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Oracle Cloud Infrastructure Discovery, Assessment, and Planning

PURPOSE STATEMENT

This document provides a framework for the Discovery, Assessment, and Planning phase of an Oracle Cloud Infrastruture project.

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INTRODUCTION

The life cycle of any cloud project has multiple phases:

1. **Evaluation**: Develop a cloud adoption strategy
2. **Discovery, Assessment, and Planning**
3. **Implementation**: Migrate and validate
4. **Operations**: Monitor, run, and fix your applications in the cloud
5. **Evolution and Optimizations**: Create a feedback loop to optimize your cloud solution
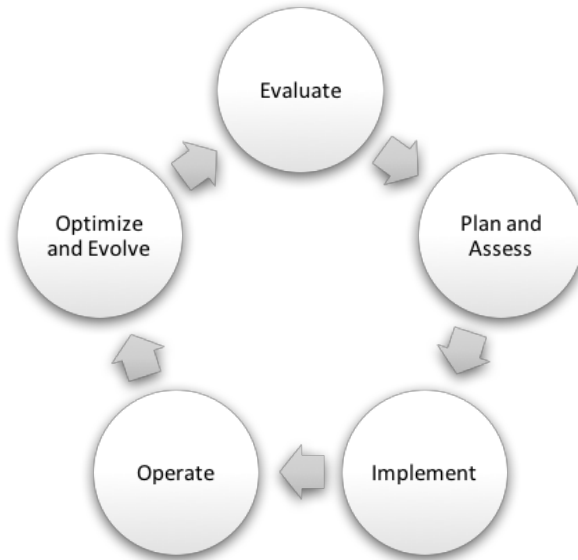

Figure 1: Life Cycle of a Cloud Project

This document provides a framework for the Discovery, Assessment, and Planning phase (#2) of an Oracle Cloud Infrastruture project. This framework is applicable to a wide variety of environments.

Note: Discovery might be time consuming, and it might not be possible to collect all the required data. In some cases, you might need additional discovery data depending on customer environment and requirements. So, use your judgement to determine when you have enough information to move on to next phases of the cloud project.

OUTCOMES

- Stakeholder details, challenges, requirements, and responsibilities (RACI)
- Inventory of physical and virtual infrastructure: servers, storage, switches, and their uses
- Inventory of applications, software, and current licensing
- Current implementation details and architectures
- Modernization and migration pattern and operating model
- Security and compliance requirements (covered in a separate security checklist document)
- Future-state architecture blueprint for Oracle Cloud Infrastruture

CUSTOMER REQUIREMENTS

Interview the key customer stakeholders for the project. Include the business owner, development team, operations team, CIO, CTO, executive sponsor, procurement team, IT team, security team, and any other stakeholders. Write detailed notes and analysis about customer requirements.

Add rows and columns to the following table as required.

Table 1: Customer Requirements

STAKEHOLDER	NAME, CONTACT INFORMATION	KEY CHALLENGES	BUSINESS REQUIREMENTS	TECHNICAL REQUIREMENTS	COMMENTS AND ANALYSIS
Project owner					
CIO office					
CTO office					
CISO office					
Development team					
Operations team					
Procurement team					

CURRENT INFRASTRUCTURE ASSESSMENT

Discover the current infrastructure portfolio, software used, and how various Oracle Cloud Infrastruture services, marketplace, and third-party ISVs on Oracle Cloud Infrastruture can support your needs.

Infrastructure Portfolio

Use the Comments column to add additional insights and context.

Table 2: Infrastructure Portfolio

INFRASTRUCTURE	CURRENT SOLUTION AND SOFTWARE USED	ORACLE SAAS, OCI, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS (EXAMPLES: OPEN TO CHANGING VENDOR, WANTS BYOL)
Tools or methods used for inventory and assessment			
Operating systems			
Hardware and VMs			
Network topology			
Network connectivity			
Switching and cabling			

INFRASTRUCTURE	CURRENT SOLUTION AND SOFTWARE USED	ORACLE SAAS, OCI, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS (EXAMPLES: OPEN TO CHANGING VENDOR, WANTS BYOL)
Routers			
Wireless			
Server and instance firewalls			
Intrusion detection or prevention systems (IDS/IPS)			
Anti-virus			
Pen testing and vulnerability assessment			
Other security tools and software			
Malware			
ILM			
Disaster recovery			
Backups			
Replication and availablitiy			
DevOps			
Infrastructure automation			
Infrastructure management and monitoring			
Licensing			
Scaling and cluster management			

INFRASTRUCTURE	CURRENT SOLUTION AND SOFTWARE USED	ORACLE SAAS, OCI, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS (EXAMPLES: OPEN TO CHANGING VENDOR, WANTS BYOL)
Billing and chargeback			
Notifications and alerting			
Service desk and incident management			
Other			

Infrastructure Inventory

Perform an inventory with details for each major piece of hardware currently being used. Add a table for each server, router, SAN, and so on, and add relevant information.

Table 3: Inventory of [name of hardware]

HARDWARE	DETAILS
Server name (FQDN)	
Role	
OS	
Physical or virtual details	
Domain	
Applications or software installed on the server	
IP addresses	
Services	
Performance metrics used	
Cores or CPUs	
Memory	
Storage	
Peak CPU utilization percentage	
Average CPU utilization percentage	

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HARDWARE	DETAILS
Peak memory utilization	
Dependencies and connections	
Age and depreciation information	

APPLICATION ASSESSMENT

Gather information about the current application portfolio.

Application Portfolio

Select all that apply and provide details such as whether the application is homegrown or implemented with some enterprise software, whether another vendor or system integrator is involved, and so on. If an application is homegrown, provide information about the software stack used for the implementation.

Table 4: Application Portfolio

APPLICATIONS AND USE CASES	DETAILS (SOFTWARE, VENDORS USED)
☐ Oracle apps	
☐ Microsoft apps	
☐ SAP apps	
☐ IBM apps	
☐ Other enterprise apps	
☐ Web apps	
☐ HCM	
☐ EPM	
☐ CX	
☐ ERP	
☐ SCM	
☐ CRM	
☐ BPM	
☐ Data warehousing	
☐ Big Data analytics	
☐ HPC	

APPLICATIONS AND USE CASES	DETAILS (SOFTWARE, VENDORS USED)
☐ IoT	
☐ Gaming	
☐ Mobile	
☐ AI/ML	
☐ AR/VR	
☐ Dev/Test	
☐ SaaS	
☐ Blockchain	
☐ BI	
☐ Real-time analytics	
☐ Industry-specific solutions	
☐ Other (specify)	

Application Details

Create one table for each application. In the second column, list the software used for the application. In the third column, list which Oracle Cloud Infrastruture, Oracle SaaS, Oracle PaaS, Cloud at Customer, and Marketplace offerings can be used. This is valid even if it will be new cloud native implementation or migration using rehost (Oracle Cloud Infrastruture), replatform (PaaS), or replacement (SaaS) techniques. Use the Comments column to include context and insights.

The following example table is mainly for web applications. Add rows at the bottom for other application components not included in the table.

Table 5: Application # *n*

APPLICATION	CURRENT SOLUTIONS, TOOLS, AND SOFTWARE	OCI, ORACLE SAAS, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS
Application name and brief description			
Cloud strategy for the app: Retire, Rehost (IaaS), Replatform (PaaS), Replace (SaaS), Rebuild (cloud native)			

APPLICATION	CURRENT SOLUTIONS, TOOLS, AND SOFTWARE	OCI, ORACLE SAAS, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS
If hybrid required: data center location, internet provider, networking gear, FastConnect or VPN, and so on			
Tools used for inventory and assessment			
Compliance and regulatory requirements			
SLAs			
Web server			
Application server			
RDBMS			
Load balancer			
CDN			
File system			
Application caching			
Backups			
Archival			
NoSQL database			
Big Data database			
Data warehouse			
Users (peak and average)			
Transaction rate (peak and average)			

APPLICATION	CURRENT SOLUTIONS, TOOLS, AND SOFTWARE	OCI, ORACLE SAAS, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS
Expected growth (user, transaction, and data)			
Application security (encryption, keys, WAF, DDOS, IDS, IPS)			
User management (identities, roles, federation, LDAP, SSO, AD, SAML)			
Data classification			
Messaging and workflow			
Database backup and recovery			
DNS			
Application backup and recovery			
Disaster recovery			
Availability and fault tolerance			
Scaling (horizontal and vertical)			
DevOps			
Application monitoring			
Source code control			
Billing and chargeback			
Governance			
Auditing requirements			
Notifications, alerting			

APPLICATION	CURRENT SOLUTIONS, TOOLS, AND SOFTWARE	OCI, ORACLE SAAS, AND MARKETPLACE OFFERINGS (FOR NEW CLOUD NATIVE IMPLEMENTATION, LIFT AND SHIFT, REFACTORING, OR REPLACEMENT)	COMMENTS
Logging, monitoring, and log management			
Service desk and incident management			
SI, vendors, providers			
Other			

IMPLEMENTATION METHODOLOGY AND OPERATING MODEL

Multiple adoption strategies enable your journey to the cloud. Based on your success criteria and your application portfolio evaluation, you might choose more than one of these cloud adoption strategies. In fact, most enterprises implement multiple cloud adoption strategies at the same time.

1. Retire or revisit
2. Retain: Hybrid with on-premises and cloud
3. Rehost: Move and improve
4. Replatform: Rearchitect with platform and infrastructure cloud services
5. Replace: Managed cloud services and SaaS offerings
6. Rebuild: Cloud native in Oracle Cloud Infrastructure

You need to finalize your strategy for each application in the portfolio based on your analysis and customer requirements. This information is captured the second row of the table in the previous section.

CLOUD SERVICE DEFINITIONS

Use the following template to define the different application-level and foundational cloud services that you need to implement in Oracle Cloud Infrastructure.

Table 6: Cloud Service Definition

CATEGORY AND DESCRIPTION
Cloud service name: Name of the cloud service.
Type of service: For example, IaaS, PaaS, or SaaS.
Deployment model: Public, private, or hybrid.
Design overview: High-level overview of the design.
Priority classification: How business-critical is the application.
Dependencies: List of the service dependencies.

CATEGORY AND DESCRIPTION
Identity management: Includes authentication, authorization, roles, and federation.
Network setup: Design for the virtual cloud network (VCN), peering, and connectivity.
Tenancy, billing, and compartment design: Set up tenancies and billing with compartments based on customer requirements.
Security controls: Security provisions and compliance statements.
Data migration: Data classification and plans for migrating data to Oracle Cloud Infrastructure.
Workload characteristics: Define the workload that this service supports.
Sizing: Size the service by using the service-specific parameters.
Elasticity and scaling design: How is the service capacity managed based on demand variations? How will this service be scaled: horizontal or vertical? Does the architecture support automation to provide elastic scaling capabilities?
Access method: How will the service be accessed? Routing information and load balancing.
Isolation: Define the isolation strategy: data level, container level, application level, process level, and so on.
Multi-tenancy design: Supporting multiple tenants and consumers at various levels of architecture. This design should cover issues such as how tenant data is organized, how security infrastructure is shared, how the requests from different tenants are routed, and how the critical components of architecture are isolated.
Resource pool: Describe the underlying resource pool (for example, virtualized infrastructure hosting VMs, a large VM hosting multiple WebLogic JVMs, a database hosting multiple schemas).
Service class or tiers: These are typically the operational characteristics (for example, backup frequency and retention period) or service quality metrics (for example, overprovisioning ratio) that form SLAs and are expressed in business language (for example, Gold, Silver, Bronze).
Deployment zones: This is a logical concept but can represent business units, data centers, infrastructure pods, security zones, and so on (configurable to the enterprise within the management tooling).
Unit of provision: What is the consumer getting when this service is turned on? (for example, a VM with a preinstalled OS, a WebLogic JVM, a database schema).
Provisioning: How is this service provisioned? What level of automation will be implemented?
Metrics, monitoring, and diagnostics: Define the metrics used to measure this service (for example, CPU utilization, bandwidth, space used). How will the service be monitored? What kind of instrumentation and diagnostics will be provided?
Integration design: Service integration design details, including ecosystem integration points like DNS, DHCP, and monitoring.
Backup and restore: Plan whether you are using native functionality or supported tools.

CATEGORY AND DESCRIPTION
HA design: High availability and redundancy design.
DR design: Disaster recovery design with RTO and RPO

FUTURE-STATE ARCHITECTURE BLUEPRINTS

Based on the modernization or migration methodology, an important outcome is building the future-state architecture blueprint for Oracle Cloud Infrastructure. This blueprint includes VCN details, services to be provisioned, and shape or sizing information for each service being used. For an example reference architecture blueprint for a future state in Oracle Cloud Infrastructure, see Blueprint: Oracle E-Business Suite on Oracle Cloud Infrastructure.

Sizing information is not provided in this example because it's a generic architecture. However, we highly recommend including sizing information for a future-state architecture blueprint that is based on specific customer requirements.

The Oracle Cloud Infrastructure Architecture Center provides general-purpose reference architectures and solution guides, which can be a good starting point for customization.

For official Oracle Cloud Infrastructure icons and stencils that you can use to create reference architecture diagrams, see Graphics for Topologies and Diagrams.

NEXT STEPS

In addition to the information covered in this document, there are other steps you need to take before you are ready to implement a cloud project:

- Security and compliance baseline, requirements, and design (covered in a separate document)
- Bill of material in Oracle Cloud Infrastructure and associated consumption plan (covered in a separate document)
- Joint execution plan and RACI matrix of who is doing what on the customer, partner, and Oracle Cloud Infrastructure teams

With that, you can move on to the Implementation and Operations phases as outlined in the "Introduction."

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