team

A New Zealand hyperscale sovereign cloud service, owned & operated by TEAM IM, powered by Oracle Cloud.

Powered by ORACLE CLOUD

Explore Exadata in TEAM Cloud

Introduction – **Amanda Watson (Partner Manager)**

Presenters -

Sabyasachi Banerjee, TEAM IM, Cloud Architect

Byron Mandich, Oracle NZ, Cloud Architect

Agenda:

- Challenges with Database Deployments
- What is Exadata and why should You care?
- What Exadata services does TEAM Cloud provide?
- When is Exadata a good choice
- How we support You on your Exadata journey?

Common business challenges due to cloud limitations

Most clouds don't have the performance, scalability, and availability enterprise databases need

Application slowdowns

IOPS bottleneck causes slowdown or hang because IOPS is too low to support volume

Analytics too slow

Throughput is too low for amount of data causing analytics processing bottlenecks

Lengthy transactions

Latency is too high to keep up with transaction processing

Database management complexity

No data convergence resulting in database and associated infrastructure sprawl with lots of diverse single purpose databases to manage.

Application can't dependably access databases

Low availability impacts application accessibility to database or causes downtime

Extensive retooling with change

Lack of compatibility hampers agility to migrate database to cloud or create a hybrid cloud with seamless interoperability

Oracle Database enables enterprise-wide standardization

A converged multi-model, multi-workload data platform

Any Data

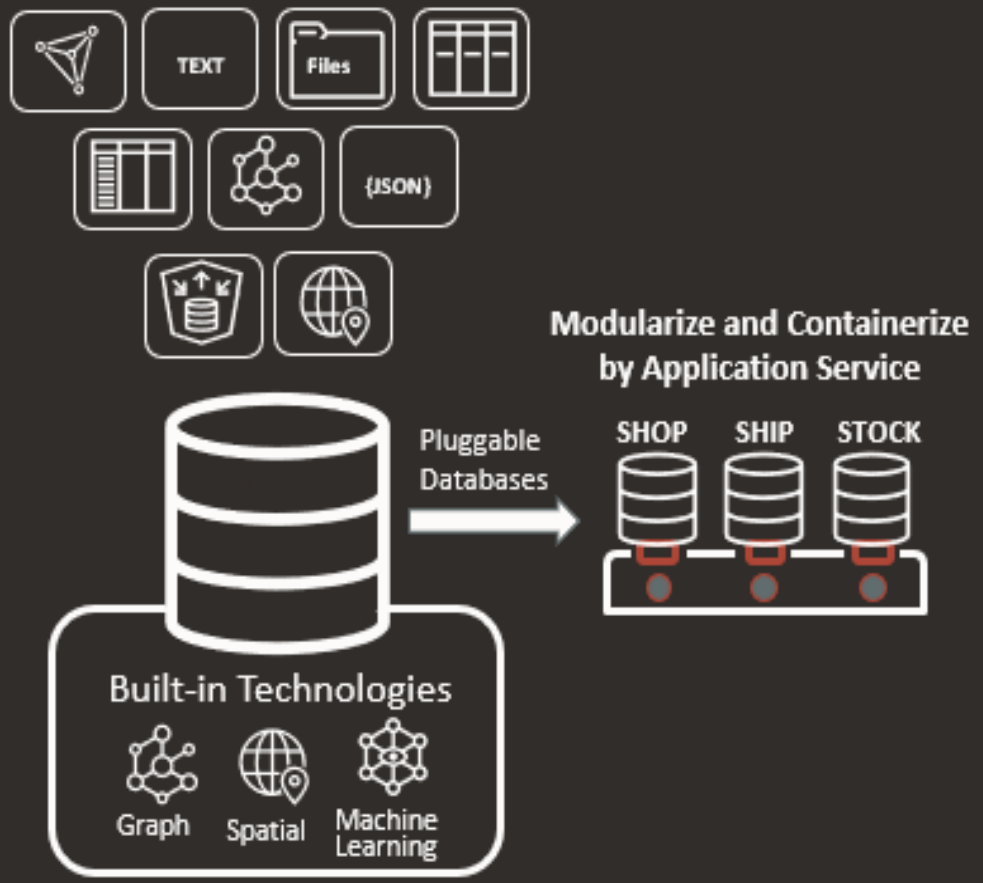
- Relational, JSON, graph, spatial, text, blockchain, XML
- Multimodal data formats, access methods, indexes and programming languages

Any Workload

- Transactions, analytics, ML, IoT, streaming, multitenant
- Integrated microservices, events, REST, ML, CI/CD, low-code

Any Scale

- Transparent scale-up, scale-out, sharding, parallel SQL
- Highest performance, availability and security



Oracle Exadata is the best place to run Oracle Database

A fully automated and optimized platform coengineered with Oracle Database

Autonomous Database and Oracle Database

- Unique capabilities available only with Exadata
- Available in OCI and customer data centers

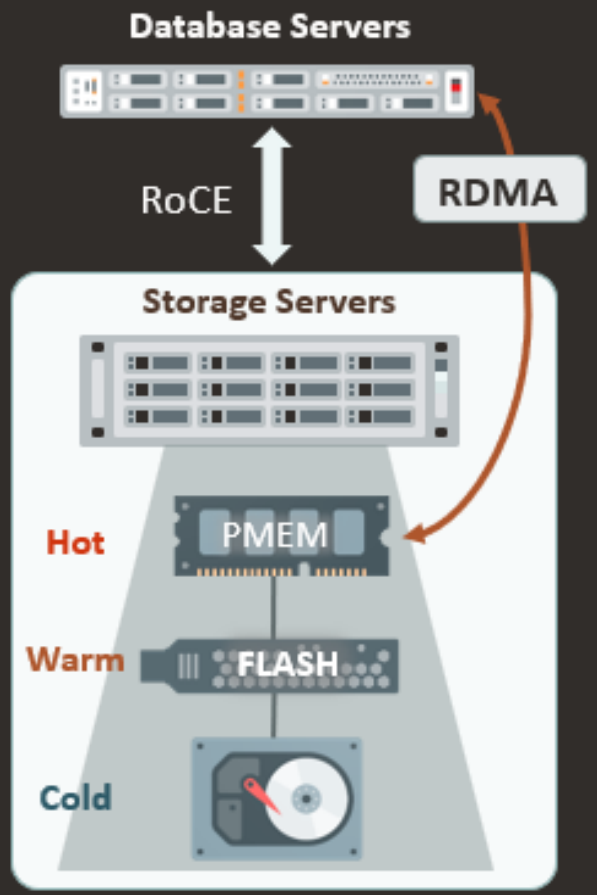
Database-Aware System Software

- Smart system software with unique algorithms accelerate OLTP, analytics, and consolidated workloads
- Automatic storage tiering and resource management with I/O prioritization by workload

Scalable, Highly Available Hardware

- Scale-out with optimized compute, networking and storage for best performance at lowest cost
- Fully automated and optimized configuration, performance, fault-tolerance, and updates

Exadata architecture optimizes all Oracle Database workloads



Fastest OLTP

- Uses RDMA instead of IO to read PMEM in smart storage servers
- Unique algorithms for inter-node cluster coordination
- Result: 19µs IO – 10X faster than flash

Fastest Analytics

- Automatically offloads SQL processing to parallel smart storage servers
- Smart flash cache and Storage Index accelerates database IO automatically
- Unique columnarization converts data to fast in-memory formats

Best Consolidation

- Unique prioritization of latency sensitive and important workloads
- Isolation of multiple tenants and workloads

World's Only Shared Persistent Memory Optimized for Database

Exadata Cloud Infrastructure X9M TEAM Cloud

For Exadata Database Service and Autonomous Database

Customer-dedicated
Exadata Cloud Infrastructure

Fully-elastic resource scaling is more flexible and cost-effective

High-Performance – No Database Workload is too Big!

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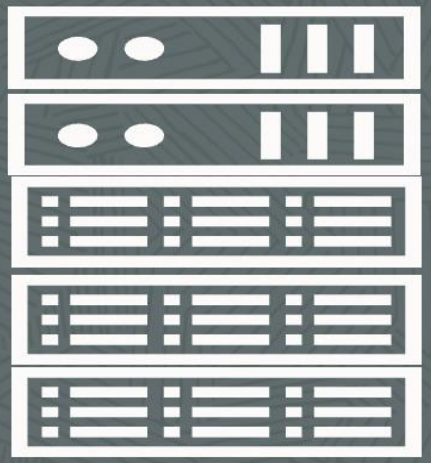


Exadata Quarter Rack

- 2 compute servers
- 3 storage servers

Exadata X9M Database Server

Adds 252 CPU cores and
1,390 GB of RAM,
Latest 64-core AMD Epyc™
....

Up to **32**

Exadata X9M Storage Server

Adds 63.6 TB of storage, 25.6
flash and 1.5 TB of PMEM
Latest 24-core Intel® Xeon®
....

Up to **64**

- All database homes /databases will automatically be extended onto new compute nodes
- ASM disk groups will be rebalanced across new storage servers

Elastically grow and lower CPU consumption to meet workload demands

Scale up to 4,032 CPU cores

CPU autoscaling

On demand CPU scaling

Exadata Cloud Infrastructure X9M

Compute

OLTP

Add database server(s)

Starter Configuration

Consolidate up to thousands of databases

Converged database, private cloud in the public cloud

OLTP and data warehouse

Add storage server(s)

Petabyte data warehouse

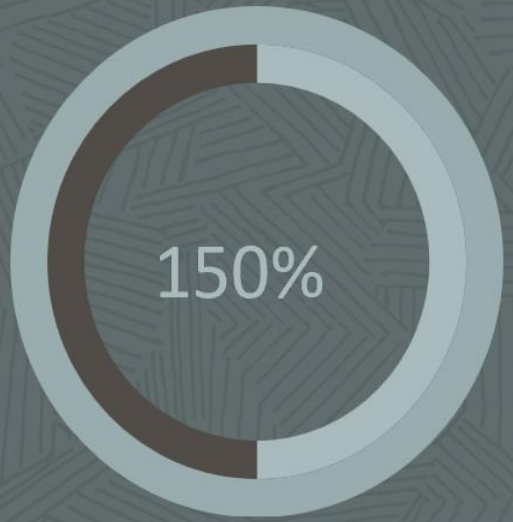
Fully Elastic Scaling

Online – No downtime

Storage

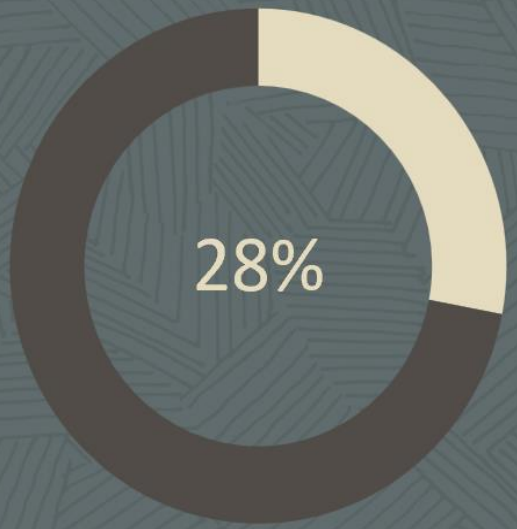
Exadata Cloud Infrastructure X9M delivers more for same subscription cost

Better performance, more power with less infrastructure reduces costs



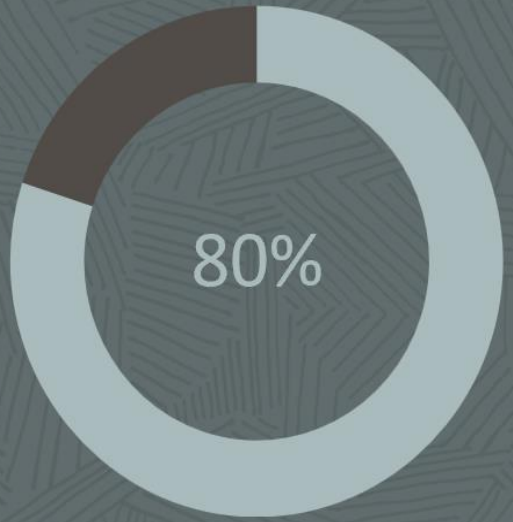
More vCPU per Database Server

Up to 126 CPUs per DB server enables higher consolidation with same number of servers



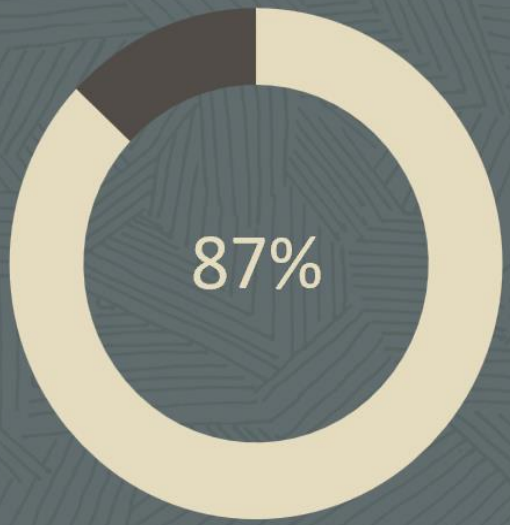
More Storage Capacity

Upgraded to 18 TB disk from 14 TB in previous generation



More Analytic Scan Throughput

Up to 2.88TB/sec using PCIe 4.0 flash



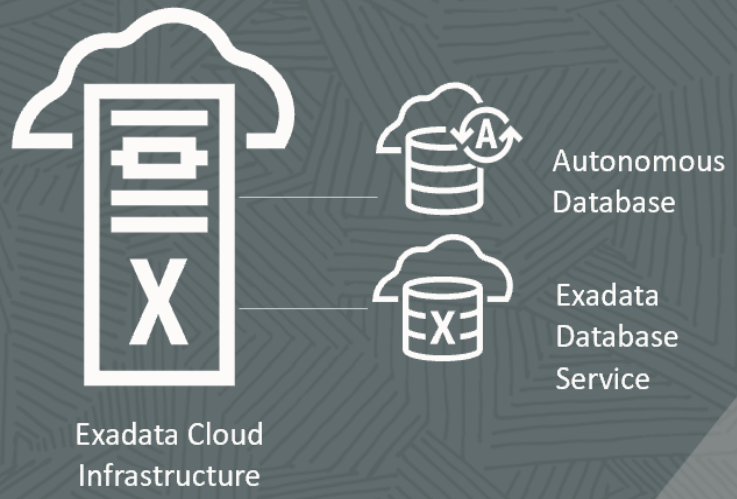
More OLTP IOs/second

Up to 22.4 Million SQL Read IOPS with only 8 compute servers while maintaining <19 microsecond read latency

NOTE: In comparison to Exadata X8M

No database is too demanding or workload too large

Autonomous Database and Exadata Database Service deliver massive performance at scale



Workload Intensity

- ✓ Compute
- ✓ Memory
- ✓ Latency
- ✓ IO
- ✓ Storage

Latency as low as 19µs

Scale up to:

- 4,032 CPUs in database servers *(64-core AMD CPUs)*
- 3,072 CPUs in storage servers *(24-core Intel CPUs)*
- 44 TB Memory
- 96 TB PMem, 1,638 TB NVMe flash
- 4 PB usable storage

3.1 PB Databases and
31 PB Data Warehouses*

* With 10:1 Hybrid Columnar Compression (HCC)

Advantages of consolidating databases on Exadata Cloud Infrastructure

Databases run faster plus consume less infrastructure and personnel resources

Reduces Database Licenses

Offloads CPU processing to Exadata intelligent storage servers

Higher Density Consolidation

Reduces infrastructure footprint and eliminates over-provisioning

Extreme Performance at Scale

Fastest performance and lowest latency
– For all workloads

Improves Data Governance

Reduces surface area of attack and enables standardization of security policies across database ecosystem

Simplifies Management

Provides consistent quality of service based on user-defined resource service level requirements

Automates Patching

Uses integrated rolling patches for automated zero downtime updates

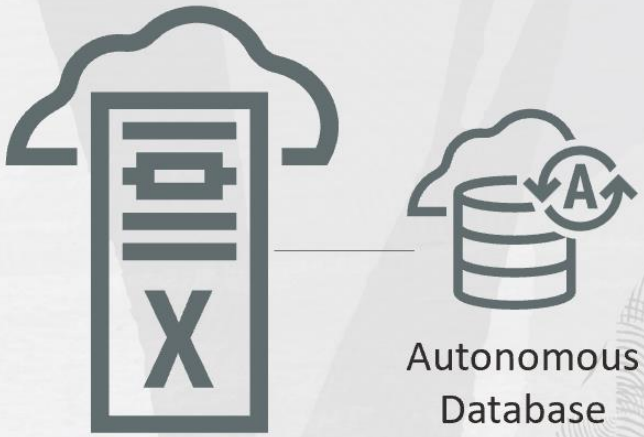
Time is money in the cloud and Exadata saves on both !

Oracle Autonomous Database

Using the cloud to eliminate all the complexity of mission critical databases

Oracle Autonomous Database = **Complete Infrastructure Automation** + **Complete Database Automation** + **Automated Data Center Operations and Machine Learning**

Mission-Critical Databases Made Easy



Oracle Autonomous Database on customer-dedicated Exadata Cloud Infrastructure

With Autonomous Database, mission-critical databases are no longer complicated or expensive.

The most complete and mission critical database is now also the:

Simplest for Developers

- Completely simple cloud-native development for any data type or workload

Simplest for Operations

- World's most advanced scaling, availability, tuning, maintenance and security capabilities are now completely simple

Most Cost-Effective for All Use Cases

Mission-critical made easy with Oracle Autonomous Database Service

Reduces cost, risk and now even faster running on Dedicated Exadata Cloud Infrastructure X9M

Uses Machine Learning to enable reliability and high performance

- Provisioning of infrastructure and databases
- Scale-up and scale-out
- Performance tuning
- Patching
- Security controls
- High availability and DR
- Data protection

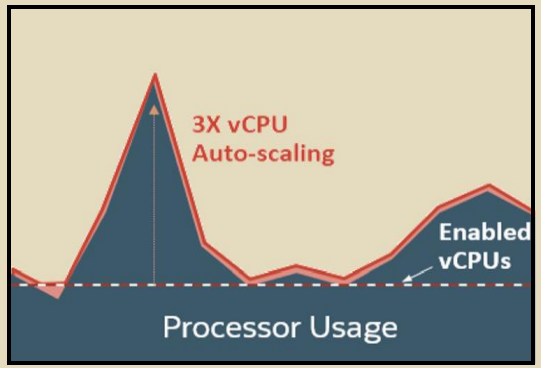
Helps meet seemingly conflicting requirements

- DevOps independence **AND** corporate governance
- Higher performance **AND** lower costs
- Cloud automation and costs **AND** no need to migrate complex environments
- Less manual management **AND** less risk of human error
- Security automation **AND** oversight of cloud operators

Autonomous Database helps minimize consumption costs

Uniquely automated, fine-grained consumption moving in lock step with business needs

Auto-scaling



Autonomous Database Cloud

Consumption adjusted automatically to match current requirements

Exadata Database enables on-line scaling by admins or scripts

Autonomous Database automates real-time scaling based on demand

Fractional CPU consumption

Autonomous Database enables provisioning of 1/5th of a CPU per server for low-usage apps and development environments

Zero consumption databases

Exadata Database starts billings of 2 CPUs per server at provisioning

Autonomous Database VM clusters bill on usage and consumption can be set to zero when not in use

Minimize cost of idle CPUs with elastic versus fixed CPU consumption

Elastically expand and reduce CPU consumption to meet workload demands and lower costs

"Fixed" vCPU Costs per Shape

- Pre-defined VM shapes and number of vCPUs
- Pay for all vCPUs **available even** when idle
- Typically, low 15-20% average utilization per VM
- No sharing or easy scaling of resources

Must migrate to next biggest shape requiring downtime

"Elastic" CPU Costs per Shape

- Scale CPUs up and back down online
- **Pay only for CPUs used**
- Consolidate databases onto a single service and easily share resources across database
- Increases resource utilization, minimizes idle resources, and reduces overall costs

Scale from 4 up to 4,032 CPUs

NOTE: One CPU = Two vCPUs

Simplified cost-effective pricing in TEAM Cloud

48-hour minimum Exadata Cloud Infrastructure subscriptions with software licensing choice

License Included Pricing

Ideal for organizations with new workloads, looking to use new features, or that have dynamic utilization

- Consumption-based pricing for software and vCPUs, includes software support and paid for with Universal Credits
- Includes Oracle Database Enterprise Edition with **ALL** options and management packs at one low subscription price

Bring Your Own License Pricing

Ideal for organizations moving existing workloads with consistent usage to the cloud

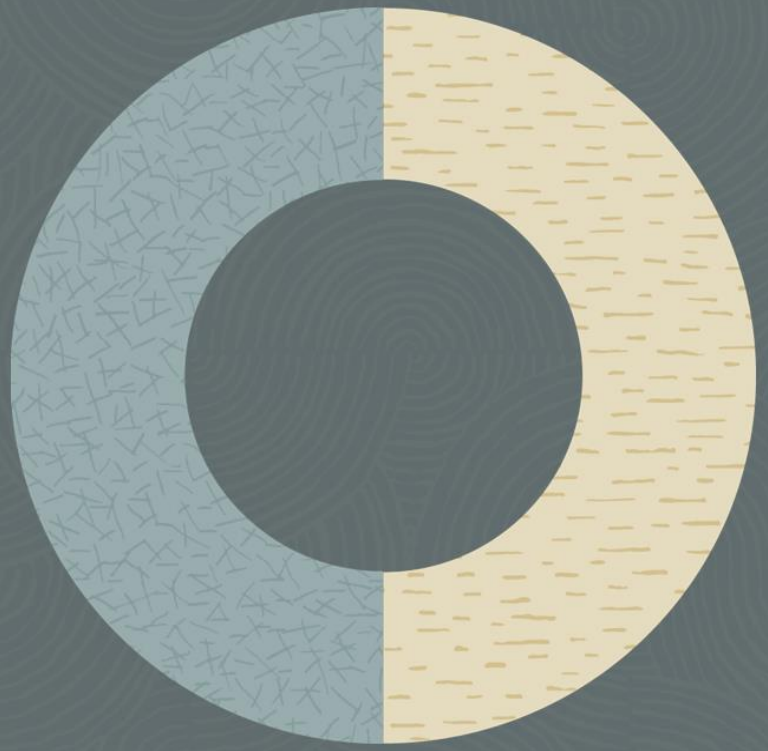
- Utilize existing on-premises licenses and pay software support for them
- Very-low, compute-only consumption pricing, paid for with Universal Credits
- Includes advanced technologies at no extra cost:

TEAM Cloud lowers the cost of moving to the cloud

Move existing workloads to the cloud with lower costs and help from Oracle

TEAM Cloud Universal Credits (TCUC)

Lets customers use any TEAM Cloud OCI platform service in any TEAM Cloud region or any Oracle Public Cloud Region*, including future cloud services



Oracle Cloud Lift Services

Free assistance when migrating to TEAM Cloud.
Guidance from Oracle cloud engineers on:

- Planning
- Architecting
- Prototyping
- Managing cloud migrations

https://teamcloud.nz/pricing/universal-credits

https://www.oracle.com/cloud/cloud-lift/

Key Takeaways

Customer-dedicated
Exadata Cloud Infrastructure X9M

1 World's Fastest OLTP Database Cloud

- Over 50X faster OLTP latency than AWS RDS or Azure SQL
- 87% more OLTP IOs/sec than X8M
- 2.5x more cores for OLTP processing

2 World's Fastest Analytics Database Cloud

- 100X faster Analytics throughput than AWS RDS or Azure SQL
- 80% faster Analytic Scan throughput than X8M
- 2.5x more cores for Parallel Analytic SQL

3 Most Cost-Effective

- More performance and capacity, same price as X8M
- Save management costs with Autonomous Database
- Save runtime costs with Autonomous Database fractional OCPU pricing and auto-scale

Migration made easy with Zero Downtime Migration

Automated solution for migrating Oracle Databases into Dedicated Exadata on TEAM Cloud

Key aspects of ZDM migration to TEAM Cloud

- Minimal Downtime
- Automated and Orchestrated
- Flexible Options
- Support for Autonomous
- Free of Charge!

https://www.oracle.com/docs/tech/oracle-zdm-step-by-step-guide.pdf

Migrate to TEAM Cloud with Ease

	Oracle Exadata Database Service on Dedicated Infrastructure*	Oracle Autonomous Database on Dedicated Exadata Infrastructure
Physical Online Migration	✓	✗
Physical Offline Migration	✓	✗
Logical Online Migration	✓	✓
Logical Offline Migration	✓	✓
Hybrid Offline Migration	✓	✗

Thousands of critical deployments, on-premises and cloud

77% of Fortune Global 100 run Exadata | **51%** run Exadata Cloud

Superior Architecture for ALL Workloads

- **Petabyte warehouses**
- **Super critical systems**
  - Financial trading
  - Process manufacturing
  - E-commerce
- **Packaged applications**
  - SAP, Oracle, Siebel, PSFT, …
- **Database consolidation**

95%

of executives believe generative AI will compel their organization to modernize its technology architecture

Accenture Technology Vision 2024

47%

of CIOs are prioritizing the transformation of their data platforms to drive business growth

– PwC's Pulse Survey - Technology leaders

77%

of organizations are not able to fill job vacancies, with IT & data skills being most in demand

– ManpowerGroup

$3T

of additional earnings for companies embracing cloud modernization across three dimensions; rejuvenating, innovating and pioneering

– McKinsey

TEAM Cloud Exadata Offer

Oracle Exadata Cloud Service On-ramp Offer

50% Off Dedicated Infrastructure for up to 6 Months

- No fee dedicated onboarding solution engineer for promotional period

CAPEX or OPEX contracting options available

Minimum commitment of just 48 hours!

- Very-low, compute-only consumption pricing, paid for with Universal Credits
- Includes advanced technologies at no extra cost:

Summary

- Smart Scan
- Smart Flash Cache
- Storage Indexes
- Hybrid Columnar Compression

- Flexible shapes / Flexible TCUCs
- BYOL – bring your own existing Oracle Licenses
- On Demand pricing – no need to reserve locked in shapes
- Autonomous OS and DB options – patching done for you
- First 10 TB of egress free per month
- OpEx or CapEx

TEAM Cloud Website-Pricing Useful Links

- TEAM Cloud Pricing Page
- Competitor pricing
- Oracle Exadata Cloud Service On-ramp Offer
- Dedicated Exadata Reference Architecture
- Data Guard for Oracle Exadata
- TEAM Cloud Universal Credits
- Why our pricing wins
- Support pricing

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