

ORACLE
OPEN
WORLD

Oracle Cloud at Customer

Why it makes sense for large enterprise customers

Sreekanth Chintala
Sr. Director – Cloud Enterprise Architect
North America – Strategic Services Industry
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Claude Garalde, AT&T
Ryan Nichols, AT&T

Presented with

AT&T



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Program Agenda

- 1 Oracle Cloud at Customer Overview
- 2 Oracle and AT&T Partnership
- 3 AT&T's adoption
- 4 Q&A

A man with a beard and mustache, wearing a dark suit, light blue shirt, and dark tie, is looking down at a smartphone he is holding. The background is a blurred cityscape at night with bokeh lights. The image is overlaid with a teal geometric pattern.

Oracle Cloud at Customer

Oracle Cloud Machines | Compared to Private Cloud

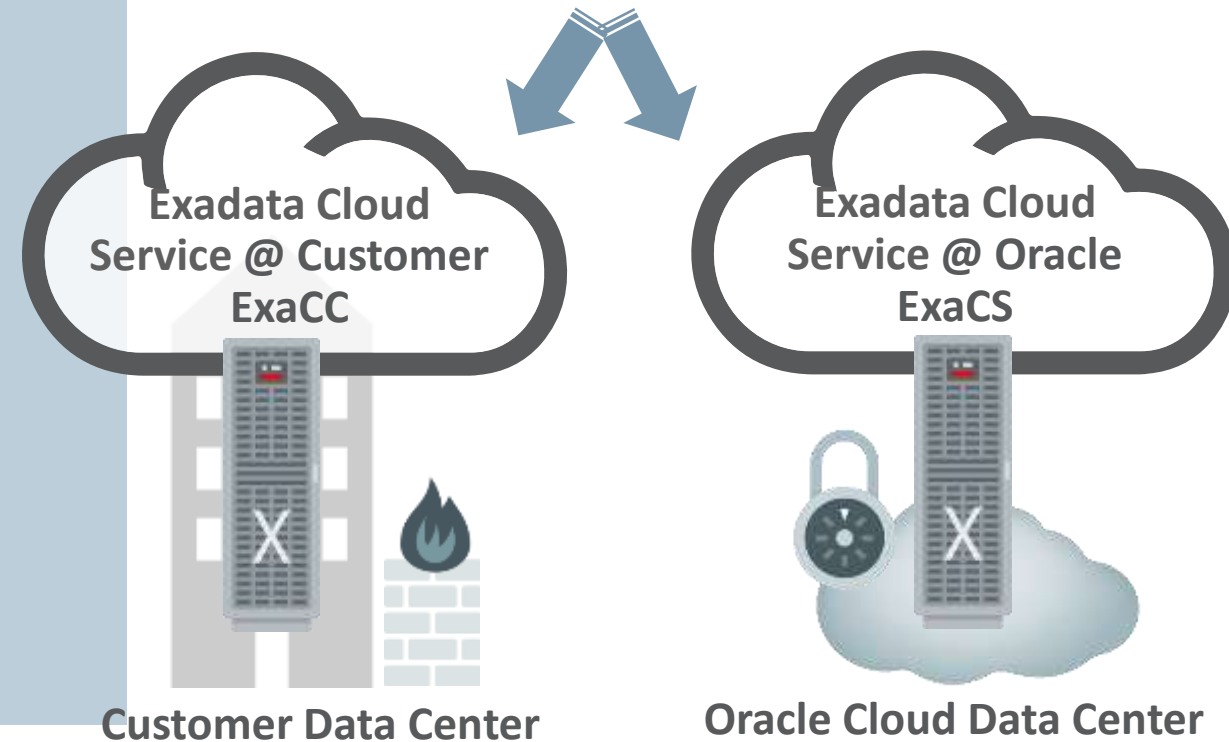
	Oracle Cloud Machines	Private Cloud
Subscription-Based Pricing		NO
Fully Integrated PaaS and IaaS		NO
Seamless Interoperability with Public Cloud		NO
Fully Managed Cloud by Oracle		NO

Oracle Database Exadata Cloud

Best Database Cloud Service at Customer Data Center

- **Exadata Cloud Service, infrastructure managed by Oracle**
 - Full Oracle Database with ALL Options
 - Most scalable, available, robust Database Platform
 - Cloud-based pricing, with agile provisioning
 - Customers have full DBMS access
- **Available at customer data center**
- **Ideal customer profile**
 1. Customers with systems too complex to move to public cloud
 2. Customers who require compliance with data sovereignty laws
 3. Customers with apps that are sensitive to WAN network latency
 4. Customers who want cloud benefits but not ready for public cloud

**Cloud at Customer or at Oracle: Your Choice!
Same architecture, software, skills!**

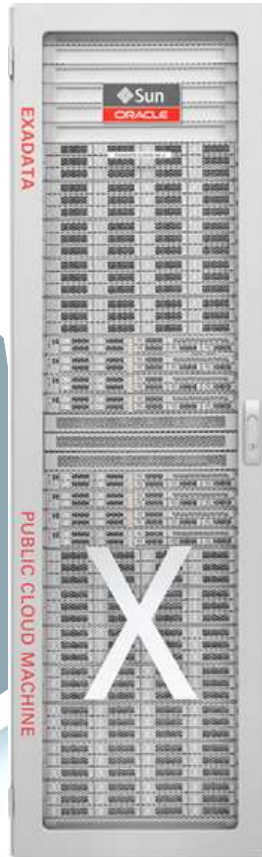


Exadata Cloud Machine: Compatible, Scalable, Available

Decades of Database Innovation Proven at Millions of Mission-Critical Deployments

	Multitenant
	In-Memory DB
	Real Application Clusters
	Active Data Guard
	Partitioning
	Advanced Compression
	Advanced Security, Label Security, DB Vault
	Real Application Testing
	Advanced Analytics, Spatial and Graph
	Management Packs for Oracle Database

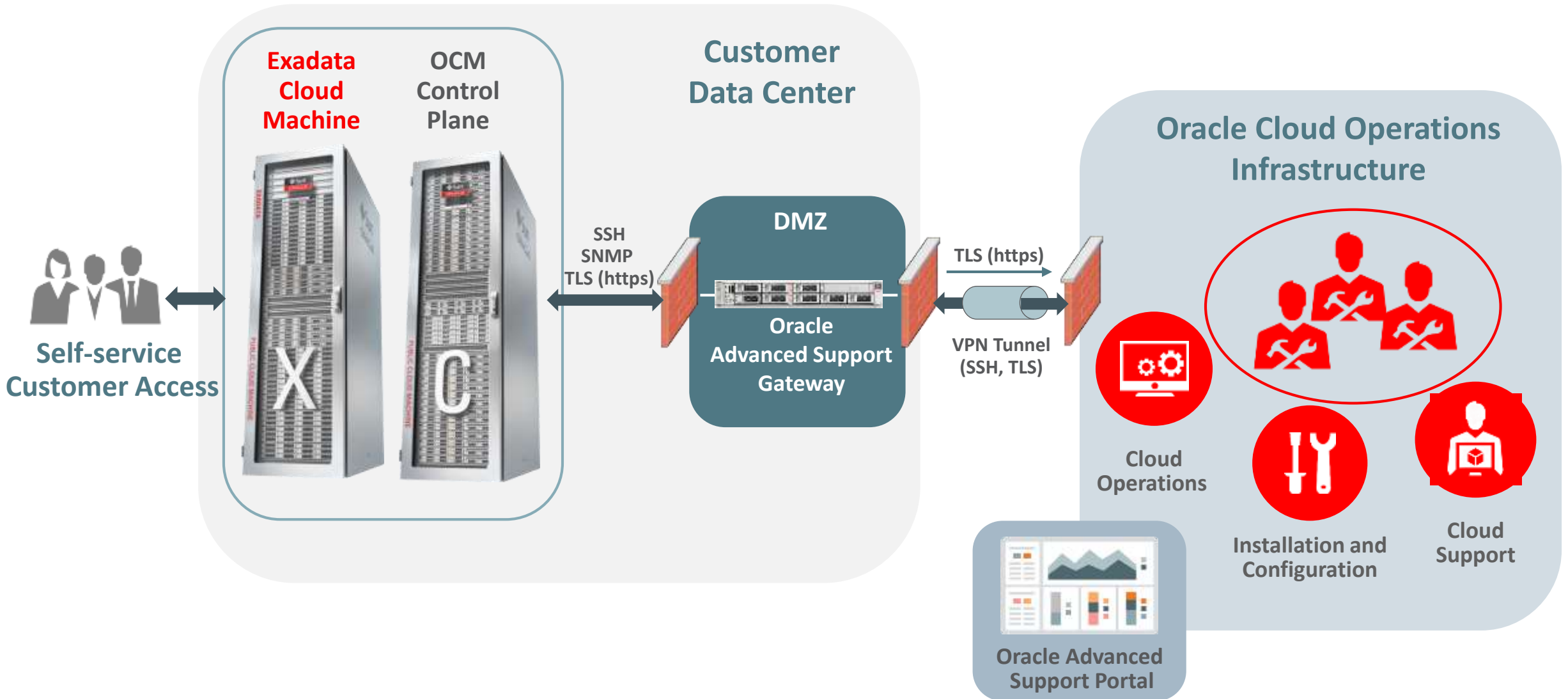
All Oracle Database Innovations



All Exadata DB Machine Innovations

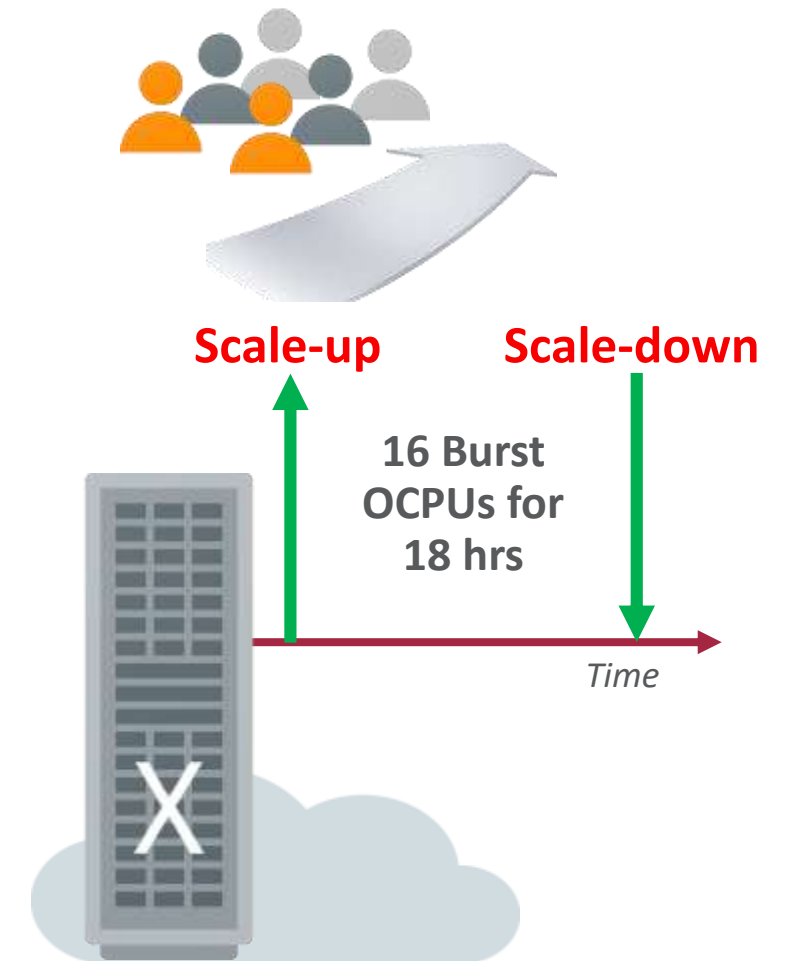
Offload SQL to Storage	
InfiniBand Fabric	
Smart Flash Cache, Log	
Storage Indexes	
Columnar Flash Cache	
Hybrid Columnar Compression	
I/O Resource Management	
Network Resource Management	
In-Memory Fault Tolerance	
Exafusion Direct-to-Wire Protocol	

Service Deployment



Online Scale-up Through Compute Bursting

- Grow/shrink compute capacity to meet peak or seasonal demands
- **Dynamically** add or reduce OCPUs as often as once an hour
- Hourly rates to lower costs – avoids the need to provision for peak
- Burst up to 2x the base number of OCPUs or max capacity (whichever is lower)
- GUI-based self-service



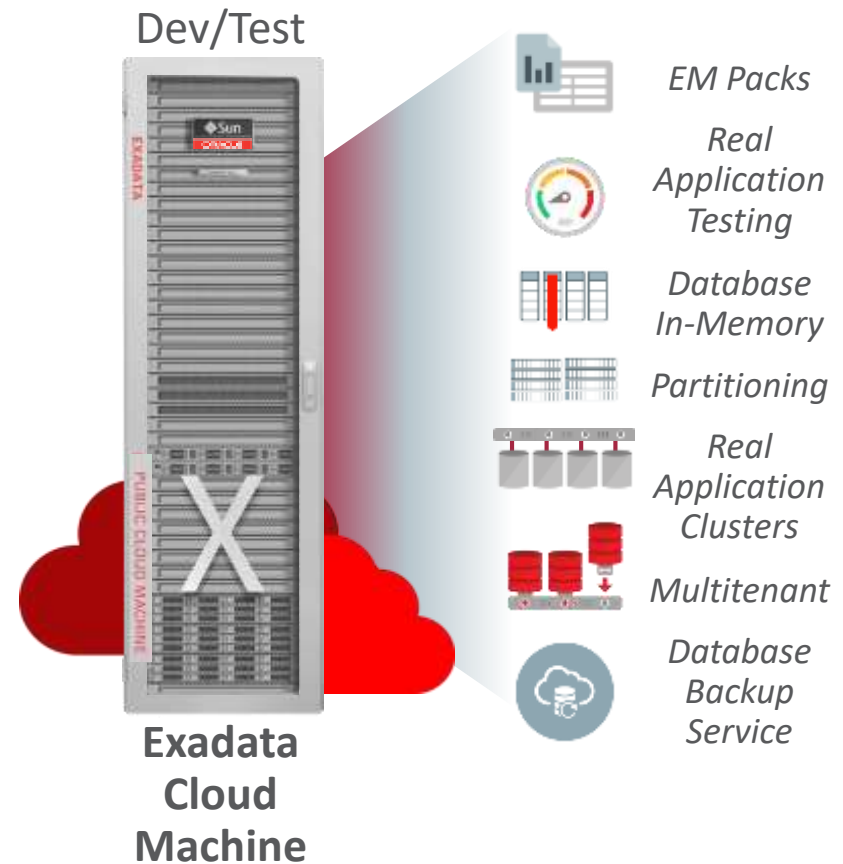
Develop and Test at Scale

- **Use Cases**

- **Comprehensive** Exadata DB development and tuning, with **full-scale** testing

- **Value of Cloud On-Premises**

- **Evaluate** the contribution of **any option**
- Use the full power of **Enterprise Manager**
- **Size small** for development, **burst** for full-scale testing
- **Essential options:**
 - *Real Application Clusters, Multitenant, Partitioning, Database In-Memory, Real Application Testing, Enterprise Manager Packs: Diagnostics, Tuning, Lifecycle Management, Data Masking & Subsetting, Cloud Management*



* All database options and EM Packs are included

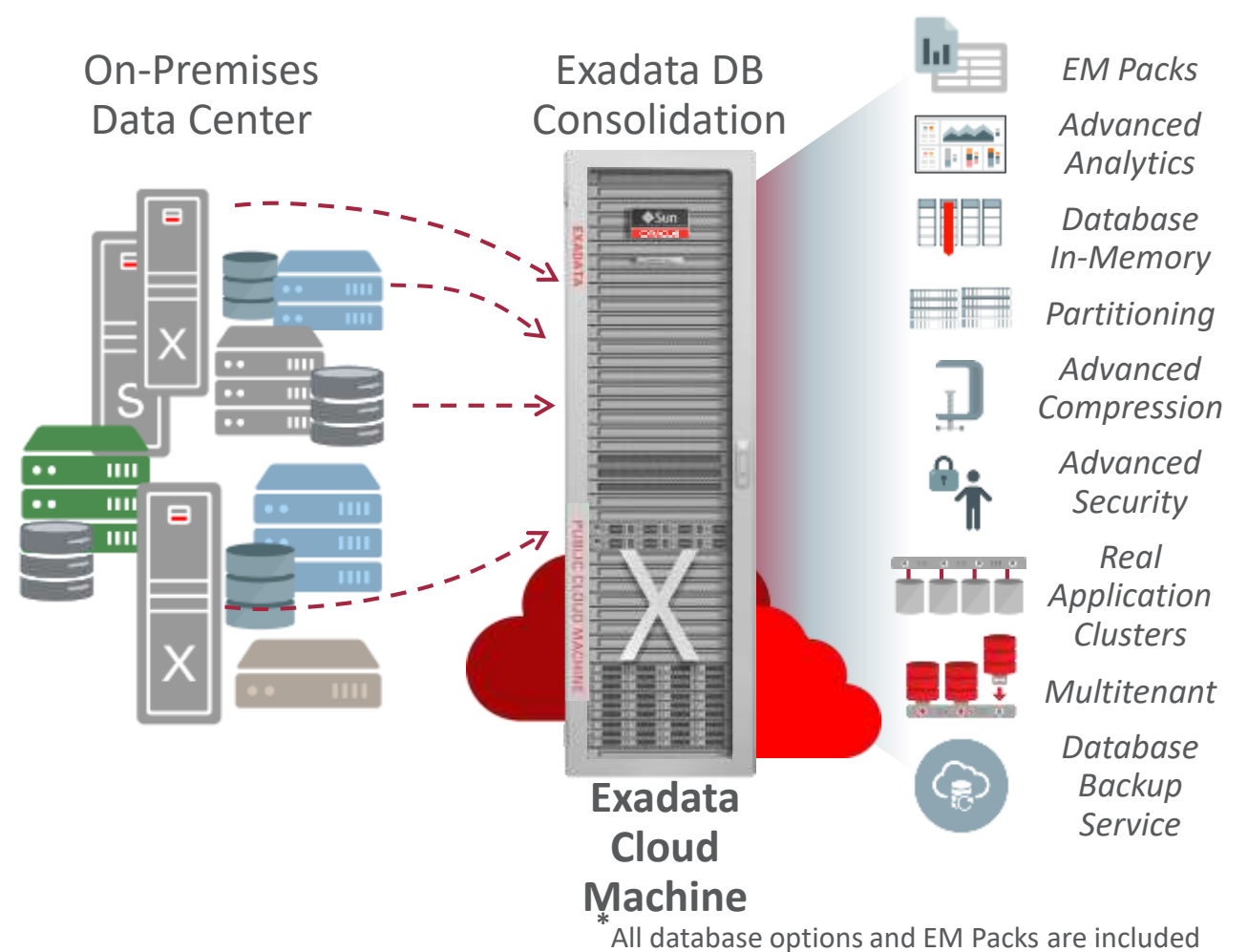
Gradual Consolidation – Data Center Reduction

• Use Cases

- **Consolidate** databases on-premises as servers are retired **at minimum risk**

• Value of Cloud On-Premises

- **Gradually increase subscription** as workload increases, **bursting** as needed
- **Maximize** each database with the best options for the job
- **Essential options:**
 - *Real Application Clusters, Advanced Compression, Partitioning, Advanced Security, Database Vault, Database In-Memory, Advanced Analytics, Multitenant, Active Data Guard, Enterprise Manager Packs: Cloud Management, Diagnostics, Tuning*



High Performance OLTP Or Analytics

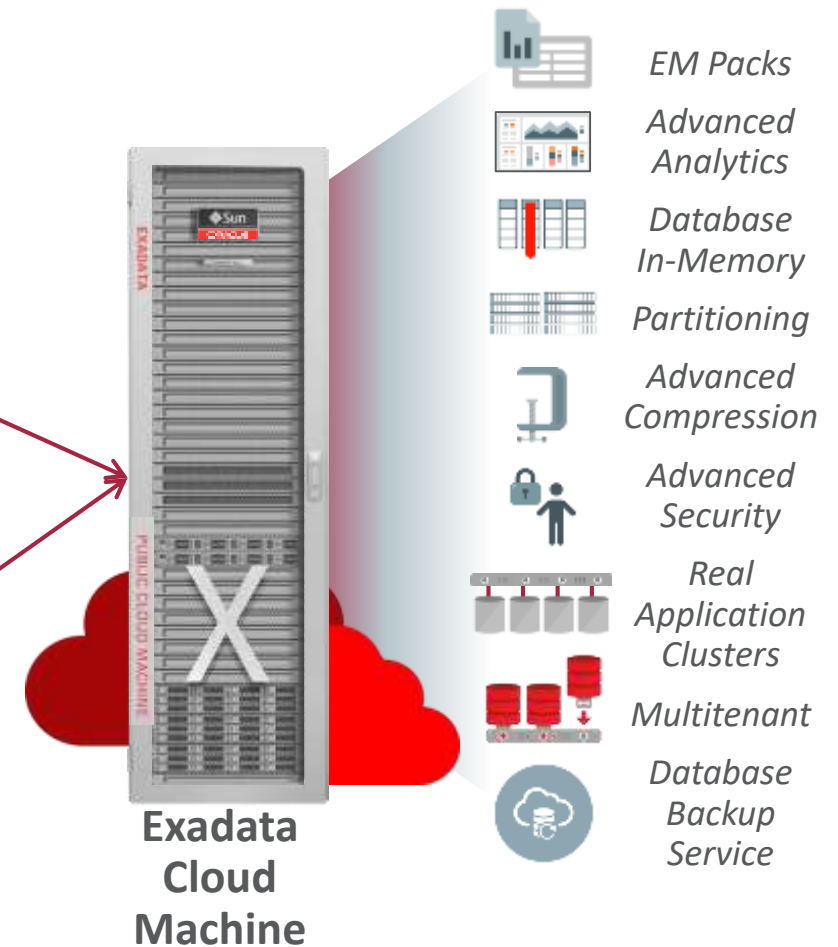
- **Use Cases**

- **Proven Exadata technology** for high performance OLTP or Analytics

- **Value of Cloud On-Premises**

- **OLTP:** Use *bursting* for peak loads
- **Analytics:** Bursting for peak analytics load + DB In-Memory option
- **Optimize** load with best options:
 - *Real Application Clusters, Advanced Compression, Partitioning, Advanced Security, Database Vault, Database In-Memory, Advanced Analytics, Multitenant, Active Data Guard, Enterprise Manager Packs: Cloud Management, Diagnostics, Tuning*

On-Premises
Data Center



* All database options and EM Packs are included

Active Standby/DR

- **Use Cases**

- Standby/DR site in sync with production
- Offloads **backups, reporting, real-time analytics** into the cloud

- **Value of Cloud at Customer**

- **Size small** for routine use – keep in sync
- **Burst DR to production size on failure**
- **Essential options:**
 - *Real Application Clusters, Active Data Guard, Database In-Memory, Partitioning, Database Backup Service, Enterprise Manager Packs: Cloud Management*

On-Premises
Production



Active
Data Guard

Active
Standby/DR



**Exadata
Cloud
Machine**



EM Packs



*Database
In-Memory*



Partitioning



*Real
Application
Clusters*



*Database
Backup
Service*

* All database options and EM Packs are included

Migrating to Exadata Cloud Machine

- 100% Oracle Database compatibility makes migration easy and low risk
- Local network connectivity to Exadata Cloud Machine allows for very fast migration
- Logical Migration: allows reorganization and optimization
 - Data Pump, GoldenGate Replication
- Physical Migration: simplest, byte-to-byte copy
 - RMAN backup, Transportable technologies, Data Guard
 - Restore from backup
- MAA Migration Best Practices “[Best Practices for Migrating to Exadata Database Machine](#)”



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- 5

CLAUDE GARALDE

Lead Principal Technical Architect

- 30 years at AT&T
- Member of AT&T's Technology Architecture Board (TAB) for 16 years – the TAB establishes and enforces the technology standards for the enterprise.
- Expertise is in cloud technologies, databases, data stores, data management,
- Oracle Master in 1996 and is TOGAF 9 certified.
- Charter member of Oracle's Database Customer Advisory Board.
- Lead architect on the team that demonstrated viability of deploying Oracle's Cloud within AT&T.

AT&T

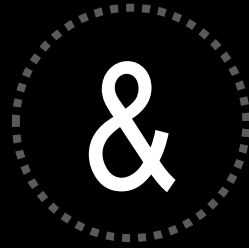


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THE RELATIONSHIP

CREATING A NEW BUSINESS MODEL

- Long Term
- Simplification



JOINT AT&T/ ORACLE EXECUTION

- Collaboration
- Knowledge Sharing



Strong focus on
BUSINESS RESULTS!

ROLES AND RESPONSIBILITIES

AT&T

BUILD

Provide floor space, power and network
AT&T Internal Cloud/ExaCC Integration
Application On-boarding & Funding
Operational processes / Security Compliance
Oracle version code upgrades to 11.2.04 or greater

PROD

Dom U Management and Administration
Identify & apply DB / GI / OS updates
Application & Database Administration / Mgmt.
Incident management & Remediation
Create & Submit SRs related to cloud databases
Backup/recovery & disaster recovery of DBs

ORACLE®

BUILD

Oracle Software loading / readiness of platform
Migration Services to Oracle Cloud
Provide required enhancements

PROD

Infrastructure Level (Dom 0) Management

- Incident & Performance monitoring
- Issue Resolution & RCA
- Updates & Quarterly Patching

99.95 % Infrastructure availability

KNOWLEDGE SHARING AND TRAINING

Oracle to conduct trainings sessions and knowledge share with AT&T DBA personnel

BENEFITS FOR ORACLE



DRIVE

Cloud Adoption



REFERENCE ARCHITECTURE

For DBaaS/InfoaaS



NextGen

Joint Innovation

BENEFITS FOR AT&T



- Security and performance of a Private Cloud with the benefits of Public Cloud
- Migrating over 2,000 DBs with ~10PBs to Oracle's Cloud
- Enables compute elasticity to scale up or down
- Provides pay-as-you-go pricing for cost elasticity
- Enables a shifts from CapEx to OpEx
- AT&T will also be leverage SaaS on Oracle's Public Cloud
- Option to use PaaS services on Oracle Cloud Machine

Migrating to the Cloud advances AT&T's position as a data-powered company while increasing speed and agility in delivering new products and services

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RYAN NICHOLS

Director of Technology

- 3 years at AT&T
- Lead Director over the migration of databases to Oracle's Cloud.
- Ryan has been an Executive IT Leader with over 20 years of experience within the Oil/Gas, Financial Services, Defense, and Media/Entertainment Industries.
- Expert in driving the development and operations of high-profile, mission-critical, information & database systems to optimize the use of existing infrastructure, maximize productivity and help the company reach its full technological potential.

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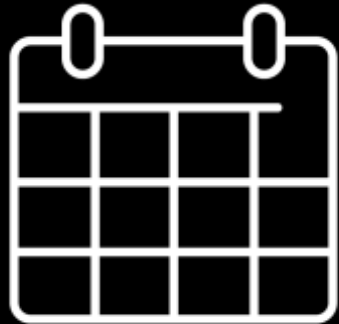
TECHNICAL CHALLENGE AREAS



INNOVATION



EXECUTION



TECHNICAL PLANNING



RELATIONSHIP/COLLABORATION

ORACLE EXACC SOLUTION

Oracle Cloud Machines (OCM)



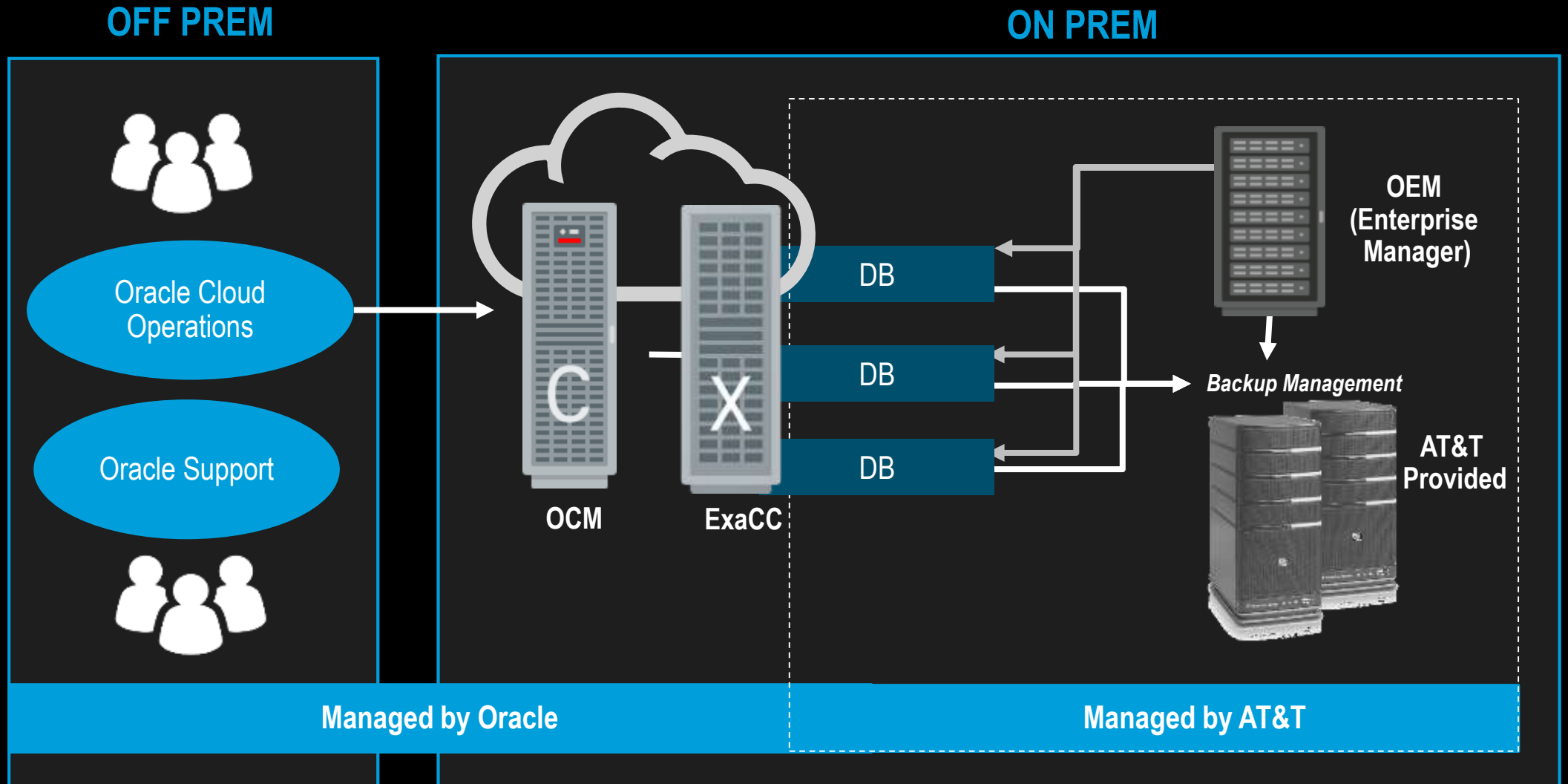
*are the orchestration engine
of the cloud solution*

Oracle Exadata Cloud at Customer (ExaCC)



*are the muscles that do
the work*

EXACC ARCHITECTURE & DESIGN



PROJECT AURORA

WHAT IS PROJECT AURORA?

The migration of AT&T databases greater than 8 TB to the Oracle ExaCC Platform

PROJECT AURORA PLANNING STEPS



Success
Criteria



Oracle Consulting
Studio Overview



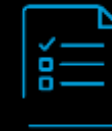
Application
Onboarding



DB Footprints



HW Install
Planning



Program Mgmt
Plans



Oracle Open
World

PROJECT AURORA PLANNING PRODUCTS



Comms &
Assessment



Early
Adopters



PMOs



DB Size
Standardization



Oracle
Studio



File Systems
Layout



AT&T Inventory
List



Service Tier
Structure

APPLICATIONS & DATACENTERS

APPLICATIONS/DATABASES

Applications	65
Production Databases	525
Non-Production Databases	1678

18 DATA CENTER LOCATIONS



Locations where the Oracle ExaCC Cloud Solution will be deployed

HOW BIG IS ORACLE EXACC CLOUD?

- Oracle Cloud Machine (OCM)
- Exadata Cloud at Customer (ExaCC)

Tools and Technologies Include:

- Oracle Cloud Machine
- Golden Gate
- Data Guard

—IMPACT TO THE AT&T TECHNICAL COMMUNITY—



Applications with relational databases greater than 8TB of data were unable to use the internal Cloud



Applications with relational databases greater than 8TB of data have the ability to leverage Cloud Architecture



Reduced time to configure and deploy a database



Reduce IT Costs



Enable New Capabilities

A UNIQUE RELATIONSHIP

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Proven at Thousands of Critical Deployments since 2008

- Petabyte Warehouses
- Online Financial Trading
- Business Applications
 - SAP, Oracle, Siebel, PSFT, ...
- Massive DB Consolidation
- Public SaaS Clouds
 - Oracle Fusion Apps, Salesforce, SAS, ...

4 OF THE TOP 5 BANKS, TELCOS, RETAILERS RUN EXADATA



Summary

- Best infrastructure for running a database platform
- Best platform for running a database service
- Best database service for any workload
- Integration throughout the data processing ecosystem
- Implemented in your data center
- Comprehensive support services
- Exadata Cloud Machine

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