

# WINDOWS & SQL SERVER 2008 MIGRATIONS INTO AMAZON WEB SERVICES

## Options to consider in detail

### Rehost



Provision EC2 compute instances ("servers"), running Microsoft Windows Server to replace the existing on-premise servers. AWS provides pre-built images with SQL Server pre-installed. These cover all common combinations of OS and SQL Server versions.

Database Administrators (DBAs) who have management tools installed locally on their workstations can continue using the same tools (SQL Management studio, etc), providing that a direct connect or VPN exists to the AWS VPC. Alternatively, management tools could be installed onto an instance housed within AWS, with DBAs then using RDP (via a gateway or other means), allowing users to remotely connect to AWS-hosted SQL management software.

AWS' SQL Server upgrade tool allows customers an easier upgrade path, opening up SQL 2016 in backwards compatibility mode.

AWS also fully supports using always-on availability groups across multiple AWS Availability Zones to further enhance availability, durability and fault tolerance.

When using the right instance types, you can get more than twice the performance (transactions per second) when compared with on-premises and Azure.

### Replatform - RDS



Utilise AWS-managed services to run SQL workloads, such as Amazon RDS (Relational Database Service). Using RDS means that the underlying Windows OS does not need to be maintained and patched by the client. Point in time backups, replication (depending on SQL version) and push-button scaling all reduce the time spent on managing the underlying systems. For organisations using SQL Standard or Enterprise, the usual HA and multi availability zone resilience can be achieved and automatically managed.

Running your workloads on RDS can give more than twice the performance when compared with similar instances on-premises or on Azure.

We use tools such as the Database Migration Service (DMS) to ease the migration to RDS (see below for more information on these tools).

RDS is a good option for many customers, and brings many benefits compared with self-managed on-premise SQL servers. However, customers who rely on management tasks that are performed direct on the operating system, may find that simple rehosting is preferred.

The migration workshop explores these requirements to ensure that RDS is an appropriate platform to migrate to.

### Data Layer Refactoring - Aurora



Aurora builds on many of the advantages of RDS, giving excellent read performance and automatically scaling storage based on the size of the database (up to 64TiB of storage). High availability can be achieved easily by adding replicas, which are placed automatically across separate availability zones (datacentres). These use synchronous replication to ensure there is no data loss even in the event that a whole AWS data centre is lost.

Aurora is an AWS technology, with two versions, based on the open-source MySQL and Postgres relational databases.

Since this is a large shift - from MSSQL to a MySQL-compatible system, the transition to Aurora is not a trivial one and does require a refactor of the applications or data layers that will use the database. There can be large advantages in terms of cost, availability and scalability, but these need to be balanced and reviewed carefully.

As part of the workshop we would thoroughly review the types of workloads and read and write operations, to ensure that Aurora DB is a good fit, and to determine whether the work and cost involved with refactoring do give a net benefit and optimum TCO.

### Advanced Refactoring - DynamoDB, Redshift and Beyond

Depending on the types of workloads and applications which are using the MSSQL database, AWS offers many other technologies that can be used.

**DynamoDB** is AWS' highly scalable, distributed NoSQL database. It is designed to give single-digit millisecond performance, even for the largest of applications.

