Oracle Database Appliance
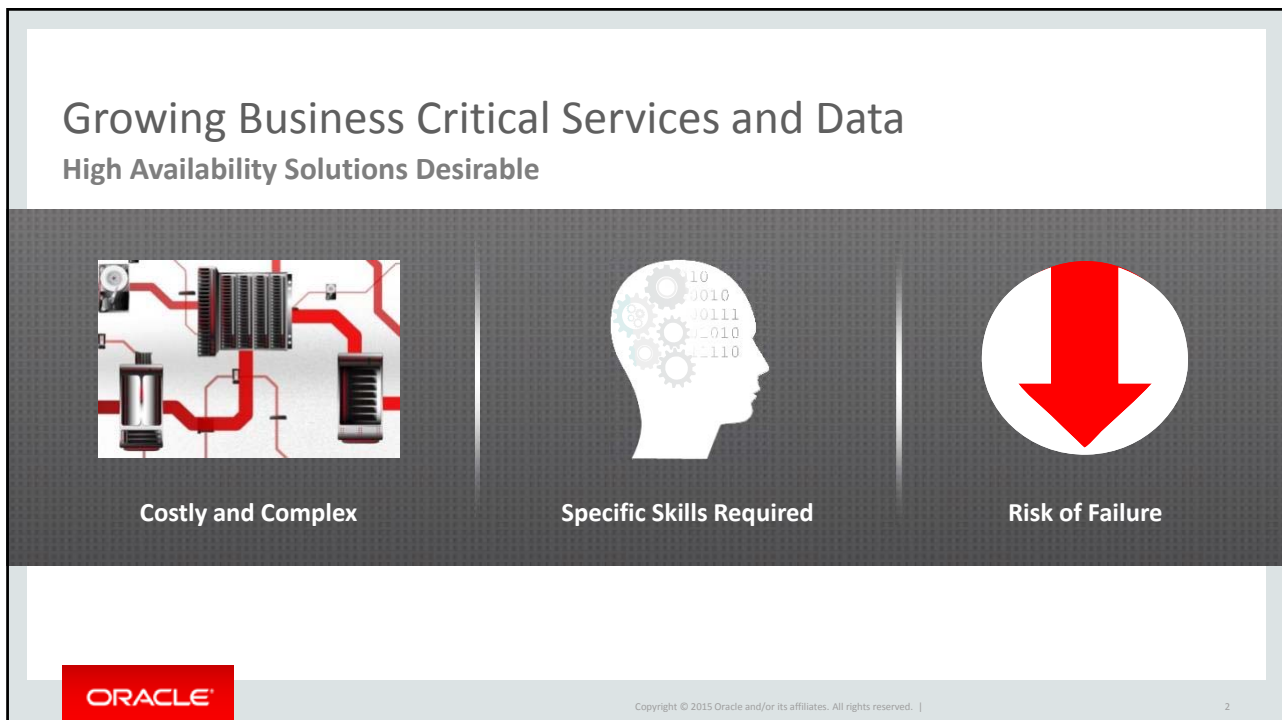**Overview**

ORACLE
DATABASE APPLIANCE

Growing Business Critical Services and Data
High Availability Solutions Desirable

Costly and Complex   **Specific Skills Required**   **Risk of Failure**

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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

Applications
Middleware
Database
Operating System
Virtual Machine
Servers
Storage

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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

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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
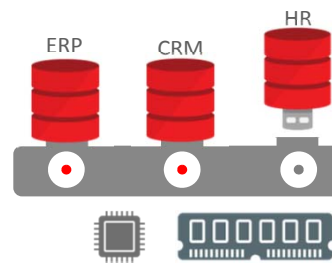
Oracle Database Appliance
Application Platform

- 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, Enterpise Manager, etc
  - ISV applications
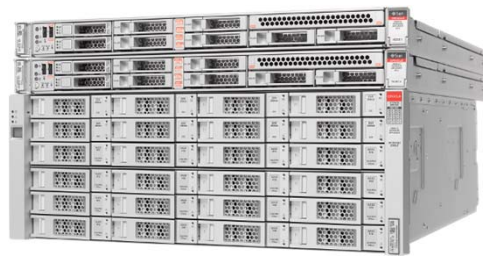   - IFS, mFormation, Temenos, etc
  - Customer developed applications
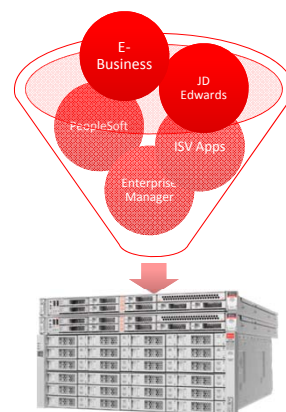
Oracle Database Appliance X5-2

- 2 Servers, each with
  - 36 Intel Xeon CPU cores
  - 256 GB memory, expandable to 768 GB
  - Redundant InfiniBand Interconnect
  - 10 GbE Public Network
- Storage Shelf
  - 800 GB flash log storage
 - 1.6 TB flash cache storage
  - 64 TB HDD

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ODA X5-2 Storage Expansion Shelf

Zero-Admin/Online Storage Expansion

- Double available storage capacity
  - Additional 64 TB HDD, 128 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
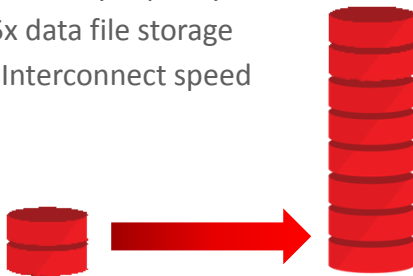 - Hot-plug storage expansion shelf
  - No database downtime
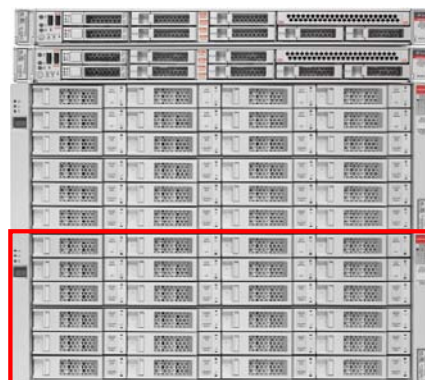
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Ideal Consolidation Platform

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

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Complete

Database and Application Solution

- Everything necessary for a HA database solution in a single appliance
  - Breaks the dependency on others for specialized expertise
  - Easy and fast to order: 1 part number buys it all
- Integrated virtualization enables hosting applications and database in single appliance
  - Reduces floor space, power, cooling costs
  - Easier to deploy and manage in branch offices
- Best practices and automation speeds time to market
  - Quickly deploy entire platform for any x86 application

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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	
5 Puzzle Pieces • Server, storage, networking, database, consultants		1 Component • Push one button for install	
7 Staff / Skills for HA • DBA, network admin, storage admin, system admin, installation expertise, HA expertise, optimization skills		1 DBA	
24 + Patches Per Year		4 Patches Per Year	
~ 2,200 Hours Maintenance		~ 110 Hours Maintenance	

Simple
To Install, Manage and Maintain
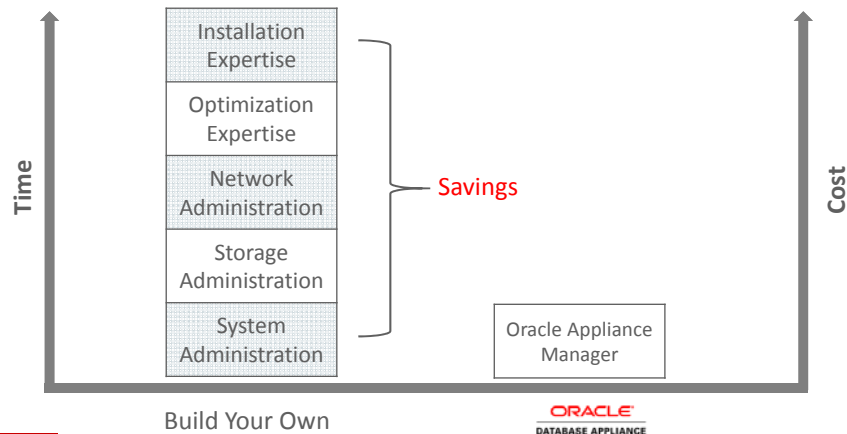
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Reliable
No Single Point of Failure

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

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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

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Reliable

Performance optimized by Oracle : Up to 6x Faster

- ODA Flash Cache
  - Flash Cache shared across nodes
  - Increases cache hit rate for your applications
  - Up to 6x faster than no cache
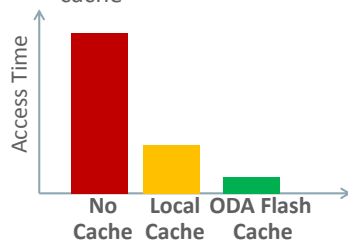
- ODA Flash Logs
  - Database writes redo to flash
  - Sub-millisecond log writes
  - Up to 4x faster than log writes to traditional storage media

- ODA Flash Files
  - Stores file system metadata in flash
  - Improves file system read and writes
  - Native file system performance for snapshots

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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!
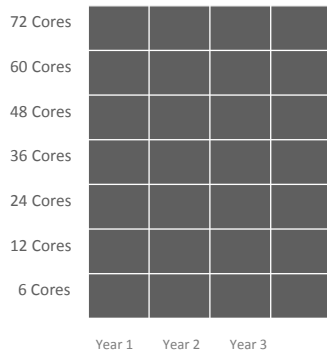
Buy Oracle Database Appliance Option 2:
License as you grow only the needed cores and save significantly
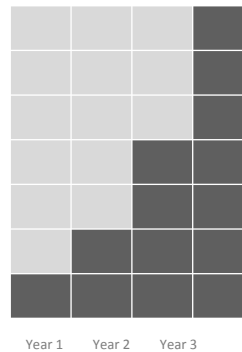
72 Cores	
60 Cores	
48 Cores	
36 Cores	or
24 Cores	
12 Cores	
6 Cores	

Year 1   Year 2   Year 3

Year 1   Year 2   Year 3

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*ORC*International

Affordable

What Could You Do with 2000 Extra Hours?

Installation

Deployment

Scaling

Maintenance

Support
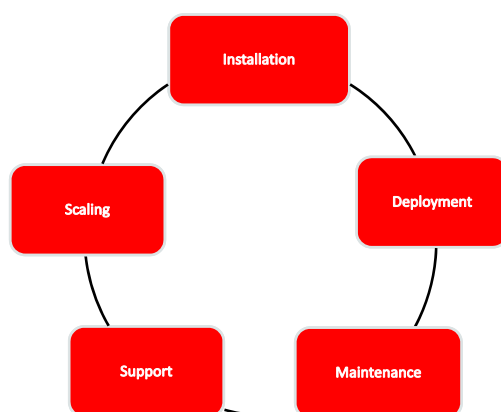
The Oracle Database Appliance simplifies time-consuming DBA tasks and saves:

• 828 hours in first year

• 637 hours each subsequent year

http://www.oracle.com/us/products/database/database-appliance-vs-sql-server-1434947.pdf

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Oracle Database Appliance
Simpler, More Reliable, More Affordable than VCE Vblock

	Oracle Database Appliance	VCE Vblock System 100	Oracle Advantage
Price	$68,000	$180,000	2.7x less expensive
Cores	72	48	1.5x the compute power
Memory	512GB	192GB	2.7x the memory
HDD	64TB	6TB	10x storage space
SDD	2.4TB	0	Infinite times the flash
Time to deploy	1 day	30 days	30x faster to deploy
Interconnect	40Gb/s Infiniband	10Gb/s Ethernet	4x faster interconnect
Rack Space	6RU	24RU	4x less rack space
Database Optimized	Yes	No	Better database experience

Lower price and more value than VCE Vblock

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
Complete, Simple, Reliable, Affordable

- Lower Capital Expenses
  – CoD aligns license spend to demand
- Reduced Operational Expenses
  – Fewer expensive high skilled resources
  – Reduced time spent on maintenance
- Faster Time to Market
  – Bring new functionality to market more rapidly
- Better Availability
  – Built-in high availability and best practices lead to greater uptime

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Oracle Database Appliance
Deployment Examples

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Remote Deployment

CoD, Compact Footprint and Ease of Management: Save CapEx and OpEx

Distributed:
- Branch Offices
- Departments

Data Center:
- Exadata
- Exalogic
- SuperCluster

Motivation:
- Local regulations
- Reduce latency

Remote Deployment

Customer Challenges

- Duplicating main datacenter Exadata deployment is often not affordable for smaller remote sites
  - However, customers need to run the same applications and databases in those environments.
- Skill sets not available in many remote locations
- Creating and maintaining a highly available hardware and software configuration
- Managing the hardware and software remotely
- Data center space cost when charged by footprint or rack usage
- Aligning costs to demand

Remote Deployment

Customer Benefits

- Runs the same applications and databases as the central datacenter Exadata systems

- Highly available database and application platform out of the box, limits the skill levels required at remote sites and reduces fault recovery

- Integrated Lights Out Management, automatic monitoring and call home support enable remote management

- Compact footprint reduces datacenter charges

- Capacity On-Demand licensing enables you to align your costs to demand
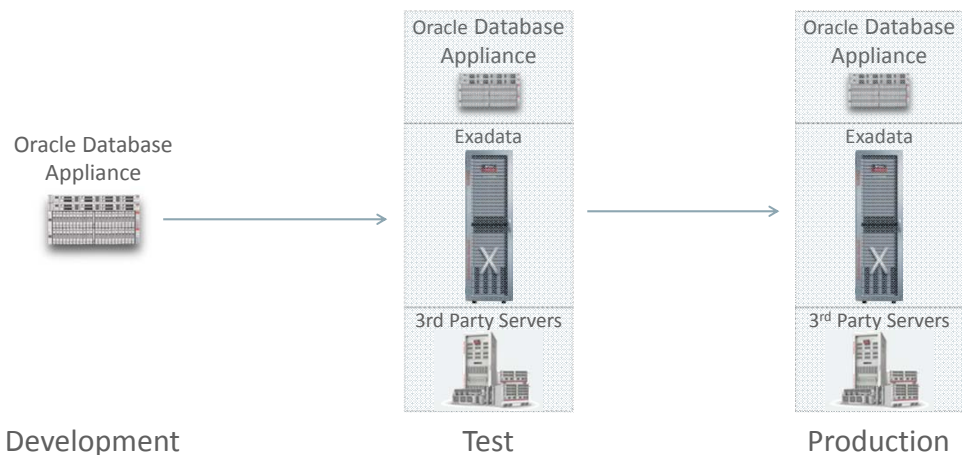 - Start small and grow without replacing/upgrading hardware

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Development and Test

Fast and Space Efficient Snapshots: Save CapEx and OpEx

Oracle Database Appliance

Oracle Database Appliance

Exadata

3rd Party Servers

Oracle Database Appliance

Exadata

3rd Party Servers

Development   Test   Production

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Development and Test
Customer Challenges

- Each developer and tester needs their own environment to:
  – Develop new offerings and features
  – Test a new offering prior to going into production
  – Test new feature enhancements prior to going into production
- Need a system to validate backup and recovery process and procedures
- Development and testing is an iterative process – many cycles, can be nightly
  – Creating development environments and test environments takes time, storage and staff
    - Need multiple copies of the database
    - DBA time required to create and monitor creation of copies
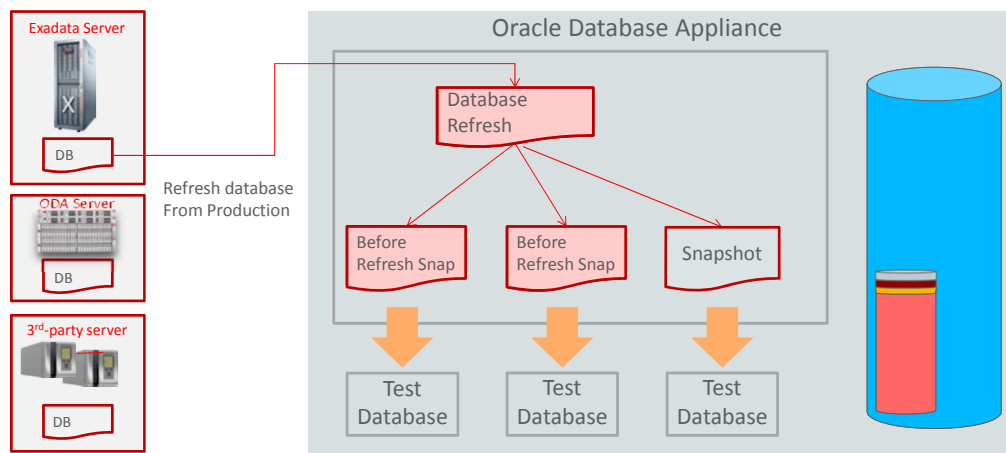   – Low value use of DBA time

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Development and Test
Create a clone in 5 minutes, using less than 5% of original database storage

Exadata Server

DB

Refresh database
From Production

ODA Server

DB

3rd-party server

DB

Oracle Database Appliance

Database
Refresh

Before
Refresh Snap

Before
Refresh Snap

Snapshot

Test
Database

Test
Database

Test
Database

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Development and Test
Customer Benefits

- CapEx savings
  - EMC and NetApp charge for either database snapshots or snapshot management, or both
    - Snapshots on ODA are free
  - Storage used more efficiently, reducing the need to purchase additional storage
- OpEx savings
  - Reduce staff time required to provision development and test environments
    - 5 minutes to clone a 1 TB database versus one hour to create a copy
  - Each developer and tester has their own environment, improving productivity
  - Doesn't require specialized hardware and associated skills to snapshot NAS or SAN environments
- Revenue acceleration
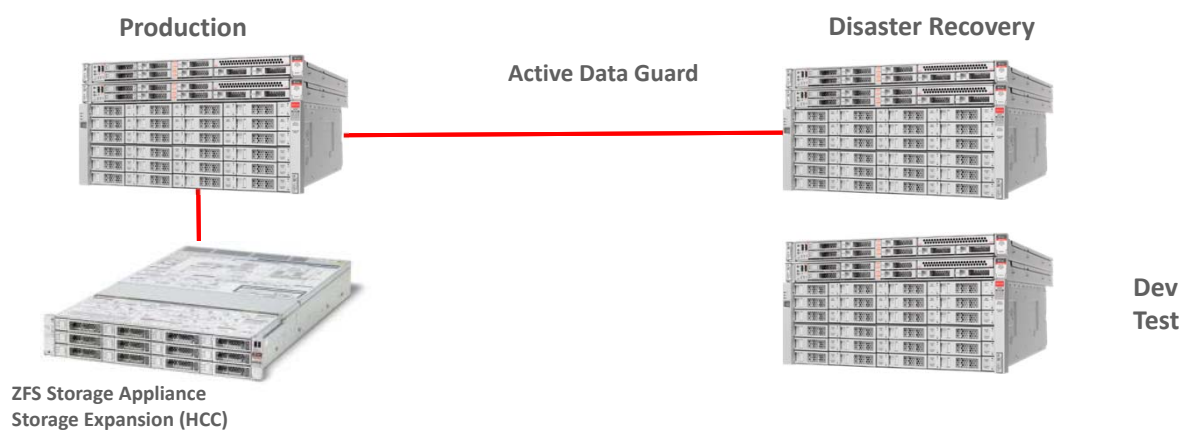 - Bring new offerings and features to market quicker with higher quality

Disaster Recovery
Implement Maximum Availability Architecture for Highest Availability

Production **Active Data Guard** **Disaster Recovery**

Dev Test

ZFS Storage Appliance Storage Expansion (HCC)

Disaster Recovery for Exadata

Exadata

Exalogic
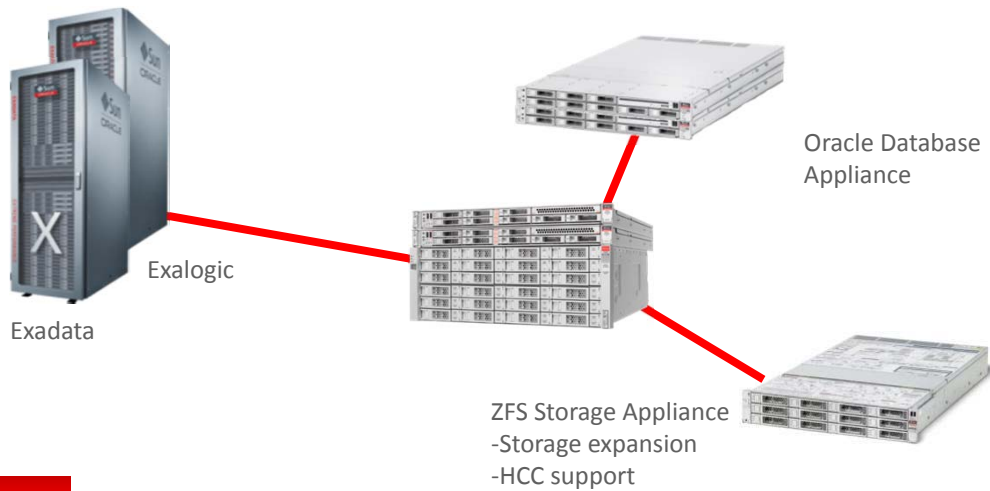
Oracle Database
Appliance

ZFS Storage Appliance
-Storage expansion
-HCC support

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External Backup / External Storage

Seamlessly Integrate Oracle Database Appliance into your Datacenter Operations

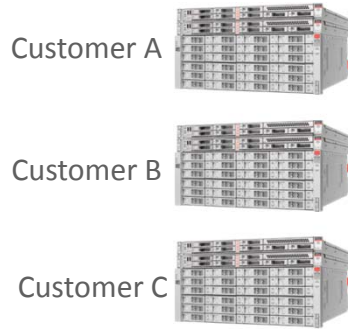Media Server with Tape Drive

Oracle Database
Appliance

ZFS Storage
Appliance
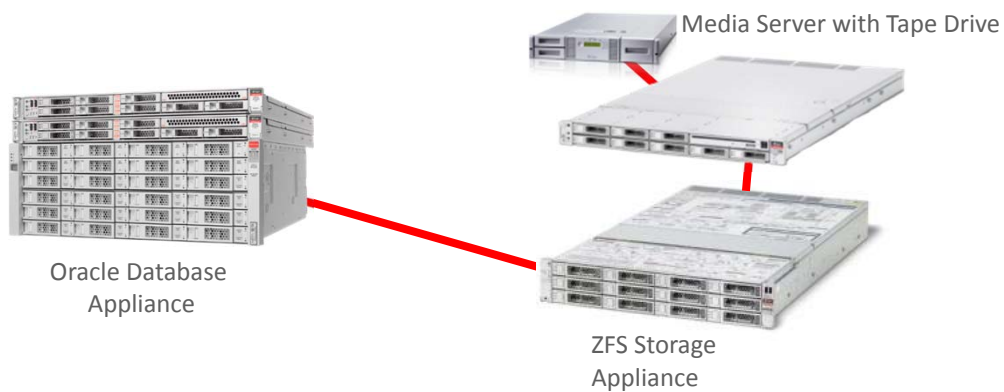
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Database Hosting

Dedicated Hosting Environments

Shared Hosting Environment

Customer A

Customer B

Customer C

Customer D
Customer E
Customer F

Exadata

End Users