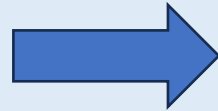


# Migrating SQL Server to the Cloud

**Target: AWS**



by Bryan Cafferky for Patreon Supporters Only

# Where We're Going?

- **The Three Basic Cloud Service Models**
- **Identify Your Workload Type**
- **SQL Server Services**
- **Creation a SQL Server Workload Inventory**
- **Creation an Inventory Migration Mapping**
- **Establish the Migration Team**

AWS Migration Documentation:

<https://aws.amazon.com/tutorials/move-to-managed/migrate-sql-server-to-amazon-rds/>

# Types of Cloud Services

- **Infrastructure as a Service (IaaS)**
- **Software as a Service (SaaS)**
- **Platform as a Service (PaaS)**



# **Ways to do SQL Server on AWS**

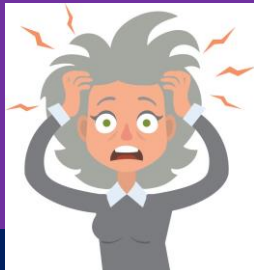
- **AWS Relational Database Service (RDS) - PaaS**
- **AWS Virtual Machines (VMs) - IaaS**

# SQL Server Azure Migration

## What type of workload?

### OLTP

- Transaction support.
- Core Business.
- 24/7 – Always On.
- Any downtime cost \$\$\$.
- Stability/Resilience Key.
- Security critical.
- Heavy workload.



### Business Intelligence

- Retrieval/Reporting support.
- Some downtime Ok.
- Unavailability cost gradual.
- Stability/Resilience less critical.
- Security architecture options.
- Speed less critical.
- Many tools used.



# SQL Server Azure Migration

**Can You Go to PaaS?**



**What Tasks Are You Moving?**

[https://docs.aws.amazon.com/prescriptive-guidance/latest/migration-sql-server/comparison.html#:~:text=Machine%20Learning%20Services%20must%20be,started%20with%20R%20on%20AWS%20\).%20R%20on%20AWS%20](https://docs.aws.amazon.com/prescriptive-guidance/latest/migration-sql-server/comparison.html#:~:text=Machine%20Learning%20Services%20must%20be,started%20with%20R%20on%20AWS%20).%20R%20on%20AWS%20)

# SQL Server Services

## Database Services

- T-SQL
- SQL Agent
- Linked Servers
- Integrated AD
- Encryption
- High Availability

## Integration Services

- First Class ETL
- Cross Platform Data
- Powerful Developer Tools
- Integrated ETL Catalog

Requires OS Access to Install (EC2 VM?)

## Machine Learning Services



- In Database R and Python Compilation
- Commercial Scalable Libraries for Analysis and ML
- Leverages Full SQL Server Features
- Operationalization Support (SQL Agent, Stored Procedures, Store Models)

## Power BI Server?

## Reporting Services

- Operational Reporting
- SQL Server Integration
- Mobile Support
- Automated Delivery
- Rich Functionality
- SS EE Power BI Report Server

## Analysis Services

- Analytic Reporting Support
- In-Memory Tabular Model
- Multidimensional Cubes
- Ideal for Power BI

## Database Services

- SQL Agent Jobs
  - SSIS
  - SSAS
  - Stored Procs
  - DB Utils
- Security Mapping
- Link Servers Remapping

## SSIS

- Migrate Projects/Packages
- SSIS Catalog Migration
- Remap Sources/Destinations
- Test SQL Agent Integration

## SSAS

- Migrate SSAS Models
- Remap Sources/Destinations
- Test SQL Agent Integration

## SSRS

- Migrate Projects/Reports
- SSRS GUI Menu?
- Remap Sources/Destinations
- Test SQL Agent Integration

# Develop a Migration Inventory

Server	Database	Service	Object Type	Object Name	Description	Migratable?
salesdbinstance	retailsales	Database	job	refresh_sales_etl	Load Sales	Yes
""	""	""	job	refresh_ssas	Reload Models	Yes
""	""	SSIS	package	load_sales	Refresh Sales	Yes
""	""		package	load_sales_dw	DW Load	Yes
""	""	""	project	full_dw_Refresh	DW Load Full	Yes
""	""	SSRS	report	sales_snapshot	sales point in time	Yes
""	""	""	report	sales_dashboard	sales dashboard	Yes
""	""	""	pbi	executive_dashboard	exec_dashboard	No



# Extend Migration Inventory to Include Mapping

Target Server	Target Database	Target Service	Target Object Type	Target Object Name	Target Description	Notes
salesdbinstance	retailsales	Database	job	refresh_sales_etl	Load Sales	Yes
""	""	""	job	refresh_ssas	Reload Models	Yes
""	""	SSIS	package	load_sales	Refresh Sales	Yes
""	""		package	load_sales_dw	DW Load	Yes
""	""	""	project	full_dw_Refresh	DW Load Full	Yes
""	""	SSRS	report	sales_snapshot	sales point in time	Yes
""	""	""	report	sales_dashboard	sales dashboard	Yes
""	""	""	pbi	executive_dashboard	exec_dashboard	Remap to AWS RDS

# Migration Issues

Service	Sub Service	Issue	Description	Mitigation Plan	Notes	Resolved
Database	Security	SSO	No SSO	SQL Server Login	See Sec Migration Plan	Yes
""	SLA	Always On	Different Architecture	Remap to RDS	Easy to change to an automated service.	Yes
""	ML Server	No Support	R Scripts	None	Defer to DS Team	No
""	On Prem	Integration	Power Users	Remap Conns	Excel	Yes

# Migration Team

Team	Rep	Description
Database	Deb Jones	Database Migration Lead
Infrastructure	Harry Smith	Provisioning
Enterprise Security	Raj Jain	Security Architecture and Compliance
Business	Kathy Wu	Plan Approval & End User Migration

# Wrapping Up

- The Three Basic Cloud Service Models
- Identifying the Right Cloud Type
- SQL Server Services
- Creation a SQL Server Workload Inventory
- Creation an Inventory Migration Mapping
- Establish the Migration Team

Thank You!