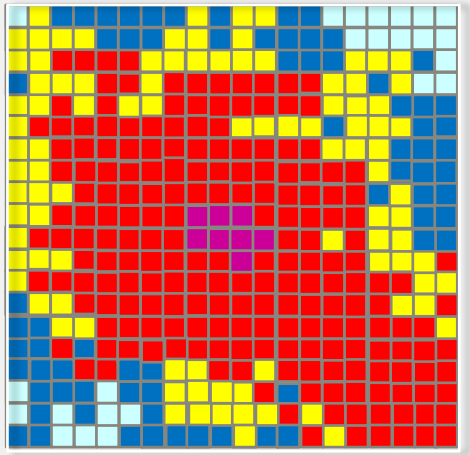

■ 5km-mesh

■ 250m-mesh

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Oracle Database 12c

= In Memory Database
+ Pluggable Database

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Oracle Database 12c

= Big Memory
+ Pluggable Resource

Oracle DB12c + Fujitsu M10
= Pluggable DB + Pluggable Server

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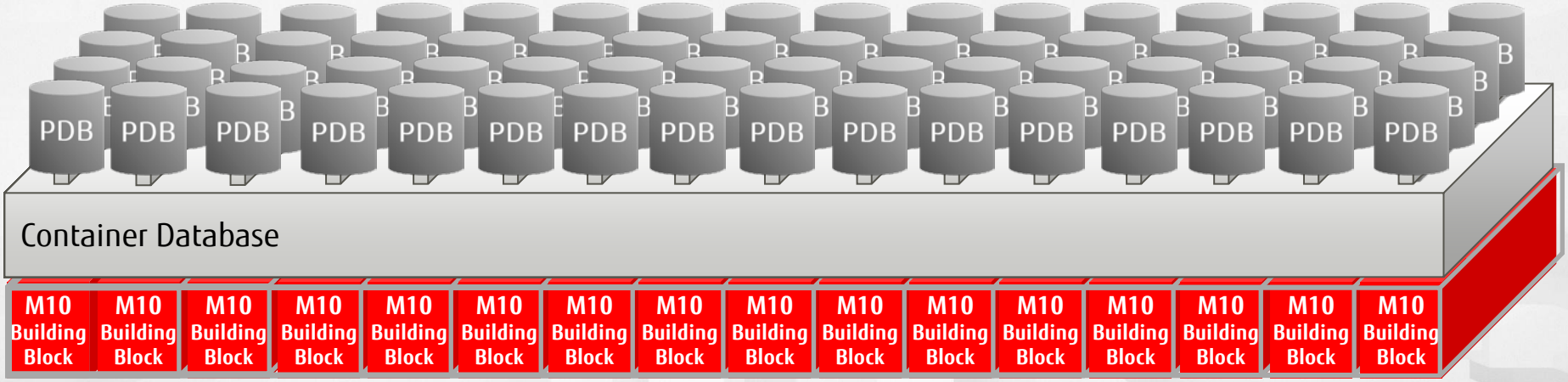

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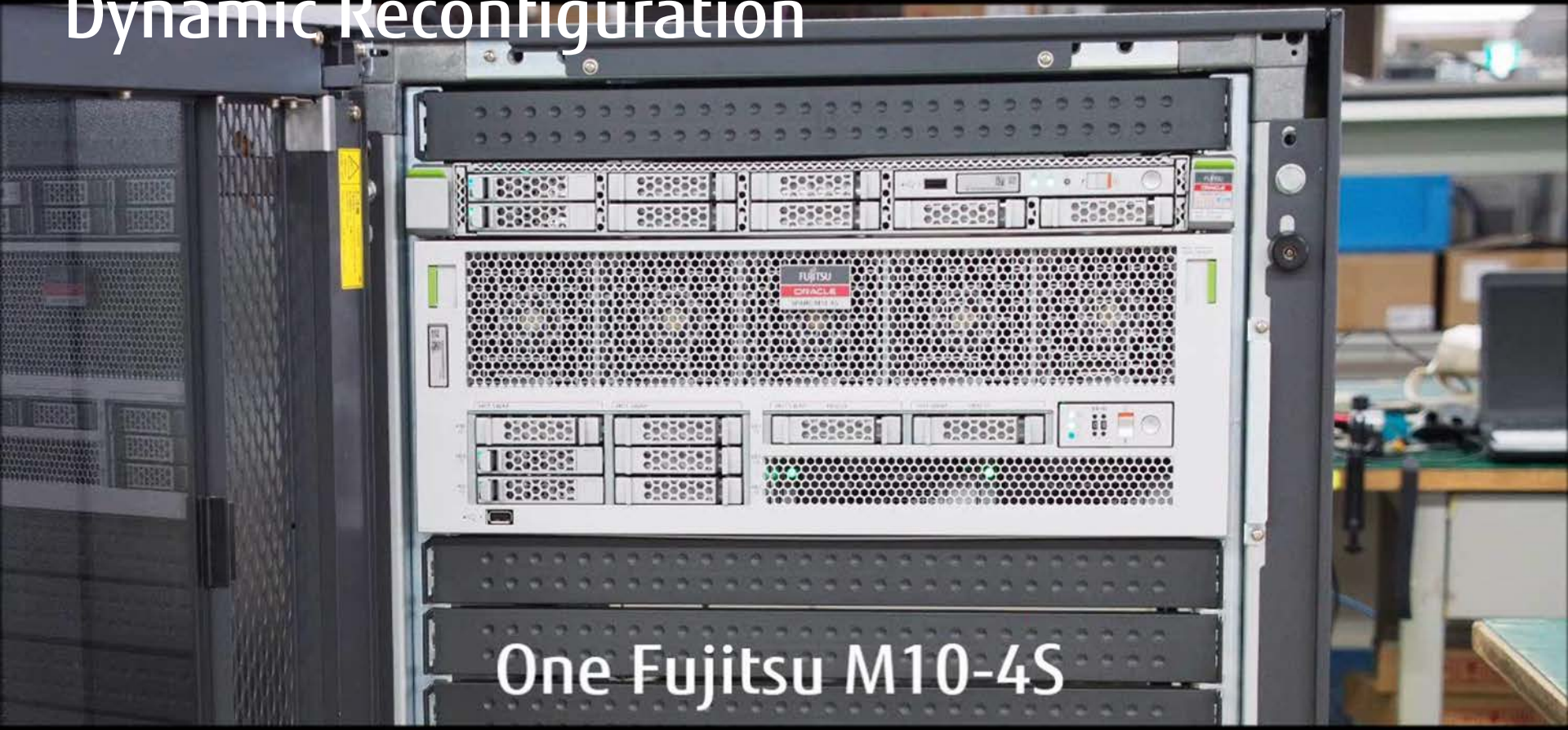
Demonstration

- Fujitsu M10: Pluggable Server -

Dynamic Reconfiguration



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Demonstration

- Oracle DB 12c / Fujitsu M10 -

Demo: Fujitsu M10 Runs A Maximum of 252 PDBs

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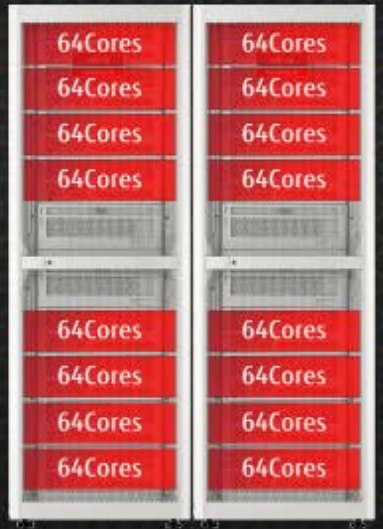
Fujitsu M10 Building Blocks

1024 Cores

Cores in Use



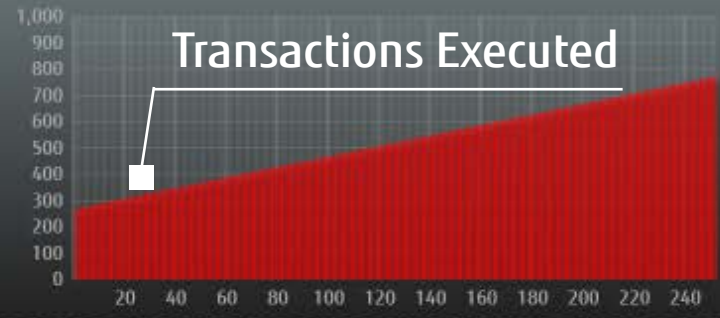
Quantity of PDBs In Use

252 PDBs

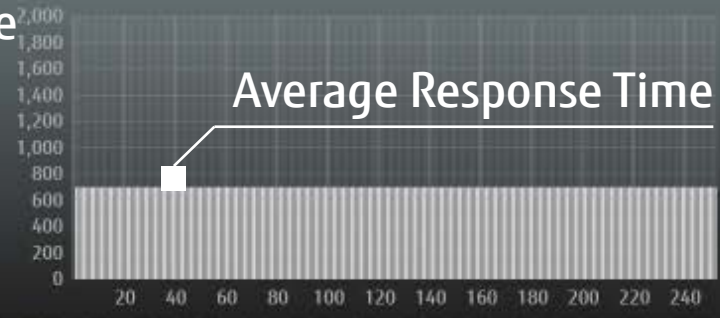
Pluggable Databases In Use

ORACLE DATABASE 12c

Total Transactions



Average Response Time



Demo: Fujitsu M10 Runs A Maximum of 252 PDBs

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Fujitsu M10 Building Blocks

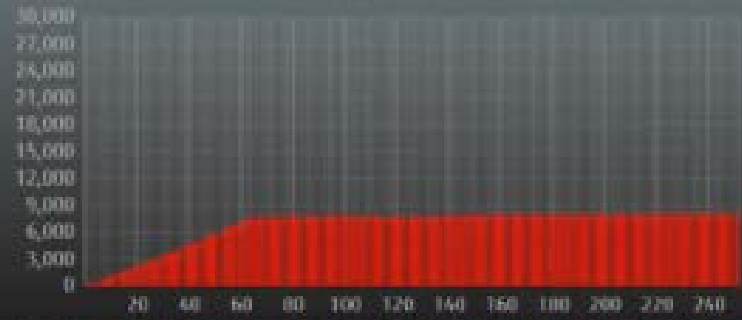
0256 Cores

Quantity of PDBs In Use

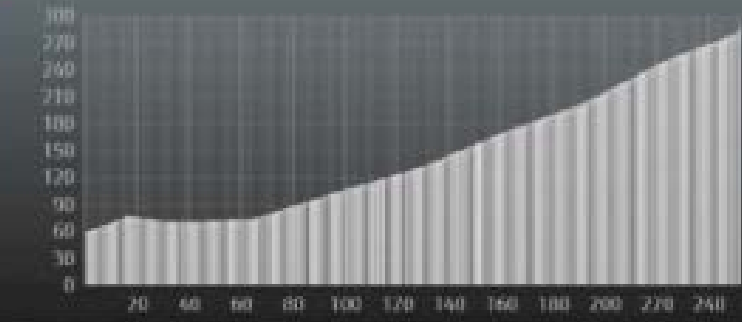
252 PDBs

ORACLE DATABASE 12c

Total Transactions



Average Response Time



Demo: Fujitsu M10 Runs A Maximum of 252 PDBs

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Fujitsu M10 Building Blocks

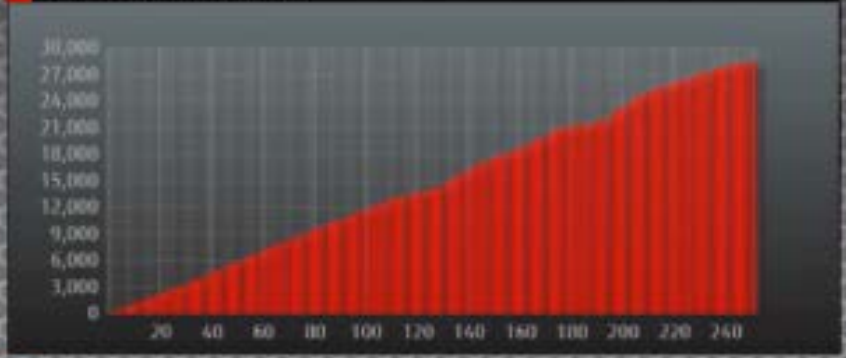
1024 Cores

Quantity of PDBs In Use

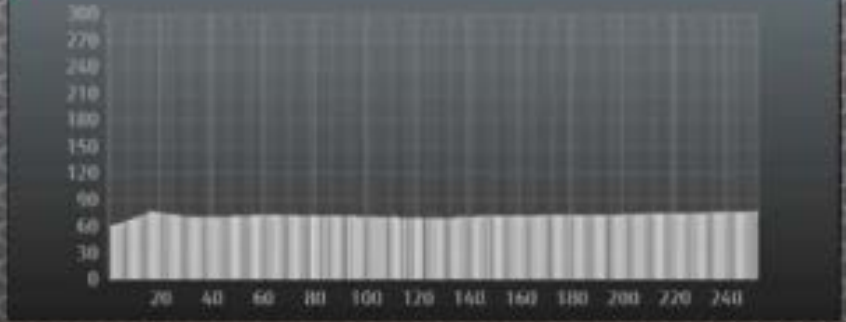
252 PDBs

ORACLE DATABASE 12c

Total Transactions



Average Response Time



Chapter 4 Summary

- Big Data = Latency + Throughput
- Oracle DB 12c = In Memory DB + Pluggable DB
- Fujitsu M10 = Big Data and 12c Ready Platform

Chapter 5

Fujitsu Technologies

— Behind the Scene —

SPECint®_rate2006: Throughput

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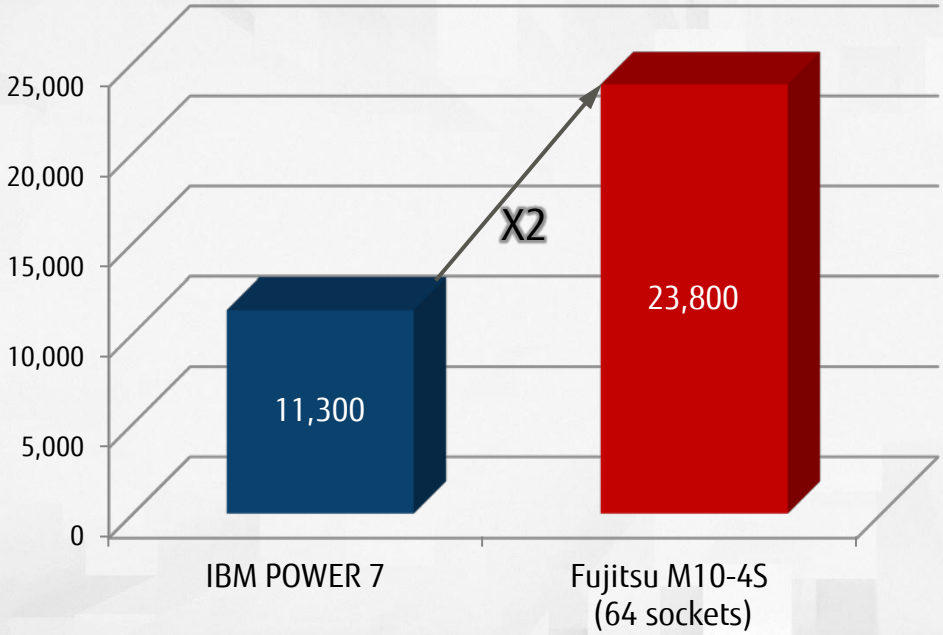
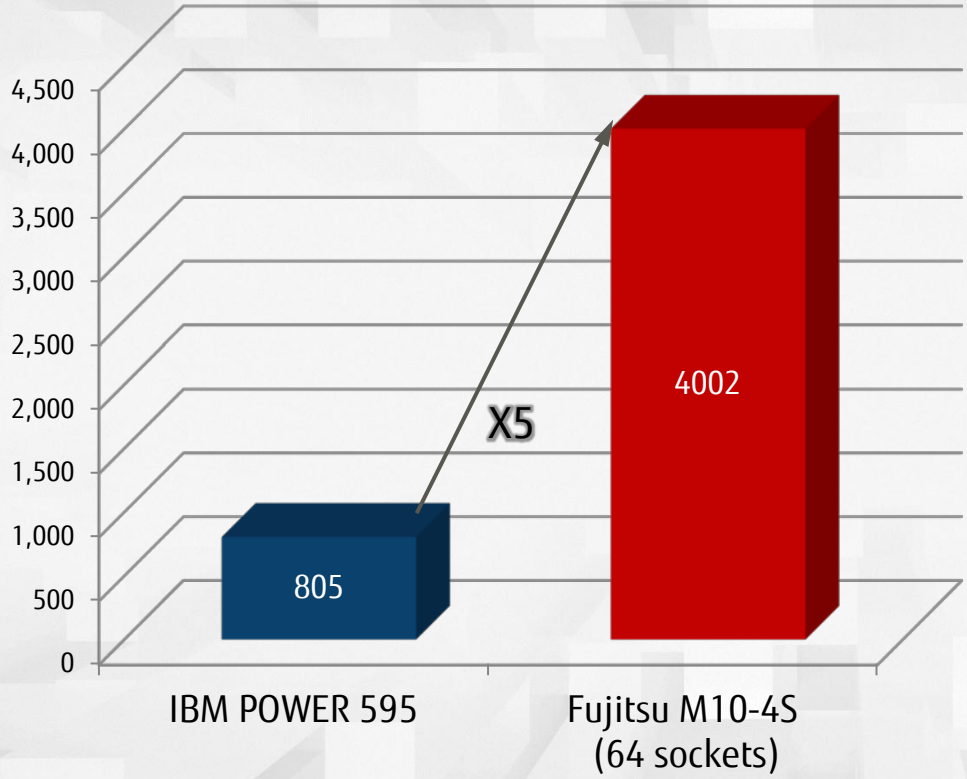


Fujitsu M10 server provides twice the performance of IBM Power 7 server

The IBM POWER7 result reflects a result published as of November, 2010.
The Fujitsu M10 result reflects result published as of January, 2013.

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. For the latest SPEC benchmark results, visit http://www.spec.org

STREAM TRIAD: Throughput



Source of Fujitsu M10-4S and IBM POWER 595 data is in http://www.streambench.org/

Fujitsu M10 server provides

x5 performance of IBM Power 595

SPECjbb2013 critical-jOPS: Response Performance

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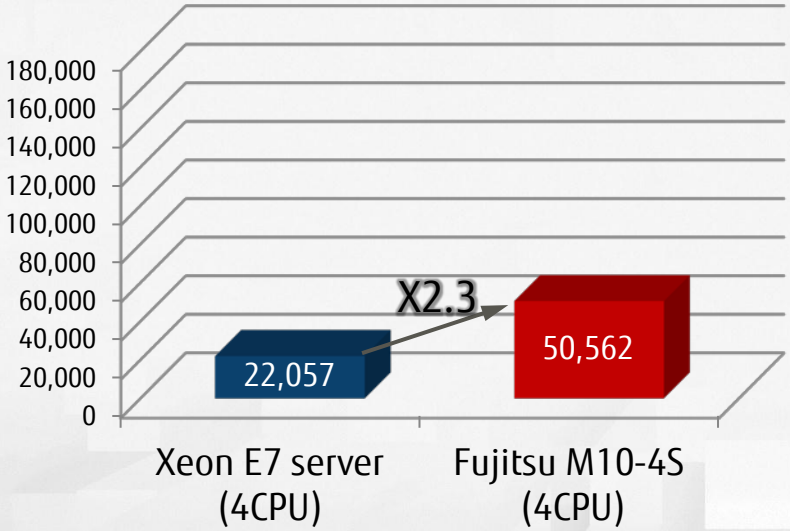
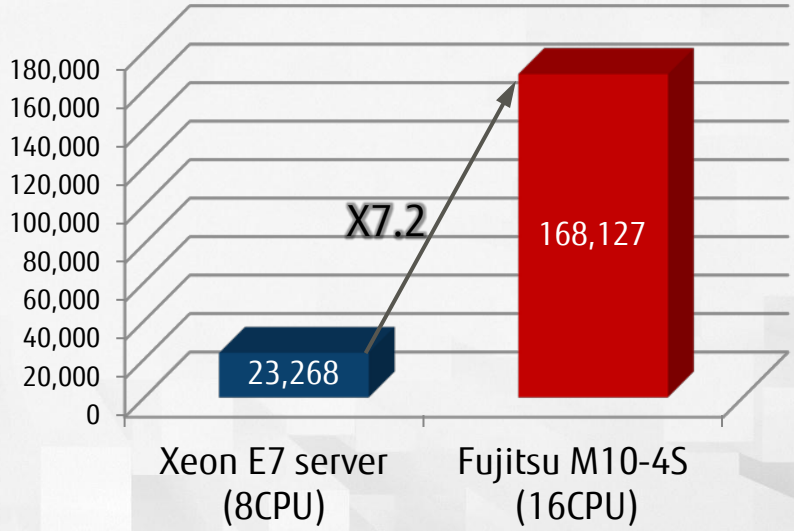
➢ 4 CPU server class



➢ vs Xeon max config



The Xeon E7 result reflects a result published as of April, 2013.
The Fujitsu M10 result reflects result published as of July, 2013.

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14 World Records

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Benchmark	What's Measured	Workload Type
SPEC CPU 2006 int_rate	CPU Basic Perf.	Throughput
SPEC CPU 2006 int_rate in 32 CPU server		
SPEC CPU 2006 int_rate in 16 CPU server		
SPEC CPU 2006 fp_rate		
SPEC CPU 2006 fp_rate in 16 CPU server		
SPECjbb2013 Critical-jOPS	JAVA Performance	Response Performance
SPECjbb2013 Critical-jOPS in 4CPU server		
SPECjbb2013 Max-jOPS		Throughput
SPECjbb2013 Max-jOPS in 4CPU server		
SPECjbb2005		
STREAM Triad	Memory Access Perf.	Throughput
STREAM Triad in 32CPU Server		
STREAM Triad in 16CPU Server		
SAP SD 2-Tier	SAP Performance	Throughput

High Throughput

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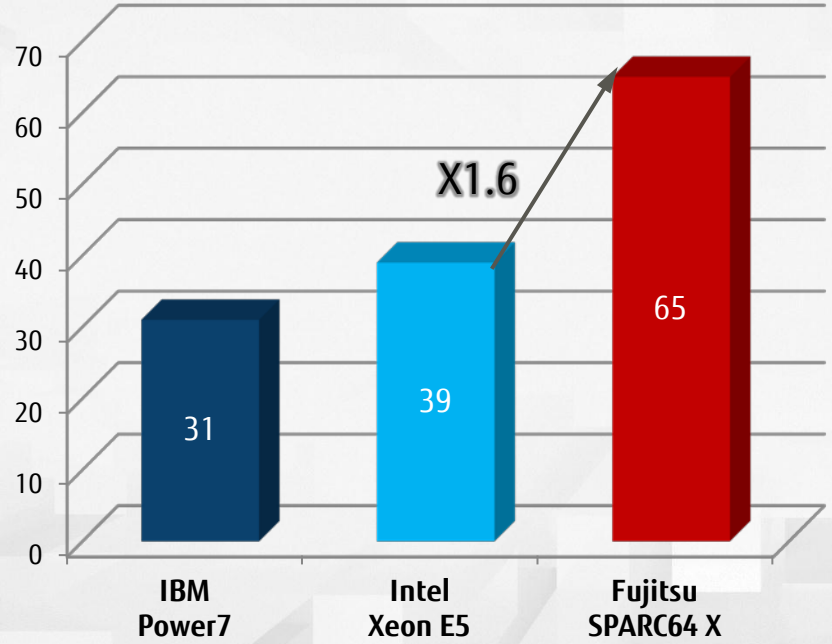
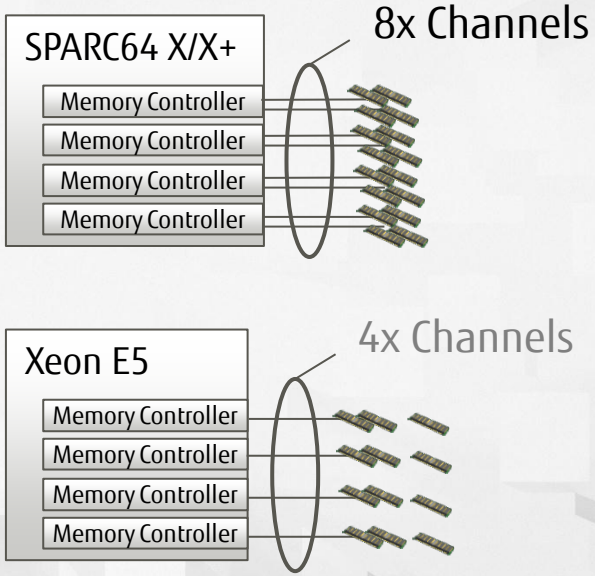
- STREAM TRIAD per Socket (GB/s)



- Memory Bus



Source of Fujitsu M10-4S and IBM POWER 750 data is in http://www.streambench.org/

High Speed Processing

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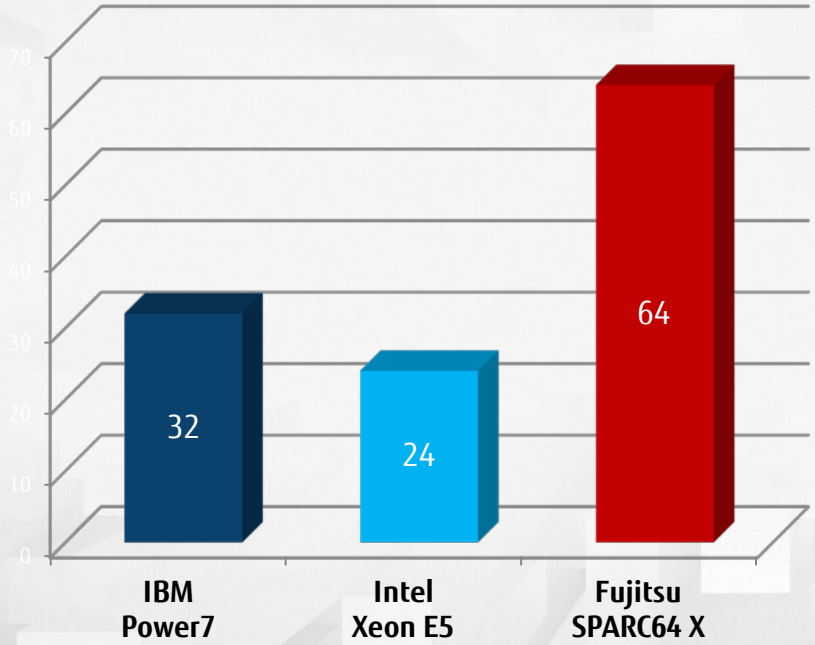
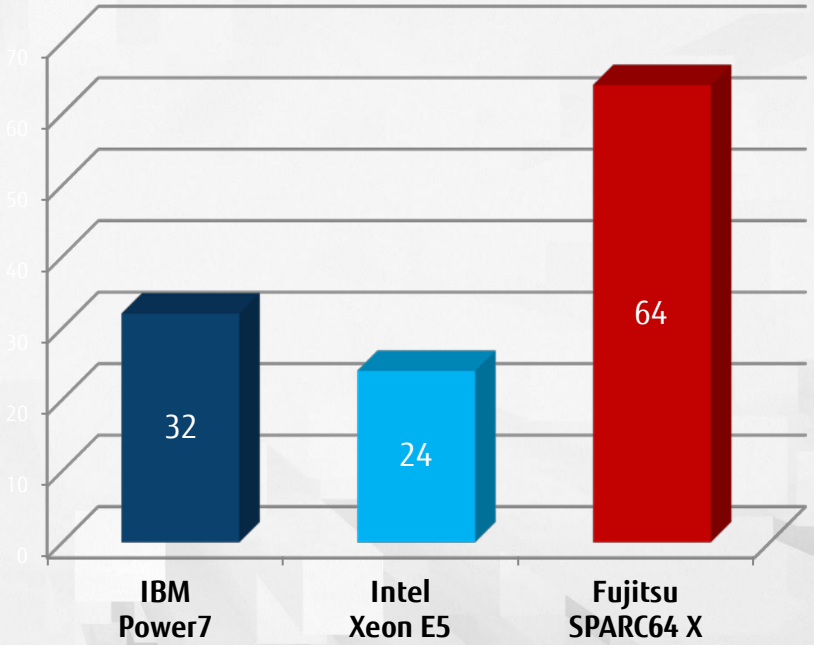
- Integer Units per Socket



- Floating Point Units per Socket



Big Memory

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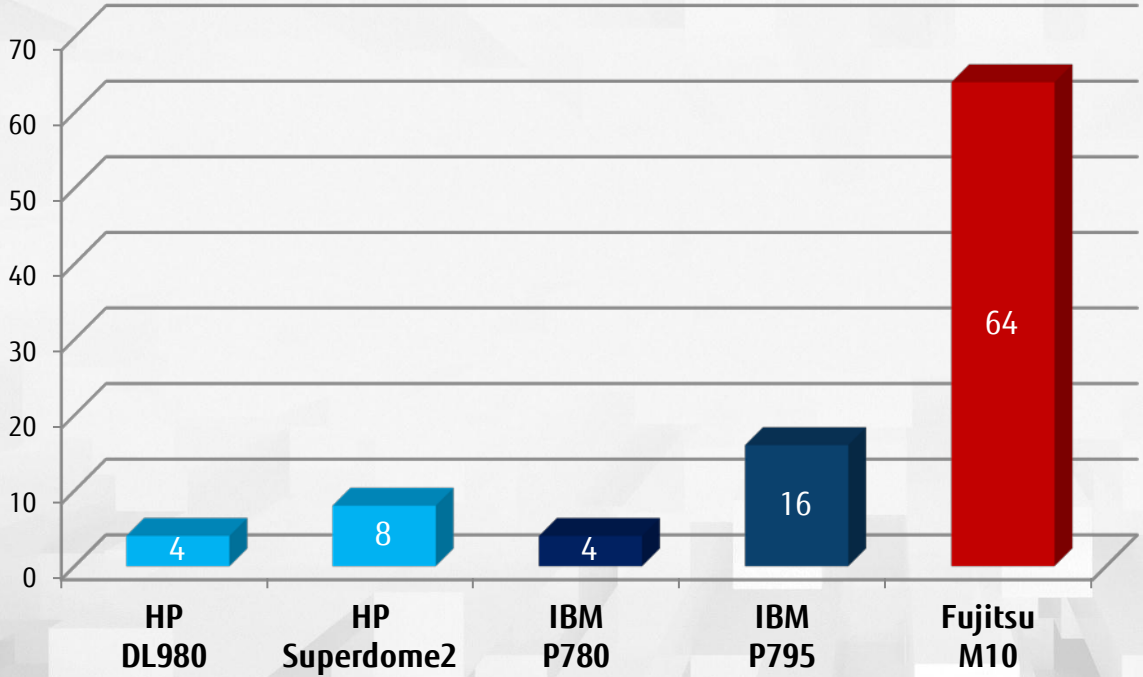
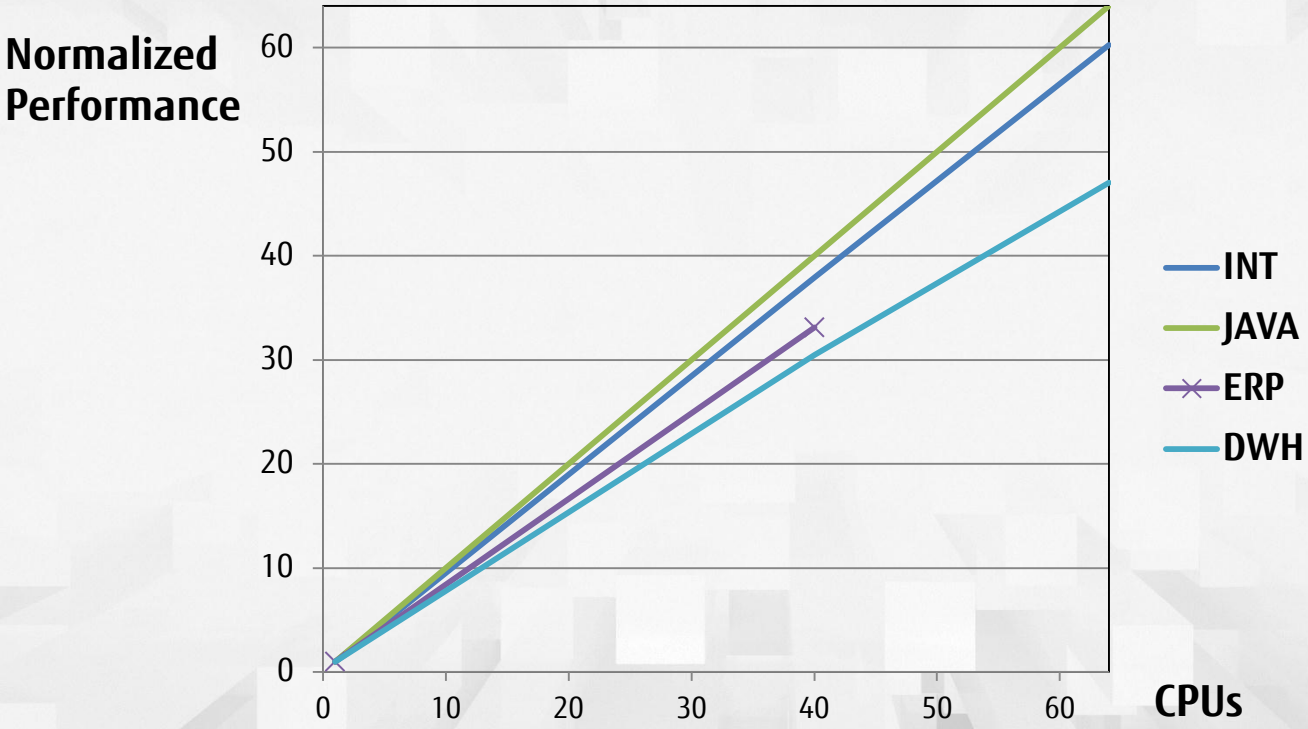
- Maximum Memory Capacity(TB)



Fujitsu M10 server provides x4 Memory Capacity of IBM Power 795

Extreme Scalability



SPARC64™ X+ Chip Overview

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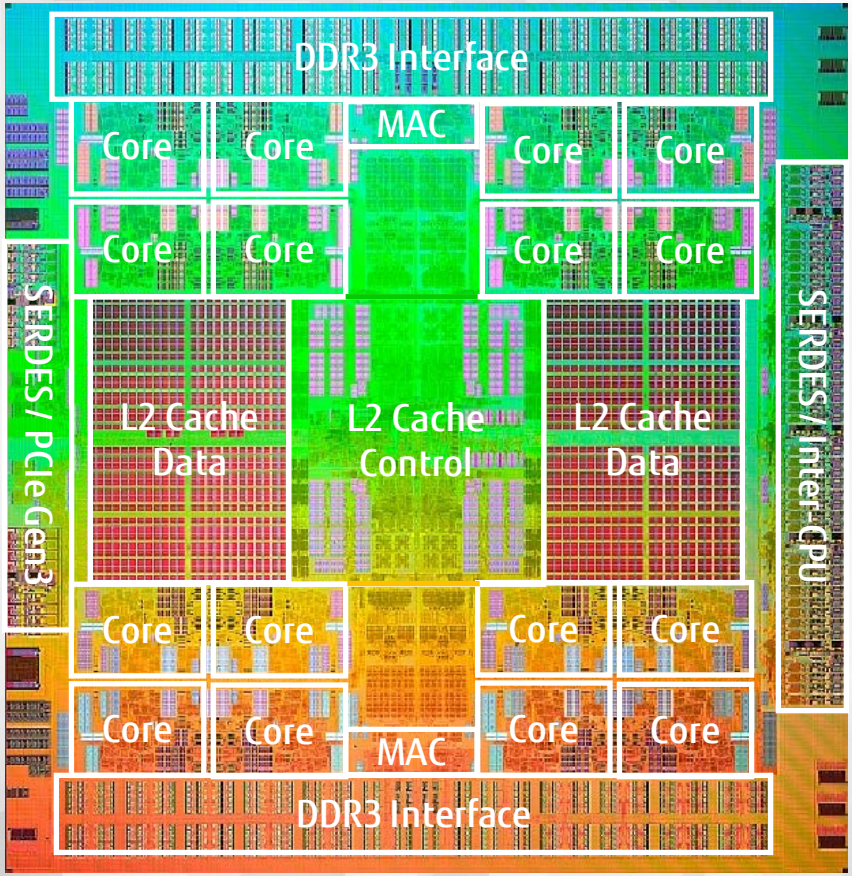

- **Architecture Features**
  - 16 cores x 2 SMT threads
  - Shared 24 MB L2$
  - Memory and I/O Controllers
  - HPC-ACE
  - SWoC (Software on Chip)
- **28nm CMOS**
  - 24.0mm x 25.0mm
  - 2,990M transistors
  - 1,500 signal pins
  - 3.5GHz+
- **Performance (peak)**
  - 448GFlops+
  - 102GB/s memory throughput

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Demonstration

SPARC64 X+

Fujitsu M10 High Performance Server

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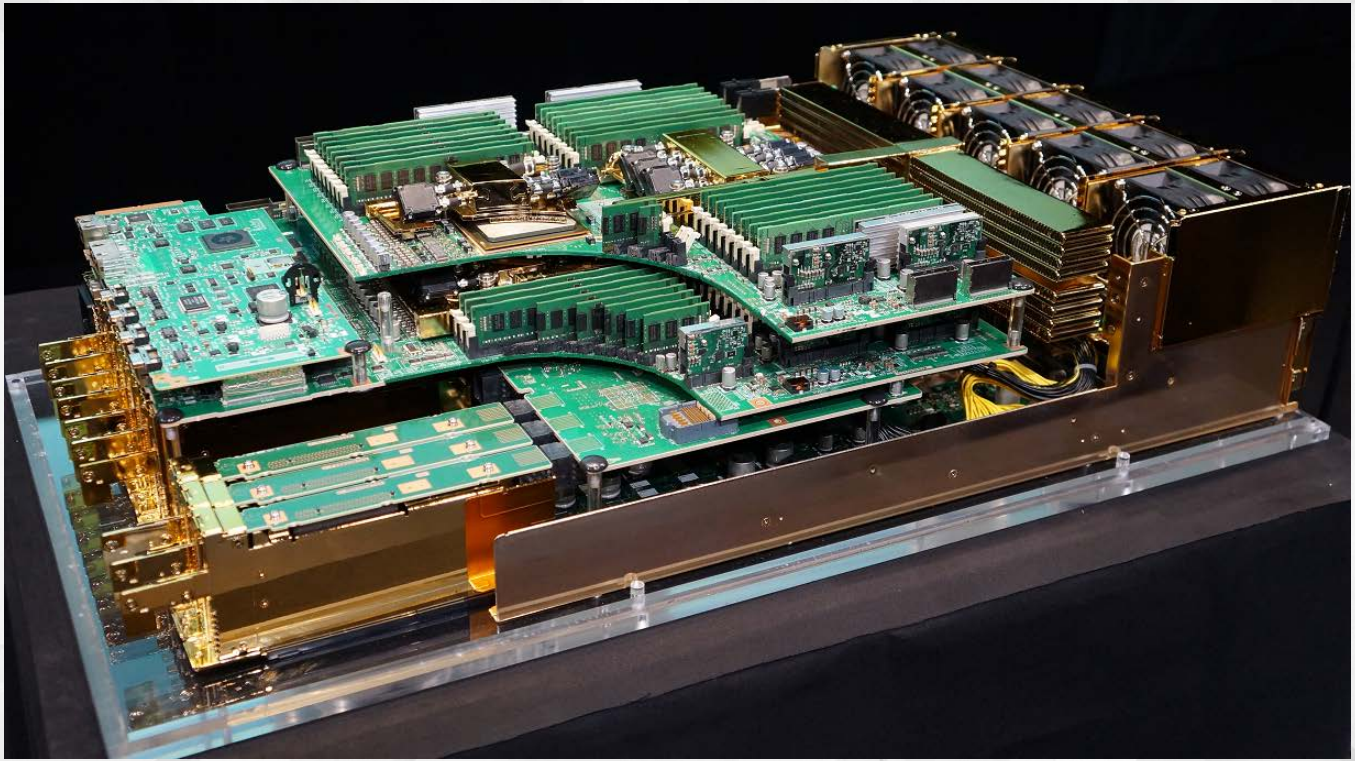

Fujitsu M10 roadmap

ORACLE | FUJITSU

Delivered

2012

Fujitsu M10

SPARC64 X:
3.0GHz, 16core, 32thread
System on Chip
Software on Chip
Fast interconnect
(14.5Gbps)

2013

Enhanced Fujitsu M10

SPARC64 X+:
3.5GHz+, 16core, 32thread
>1.3x Throughput
>1.3x Thread Strength
CMI, Software on Chip+
Faster interconnect(25Gbps)

2014

Next Generation Fujitsu M10

Next Generation SPARC64:
4.5GHz+, 24core, 96thread
>2x Throughput
>1.5x Thread Strength
FAST μArch
Data corruption prevention/
Software on Chip++
Faster Interconnect

2015

Next^2 Generation Fujitsu M10

Next^2 Generation SPARC64:

2016

Speed!

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But don't forget
Quality
and
Affordability.

Amazing Quality

FUJITSU

First

1,000

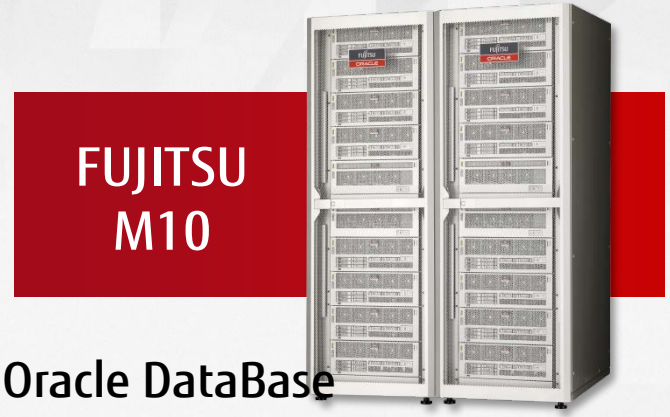
Units Shipped

ONLY 5

Hardware Failures

High Affordability: SAP SD Benchmark

FUJITSU



	IBM DB2	Oracle DataBase
Users	**126,063** users	**153,000** users

Chapter 5 Summary

- Fujitsu M10
  = Big Data and 12c Ready Platform
  = Supercomputer Technology * (Processor + Hardware)
  = Performance + Reliability + Affordability
  = Try with your Own Load

Bill King

Executive Vice President,
Platform Products Business
Fujitsu America, Inc.

Fujitsu M10

Customer Case Study 1

Fujitsu M10
Customer Case Study 2

Fujitsu M10
Customer Case Study 3

Fujitsu M10
Customer Case Study 4

Fujitsu's Case Study

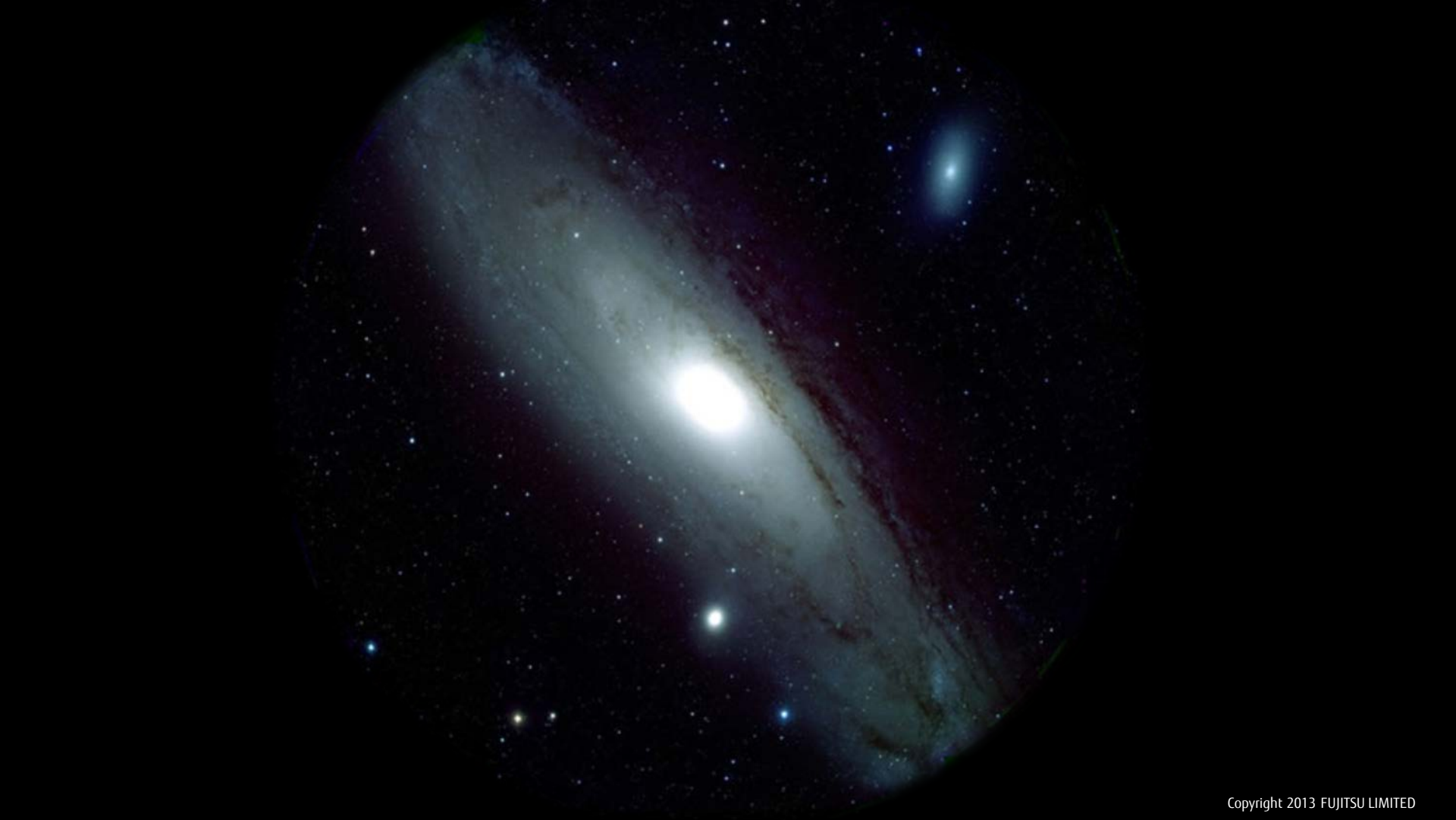
Summary

FUJITSU

- Big Data = Latency + Throughput
- Fujitsu M10 = Latency + Throughput

- Oracle DB 12c = In Memory DB + Pluggable DB
- Fujitsu M10 = Larger Memory + Pluggable Server

Search "Fujitsu M10" at www.fujitsu.com
www.oracle.com



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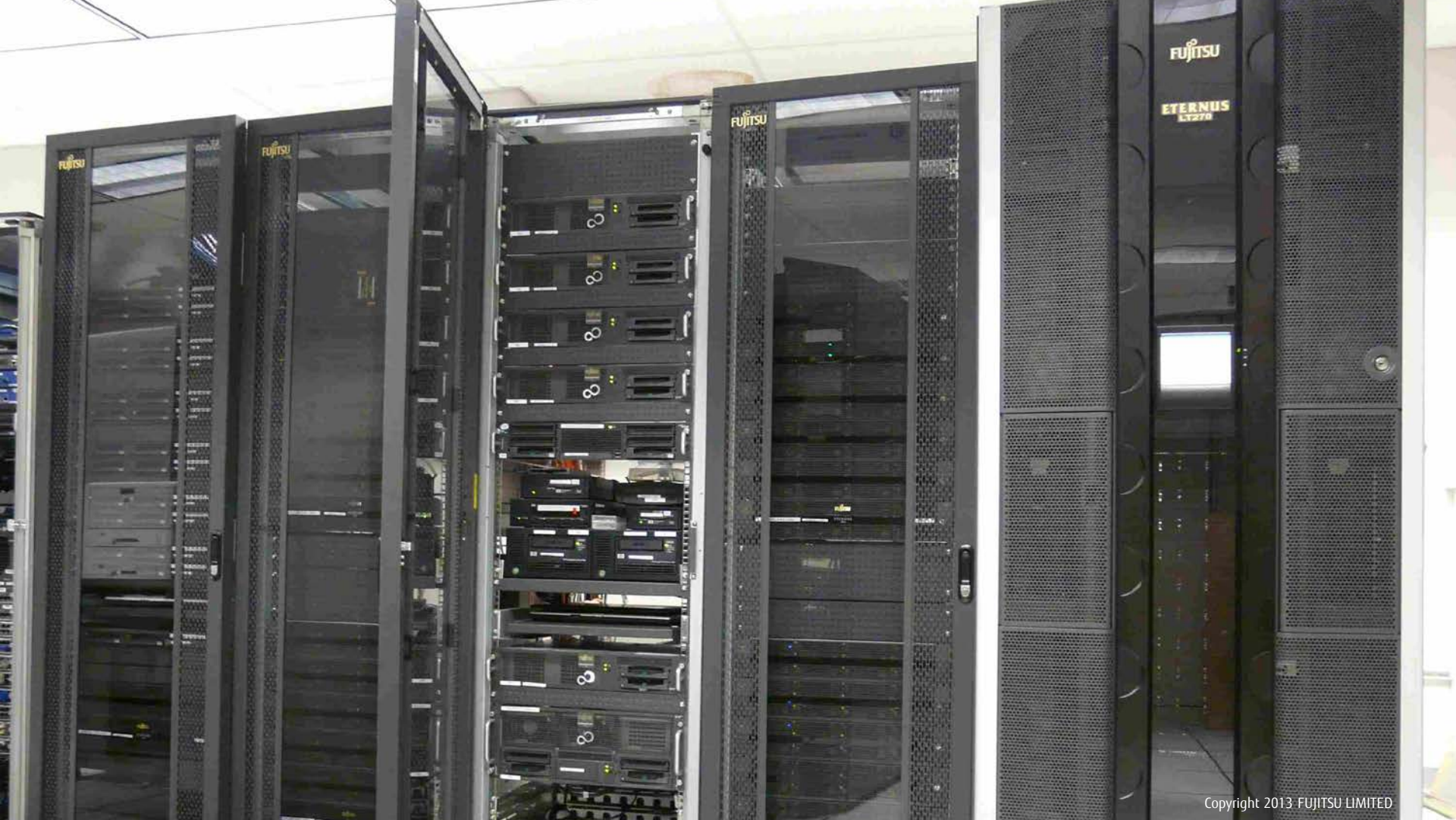

Question: What was the challenge to the Computers at Subaru National Observatory (alt. 4,205m = 13,796ft) in Hawaii?

A: Computer got too hot
B: Computer got too cold
C: Air too dry
D: Air too wet
E: Unstable voltage

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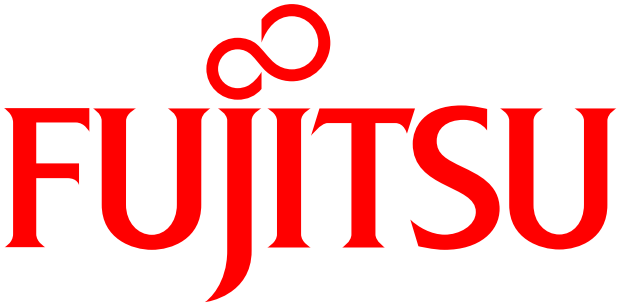
Join the booth tour for a chance to win a piece of Japan!

Moscone South
Booth #1501

It's TIME for RAFFLE!!!

Fujitsu STYLISTIC Q572

Your Professional BusinessPad



shaping tomorrow with you

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