



Runs Oracle Data Warehouses 10x Faster

Hardware by HP. Software by Oracle.

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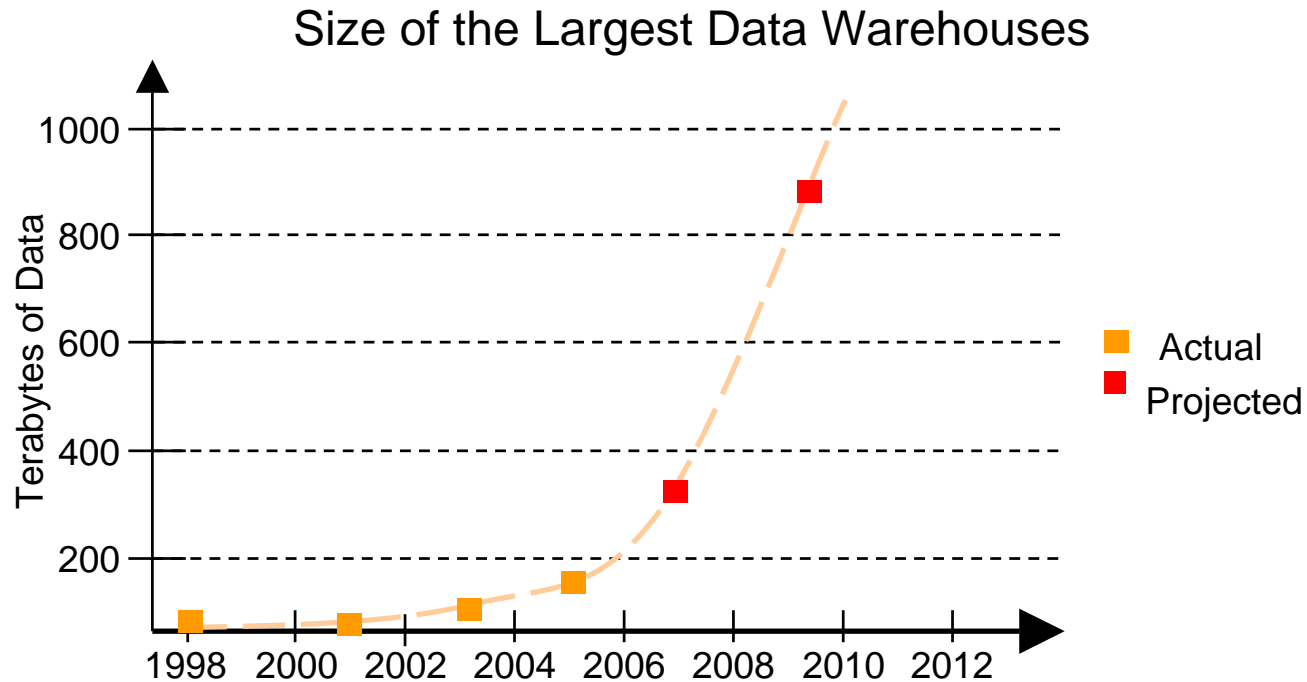


EXTREME PERFORMANCE

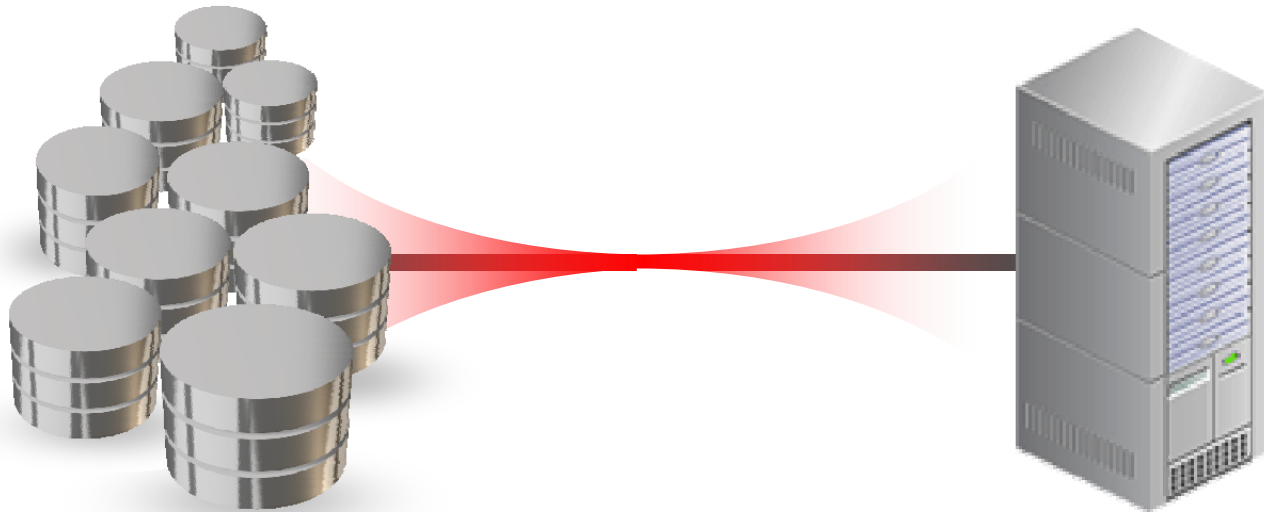
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Data Warehouses Growing Rapidly

Tripling In Size Every Two Years

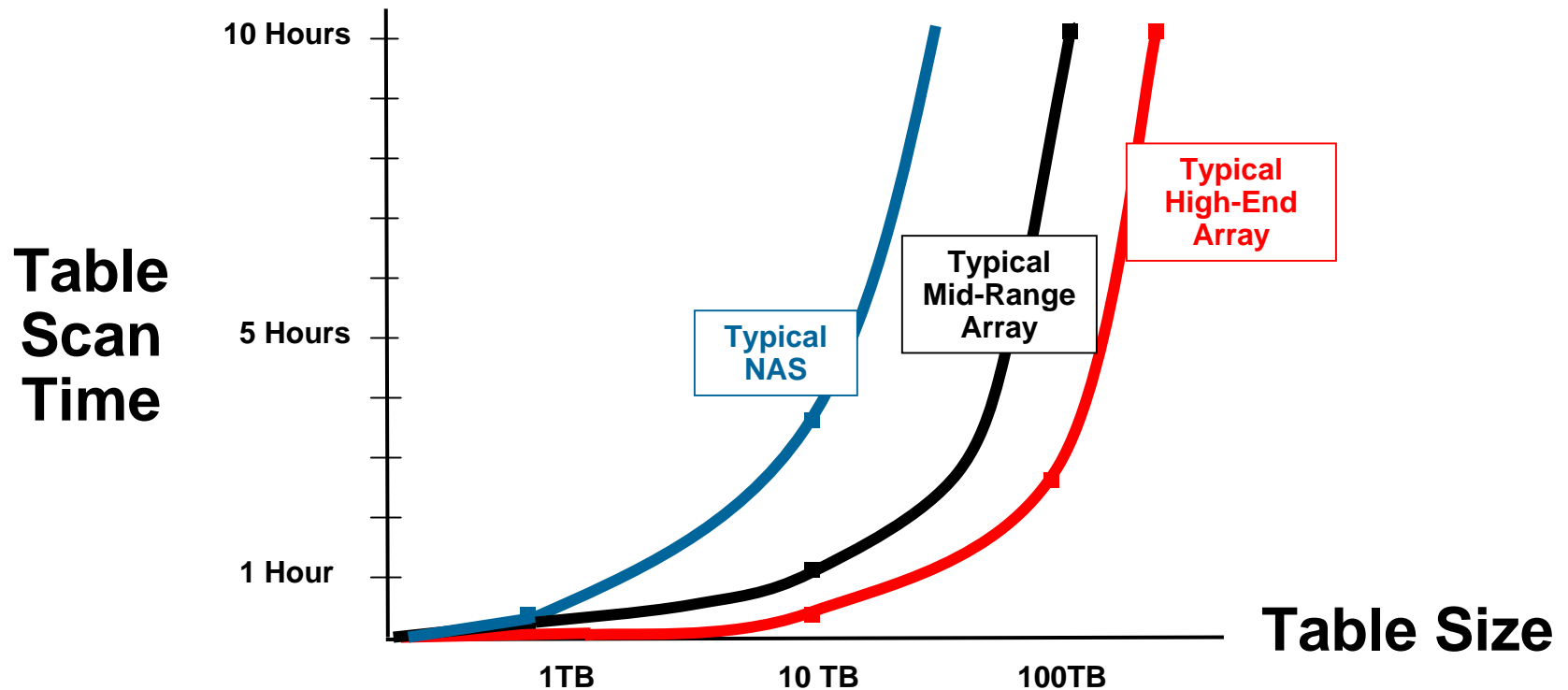


Data Warehouse Bandwidth Problem



- Can't ship data to Database servers fast enough

Table Scans Start to Slowdown at 1TB

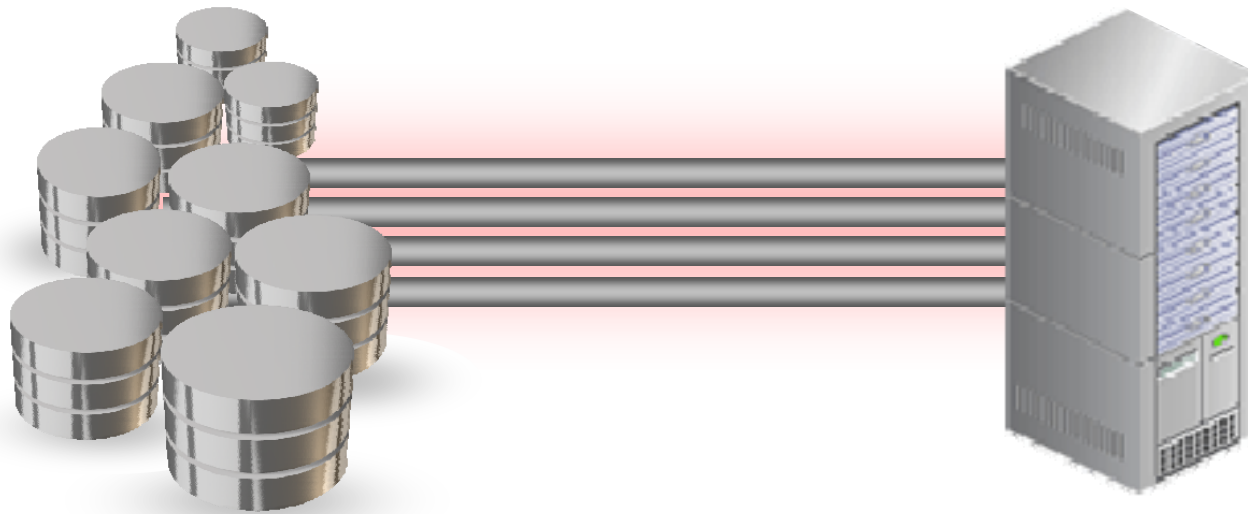


D E M O N S T R A T I O N



Traditional Architectures
‘Data Warehouse Bandwidth Problem’

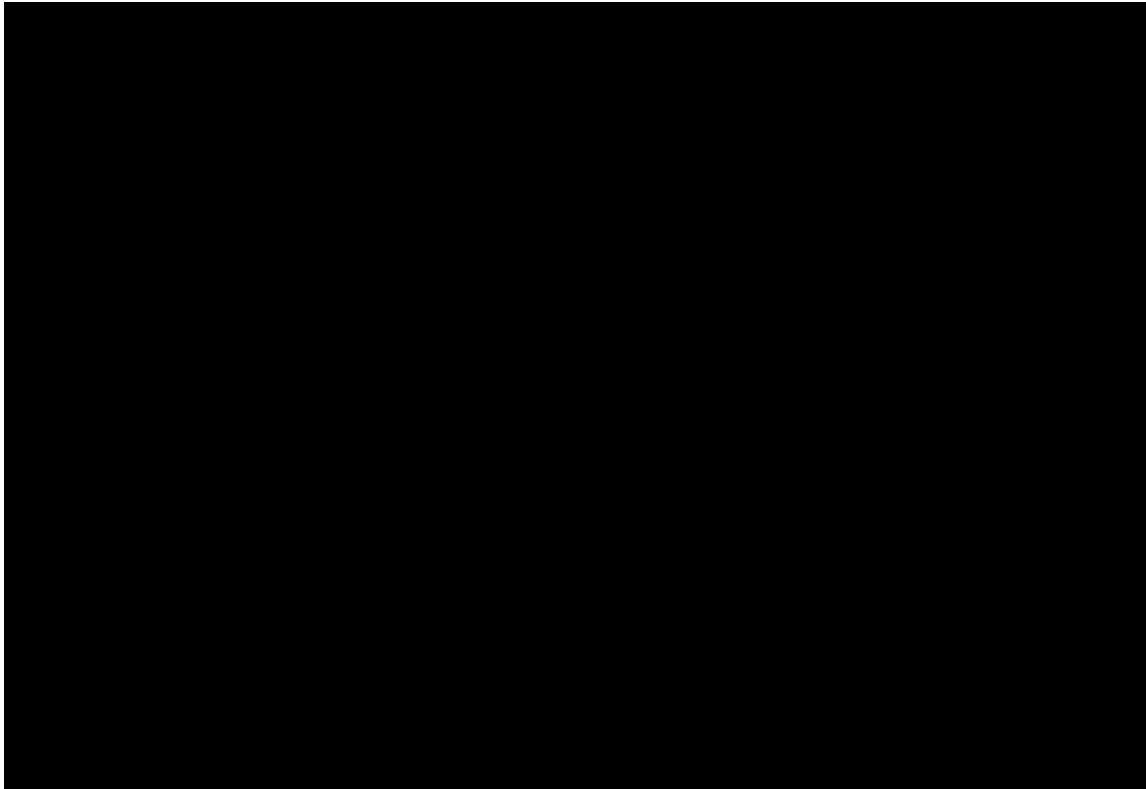
Solving the Data Bandwidth Problem



- Wider pipes and more of them
- Reduce data going through the pipes

The HP Oracle Exadata Storage Server

An Introduction...



Oracle's First Hardware Product

The HP Oracle Exadata Storage Server

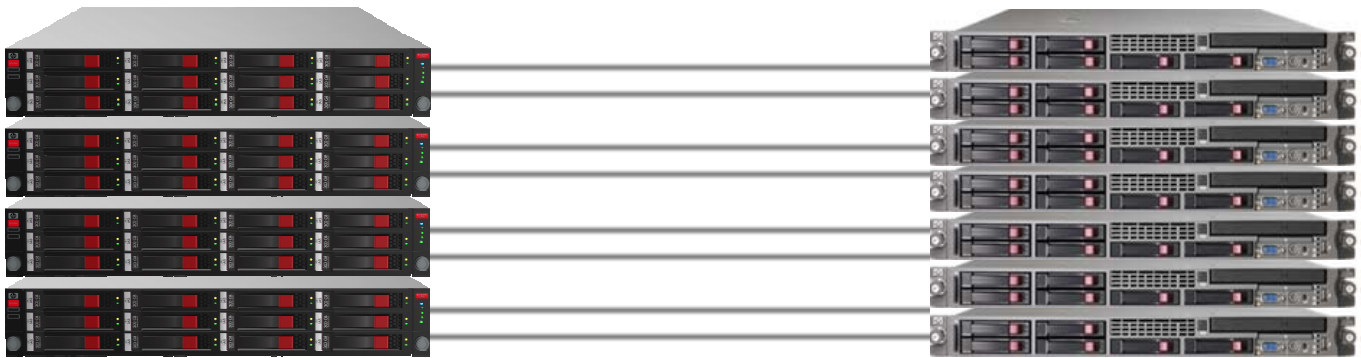


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- 2 Intel processors, 8 cores
- 12 disk drives, up to 12 TB raw storage
- 2 Infiniband connections
- Oracle Enterprise Linux OS
- Oracle Parallel Query Database Software

Brawnier Hardware

Wider Pipes and More of Them



Exadata Storage Server Grid

Oracle Database Server Grid

- 2 InfiniBand pipes 1 GB/sec – per storage server

Brainier Software

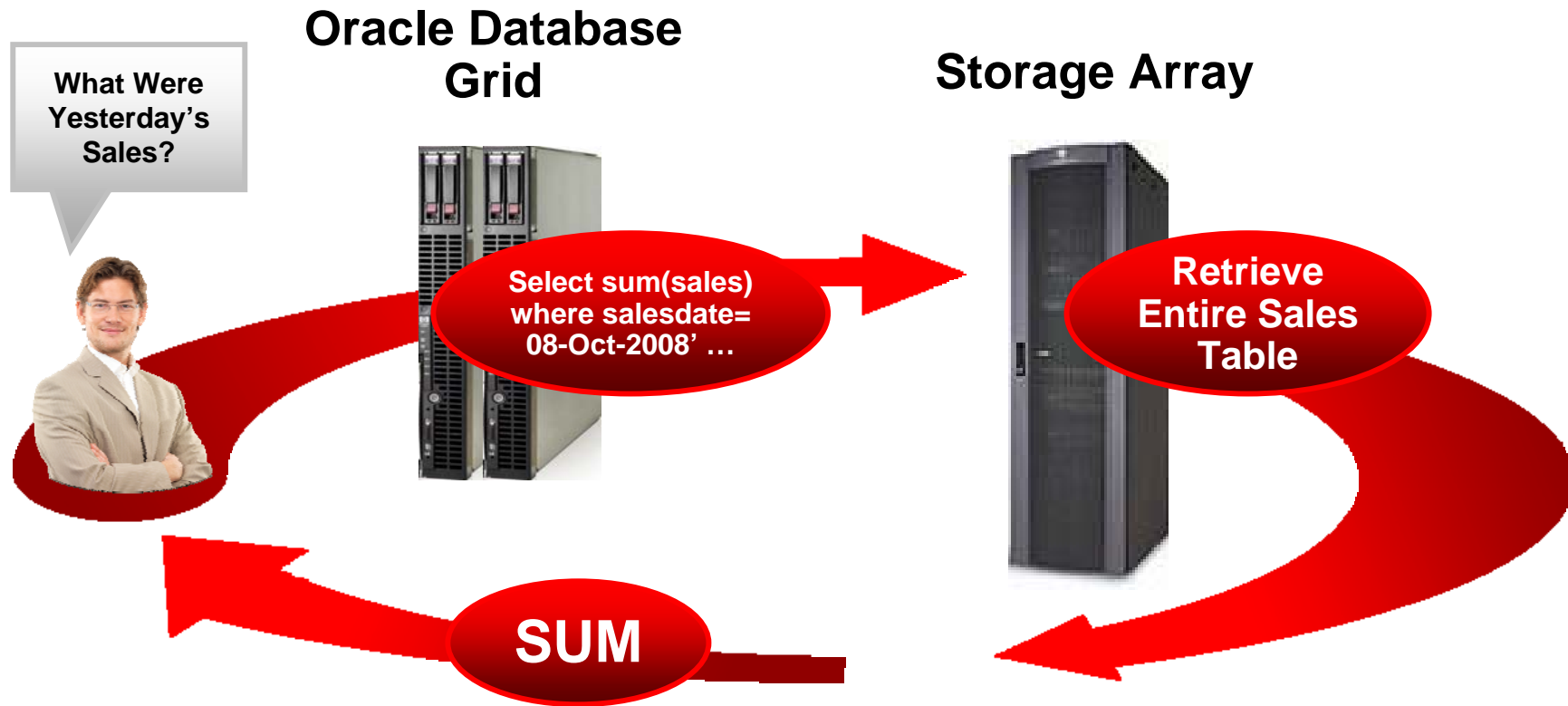
Reduces Data Going through the Pipes



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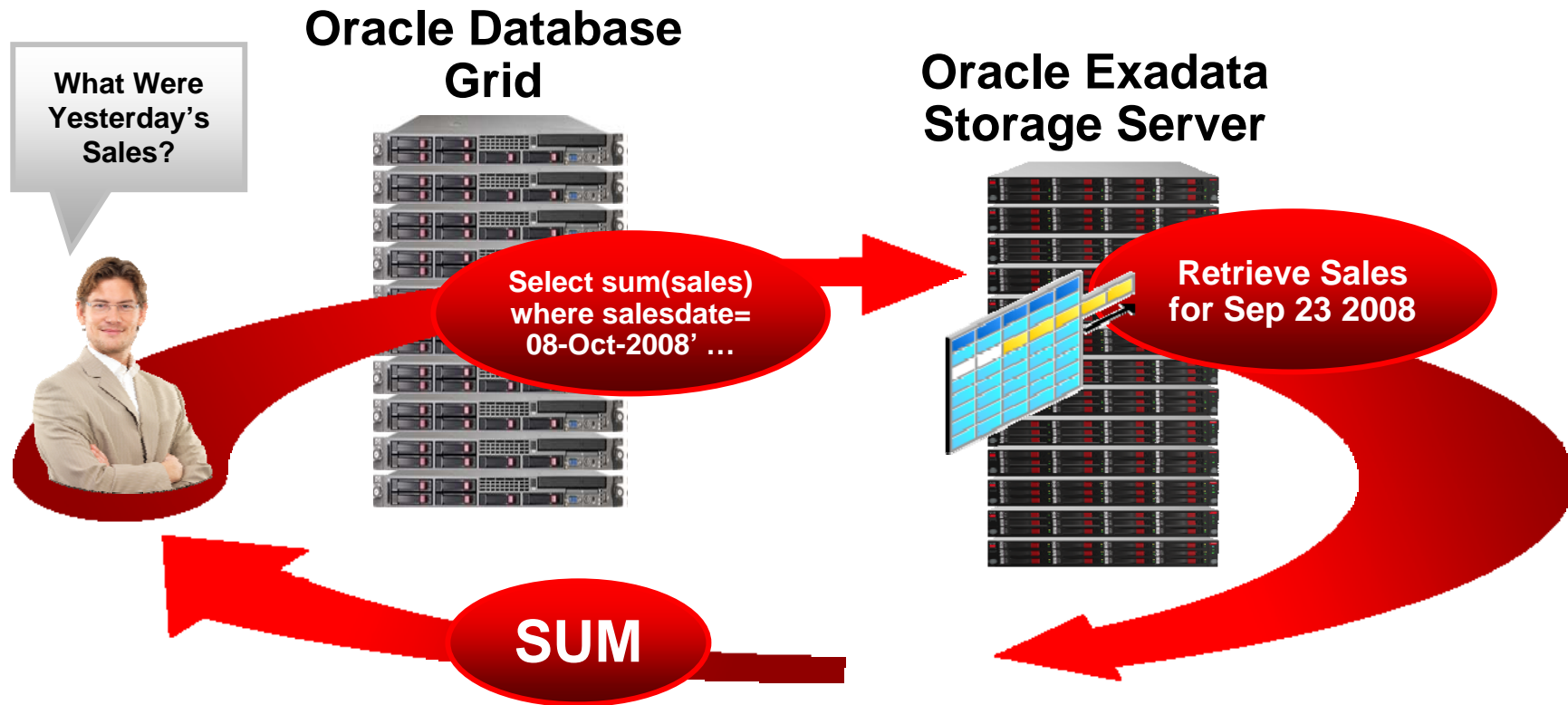
- Intelligent storage server
 - Unique 'smart scan' technology
- Returns query result set
 - Not disk blocks

Query Processing: Using Traditional Storage



Query Processing:

Using HP Oracle Exadata Storage Server



Oracle Exadata Storage Server Grid

- Will work with any Oracle Database Server
 - Linux x86 database servers today
 - Other systems coming



Oracle Grid Computing Architecture

Add Capacity – On Demand – One Server At A Time



**Exadata Storage
Grid**



**Oracle Database
Grid**



**Fusion Middleware
Grid**

HP Oracle Database Machine

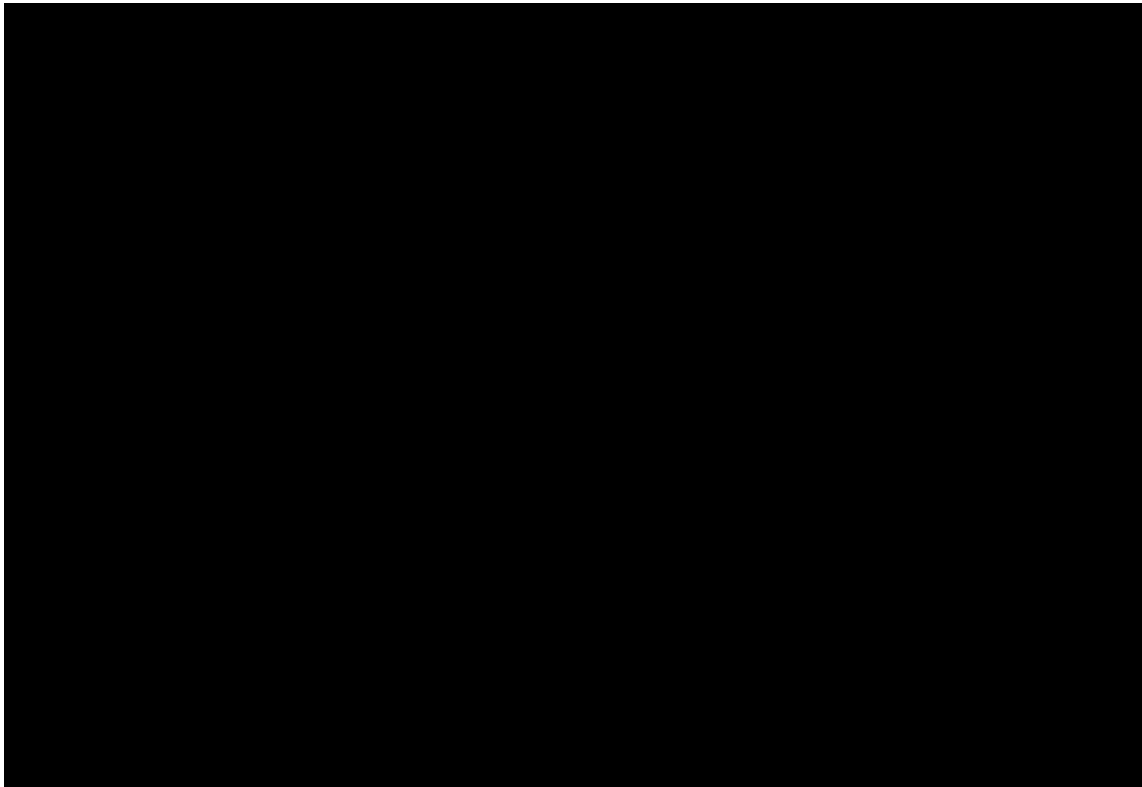
ANNOUNCING
**The World's Fastest
Database Machine**



**Hardware
by HP.**
**Software
by Oracle.**

The HP Oracle Database Machine

An Introduction...



HP Oracle Database Machine

Scale by Adding More Database Machines

- 8 Oracle Database 11g servers
 - Oracle Enterprise Linux
 - Oracle Real Application Clusters
 - Oracle Partitioning
- 4 Infiniband switches
 - 14 GB/Sec. data bandwidth
- 14 HP Oracle Exadata Storage Servers
 - 112 Intel Processor Cores
 - 168 300 or 1000GB Disk Drives



Completely Scalable and Reliable

- Massively parallel architecture
 - Scale out all components
 - Data bandwidth scales linearly
 - No application changes required
- Fully fault tolerant
 - Redundancy of all components
 - Oracle Real Application Clusters
 - Automatic Storage Management



D E M O N S T R A T I O N



Oracle Exadata
‘Extreme Performance’

M-Tel Test Results

Call Data Records Warehouse

Existing System



2 IBM
P570s



EMC CX3-40
Storage

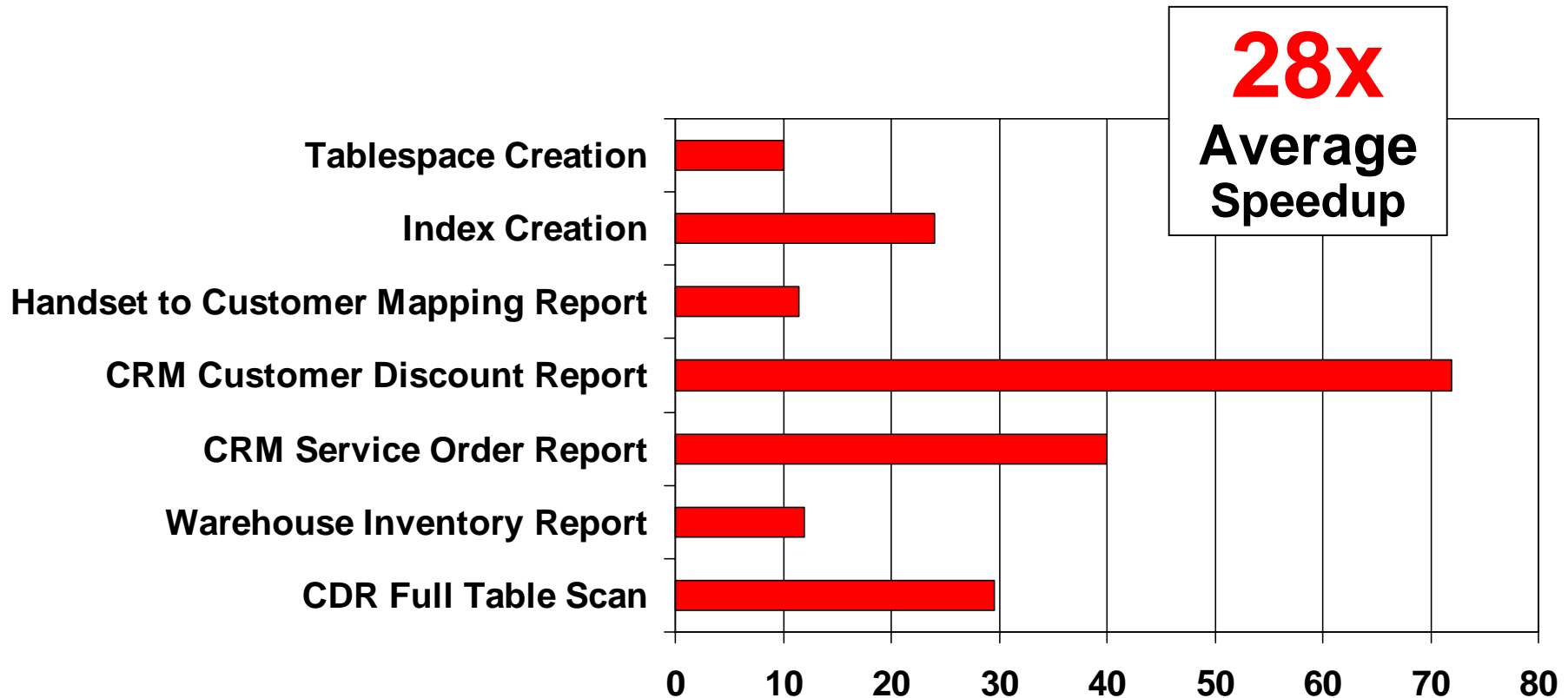
1/2 Database Machine



28X Average
Performance Increase

M-Tel Exadata Speedup

10X to 72X Performance Improvement





Plamen Zyumbyulev
Head of Database Administration
M-Tel

“**Every query was faster** on Exadata compared to our current systems. The smallest performance improvement was **10x** and the biggest one was an incredible **72x**.”

LGR's Test Results

Call Data Records Warehouse

Existing System



HP
Superdome
Server

Hitachi XP24000
Storage Array

1/2 Database Machine



20X Average
Performance Increase



Grant Salmon
Chief Executive Officer
LGR Telecommunications

“Call Data Record queries that used to run for **over 30 minutes** now complete in **under 1 minute**.
That's extreme performance.”

Giant Eagle Test Results

Retail Sales Data Warehouse

Existing System



13 IBM
P570 CPUs



EMC CLARiiON and
DMX Storage Array

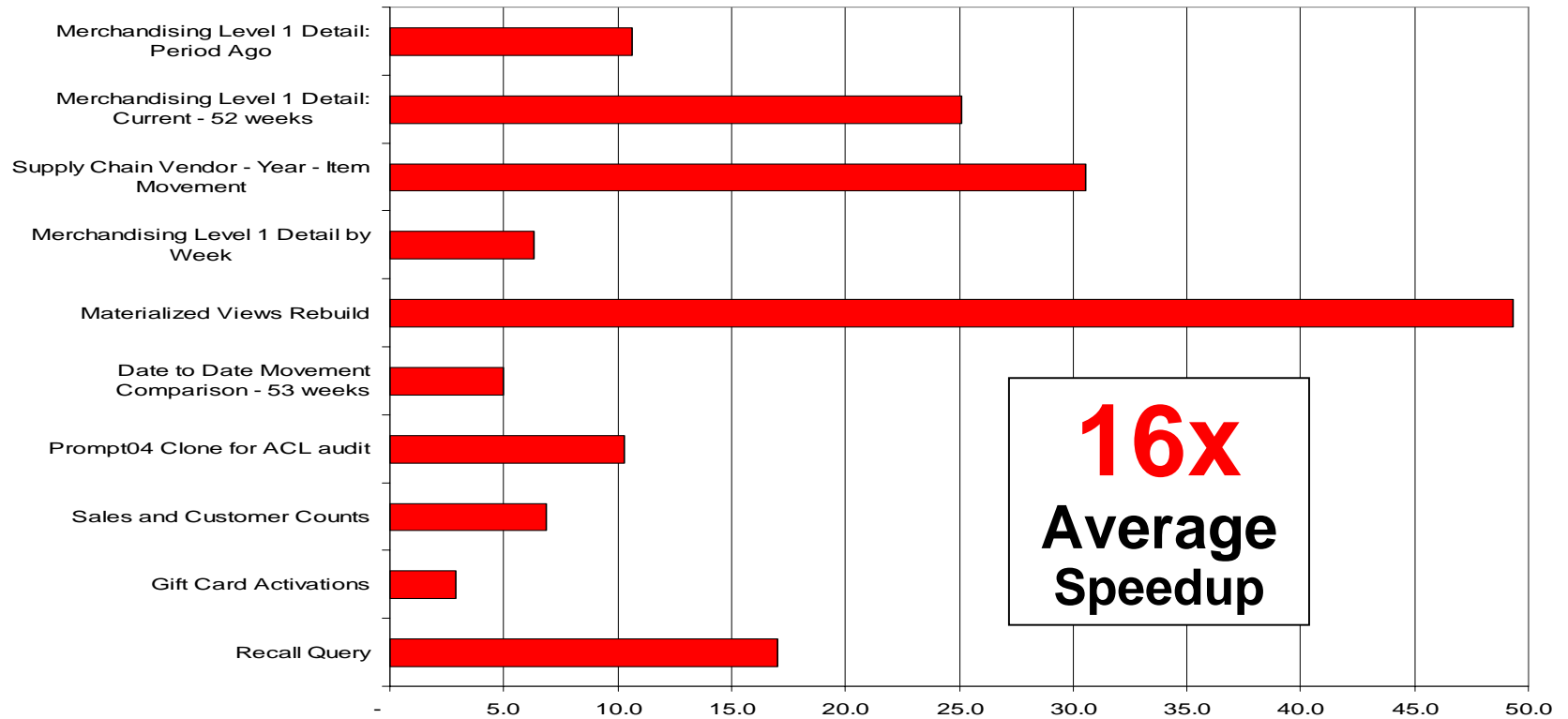
1/2 Database Machine



16x Average
Performance Increase

Giant Eagle Exadata Speedup

3X to 20X Performance Improvement

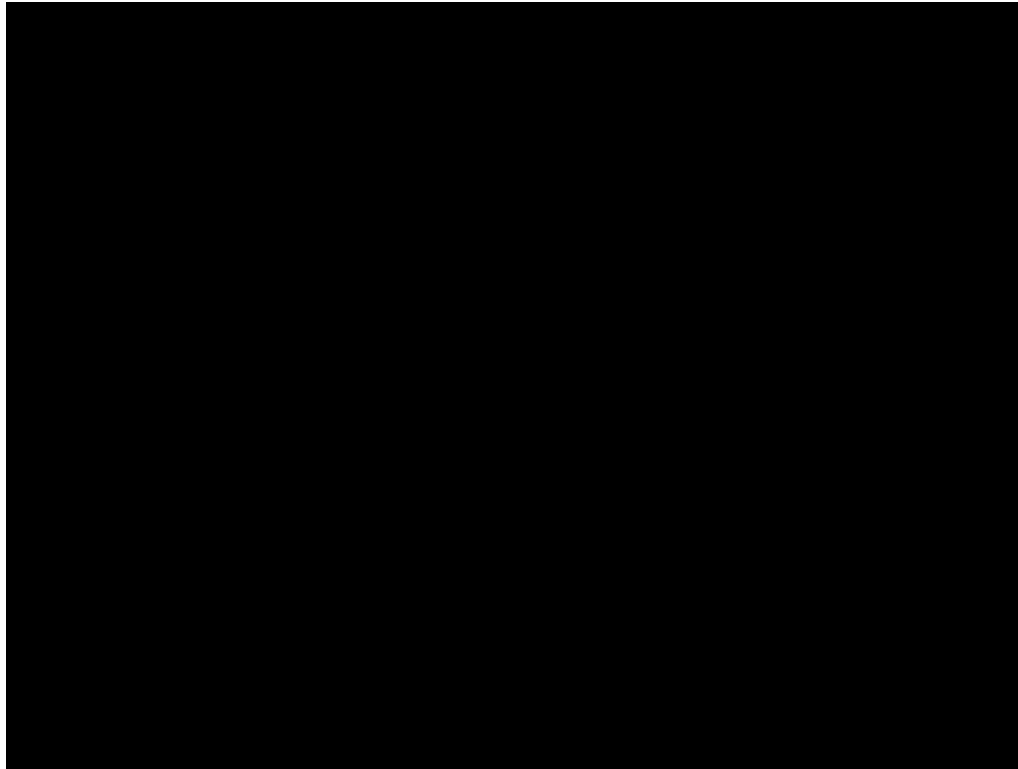




Walt Litzenberger
Director Enterprise Database Systems
The CME Group

“Oracle Exadata outperforms anything we’ve tested to date by 10 to 15 times.
This product flat-out screams.”

What Oracle's Customers Say...



Oracle's Financial Data Warehouse

30x Average Speedup

Traditional Storage Array



10.7 Queries/Hour

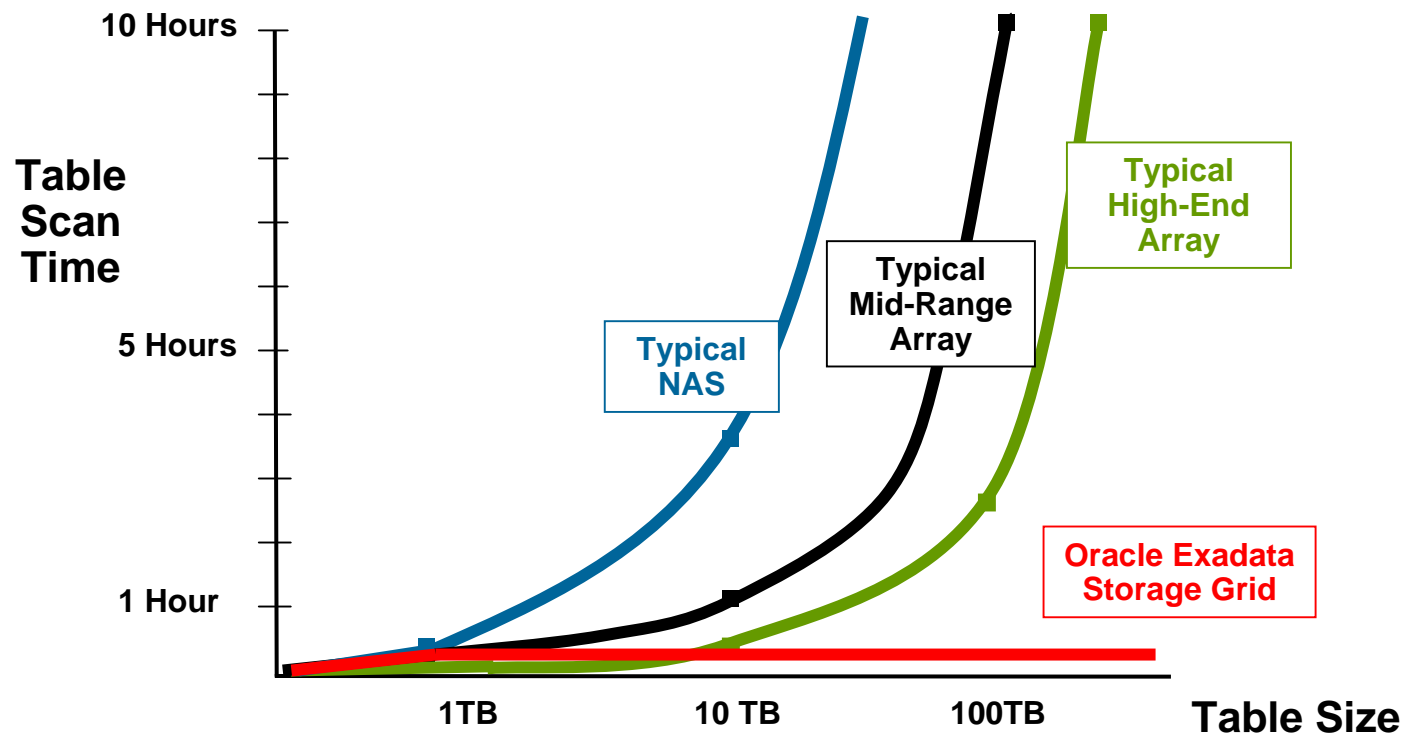
HP Oracle Database Machine



337 Queries/Hour

Linear Scalability for Data Warehouses

Each Server Adds Storage, Bandwidth & Processing



D E M O N S T R A T I O N






Oracle Exadata 'Scaling Extreme Performance'

Oracle Database 11g

Key Data Warehousing Features...

| Key Features | Oracle Database 11g |
|---------------------|---------------------|
| Partitioning | ✓ |
| B-tree Indexing | ✓ |
| Bitmap Indexing | ✓ |
| Join Indexing | ✓ |
| OLAP Cubes | ✓ |
| Data Mining | ✓ |
| Query Results Cache | ✓ |
| ETL & Data Quality | ✓ |

Technology Comparison

| | HP Oracle Database Machine  | Teradata 2550  | Netezza 10100  |
|-----------------|---|--|--|
| Footprint | 1 rack | 1 rack | 1 rack |
| Total Storage | 168 TB | 43 TB | 43 TB |
| Disks | 168 x 1000GB disks | 144 x 300GB disks | 108 x 400GB disks |
| Database cores | 64 DB Cores | 32 DB Cores | 4 DB Cores |
| Storage cores | 112 Storage Cores | 0 Storage Cores | 108 Storage Cores |
| Total cores | 176 Cores | 32 Cores | 112 Cores |
| Interconnect | 20Gb/sec Infiniband | 1 Gb/sec BYNET | 1Gb/sec Ethernet |
| Memory | 368 GB | 128 GB | 108 GB |
| HW Architecture | Open | Proprietary | Proprietary |

Oracle Exadata Delivery Model



- System Delivery
- Hardware Service



- System Sales
- System Support

In Summary

- Two new products from Oracle
 - HP Oracle Exadata Storage Server
 - HP Oracle Database Machine
- Extreme Performance
 - At least 10x faster than current data warehouse
- Unlimited Scalability
 - Linear scale-out storage, data bandwidth and processing
- Enterprise Ready
 - Hardware from HP and software from Oracle
 - All software pre-installed and configured ready to run



Q&A

For More Information

<http://search.oracle.com>

oracle exadata



or

www.oracle.com/exadata

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