Move & Improve : Custom Apps + Oracle DB Database Migration and Consolidation to Oracle Cloud Infrastructure

조경진 상무
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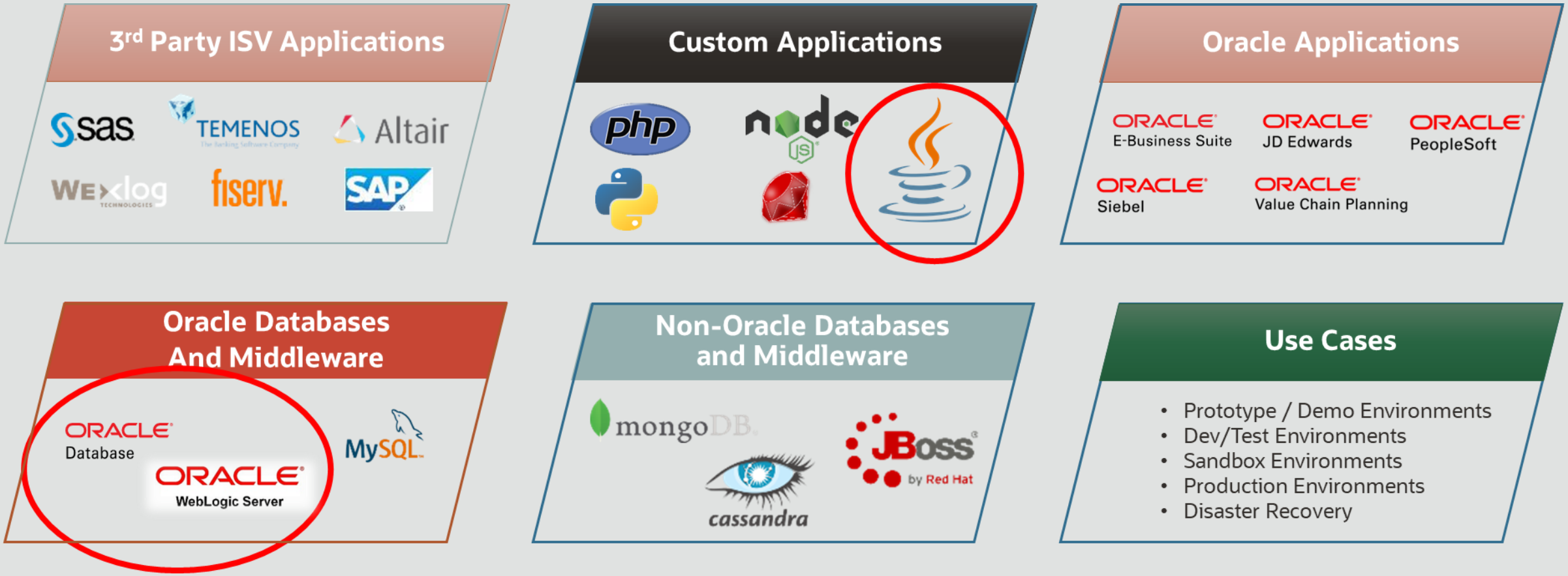
The development, release, timing, and pricing of any features or functionality described for Ora cle's products may change and remains at the sole discretion of Oracle Corporation.

Agenda

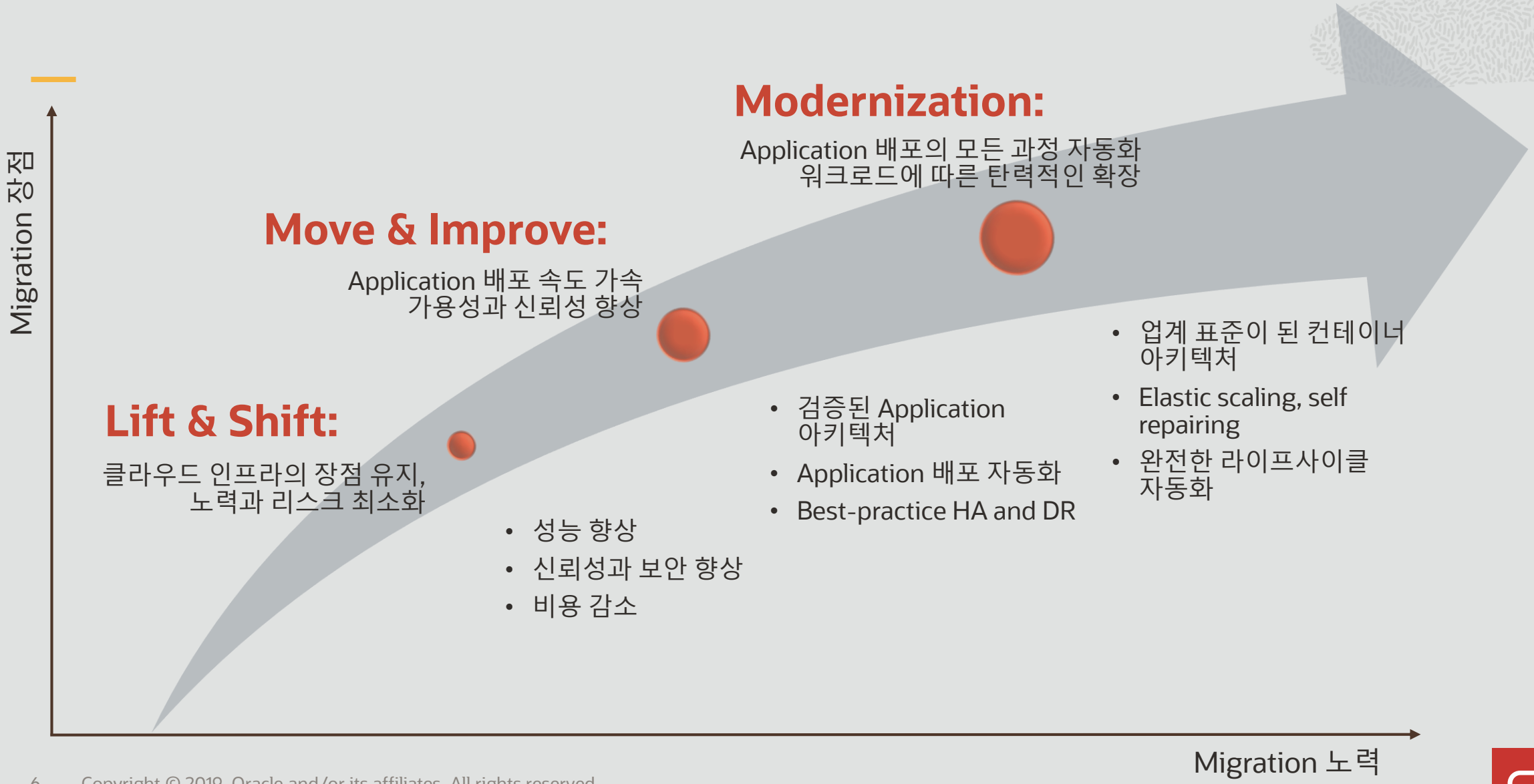
1. Move & Improve : Custom Apps + Oracle DB
2. Database Migration
3. Database Consolidation
4. Summary – Converged Oracle Database

Move & Improve : Custom Apps + DB

Oracle Cloud 이관을 위한 Applications 종류



Application Migration 시나리오



OCI에서 WebLogic Server 의 다양한 선택

Lift & Shift

WebLogic Server on OCI compute (manual)

- All supported versions of WLS on OCI Compute
- Customer-Managed Infrastructure
- Customer-Managed WebLogic

1

Move & Improve

WebLogic Server for OCI (automated by Oracle Resource Manager)

- Specific versions available on OCI Marketplace
- New images rollout
- Oracle-Managed Infrastructure
- Customer-Managed WebLogic

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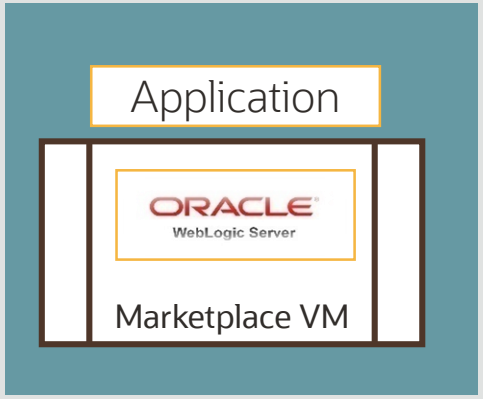

Modernize

WebLogic Server on Oracle Container Engine (OKE)

- Oracle-Managed Infrastructure
- Container Engine for Kubernetes (Oracle-Managed Kubernetes)
- WL K8S Operator
- Customer-Managed WebLogic

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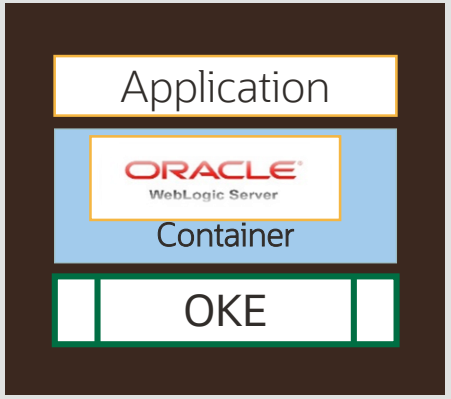
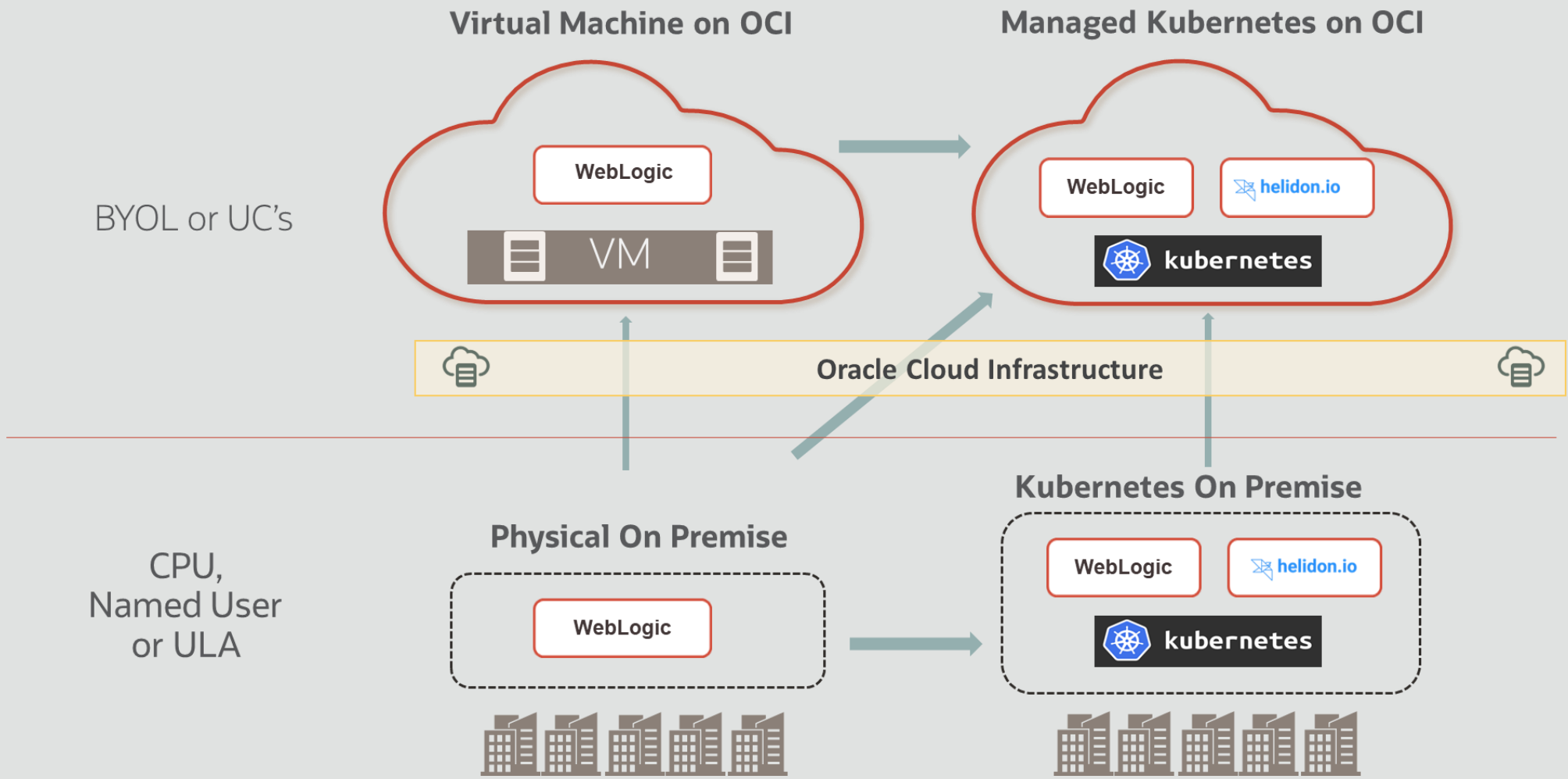


WebLogic to the Cloud: Migration Options



Database Migration

Top-10 Signs That You Should Consider Database Cloud Migration

데이터 증가로 인한 응용 프로그램 성능 문제

노후화된 하드웨어, 기술지원 계약 만료

DB 버전, OS 버전 및 하드웨어에 걸친 데이터베이스 확장 업그레이드

데이터 액세스를 위한 보안, 규정 준수 및 정책 관리의 복잡성

DBA가 급증하는 워크로드를 관리하기 어려운 경우

고가용성을 보장하기 위한 복잡한 아키텍처

재해 복구 문제, 비용 상승, 허용 할 수 없는 RPO / RTO 성능

피크시 대비를 위한 고비용 구조의 데이터베이스 확장 프로비저닝

개발/테스트 단계에서 적절한 데이터베이스 사용의 어려움

증가되는 비용문제

Oracle Database Migration Solutions

모든 소스 데이터베이스에서 OCI의 대상 데이터베이스로 최적의 마이그레이션 솔루션 제공

On premises, public clouds:

ORACLE Database 11g | ORACLE Database 12c | ORACLE Database 18c | ORACLE Database 19c | ORACLE on EC2 | ORACLE on RDS

Migration resources:

- Offline: **Data Pump** (create an exact copy from OnPrem to any target DB)
- Online: **Zero Downtime Migration *** (live sync on-prem to cloud DB)
- Many additional DB Migration Tools for other specific use cases
- Available Oracle consultative options to ensure migration success

* Autonomous DB support coming soon

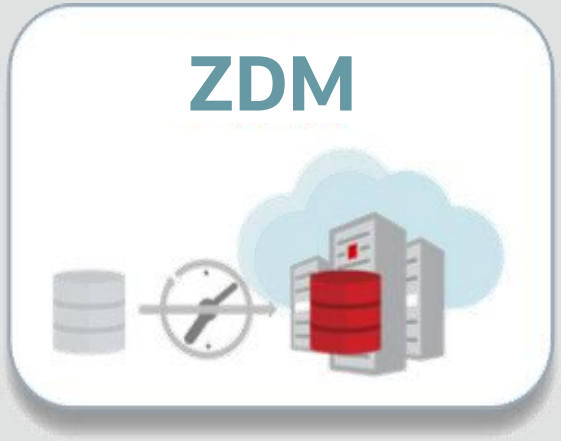
Oracle Cloud Database options:

ORACLE Cloud Infrastructure	ORACLE Database Cloud Service	ORACLE Database Cloud Service	ORACLE Database Cloud Service	ORACLE Autonomous Database	ORACLE Autonomous Database
Compute / Storage	Virtual Machines	Bare Metal	Exadata Cloud Service	Transaction Processing	Data Warehouse

Zero Downtime Migration (ZDM) - Online Migration

업무 무중단이 필요한 경우, 가장 쉬운 마이그레이션 방법

Source databases:
- (CDB/PDB) Databases 12c, 18c, 19c
- Non-CDB Databases 11g, 12c, 18c, 19c
- Oracle Databases on AWS EC2



Target databases:
- DBCS VM, DBCS BM, ExaCS
- Versions: 11g, 12c, 18c, 19c

ZDM을 사용하면 온 프레미스 데이터베이스를 Oracle Cloud로 쉽고 효율적으로 마이그레이션 할 수 있습니다. ZDM은 Oracle Active Data Guard 및 Oracle Golden Gate와 같은 Oracle MAA * 기술을 활용하여 마이그레이션 중 다운 타임을 최소화하거나 무중단으로 진행할 수 있습니다.

* MAA - Maximum Availability Architecture

Simple, single button approach

MAA* best practices, incl. pre/post checks, resumable, roll-back, dry-run

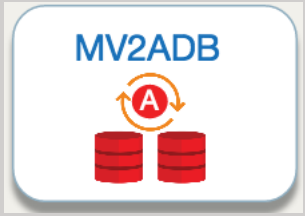
Enterprise fleet-scale migrations, scheduled, parallel execution, audit-trail

Free

Additional Migration Options

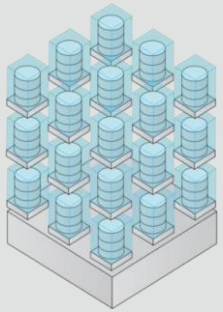
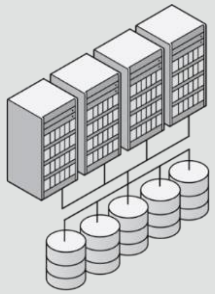
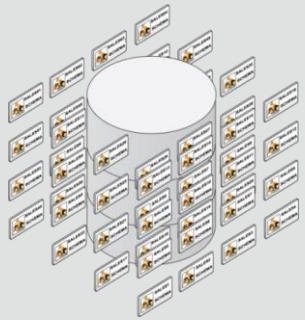
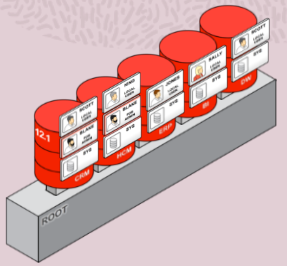
Tool	Description	Source Databases	Target Databases
	**Data Pump**, enables easy and efficient migration of data between databases. For migrations it supports Transportable Table Spaces, Export / Import, and migrations to ADB (through MV2ADB)	CDB/PDBs and non PDBs for 11g, 12c, 18c and 19c	DBaaS BM/VM, Exadata, ADW, ATP D&S
	**Plug / Unplug** - easy migration from multi-tenant to multi-tenant databases	CDB/PDBs and non PDBs for 11g, 12c, 18c and 19c	DBaaS BM/VM, Exadata
	**Remote Cloning** - enables easy cloning of databases	CDB/PDBs and non PDBs for 11g, 12c, 18c and 19c	DBaaS BM/VM, Exadata

Additional Migration Options

Tool	Description	Source Databases	Target Databases
	**MV2ADB** - As ZDM does not yet migrates data to ATP and ADW, this script has been created to enable migrations to Autonomous Database.	11g, 12c, 18c, 19c	ADW ATP Dedicated ATP Serverless
	**Oracle SQL Developer** is a free IDE for development and management of Oracle Databases. It supports PL/SQL applications, queries and scripts, a DBA console, reports, data modeling, and a migration of 3rd databases.	11g, 12c, 18c, 19c, Redshift, AWS RDS	DBaaS BM/VM, Exadata, ADW, ATP D&S
	**RMAN (Oracle Recovery Manager**), a backup and recovery tool for OracleDB, supports migrations of PDBs, Transportable Table Space BackUp sets, and Database Duplication.	CDB/PDBs and non PDBs for 11g, 12c, 18c and 19c	DBaaS BM/VM, Exadata

Database Consolidation

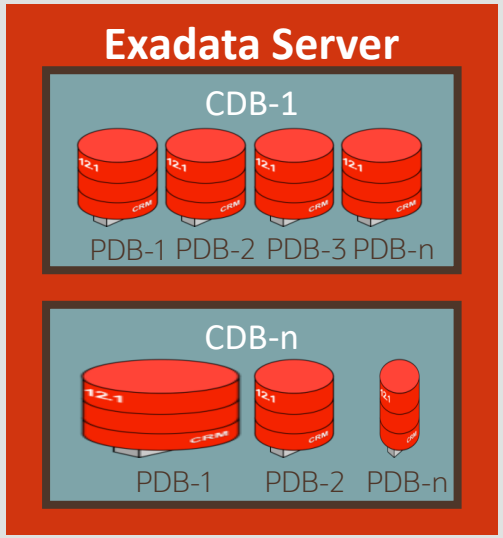
Consolidation Architecture 선택

	 Virtual Machines	 Dedicated DB	 Dedicated Schemas	 Pluggable DB
Consolidation Density	Low - Moderate	High	Highest	Highest
Management	Very complex (VM Sprawl)	Easy	Easy to Involved (based on required resource isolation)	Easy
Isolation	Excellent	Good	Low	Good
Implementation & Onboarding	Easy	Easy	Difficult	Easy
Application Suitability	Some (workload dependent)	All	Home grown; requires app validation	All, but certified 12c and higher

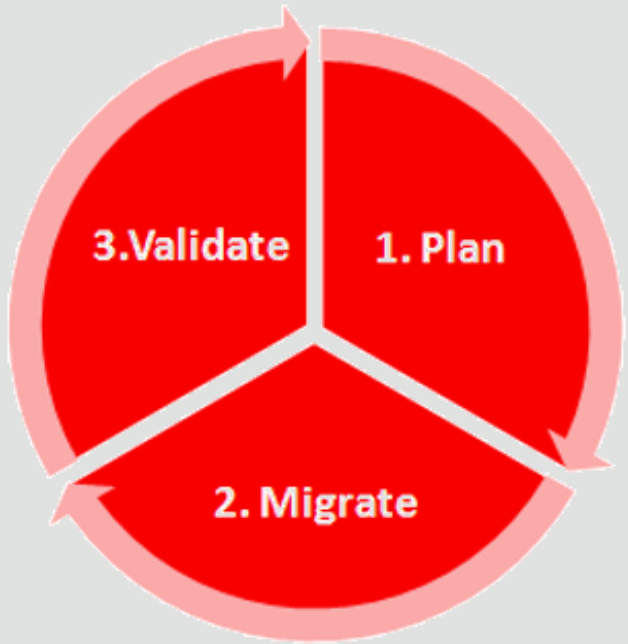
Increasing Consolidation

Database Consolidation Planning & Workbench

- 온 프레미스(Prod, Test, Dev) 성능을 수집
- 비즈니스 요구에 따른 OCI 아키텍처를 계획
  - 운영, 테스트, 개발 등 업무 라인, 부서별 구분
  - CPU, 메모리 및 스토리지 I/O 리소스 관리
  - 백업 및 가용성 요구 (HA, DR)
- 아키텍처 배포 및 OCI로 마이그레이션 시작
- 통합된 데이터베이스의 성능 및 가용성 검증



- Database Consolidation Workbench (Enterprise Manager)
- 추측 작업, 휴먼 에러를 제거, 리스크 없는 정확한 통합 방법 제공
  - 계획에서 배포에 이르는 모든 단계 자동화
  - 데이터베이스 이동시 위험을 줄이는 마이그레이션 도구
  - 통합 데이터베이스에서 SPA(Real Application Testing)을 통한 검증



Oracle Converged Database 특징 : Multi-Model Database

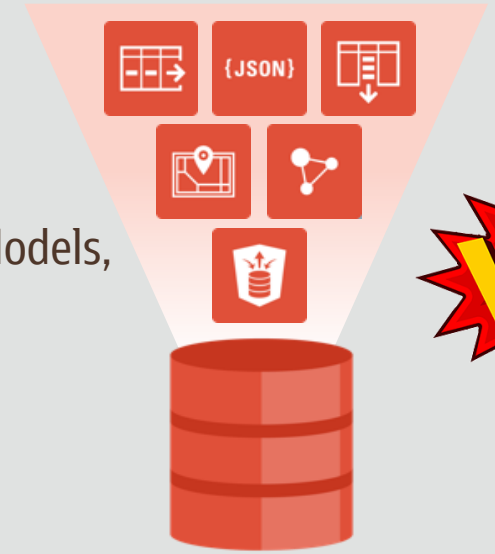
데이터 관리 복잡성을 줄이고, 데이터 통합 극대화

One Converged Database vs. Several Specialized Databases

Multi-Purpose System vs. Single-Purpose System

ORACLE

Support Multiple Data Store & Models,
Integrate Polyglot Environment
(Multi-Model Polyglot)
Security Standardization
Simple to manage



VS

他社 데이터베이스 서비스 [예시]

Single Model Polyglot
Data Fragmentation
Complex Application
Complex to Manage
(Interface, Security Model,
Recovery Procedure ...)

Thank you

Kyungjin Cho

Master Principal Sales Consultant
Technology Cloud Solution Engineering
Oracle Korea

Oracle RAC(Real Application Cluster)를 사용하는 고객의 선택

오라클 클라우드 서비스만이 RAC가 인증된 “유일한” 클라우드 입니다.

1. FlashGrid® 같은 3rd Party 공유 스토리지 환경은 오라클 RAC에 사용할 수 없습니다.
2. 인증되지 않은 솔루션으로 RAC구성시 오라클은 장애/버그에 대해 지원하지 않습니다.
3. 오라클 RAC는 Oracle Cloud에 인증 되어 있으며 타사 클라우드 환경에는 인증되어 있지 않습니다

Can I use FlashGrid® to enable shared storage for Oracle RAC?

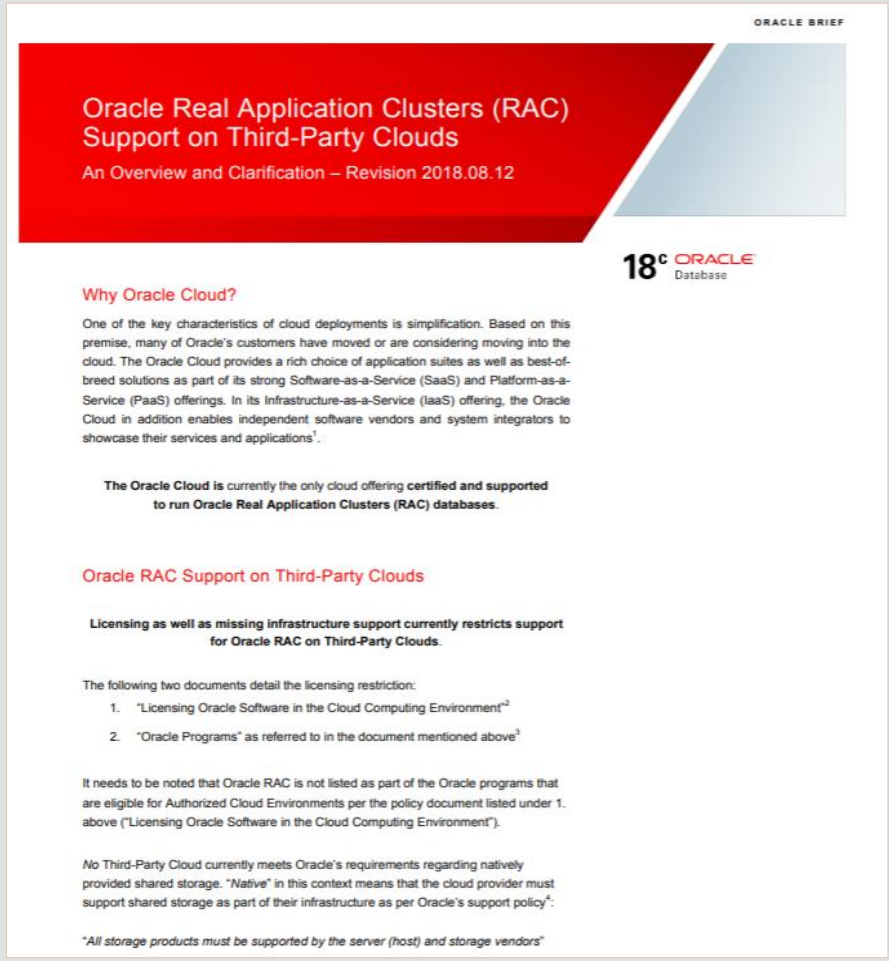
- No, FlashGrid® is not supported to enable shared storage for Oracle RAC on Third-Party Clouds.

What is the impact of using an unsupported solution?

- Support decisions are at the discretion of Oracle. Using an unsupported solution for the Oracle Database means that Oracle can deny support for systems that use such a solution, if it is deemed that the unsupported solution is the cause of or contributes to a given problem and until the issue is reproduced in a fully supported environment. While this can affect current systems, the impact is more significant for future versions of Oracle’s products. Use cases that are declared unsupported are not considered during development. This means that future versions of Oracle’s products may introduce changes to improve supported configurations that inadvertently break some configurations that are unsupported, simply because Oracle would not have considered those as part of their development efforts.

Apart from licensing, can Oracle RAC be supported on Third-Party Clouds?

- As the licensing restriction documented above currently restricts the use of Oracle RAC in either Amazon’s AWS or Microsoft Windows Azure or any other ThirdParty Cloud for this matter, Oracle has ceased any supportability evaluation of ThirdParty Clouds for Oracle RAC in general.



ORACLE BRIEF

Oracle Real Application Clusters (RAC) Support on Third-Party Clouds

An Overview and Clarification – Revision 2018.08.12

18c ORACLE Database

Why Oracle Cloud?

One of the key characteristics of cloud deployments is simplification. Based on this premise, many of Oracle’s customers have moved or are considering moving into the cloud. The Oracle Cloud provides a rich choice of application suites as well as best-of-breed solutions as part of its strong Software-as-a-Service (SaaS) and Platform-as-a-Service (PaaS) offerings. In its Infrastructure-as-a-Service (IaaS) offering, the Oracle Cloud in addition enables independent software vendors and system integrators to showcase their services and applications[1].

The Oracle Cloud is currently the only cloud offering **certified and supported to run Oracle Real Application Clusters (RAC) databases.**

Oracle RAC Support on Third-Party Clouds

Licensing as well as missing infrastructure support currently restricts support for Oracle RAC on Third-Party Clouds.

The following two documents detail the licensing restriction:

1. “Licensing Oracle Software in the Cloud Computing Environment”[2]
2. “Oracle Programs” as referred to in the document mentioned above[3]

It needs to be noted that Oracle RAC is not listed as part of the Oracle programs that are eligible for Authorized Cloud Environments per the policy document listed under 1. above (“Licensing Oracle Software in the Cloud Computing Environment”).

No Third-Party Cloud currently meets Oracle’s requirements regarding natively provided shared storage. “*Native*” in this context means that the cloud provider must support shared storage as part of their infrastructure as per Oracle’s support policy[4]:

“*All storage products must be supported by the server (host) and storage vendors*”

* 참고 URL: https://www.oracle.com/technetwork/database/options/clustering/overview/rac-cloud-support-2843861.pdf