

# Migrating Your Applications to Oracle Cloud

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# Agenda

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- Introduction
- Overview
- Migration Phases
  - Assessment
  - POC
  - Migrate
  - Enhancements
  - Cutover
- Migration Best Practices
- Migration Mistakes to Avoid

# Who Am I

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- Oracle Certified Administrator from Oracle 7 – 12c
- Exadata Certified Implementation Specialist since 2011
- Oracle Database Performance Tuning Certified Expert
- Oracle Business Intelligence Foundation Suite 11g Certified Implementation Specialist
- Oracle Database Data Warehousing Certified Implementation Specialist
- Multiple Exadata Implementations / POC's for large financial organizations
- Migrate / Upgrade databases between various versions of Oracle
- Capacity Planning for Oracle Engineered Systems
- Database Consolidation to Exadata / 12c Platform
- Architect Databases for OLTP and OLAP applications
- **Not an Oracle Employee or Nor I represent Oracle in any way**

# Cloud Migration Phases

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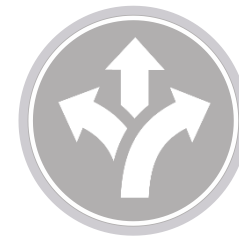
Assessment



POC



Migrate



Enhancements



Cutover

# Phase 1 : Assessment

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- Financial assessment
- Security and compliance assessment
- Technical Evaluation
- Identify additional needed tools
- Application profiling
- Create migration plans

# Financial Assessment

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- Weighing the financial considerations of owning a data center or employing a cloud-based
- Utilization of hardware is one of the key areas where enterprises can benefit from deploying to the cloud.
- Personnel costs include the cost of the sizable IT infrastructure teams
- Security costs for enterprises include capital expenditures for network security devices, security software licenses
- Energy-efficiency efforts require dedicating IT and Engineering resources
- Capacity constraints caused by the time that passes from when hardware is ordered to when it is Deliver

# TCO Calculator

Pricing Model	One-time Upfront		Monthly	
	Cloud	ON-SITE	Cloud	ON-SITE
Server Hardware				
Network Hardware				
Hardware Maintenance				
Software OS				
Power and Cooling				
Data Center/Co-located Space				
Administration				
Storage				
Bandwidth				
Resource Management Software				

# Security and Compliance Assessment

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- What is my overall risk tolerance?
- Are there various classifications of my data that result in higher or lower tolerance to exposure?
- What are my *main* concerns around confidentiality, integrity, availability, and durability of my data?
- What are my regulatory or contractual obligations to store data in specific jurisdictions?
- What are my security threats?
- What is a likelihood of those threats materializing into actual attacks?
- Am I concerned about intellectual property protection and legal issues of my application and data?
- What are my options if I decide that I need to retrieve all of my data back from the cloud?
- Are there internal organizational issues to address to increase our comfort level with using shared infrastructure services?



# Technical Assessment

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- Which business applications should move to the cloud first?
- Does the cloud provide all of the infrastructure building blocks we require?
- Can we reuse our existing resource management and configuration tools?
- How can we get rid of support contracts for hardware, software and network?
- Create a Dependency Tree and a Classification Chart
- Identifying the Right “Candidate” for the Cloud

# Identify Additional Tools

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- **Oracle Application Performance Monitoring Cloud Service** provides development and operations teams with the information that they need to find and fix application issues fast
- **Oracle Infrastructure Monitoring Cloud Service** monitors the status and health of your entire IT infrastructure - on-premises or on the cloud.
- **Oracle Orchestration Cloud Service** executes tasks at hyper cloud scale automating any by calling REST, scripts, or 3rd party automation frameworks
- **Oracle Compliance Service** enables the IT and Business Compliance function to assess, score and remediate violations using industry standard benchmarks
- **GoldenGate Cloud Service** is a cloud based real-time data integration and replication service, which provides seamless data movement from various on-premises relational databases to databases in the cloud
- **Ravello** Seamlessly deploy your existing VMware or KVM based data center workloads on Oracle Public Cloud

# Create Migration Plans

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- Define a Success Criteria
- Document the dependencies
- Creating a dependency tree
- Create comprehensive Testing plan
- Construct a cloud migration roadmap

# Application Profiling

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- CPU usage
  - Average
  - High
- Memory usage
- Storage data
  - throughput,
  - latency
  - input/output operations per second (IOPS)
- Network data
  - Throughput
  - connections per second
  - dropped connections
  - in-bound / Out-Bound Ports

# Phase 2 : Proof Of Concept

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- Get your feet wet with Oracle Cloud
- Learn about the Oracle Cloud security features
- Build a pilot and validate the technology
- Test existing software in the cloud
- Build confidence with various Cloud services
- Mitigate risk by validating critical pieces of your proposed architecture

# Phase 3 : Migrate ( Data )

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- Select migration Option based on your Need
- Can you upgrade Database version
- Encrypt data on Rest and in-transit
- Validate Data in Cloud
- Understand different storage options in the cloud
- Understand various RDBMS options in the Oracle cloud

# Understand different storage options in Oracle Cloud

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## ➤ **Oracle Storage Cloud Service – Object Storage**

- Cost-effective archive in the cloud for large-scale data sets, long-term data retention, rich media content, scientific research archives and cultural preservation

## ➤ **Oracle Storage Cloud Service – Archive Storage**

- Cost-effective archive in the cloud for large-scale data sets, long-term data retention, rich media content, scientific research archives and cultural preservation

## ➤ **Oracle Database Backup Service**

- Storage for All Your Oracle Database Backup Needs. A reliable and scalable object storage solution for storing and accessing your ever-growing Oracle Database backup data.

## ➤ **Oracle Storage Cloud Software Appliance**

- provides data security with granular encryption, data integrity via checksum verifications, automatic translation between files and objects, near local NAS performance through data caching, docker support for easy deployment

## ➤ **Oracle Public Cloud Data Transfer Services**

- Storage Appliance Import to quickly and securely migrate large data sets (historical archives, data lakes, large legacy databases) to Oracle Public Cloud.

# Understand various RDBMS options in the Oracle cloud

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## ➤ **Oracle Database Cloud Service**

- Database Cloud Service offers elastic database services for application development, test and production deployment.

## ➤ **Oracle Database Exadata Cloud Service**

- The Exadata Cloud Service brings the full power of Exadata to the Oracle Cloud.

## ➤ **Oracle Database Exadata Cloud Machine**

- Oracle Database Exadata Cloud Machine delivers the world's most advanced database cloud to customers who require their databases to be located on-premises.

## ➤ **Oracle Database Exadata Express Cloud Service – Managed**

- Exadata Express provides your own Oracle Database Enterprise Edition running the latest database release on Exadata for a full Oracle experience.

## ➤ **Oracle Database Schema Cloud Service – Managed**

- Prospective Schema Service customers should consider Exadata Express, which provides a richer cloud database experience at a similar entry-level price.



# Phase 3 : Migrate ( Application )

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## ➤ **Lift-and-shift**

- Provide a fast cloud migration solution
- Migrate an existing application into the cloud with few code changes
- Self-contained Web applications can be moved into the cloud using this strategy
- Applications might not be able to take immediate advantage of the elasticity and scalability of the cloud

## ➤ **Re-architecting**

- Run applications on a cloud provider's infrastructure
- Revise modify or extend the existing code base
- Able to take immediate advantage of the elasticity and scalability of the cloud
- Opportunity to introduce new functionality to application

# Phase 4 : Enhancements

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- Harden Security for Cloud application
- Further reduce cost using Oracle Cloud Features
- Improve the efficiency (and reduce waste)
- Setting up metrics for measuring critical application performance
- Integrate Oracle Cloud administration tools to manage and maintain migrated application
- Optimize application and database to run in more elastic fashion

# Cutover

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- Backup current System , specially database.
- Sync data between your on premise database and cloud database.
- Validate Data on Cloud System.
- Validate Application On Cloud System.
- Cutover application and move traffic to new cloud Application.
- Remediate any issues you encounter after the cutover.
- Have a fallback plan.

# Oracle Cloud Best Practices

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- Architect to support growth in users, traffic, or data size.
- Take Full Advantage of Active Oracle Data Guard, if exist
- Eliminate single point of failure, using Oracle Replication Technologies like Data Guard & GoldenGate.
- Always Protect Data in Transit or at Rest.
- Make Sure understand Oracle Cloud Build-in Security Feature and use them.
- Take advantage of the dynamically provisioned nature of Oracle cloud.
- Use the Oracle Compute Cloud Service REST API to provision and manage instances and the associated resources

# Mistakes to Avoid

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- Misunderstand licensing options of a target application.
- Incomplete application testing plan.
- Skipping Proof Of Concept phase.
- Not Tuning your application for Cloud.
- Choosing Wrong Cloud Service Model.

# Thank You

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