



CLOUD SYSTEMS Portfolio

Enabling the information age

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Sales Play

Modernize your Business

Modernize your Business

Oracle Database Consolidation

Oracle Database Consolidation

Cloud Backup Or Disaster Recovery

HA and DR for Oracle Database

Shared Data Management Use Cases

Real-time data integration across on-prem and cloud

Converged Database

Product Content

Engineered Systems

Oracle Live Event July 8, 2020 Assets

Exadata

Big Data Appliance

Private Cloud Appliance

Private Cloud at Customer

Autonomous Database on Exadata
Cloud@Customer

Exadata Cloud@Customer

Database Appliance

ZDLRA

PaaS/OCI Learning & Enablement

SALES PLAYS

salescentral.oracle.com

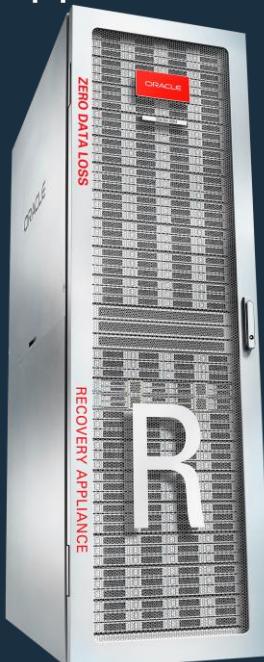
salesaccelerator.oracle.com – COMING SOON!

Oracle Cloud Systems Portfolio (x86)

ZFS Storage Appliance



Zero Data Loss Recovery Appliance



Exadata



Oracle Database Appliance



Private Cloud Appliance



— Data Protection —

— Database —

— Middleware / Apps —

ORACLE

ZFS Storage Appliance

Optimized for Oracle workloads and Cloud Integration

Oracle ZFS Storage Appliance: Unified storage for modern IT

Delivers higher performance and consolidation at a lower cost

Optimizes Oracle Database storage with unique features and automation

Tight Oracle Engineered Systems integration

Extensive data integrity and security optimizations

Accelerates backup and recovery for Oracle Database and all other sources

Replicates backups to Oracle Cloud



Oracle ZFS Storage Appliance: High-Performance Architecture

Highly multi-threaded for scalable workloads

- Up to 96 CPU cores for 1000's of IOs and data services

DRAM and flash caches minimize read and write latency

- Over 90% of reads come from 3TB of DRAM

Petabytes of capacity to meet scalable business needs

- Up to 7.2PB of flash mixed with 20PB of disk storage

Active-active design for maximum availability

Advanced analytics to minimize management

Database co-engineering to further optimize performance,
efficiency, and manageability



Tight integration **with** **Oracle Cloud Systems**

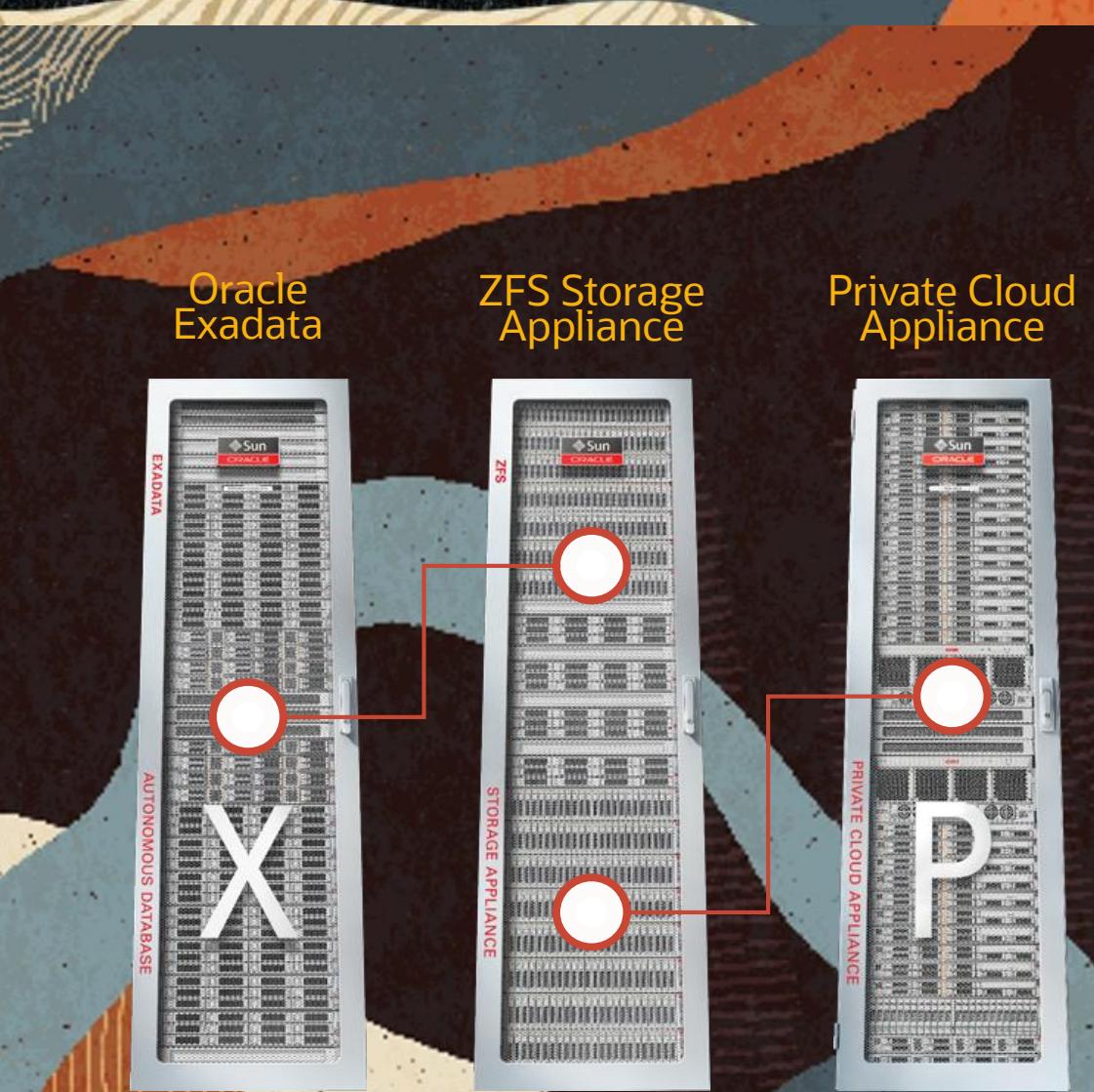
High-performance 100Gb/second Ethernet for data access and protection

Database IO performance and efficiency optimizations

End-to-end management with Oracle Enterprise Manager

Production storage integrated with Oracle Private Cloud Appliance

Shared storage expansion for Oracle Database Appliance



ORACLE

Zero Data Loss Recovery Appliance

True Data Protection

ZDLRA - Overview

Protected Databases



Delta Push → [] [] [] [] →

- Sent only changes
- Minimal impact at Production
- ***Real-time redo transport*** instantly protects current transactions

Recovery Appliance



Offloads
Cloud
Tape Backup

Replicates to Remote Recovery Appliance



Protected Databases

- Petabytes of data
- RMAN Driven bkp&restore
- Oracle 11g – 21c, any platform
- No-agents

Centralized, Data Protection Management for Oracle Databases

- Backups validated, compressed and then stored
- Fast *restores* to any-point-in-time with “virtual full” feature
- Enterprise Manager end-to-end control

ZDLRA - ARCHITECTURE

Protected
DBs



Delta
Push

*Changed blocks and
Real-Time Redo
(no full backups)*

Compressed Delta
Store



DB Backup
Cloud
Service

Cloud
Archive

Tape
Backup

Remote
Replica

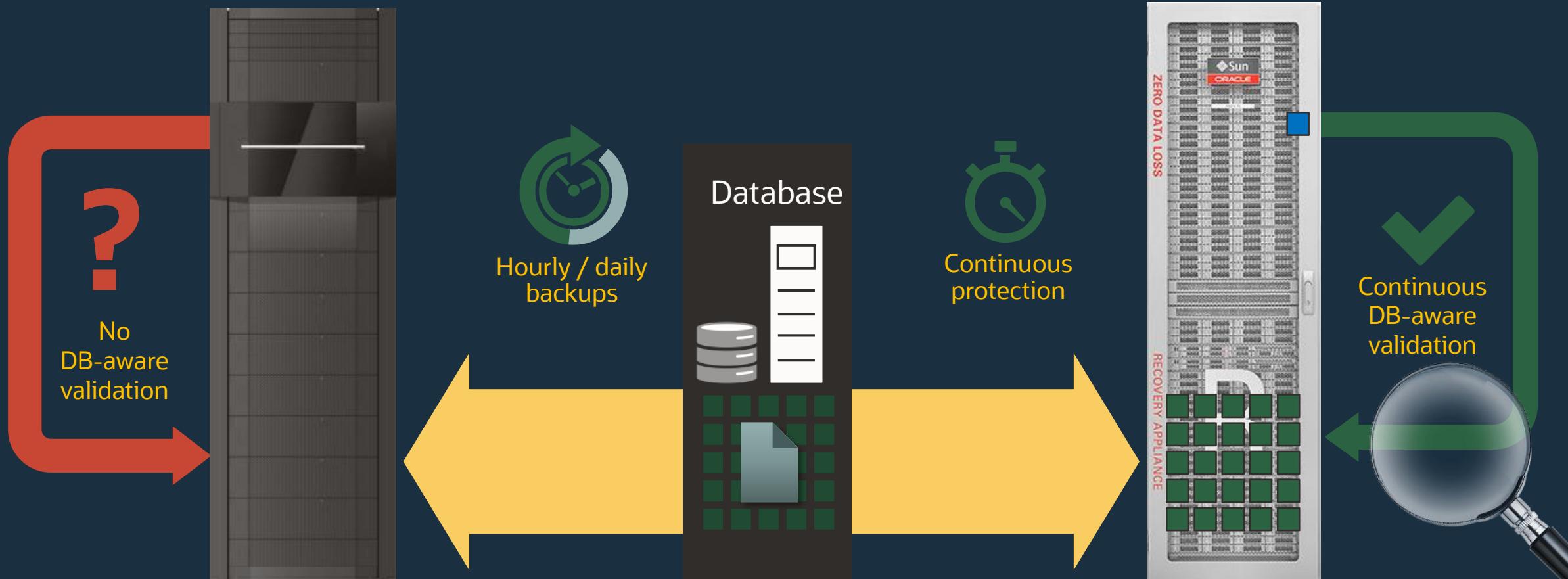


Virtual
Full

*Data validation
on receipt, copy,
restore,
periodically*

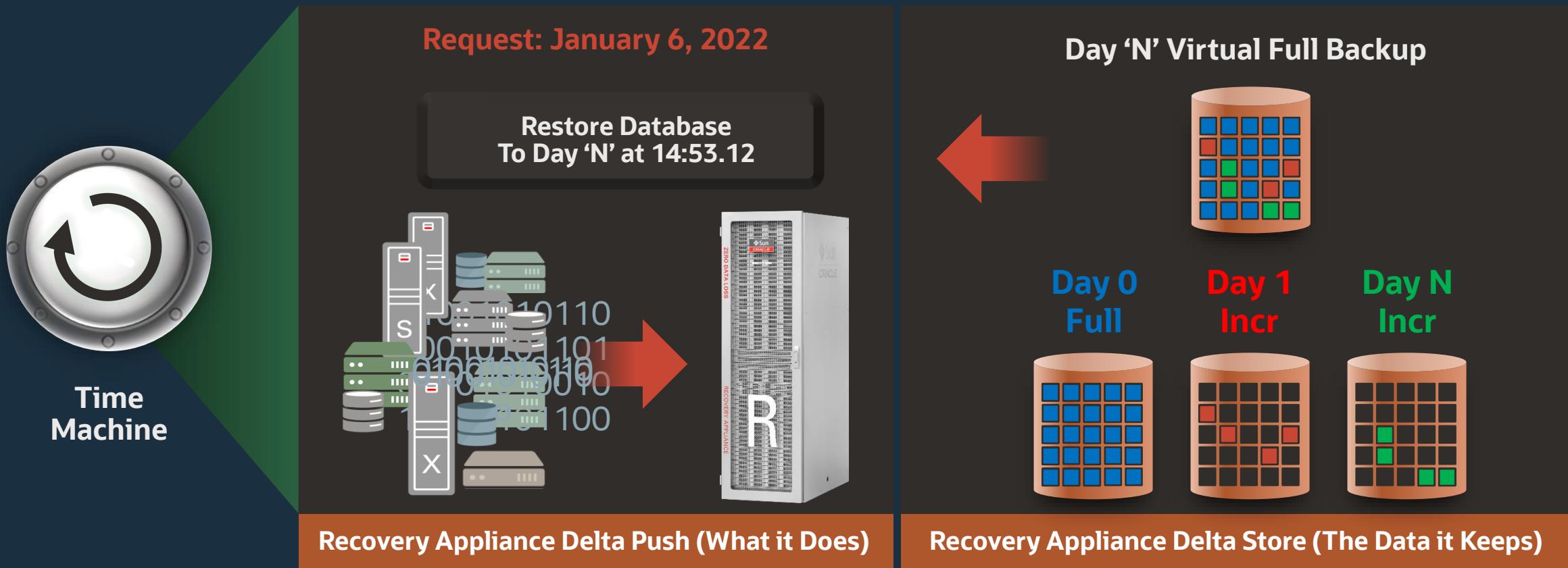
General Purpose Backup vs. ZDL

Continuous protection and built-in integrity checking



Enables point-in time recovery of the Oracle Database

Pointer-based representation of physical full backup at incremental backup time



Oracle's Zero Data Loss Recovery Appliance



Up to 10X
faster data
recovery

Real-time
recovery
status

Recover to
any
point-in-time

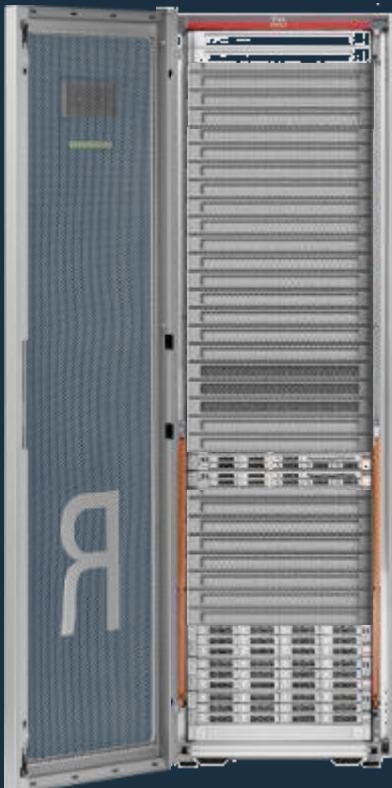
Never restore
a bad backup
again

Millions in
savings



Recovery Appliance X8M

Entry-Level to Multi-Rack Configurations

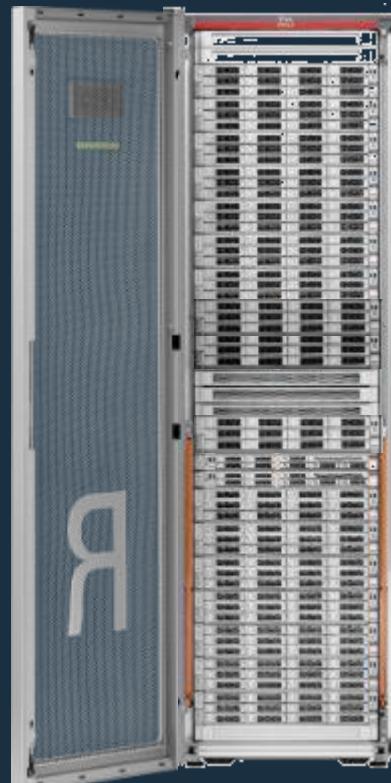


Add more
storage servers
if necessary



Base Rack

2 Compute Servers, 3 Storage Servers
207 TB Usable / 15+ TB/Hr Restore



Add more racks
if necessary



Full Rack

2 Compute Servers, 18 Storage Servers
1.26 PB Usable / 24+ TB/Hr Restore



18 Racks

36 Compute Servers, 324 Storage Servers
22 PB Usable / 4+ PB/Hr Restore

ORACLE

Oracle Database Appliance

Pre-configured, balanced set of hardware, software, service and support

Optimized infrastructure enabling optimized results

Ease of deployment,
management and support

Simple

Run your database and
applications on a
purpose-built appliance

Optimized

Better control over capital
expenditures and
operating costs

Affordable

Oracle Database Appliance

The Simplest and Most Affordable Solution for Oracle Applications and Database

Less costs than any DIY alternatives

Ease to deploy

All layers protection

Drastically risk reduction



Oracle Database Appliance | High Availability



	V1 Sep 2011 Xeon X5675	X3 Mar 2013 Xeon E5-2690	X4 Nov 2013 E5-2697 v2	X5 Jan 2015 E5-2699 v3	X6 Oct 2016 E5-2630 v4	X7 Oct 2017 Xeon 6140	X8 Sep 2019 Xeon 5218	V2 – X8 growing
SSD Storage (TB, raw)	---	---	---	3.2	48	128	369 TB	115 X
HDD Storage (TB, raw)	12	36	36	128	---	300	504 TB	42 X
CPU (cores)	24	32	48	72	40	72	64 cores	2.7 X
Max Memory (TB)	0.2	0.5	0.5	1.5	1.5	1.5	1.5 TB	8 X
Ethernet (Gb/s)	48	80	80	80	80	100	300 Gb/s	6 X
Max Read IOPS	4,466	6,500	6,500	300,000	2,250,000	2,250,000	2,250,000	503 X
Bandwidth (GB/sec)	3.0	5.3	5.3	6.0	22.2	22.2	22.2	7.4 X

Oracle Database Appliance Product Family X8

Performance ↑

Meets a wide range of workloads
and availability requirements



Oracle Database Appliance X8-2S

- Single instance
- 16 cores
- 192 GB memory, up to 384 GB
- Up-to 3 network cards
- Storage12.8 TB (raw)



Oracle Database Appliance X8-2M

- Single Instance
- 32 cores
- 384 GB memory, up to 768 GB
- Up-to 3 network cards
- Storage12.8 TB, up to 76.8 TB (raw)



Oracle Database Appliance X8-2-HA

- Single Instance or RAC
- 64 cores
- 768 GB memory, up to 1,5 TB
- Up-to 3 network cards
- 46 TB storage SSD, up to 369 TB SSD or
- Up-to 92 TB SSD/504 TB HDD (raw)

Capacity →

O

ORACLE

Exadata Database Machine

Reliability matters

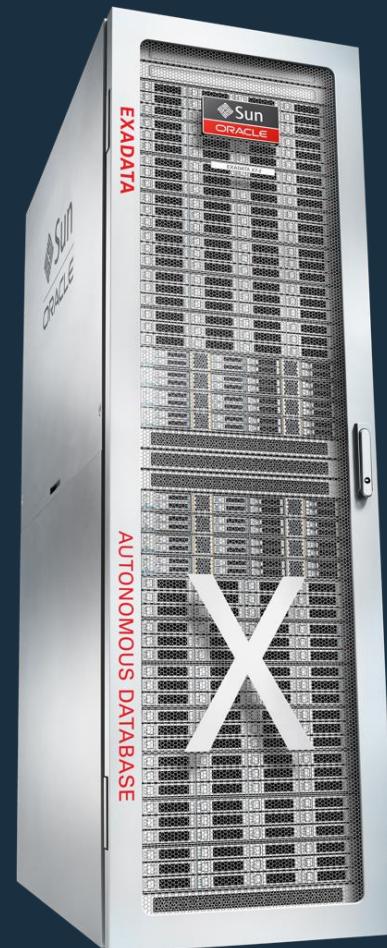
The Exadata vision

Dramatically better platform for all database workloads

Ideal Database Hardware – scale-out, database optimized compute, networking, and storage for fastest performance and lowest cost

Smart System Software – specialized algorithms vastly improve all aspects of database processing: OLTP, analytics, and database consolidation

Automated Management – automation and optimization of configuration, updates, performance, and management culminating in fully autonomous infrastructure and database



Oracle Database on Oracle Exadata

A converged database on a single platform dramatically reduces complexity and cost

Optimal support for multiple types of database workloads

No data integration complexities

Unified security model

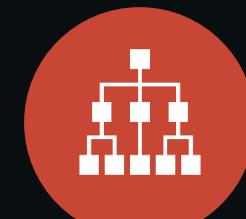
No specialized management teams

Consistent availability and scalability

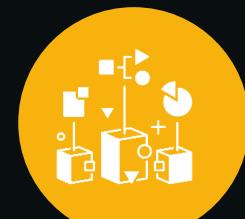
Protection and rapid recovery for all database types

ORACLE[®]
Exadata

19c ORACLE[®]
Database



RDBMS



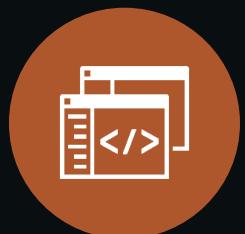
Graph



Warehouse



JSON



XML



Time Series

Full Choice of Deployment Model

On-Prem Traditional

Exadata Database Machine



Customer Data Center
Purchased
Customer Managed

Cloud at Customer

Exadata Cloud at Customer



Customer Data Center
Subscription
Oracle Managed

Public Cloud

Exadata Cloud Service



Oracle Cloud
Subscription
Oracle Managed

Exadata Cloud at Customer Hardware Shapes

	Base System*	Quarter Rack	Half Rack	Full Rack
Number of DB Servers	2	2	4	8
Max Number of OCPUs	48	124	248	496
Total Memory	720 GB	4,5 TB	9 TB	18 TB
No. of Storage Servers	3	3	6	12
Total Usable Disk Capacity	74 TB	192 TB	384 TB	769 TB

* Base System is a hardware-version agnostic entry-level configuration for Exadata Cloud

- ExaCC X9M-2 also includes 4x 1.2TB local drives in DB server for VMs, OS, Oracle Homes, logs, etc.
- ExaCC X9M-2 has a pre-configured cluster file system for large files and sharing files across database servers

X9M Update

Public Announcement: 28-SEP-2021

Exadata / ExaC@C:

23% / 33% more cores with New Intel CPU – Ice Lake
28% higher and faster storage capacity

Increased Memory Capacity

80% faster NVMe flash (PCIe Gen4 Speeds)

New Persistent memory (Intel Optane PMem Series 200)

ZDLRA:

30% increased Backup Capacity

33% more and faster cores

1.8X bandwidth (PCIe Gen4)

New Base Rack capacity (207 TB)

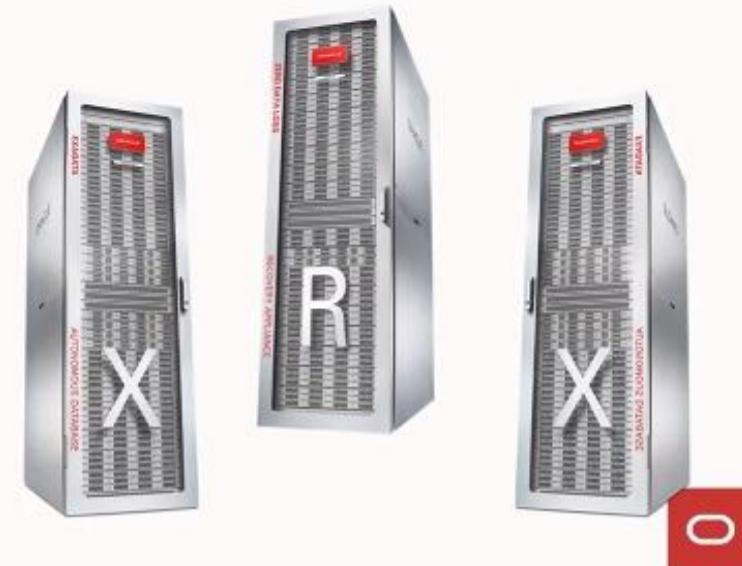
New Storage Server capacity (70 TB)

New Full Rack Capacity (1.26 PB)

Price reduction by 50% from X8M

IMPORTANT CONSIDERATIONS:

- Allocation and supply continue with restrictions.
- Following models will remain in RPL during Q2 FY22:
 - Exadata Eight Rack
 - ExaC@C Base Rack
- EF Storage not available in Eight Rack
- Memory upgrades not compatible with previous versions



ORACLE

Private Cloud Appliance

'Wire once' converged system designed for fast cloud and rapid application deployments

Oracle Private Cloud Appliance X8-2

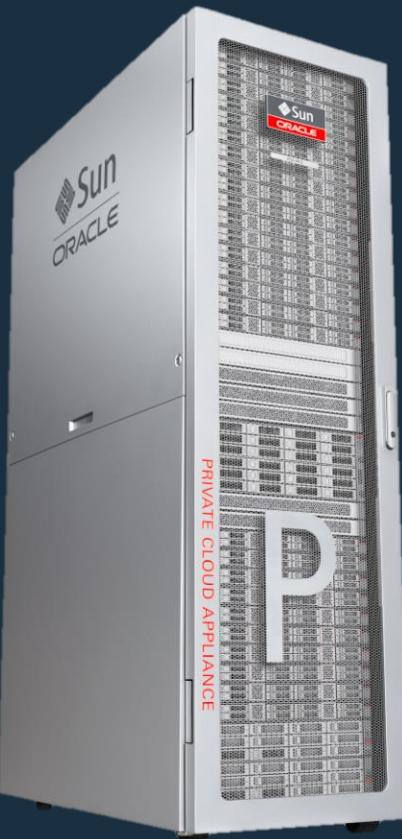
Providing value for today's digital business



- On-premises cloud native converged infrastructure that allows customers to efficiently **consolidate business critical middleware and application workloads**
- Works with Oracle Exadata Machine to provide a powerful, single-vendor, application and database solution for today's data driven enterprise
- Runs enterprise workloads alongside cloud native applications to support a variety of application requirements
- Compliments Oracle Cloud Infrastructure providing customers with a complete solution to securely maintain workloads both on-premises and in public clouds
- Built in support for Oracle's Linux Cloud Native Environment, containers, and micro-services, decoupling the workloads from the infrastructure for application portability

Oracle Private Cloud Appliance X8-2

Oracle's on-premises platforms of choice



Database

- Exadata
- Exadata Cloud at Customer

Applications and middleware

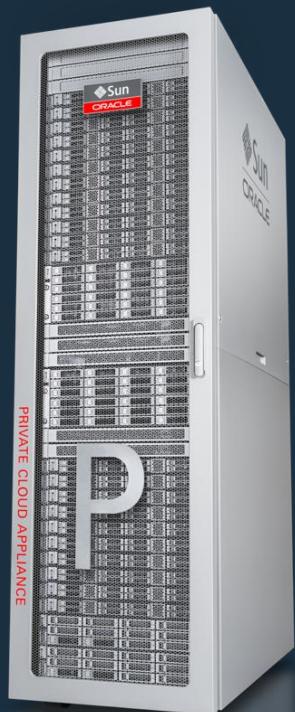
- Private Cloud Appliance
- Private Cloud at Customer



Oracle Private Cloud Appliance X8-2

Cloud ready, secure, virtualized, fast, scalable

- **Highly Available, Integrated Cloud Native Environment**
 - ✓ Simplify, Automate, Deploy and auto-scale Kubernetes Clusters in **30 minutes!**
 - ✓ Enable DevOps, modernization and application portability
 - ✓ Easily extend and/or migrate workloads to OCI
- **Converged Engineered System for middleware and apps**
 - ✓ Consolidate enterprise and cloud native workloads
 - ✓ Cost-effective and scalable
 - ✓ Single pane of glass management – Apps to Disk
 - ✓ **Up to 40%** better price/performance than Build-your-own
- **Seamless integration with Oracle Exadata**
 - ✓ Direct Attach – **Lowest latency** between Middleware and DB tier
 - ✓ Single vendor support for Applications, Middleware, Database and Infrastructure

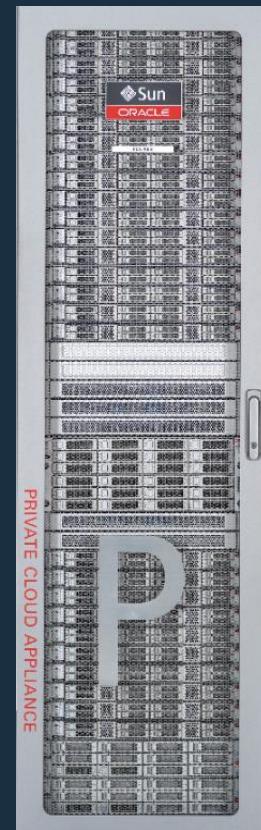


Oracle Private Cloud Appliance X8-2

Everything you need to get started - less than 6 hours from installation to production

HARDWARE

- Redundant management servers (X8-2)
- 2 – 25 compute nodes supporting up to 1.5 TB of memory
- Compute scales to 1200 cores and storage scales to 3.3PB
- Scalable storage architecture
 - ZS7-2 dual-controller system with 2TB DRAM
 - Scalable disk storage (280TB raw increments)
 - Scalable flash storage (150TB raw increments)
- State-of-the-art networking
 - 100Gb Ethernet internal fabric (2x per Compute Node)
 - 100/40/25/10Gb Ethernet data center connectivity



SOFTWARE

Virtualization

- Oracle VM 3.4.x Hypervisor & Manager

Cloud Native

- Oracle Linux Cloud Native Environment

Infrastructure Software

- Oracle Linux, and Solaris
- Oracle Enterprise Manager 13c, and
- Oracle SiteGuard for DR
- Oracle OpenStack
- Oracle SDN
- Oracle ZFS Storage Appliance Cloning
- Oracle ZFS Storage Appliance Replication
- Oracle ZFS Storage Appliance Encryption
- Oracle Java 8 Standard Edition (SE)

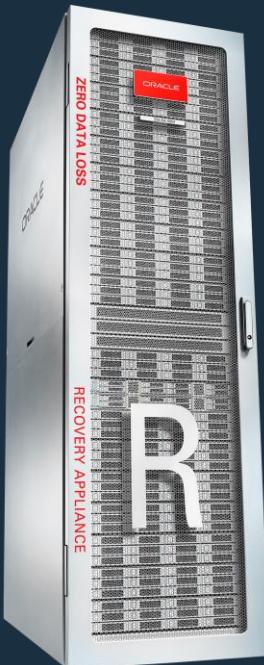
ORACLE

Wrap-Up

ZFS



ZDL



ODA



Exadata



PCA



— Data Protection —

— Database —

— Middleware / Apps —

ORACLE

Thank you

Alexandre Fagundes
LAD Partner Enablement

Oracle Cloud Systems Portfolio

