

Oracle to Azure Data Service migration guidance

Prepared by

DM Jumpstart Engineering Team (askdmjfordmtools@microsoft.com)

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Introduction

This document purpose is to provide Architects, Consultants, DBAs and related roles with a guidance to define the appropriate Azure target when moving Oracle instances.

1 General Approach

Replacing a set of Oracle instances by an equivalent Azure Data Service requires to start with the inventory of applications and requested SLAs, then based use the decision tree begin with application characteristics then go through more database centric considerations.

2 Inventory minimal requirements

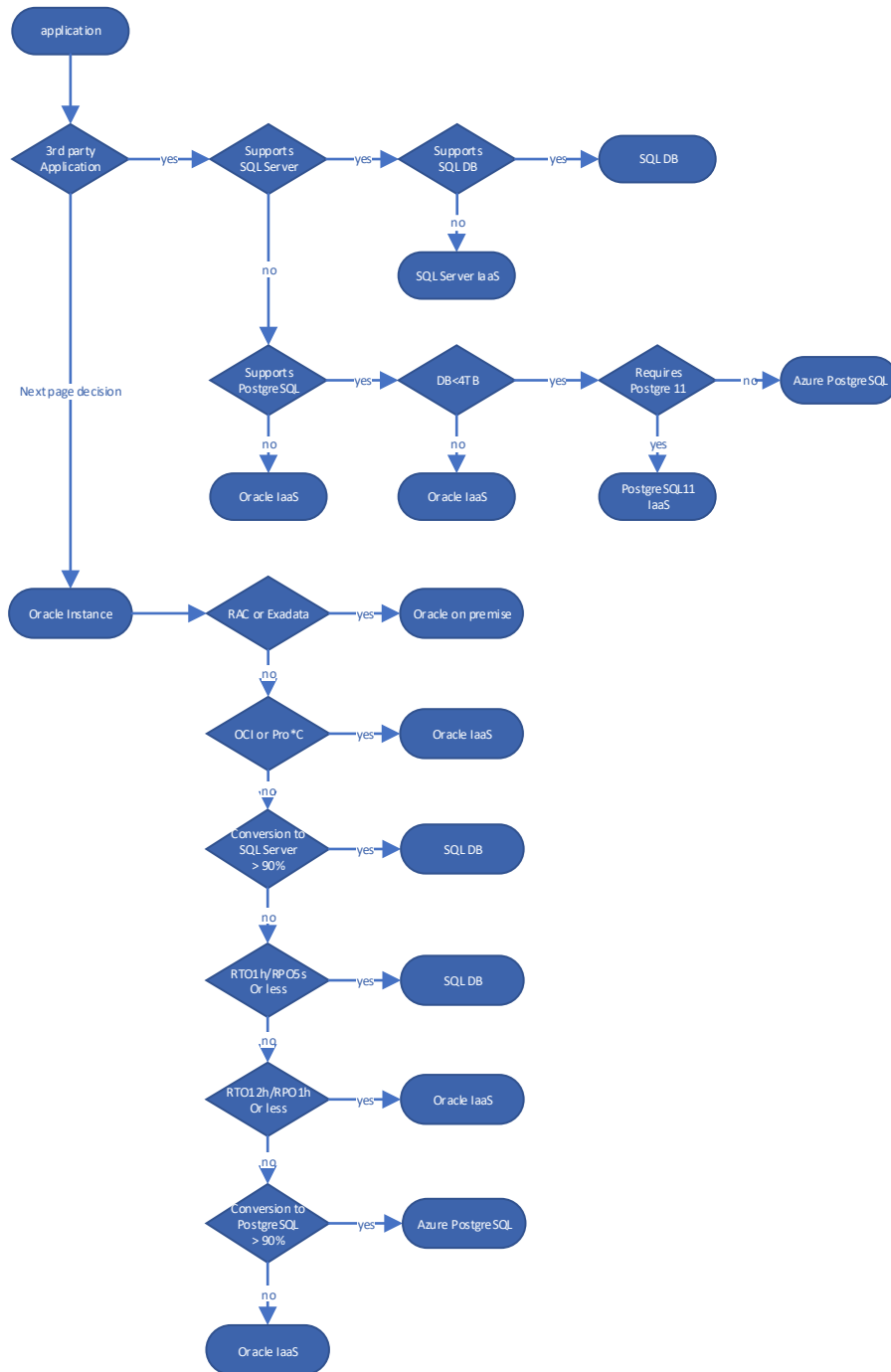
2.1 Prepare the needed information

An example of inventory consists of these fields:

- Application name
- Application server name & IP
- Oracle Server name & IP
- Oracle instance name & Port number
- Oracle version & Edition & RAC/Exadata
- Interface (OCI, Pro*C, ODBC, JDBC, ...)
- ORM (Hibernate, Entity Framework, ...)
- Third party App (Yes/no)
- SLAs (RTO/RPO, ...)
- SQL Server support (yes/no)
- Database size
- # of Cores
- Type of workload (Operational, OLTP, BI/DW)
- # of concurrent users.

The fields will help to provide answers to the decision tree, some of them will be completed or given by an assessment of the Oracle instance with SSMA for an Azure SQL Database target or ORA2PG for an Azure PostgreSQL target.

2.2 Decision tree/workflow



3 How to use

Basis of usage is that during this preliminary step of the migration project, one needs to evaluate the applications one by one in order to place them into main target buckets.

Target buckets are:

- Azure SQL DB
- SQL Server in IaaS
- Azure PostgreSQL
- Oracle in IaaS

3.1 Remarks on targets

As Oracle landscapes in their vast majority don't use cross database queries, Azure SQL Database Managed Instance has not been considered here.

Currently [Citius](#) is in private preview mode however it's a candidate as target for Oracle RAC platforms, this document will be updated as [Citius](#) gets into public preview.

4 Reference matrix

| Service Differentiators | | Azure 1st party offerings | | | | | | | |
|---|--|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|------------------------|------------------------|------------------------|
| | | Azure SQL | SQL DWH | SQL on VM | SQL StretchDB | Community Editions | | | CosmosDB |
| | | | | | | Azure PostgreSQL | Azure MySql | Azure MariaDB | |
| Product vendor and Cloud provider service portability | Vendor portability | No (MS) | No (MS) | No (MS) | No (MS) | Yes (OSS) | Yes (OSS) | Yes (OSS) | No (MS) |
| | Cloud provider portability | No (MS) | No (MS) | Yes | No (MS) | Yes | Yes | Yes | No (MS) |
| Supported DB size | | <100TB | >100TB | <150TB | <100TB | <4TB | <4TB | <4TB | Unlimited |
| Disaster Recovery | RPO | Range of Options: >5s <1hr | >4hrs <8hrs | user configurable | Range of Options: >5s <1hr | <1hr | <1hr | <1hr | |
| | RTO | Range of Options: >1hr <12hrs | Size dependant | user configurable | Range of Options: >1hr <12hrs | <12hrs | <12hrs | <12hrs | |
| Non-disaster outage (HA) | RPO | 0 loss | 0 loss | 0 loss | 0 loss | 0 loss | 0 loss | 0 loss | 0 loss |
| | RTO | minimal based on retry | minimal based on retry | minimal based on retry | minimal based on retry | minimal based on retry | minimal based on retry | minimal based on retry | minimal based on retry |
| Replication | Multi-master | Yes | No | Yes | Yes | No | No | No | Yes |
| | Master-slave (both in Azure) | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes |
| | Master-slave (master on premise, or other cloud, slave in Azure) | No | No | No | No | No | Yes | Yes | No |
| Patching / Upgrades | Consumer ability to defer DB patch | Yes | Yes | N/A | Yes | Yes | Yes | Yes | Yes |
| | Consumer ability to defer OS patch | No | No | N/A | No | No | No | No | No |
| Supported workloads | Transactional (OLTP) | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes |
| | Analytical (OLAP) | Yes | Yes | Yes | Yes | No | No | No | Yes |
| | Operational | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Performance accelerators | Supports in-memory | Yes | Yes | Yes | Yes | No | No | No | Yes |
| | Supports SSD | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Supports sharding / partitioning | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Security and Logging | Supports encryption (network & at rest) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Database event tracking and auditing | Yes | Yes | Yes | Yes | Partial | Partial | Partial | Yes |

| | | | | | | | | | |
|--|--|-----|-----|-----|-----|-----|---------|-----|---------|
| | Supports data anonymization / masking | Yes | No | Yes | Yes | No | No | No | Partial |
| | Supports fine grained access control | Yes | Yes | Yes | Yes | Yes | Partial | Yes | TBD |
| | Supports Role based access control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | Supports Azure AD integration | Yes | Yes | Yes | Yes | No | No | No | Yes |
| | Support for certificate based authentication | Yes | Yes | Yes | Yes | No | No | No | Yes |
| | Supports data sovereignty | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

(*) This matrix will evolve as Azure services and offer evolve

Feedback and suggestions

If you have feedback or suggestions for improving this data migration asset, please contact the Data Migration Jumpstart Team (askdmjfordmtools@microsoft.com). Thanks for your support!

Note: For additional information about migrating various source databases to Azure, see the [Azure Database Migration Guide](#).