Microsoft

Oracle to Azure Data Service migration guidance

Prepared by

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Disclaimer

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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

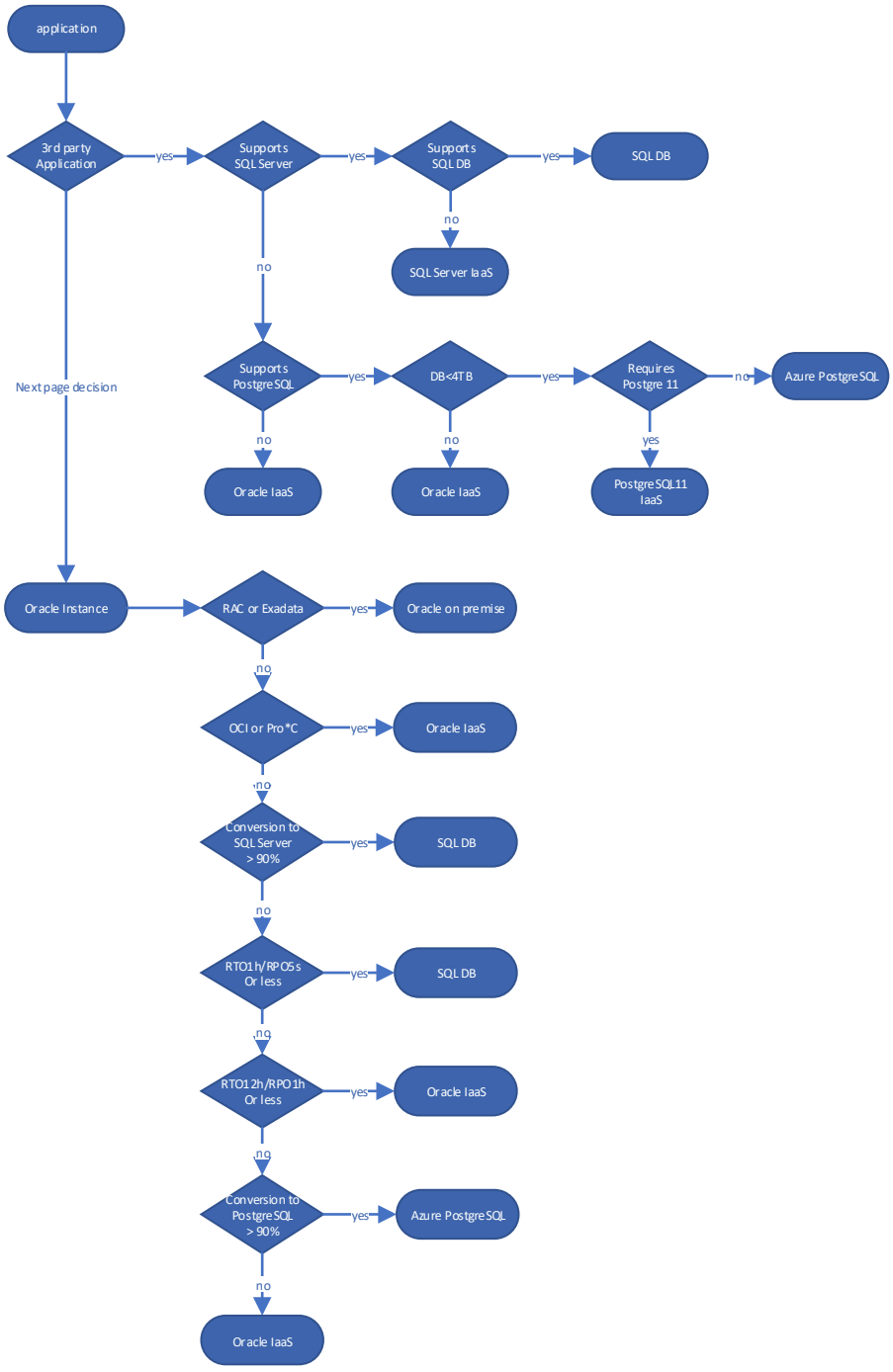
2.1 Prepare the needed information

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 Citus is in private preview mode however it's a candidate as target for Oracle RAC platforms, this document will be updated as Citus gets into public preview.

4 Reference matrix

Service Differentiators		Azure 1st party offerings							
						Community Editions			
		Azure SQL	SQL DWH	SQL on VM	SQL StretchDB	Azure PostgreSQL	Azure MySql	Azure MariaDB	CosmosDB
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.