

Cloud-Ready with the Oracle-Microsoft Partnership

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Introduction

Microsoft Azure is an open and flexible platform. Customers can use preferred languages, tools, or frameworks. Customers can bring custom virtual machine images or run the Windows operating system and Linux with full support from Microsoft. Customers can run applications using languages such as the Microsoft .NET Framework, PHP, Java, Python and Ruby. Customers can choose from different databases such as SQL Database and Oracle Database.

This session will look at the progress made since the announcement of the Oracle-Microsoft partnership at Oracle Open World in September 2013 [1]. In particular we will present a new model for rapid assessment of Oracle workloads to determine the feasibility for deployment to Microsoft Azure. This represents a significant benefit to customer in identifying candidate workloads for further detailed validation.

In the first section we will summarize the benefits of the Oracle-Microsoft partnership with regards to supported Oracle products, pre-built Azure VM images, Oracle license mobility and joint support options.

The second section will introduce the “Rapid Azure Assessment Model” which permits to map a given Oracle application with associated Oracle databases to one of three deployment complexity category. Each level clearly describes the expected complexity and effort required to deploy the Oracle workload to Microsoft Azure.

The third section will be used to outline the steps for mapping all components which make part of the Oracle application to an equivalent Infrastructure as a Service (IaaS) model on Microsoft Azure. The objective is to find a suitable isolation between Azure infrastructure and required external endpoints to the on-premises data centre and to user interfaces. Customer scenarios will conclude this section.

Information on further readings will conclude this document.

Summary of Oracle-Microsoft Partnership

The foundation of this new partnership was laid with the certification of Oracle products for Windows Server platform and Hyper-V virtualization. This had allowed customers to standardize their Oracle workloads on an industry strength Windows Server platform based on on Windows Server operating system.

The Microsoft Azure Public Cloud offering is also built on Hyper-V virtualization layer. Together customers can choose between Private Cloud, Public Cloud and Hybrid Cloud, and move between these cloud models. This is the Microsoft CloudOS platform

With the announcement of the Oracle-Microsoft partnership at the Oracle Open World 2013 [1] this proven partnership was extended to include Microsoft Azure platform. The availability and reliability of the Microsoft CloudOS offering is assured by a world-wide network of Microsoft Data Centres.

These are the main elements of the Oracle-Microsoft partnership for Oracle Users:

- Full support for Oracle software on Windows Server 2012 Hyper V and Windows Azure
- Full Oracle license mobility for deployment to Microsoft Azure
- Microsoft offers pay-as-you-go licensing for Oracle Database and Web Logic Server
- Oracle offers Oracle Enterprise Linux on Microsoft Azure
- Java Enterprise fully supported in Microsoft Azure

Software	Version	Edition	Operating System
Oracle Database	12c	Enterprise / Standard	Windows Server 2012
	11gR2		Windows Server 2008R2
Oracle WebLogic Server	12c		Windows Server 2012
	11g		Windows Server 2008R2
Oracle Database and Weblogic Server	12c		Windows Server 2012
	11g		Windows Server 2008R2
JAVA	JDK7	-	Windows Server 2012
	JDK6	-	Windows Server 2008R2

Illustration 1: Microsoft pre-built Azure Images

More information about available pre-built Oracle on Azure Virtual Machines is available [3].

Rapid Azure Assessment Model for Oracle Workloads

We will describe a robust model for assessing multiple Oracle workloads, both application and database level. The objective is to categorize each Oracle application in scope into one of three categories as shown below:

Category	Description
Lift & Shift	All Oracle application and database base components are supported on Microsoft Azure without upgrade
Lift & Shift with Upgrade	Partial upgrades to supported version are required
Hybrid Cloud	Selected Oracle application and database base are deployed to Microsoft Azure in Hybrid Cloud. Integration with on premise data centre required

Usage Examples:

- A custom application written in JAVA runs on Oracle 11gR2 database under SuSE v12 = Lift & Shift
- A custom application written in C++ runs on Oracle 10i Database under OEL v6 = Lift & Shift with Upgrade, deploy to Azure with Oracle 11g or 12c Database
- An ISV package runs on Oracle 12c Database and Oracle Web Logic Server under AIX = Hybrid Cloud, move Web Logic Server farm to Azure

Mapping and deploying an Oracle application to Microsoft Azure will create a virtualized Platform for Development, Test and Production as part of the Microsoft CloudOS offering.

Integration with on-premise data centre is implemented with secure VPN connection. Microsoft Active Directory can be used for user authentication across Private and Public Cloud:

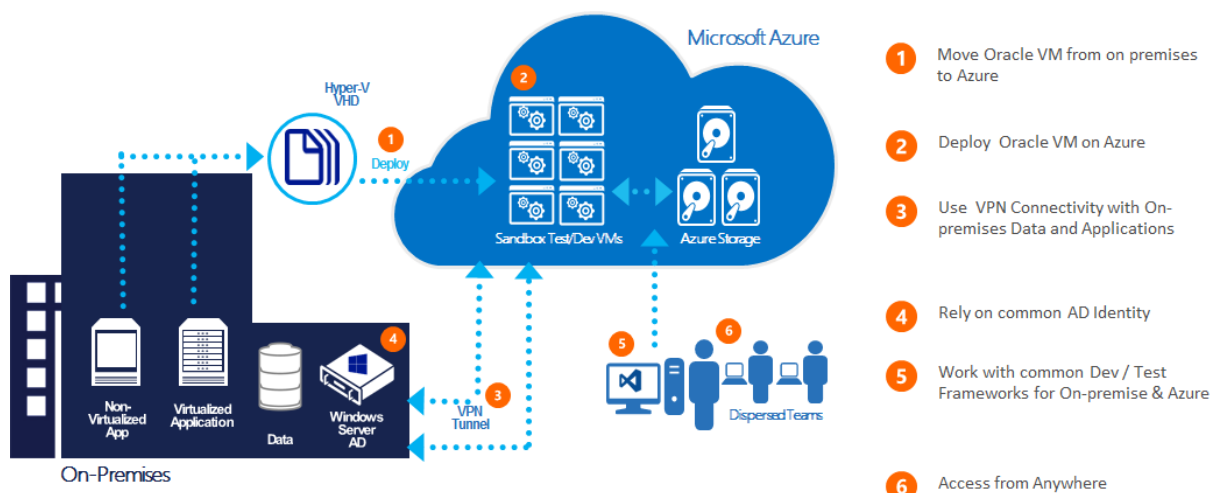


Illustration 2: Deploying Oracle Workloads to Azure

Step 1: Select Oracle Applications in Scope for Azure Deployment

In this step a break-down of Oracle applications is done based on a number of metrics:

Metric	Description
Security	Corporate security standards, Saxley-Orban, Basel II compliance required
Criticality	Corporate application availability and performance criticality (low, medium, high)
Inter Dependency	Dependency on other applications or 3 rd party components which cannot be moved to Azure
User Audience	Business application, departmental application, internal application, external application (portal)

The specification of each metric is determined with customer as part of “Azure Rapid Assessment Workshop” and typically led by a Microsoft Cloud Solution Architect.

Step 2: Identify Infrastructure Metrics for Mapping to Microsoft Azure

We usually talk about workloads and we rely on characteristics of workload. If these characteristics are not available, then you may start with considering matching your hardware configuration to Azure considering the following metrics:

1. Hardware platform (INTEL, UNIX, mainframe, other)
2. Number of server nodes and node size per Azure VM size (A1 to A9)
3. Number of cores per server and per node, memory per server and per node
4. Total disk storage per server, per node
5. Virtualisation used and which type (e.g. Zones, LPAR, VMware, Hyper-V)
6. Network topology / domains
7. Operating system and version

The cloud environment may not necessary be an exact equivalent to on premise. For appropriate sizing to Azure Virtual Machines please refer to document “Virtual Machines and Cloud Service Sizes for Azure” [5] by using the number of required cores. For each Azure VM size you will find „standard“ and „large“ VM images with respect to memory and disk storage (z.B. A2 und A5).

Step 3: Mapping Oracle Workload to Azure IaaS Model

Apply the list of criteria in the table below for verify feasibility of deployment Oracle Application to Microsoft Azure:

Criteria	Description
OS Platform & Version	Is current Operating System and Version supported under Azure [3]
Oracle Produkt & Version	Is current Oracle Product and Version certified under Hyper-V and Azure [4]
Throughput	Required database throughput [Best Practises]
Networking Protocol	UDP multi-cast protocol in Oracle RAC not supported. Build SLA by combining Oracle MMA with Azure High Availability features
IO Bandwidth	Required IO Bandwidth between Azure VM and external Endpoints
Memory	Required Memory (peak, average) per Azure VM Image
Disk Storage	Required Disk Storage per Azure VM Image

The result of the above assessment process will produce a list of candidate applications with their databases to deploy to Microsoft Azure.

Step 4: Guidelines for Sizing to Microsoft Azure VM Cloud Service

Below are the steps to take for finding the appropriate Azure Virtual Machine type and size:

- Look up [“Virtual Machine and Cloud Service Sizes for Azure”](#)
- Find equivalent Azure Cloud Service based on:
 - Architecture layer (web tier, app tier, messaging tier, db tier)
 - Total number of cores, memory and storage
 - Small, medium or large compute cloud service
 - Disk grouping for required IOPs (up to 8.000 IOPs)
 - Number of Azure VMs to map number of server nodes
- Determine lower and higher end sizing to give estimated range
- Look up Azure subscription prices per hour in [Azure Price List](#)
 - Select operating system (Windows, Linux)
This is assuming Oracle License Mobility, i.e. Oracle licenses are not included in Azure subscription)

Microsoft is offering a so-called “Azure Architecture Design Session (ADS) to validate the mapping of a given Oracle application and databases to detailed Azure IaaS architecture. The ADS is led by Microsoft Cloud Solution Architect. The results of an ADS can be taken to build a proof-of-concept on Azure that is hosted by one of our Microsoft Data Centres.

Oracle on Azure Scenarios

Below are Scenarios for deploying Oracle Products to Microsoft Azure:

Scenario 1: Oracle Database as Azure Cloud-Service

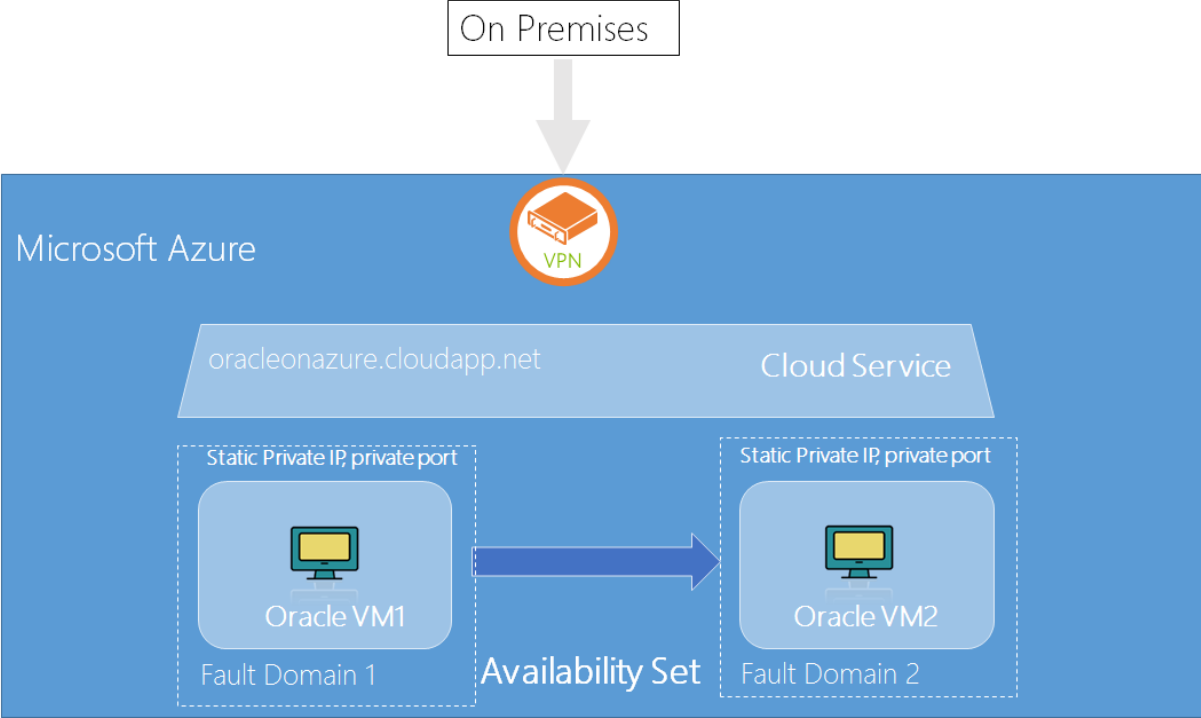


Illustration 3: Oracle Database as Azure Cloud-Service

Access to Oracle Database cluster is to single Azure Cloud Service. Required SLA is achieved by implementing an Availability Set between two Windows Server Images with Fail-Over Cluster running single instance Oracle database.

Required SLA can also be built in compliance with Oracle Maximum Availability Architecture (MAA), e.g. based on Oracle Active Data Guard and Oracle Golden Gate.

Scenario 2: Cloud Scalability with Oracle Web Logic Server

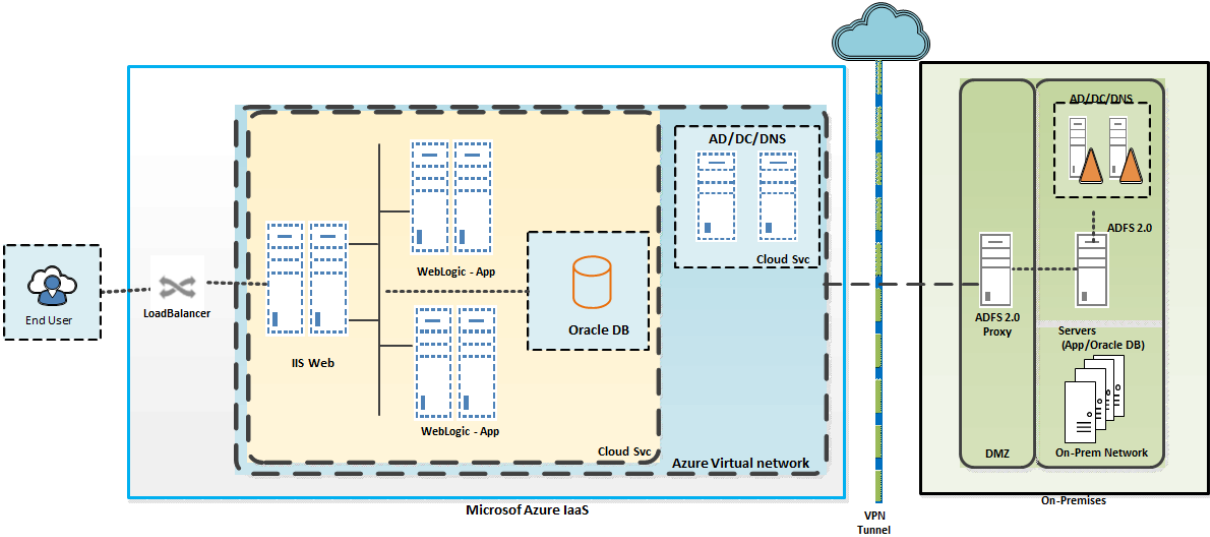


Illustration 4: Oracle Web Logic Server with Cloud Scalability

This is a Hybrid Cloud architecture, with Oracle Web Logic Server Farm on Microsoft Azure and Oracle application on premises. Load balancing is done with IIS Web. Use Authentifizierung is achieved with federated Active Directory LDAP.

Further Reading

- [1] [Announcing the Oracle-Microsoft Partnerschaft](#)
- [2] [Available Oracle Virtual Machines on Microsoft Azure](#)
- [3] [Supported Operating Systems and Versions on Microsoft Azure](#)
- [4] [Certified Oracle Products on Windows Server 2012 \(Hyper-V\)](#)
- [5] [Available Azure VMs with Cores, Memory and Disk Storage](#)
- [6] [Testing Oracle Software under Microsoft Azure \(free Trial\)](#)

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