

Oracle Database Appliance

Overview

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Oracle Database Appliance

Complete, Simple, Reliable, Affordable

Engineered System optimized to run the Oracle Database and database-centric applications

- **Complete** high availability database solution in a single appliance
- **Simple** to deploy and manage both databases and applications to improve time to value and reduce operational expense
- **Reliable** system to ensure database and application availability
- **Affordable** Capacity on Demand (CoD) licensing to manage capital expense



1,000's of Deployments

4th Generation product

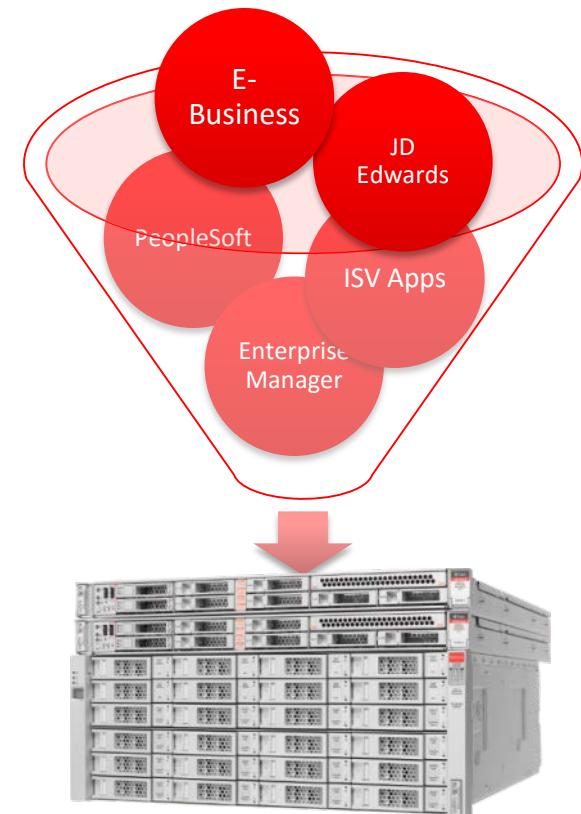
- Broad penetration in all markets
 - Higher Education
 - Finance
 - Manufacturing
 - Retail
 - Health Care
- Hundreds of ISVs in ODA Exastack Program



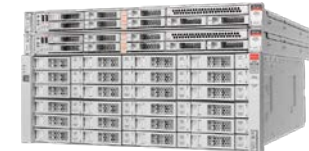
Oracle Database Appliance

Application Platform

- Host all tiers (web, middleware, database) on a single system
 - Simplifies deployment and reduces data center footprint
 - Ideal for branch office and remote deployments
- Solution-in-a-box made easy with comprehensive best practices white papers and automation wizards
 - Oracle applications
 - JD Edwards, E-Business Suite, PeopleSoft, Flexcube, Weblogic, Enterprise Manager, etc
 - ISV applications
 - IFS, mFormation, Temenos, etc
 - Customer developed applications



Oracle Database Appliance Generations

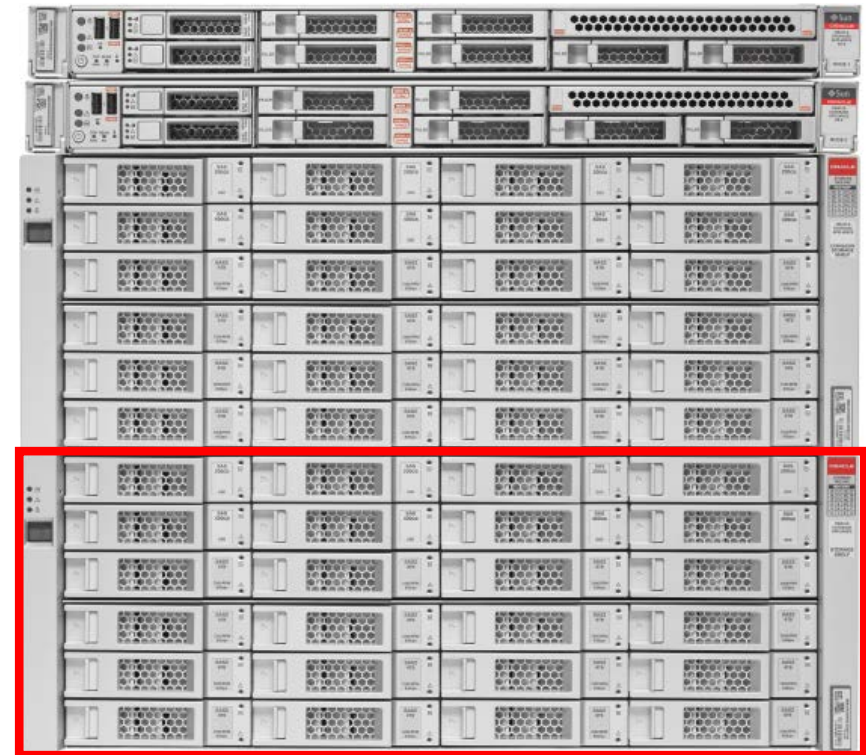


	ODA V1 – Oct 2011	ODA X3-2 – Mar 2013	ODA X4-2 – Dec 2013	ODA X5-2 – Feb 2015
Processor	Intel X5675	Intel E5-2690	Intel E5-2697 V2	Intel Xeon E5-2699 V3 processors
Node	Built-in (X4370 M2)	X3-2	X4-2	X5-2
Sockets/node	2	2	2	2
Cores / node (total)	12(24)	16(32)	24(48)	36(72)
Max Memory / node (total)	96GB (192GB)	256GB (512GB)	256GB (512GB)	256GB, upgradeable to 768
Boot disks (Free space)	500GB (250GB)	600GB (350GB)	600GB (350GB)	600GB (350GB)
Networking	6 x 1GbE NICs 2 x 10GbE fiber NICs	4 x 10GbE Copper NICs	4 x 10GbE Copper NICs (opt public fiber interface)	4 x 10GbE Copper NICs (opt public fiber interface)
Form Factor/RU	Single 4U chassis	2 x 1RU servers & 1 x 2RU disk shelf	2 x 1RU servers & 1 x 2RU disk shelf	2 x 1RU servers & 1 x 4RU disk shelf
Shared Storage	292GB SSDs 12TB SAS raw	800GB SSDs 18TB SAS raw	800GB SSDs 18TB SAS raw	800GB SSD – REDO 1.6TB SSD – ODA Cache 128TB SAS raw
Storage Expansion	N/A	Additional Storage Shelf	Additional Storage Shelf	Additional Storage Shelf

ODA X5-2 Storage Expansion Shelf

Zero-Admin/Online Storage Expansion

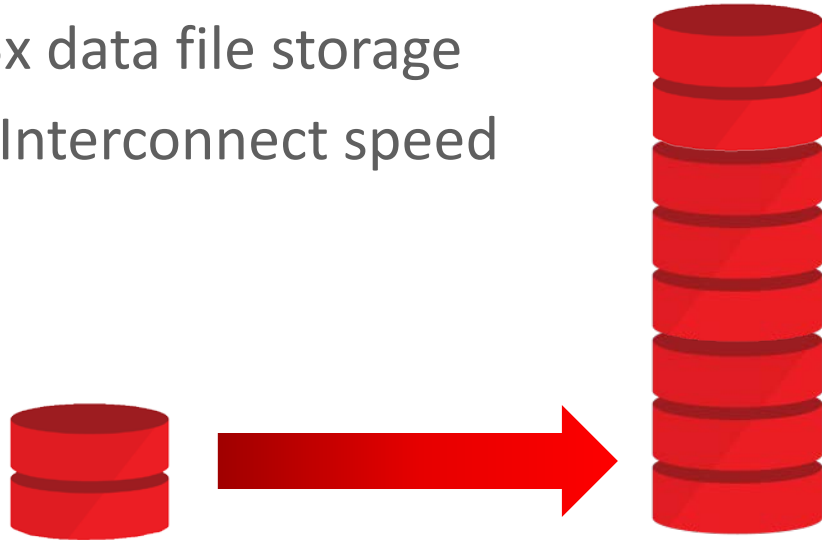
- Double available storage capacity
 - Additional 128 TB HDD, 256 TB total for DATA
 - Additional 800 GB SSD, 1.6 TB total for REDO
 - Additional 1.6 TB SSD, 3.2 TB total for FLASH
- Zero administration
 - Automatically integrates when plugged in
 - Data automatically distributes to new shelf
- Online expand storage
 - Hot-plug storage expansion shelf
 - No database downtime



Ideal Consolidation Platform

Up to 4x Consolidation Density

- More capacity than previous generation
 - 1.5x CPU cores
 - 3x memory capacity
 - 3.5x data file storage
 - 4x Interconnect speed



- Smarter software
 - ODA Flash Cache speeds I/O operations
 - Database and VM snapshots eliminate redundant provisioning of storage
 - In-Memory Fault Tolerance reduces I/O demands while keeping data highly available
 - Oracle Multitenant eliminates overhead of multiple instances

Simple Appliance

- Automated deployment
 - HA databases
 - Complete applications
- Automated patching
- “Zero-admin” storage
- Integrated VM management
- Single vendor support



Simple

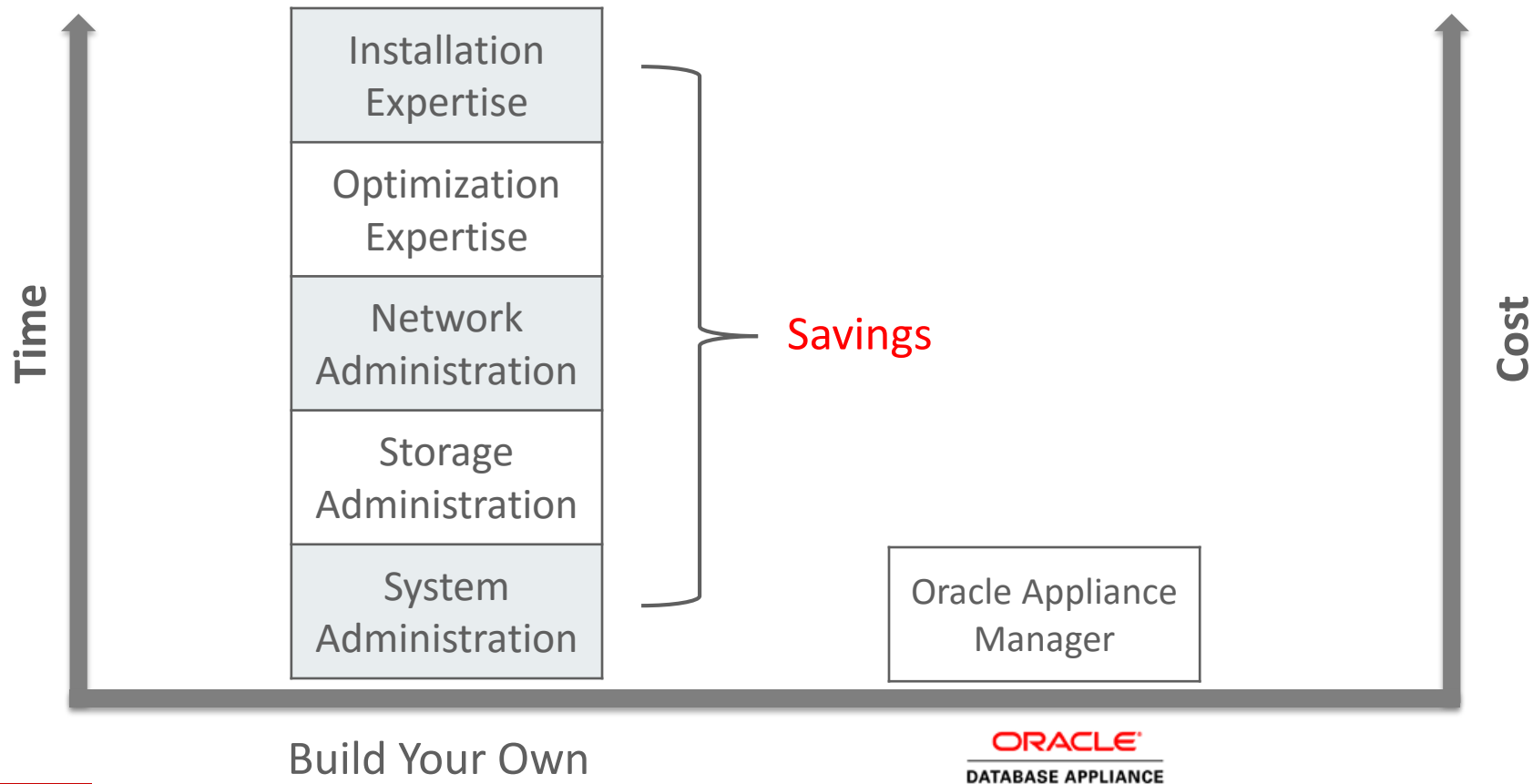
Compare to Build Your Own

Build Your Own	Oracle Database Appliance
<p>5 Puzzle Pieces</p> <ul style="list-style-type: none">• Server, storage, networking, database, consultants	<p>1 Component</p> <ul style="list-style-type: none">• Push one button for install
<p>7 Staff / Skills for HA</p> <ul style="list-style-type: none">• DBA, network admin, storage admin, system admin, installation expertise, HA expertise, optimization skills	<p>1 DBA</p>
<p>24 + Patches Per Year</p>	<p>4 Patches Per Year</p>
<p>~ 2,200 Hours Maintenance</p>	<p>~ 110 Hours Maintenance</p>



Simple

To Install, Manage and Maintain



Reliable

No Single Point of Failure

Hardware

- Two dual-socket Oracle Linux servers
- Redundant private interconnect
- Redundant public networks
- Double-mirroring or triple-mirroring storage redundancy
- Redundant hot-swappable power, cooling, and fans

Software

- Oracle Database Enterprise Edition
 - Industry leading database for high availability, performance, and security
 - Single-instance and high availability configurations
- Oracle's high availability software suite
 - Redundant and high performance shared storage
 - High availability monitoring and failover
 - No single points of failure
- Oracle Linux and integrated virtualization
- Oracle Appliance Manager for easy deployment, management, and support

Reliable

Best in Class Availability

Active - Active

- Best Availability
- Oracle Database 12c & 11g Enterprise Edition
- Oracle Real Application Clusters
- Mutual failover and load balancing

Active - Passive

- Better Availability
- Oracle Database 12c & 11g Enterprise Edition
- Oracle Real Application Clusters One Node
- Can have mutual failover

Single Instance

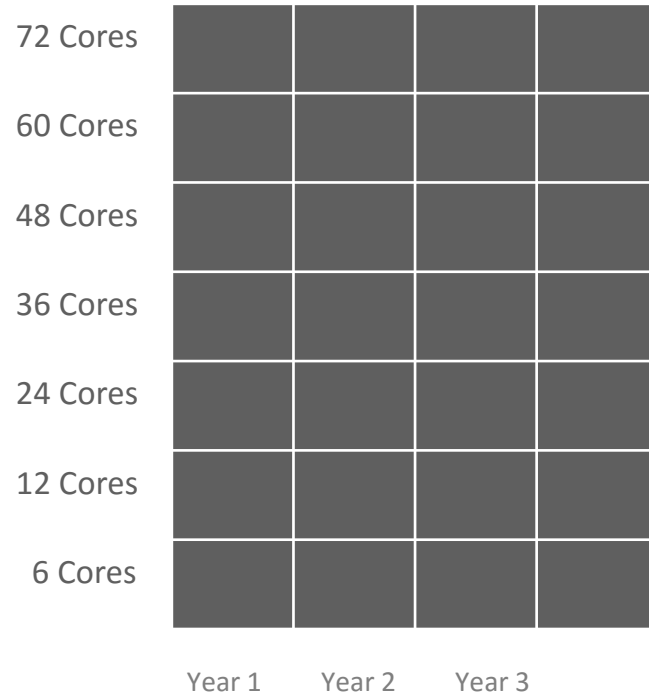
- Good Availability
- Oracle Database 12c & 11g Enterprise Edition

Affordable

Manage CapEx using Capacity On-Demand

Build Your Own Option 1:

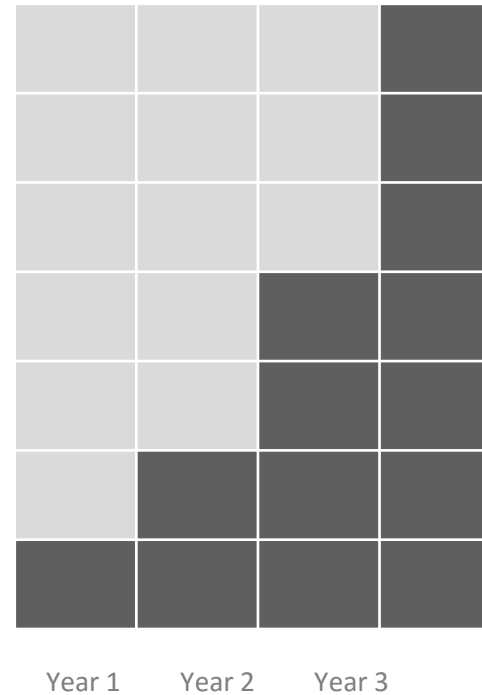
Must License all 72 Cores Day 1 whether you need them or not!



or

Buy Oracle Database Appliance Option 2:

License as you grow only the needed cores and save significantly



Oracle Database Appliance

Cheaper Than Building Your Own



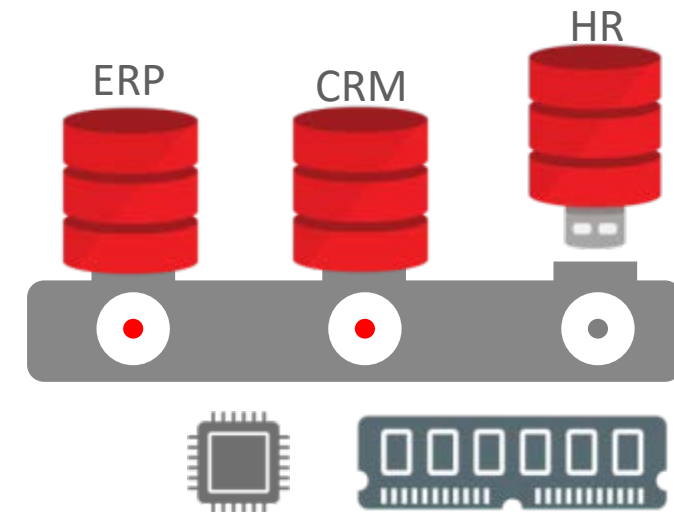
	Oracle Database Appliance	Dell R730/MD1400	Oracle Advantage
Price (like configurations)	\$68,000	\$105,000	35% less expensive
Time to deploy	1 day	2-3 months	60-90x faster to deploy
Interconnect	40Gb/s Infiniband	10Gb/s Ethernet	4x faster interconnect
Rack Space	6RU	8RU	25% less rack space
Database Optimized	Yes	No	Better database experience
Supports In-Memory Fault Tolerance	Yes	No	Better availability with In-Memory Database
ODA Flash Cache	Yes	No	Better performance
Free Linux and Virtualization	Yes	No	Lower costs
Patch Automation	Yes	No	Less time spent patching

Lower price and more value than Dell Build-Your-Own

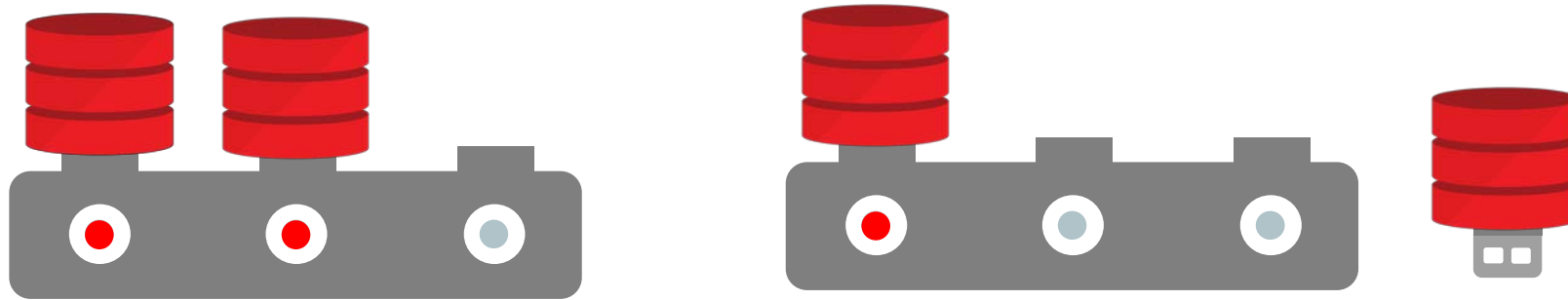
Oracle Database Appliance

Database Platform

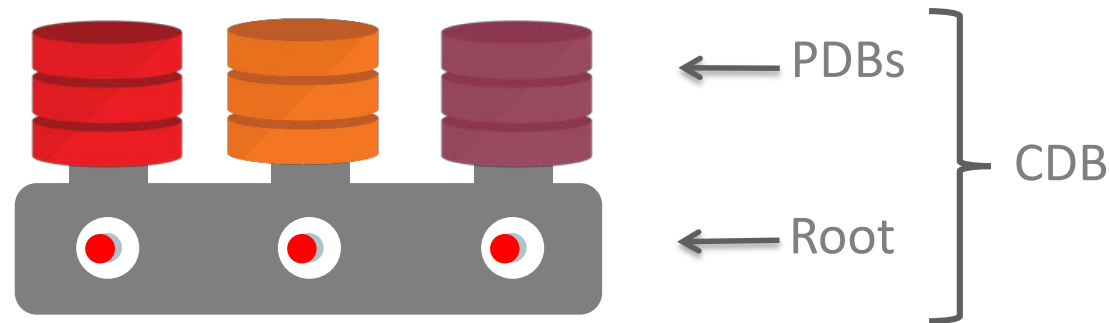
- Business critical databases
 - OLT and data warehouses
 - Runs Oracle's high availability software suite including Oracle Real Application Clusters
- Consolidated databases
 - Supports Multitenant and In-Memory database options
- Test and development databases
 - Quickly and efficiently provision snapshots



Pluggable Database Provisioning



1. Create PDB
2. Clone PDB
3. Unplug PDB
4. Plug PDB

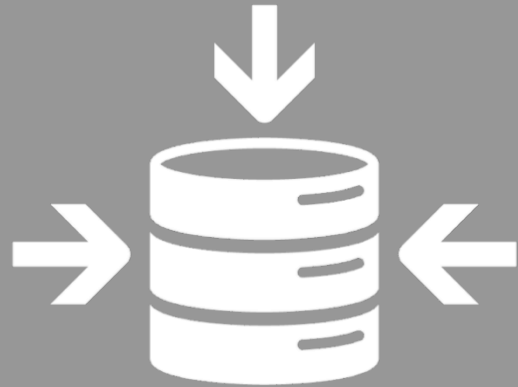


Oracle Database In-Memory Goals

Real Time Analytics



Accelerate Mixed Workload OLTP



No Changes to Applications



Trivial to Implement



Row Format Databases vs. Column Format Databases

Row



- **Transactions** run faster on row format
 - Example: Insert or query a sales order
 - Fast processing few rows, many columns

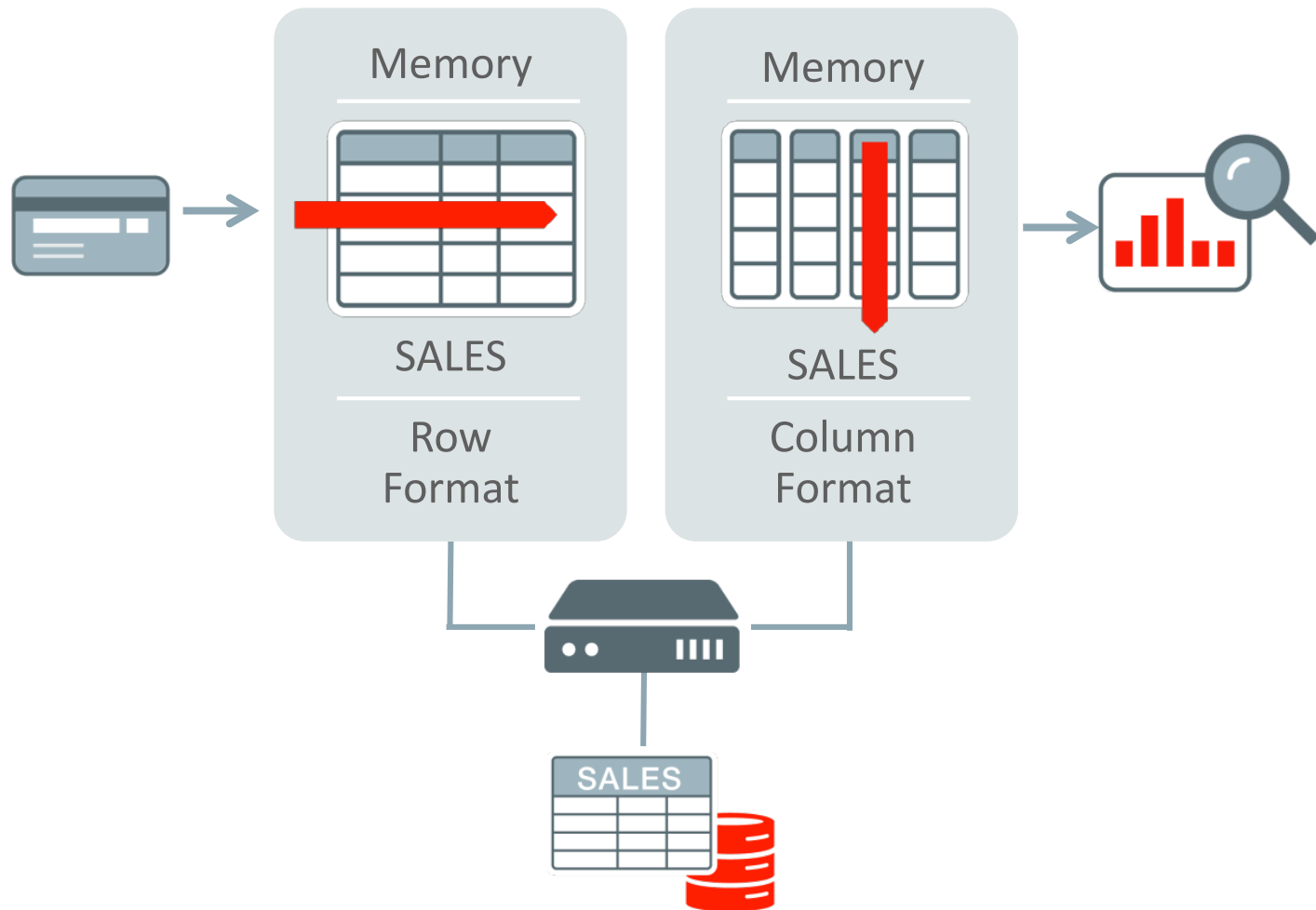
Column



- **Analytics** run faster on column format
 - Example : Report on sales totals by region
 - Fast accessing few columns, many rows

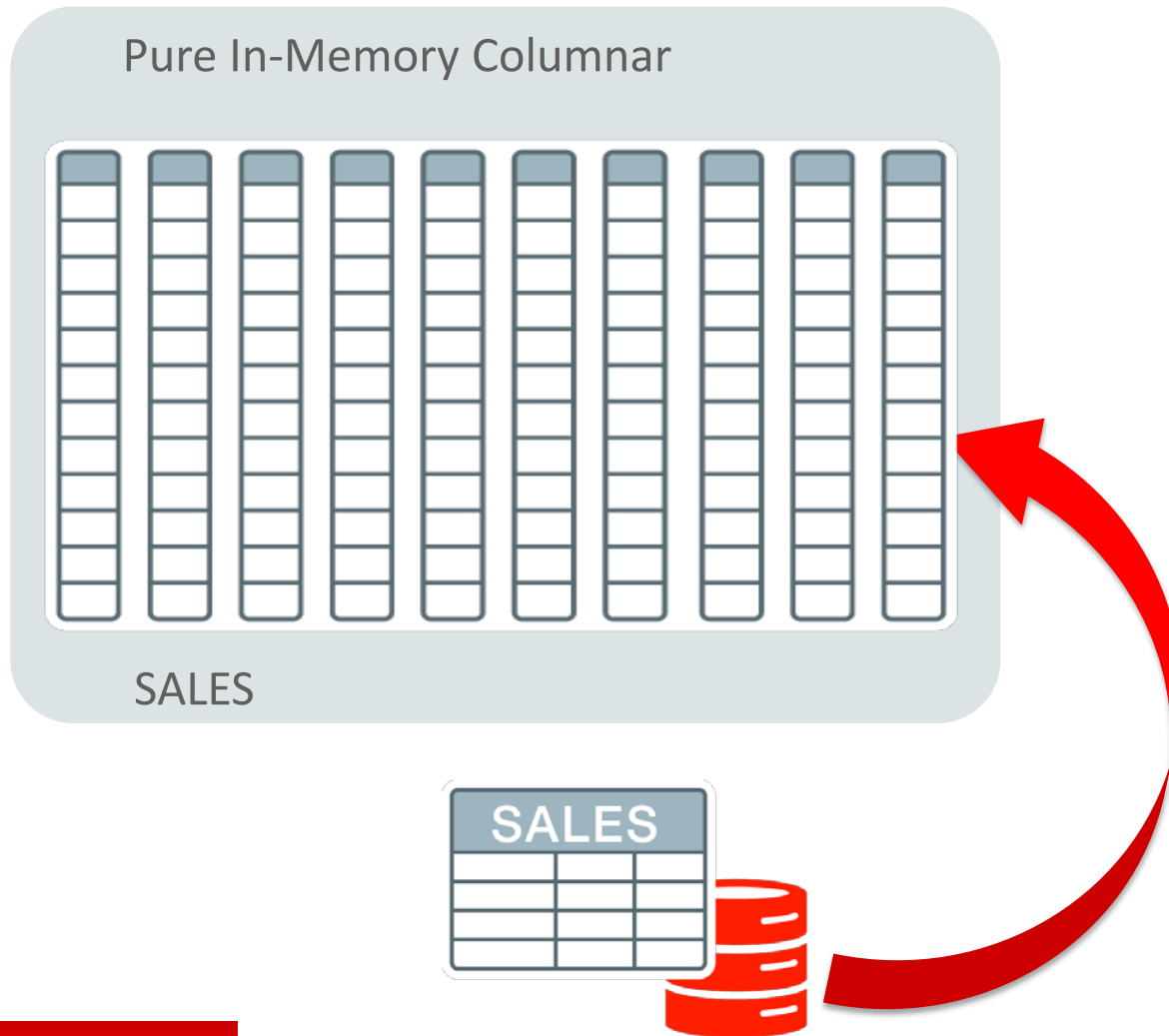
Until Now Must Choose One Format and Suffer Tradeoffs

Breakthrough: Dual Format Database



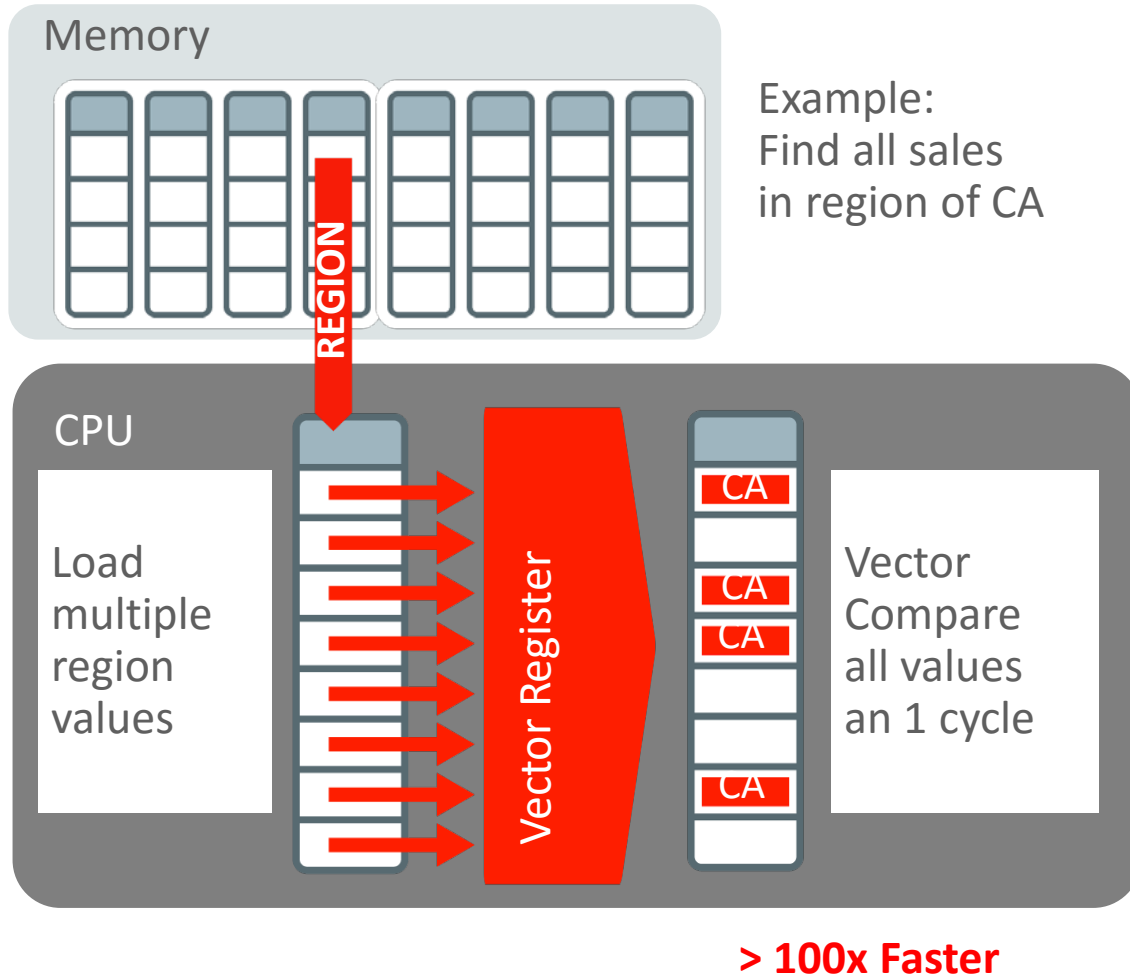
- **BOTH** row and column formats for same table
- Simultaneously active and transactionally consistent
- Analytics & reporting use new in-memory Column format
- OLTP uses proven row format

Oracle In-Memory Columnar Technology



- Pure in-memory column format
- Not persistent, and no logging
- Quick to change data: fast OLTP
- 2x to 20x compression
- Enabled at table or partition level
- Available on all hardware platforms

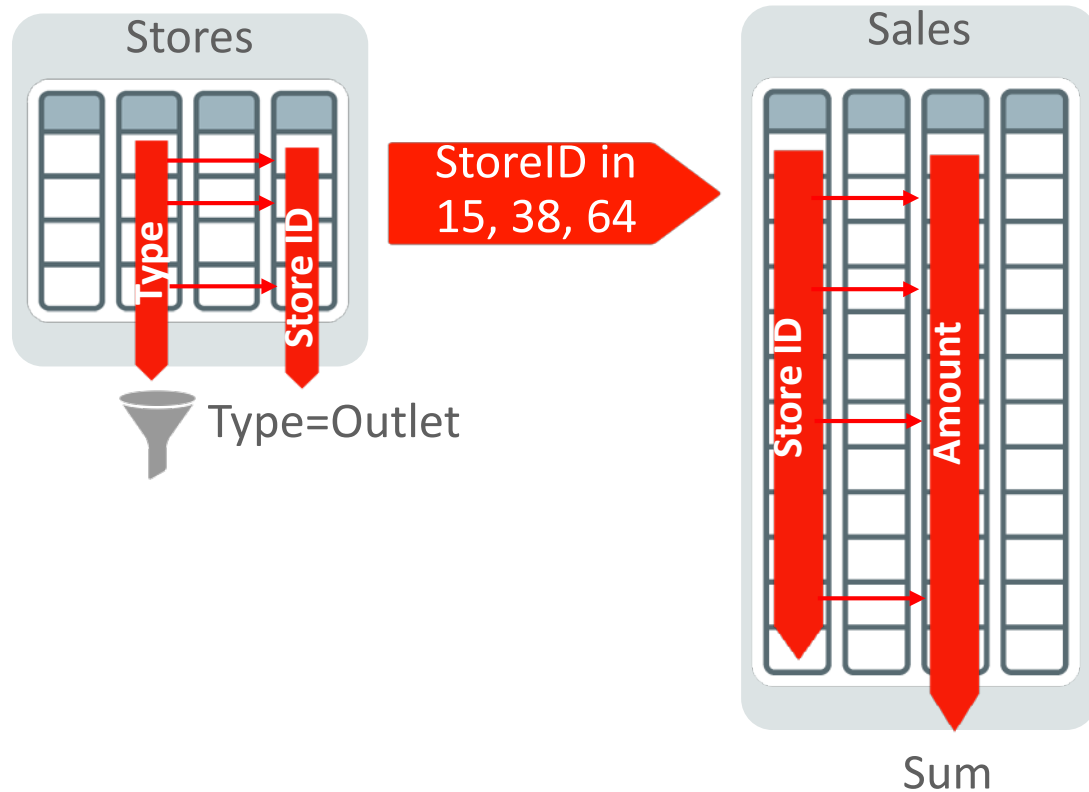
Orders of Magnitude Faster Analytic Data Scans



- Each CPU core scans local in-memory columns
- Scans use super fast SIMD vector instructions
- Originally designed for graphics & science
- **Billions of rows/sec** scan rate per CPU core
- Row format is millions/sec

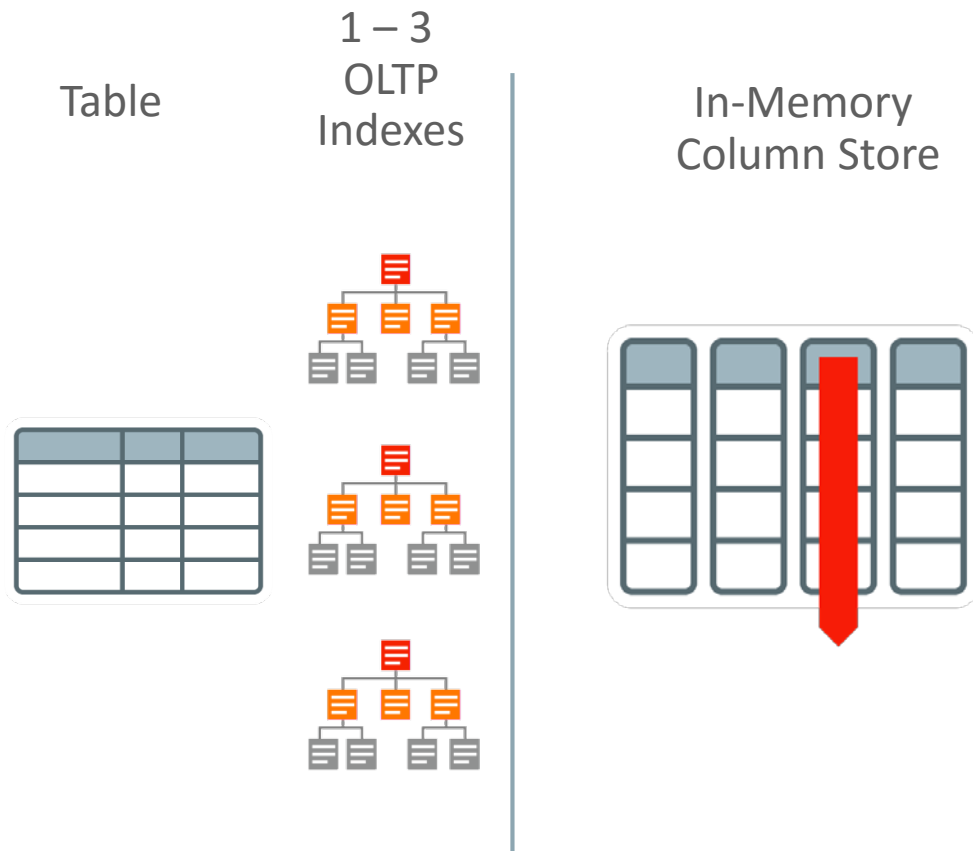
Joining and Combining Data Also Dramatically Faster

Example: Find total sales in outlet stores



- Converts joins of data in multiple tables into fast column scans
- Joins tables **10x** faster

Column Store Replaces Analytic Indexes



- Fast analytics on any columns
 - Better for unpredictable analytics
 - Less tuning & administration
- Column Store not persistent so update cost is much lower
 - OLTP & batch run faster

FOR MORE INFORMATION

oracle.com/databaseappliance

Hardware and Software

ORACLE®

Engineered to Work Together

ORACLE®