EBOOK

Migrate and modernize SQL Server with AWS

Make SQL Server end of support (EOS) the beginning of your AWS cloud journey

Contents

The EOS decision point

As a Microsoft SQL Server customer, you are familiar with the pattern of Microsoft regularly sunsetting support and requiring upgrades every few years. The most imminent of these events is the end of support (EOS) for SQL Server 2012, with an upcoming EOS date of July 12, 2022. Microsoft will no longer provide patches or security updates after the EOS date, which may cause security and compliance issues and expose your applications and business to potential security risks.

The EOS event presents organizations with a unique opportunity to evaluate the options to migrate and modernize their SQL Server workloads to the cloud for enhanced operational excellence and innovation velocity. However, there are a number of factors to consider when selecting a cloud provider to run SQL Server, such as price/performance, reliability, breadth and depth of technology, pace of innovation, flexible licensing options, programs, and tools that help streamline the migration process.

This forced decision point creates an opportunity for you to think about the future state of your business, consider options and alternatives and determine which path is right for you.

While the EOS may create fear, uncertainties, and doubt for some SQL Server customers, Amazon Web Services (AWS) champions a track record of making it easier and more cost-effective for customers to accelerate the migration and modernization projects. In this eBook, we are going to walk through the most common use cases our customers choose when migrating and modernizing their SQL Server workloads with AWS.

"We expect our customer base to double in the next year. Our analysis found that the AWS offerings for Microsoft tools such as SQL Server are really quite mature and that AWS would be a better platform than Azure for that kind of growth."

—Chris Dunne
Digital Marketing Executive
RepricerExpress

Find the cloud that runs & modernizes SQL Server best

Amazon Web Services (AWS) has helped hundreds of thousands of customers rehost, replatform, and refactor their SQL Server workloads on AWS for over 14 years, longer than any other cloud provider. Customers continue to choose AWS for migrating and modernizing SQL Server for the best price/performance, license flexibility, and ease of use while leveraging AWS innovations to right size, configure, and deploy SQL Server applications.

With the upcoming EOS of SQL Server 2012, you might want to ask yourself:

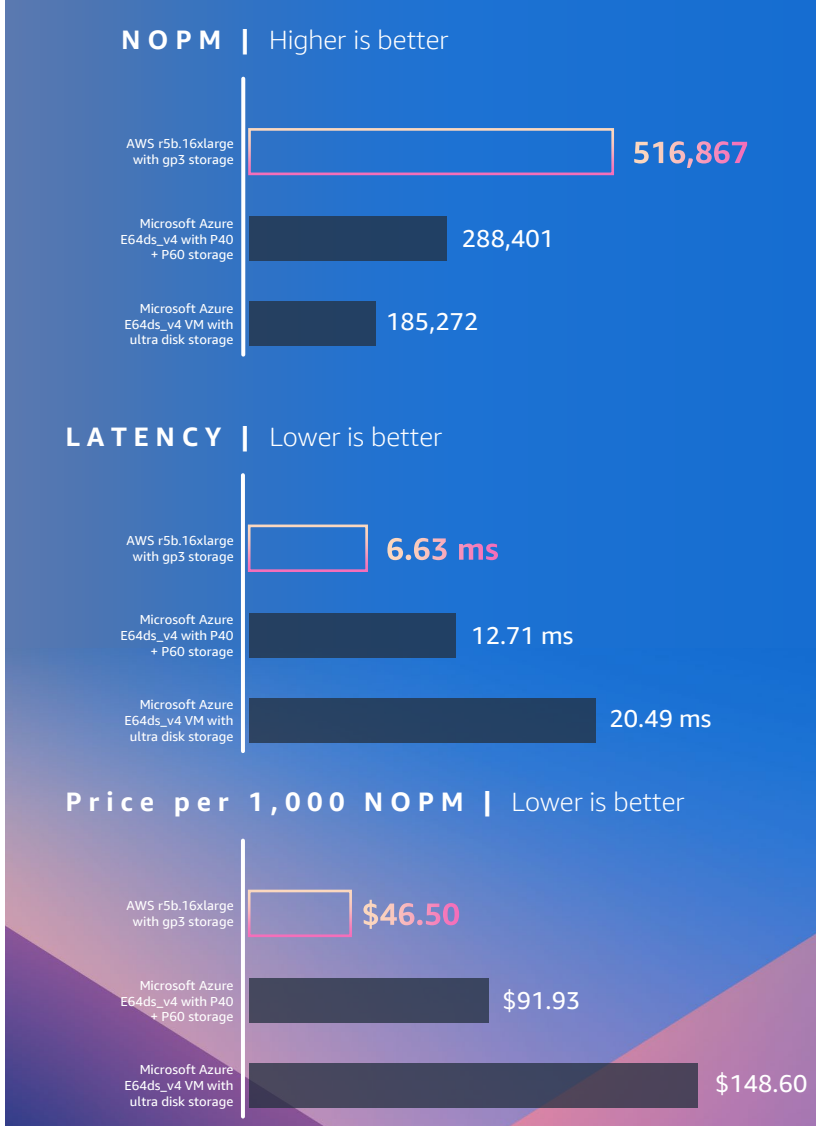
If moving to the cloud is an option to address SQL Server EOS, why not choose the cloud that runs and modernizes SQL Server best?

1 AWS lowers the total cost of ownership (TCO) of SQL Server in the cloud

Some customers want to maximize their existing investments and save on licensing costs by bringing their existing SQL Server licenses to the cloud. AWS provides Bring Your Own License (BYOL) option that enables customers to bring their licenses to AWS and reduce their TCO. AWS also offers free programs to assess your current on-premises and cloud environments, right size your SQL Server deployment, and provide guidance to save an average of 45% on SQL Server licensing[1]. Given that AWS has been running SQL Server workloads in the cloud longer than anyone else, AWS and our partners have the unmatched experience to help our customers optimize and become more efficient with SQL Server.

2 AWS provides the most performant, reliable, and secure environment for SQL Server workloads

In a recent third-party benchmark report, Amazon Elastic Compute Cloud (Amazon EC2) r5b.16xlarge instance delivers 1.79 times higher transactional throughput, 1.9 times lower average transactional latency and up to 68% better price/performance for SQL Server workloads when testing against the comparable configurations on Azure[2]. In other words, AWS drives consistent superior performance at a lower cost for SQL Server workloads. Also, Amazon FSx makes it easy and cost effective to launch, run, and scale high-performance file systems in the cloud, supporting SQL Server Failover Cluster Instances (FCI) on Amazon EC2 for high availability. From a security perspective, AWS is designed to help you build secure, high-performing, resilient, and efficient infrastructure for your applications, helping you simplify meeting your own security and regulatory requirements.



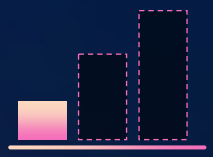
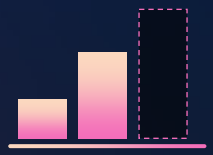
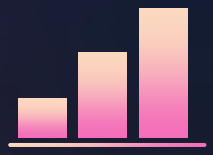
3 AWS offers choice and an easy-to-use experience to run SQL Server workloads

Customers expect simpler, integrated end-to-end experiences to run and manage their SQL Server workloads. Some customers want to focus more on innovating and building new apps instead of worrying about self-managing databases. In that case, AWS provides Amazon Relational Database Service (Amazon RDS), a fully-managed service that recently achieved the highest score among all evaluated vendors in the Gartner Scorecards on database platform as a service (dbPaaS).

For customers who want to self-manage, AWS Launch Wizard for SQL Server will guide them through the sizing, configuration, and deployment of SQL Server applications on AWS. AWS Launch Wizard also reduces the time it takes to deploy your SQL Server solutions to the cloud. Additionally, AWS License Manager makes it easier to manage your SQL Serve licenses through a single pane across AWS and on-premises environments.

4 AWS unleashes your full potential to innovate by modernizing SQL Server workloads

AWS has helped many customers modernize their SQL Server workloads to technologies built for the cloud including open source offerings, allowing you to break-free from restrictive licensing scenarios. An example is purpose-built databases such as Amazon Aurora that enables our customers to re-imagine how the application is architected and developed while providing the performance of commercial-grade databases at one-tenth the cost. Also, customers looking for self-managed and cost-effective way to run SQL Server workloads can choose to operate on Amazon Linux 2 to benefit from a proven open source operating system.

USE CASE	SQL Server OPTIONS	TIME AND EFFORT	OPPORTUNITY TO OPTIMIZE	BENEFITS AND INNOVATION
REHOST *Lift the workload from on-premises and shift to the cloud	Amazon EC2 for SQL Server *Includes Automated upgrade from SQL Server 2012 to modern versions	• No code changes • Fastest and easiest migration to the cloud		• Maximizes existing licensing investments • Familiar experience running SQL Server • Full control of the environment • Opportunity to rehost to Amazon EC2 Linux to save on Windows Server licensing costs
REPLATFORM *Change from self-service to fully-managed model	Amazon RDS for SQL Server	• No code changes • Offload undifferentiated DBA tasks		• Pay-as-you-go without upfront costs • Fully-managed with single click HA, auto-scaled storage, and auto backups • Frees up resources for stronger business focus
REFACTOR *Rearchitect for technologies built for the cloud	Purpose-built databases on AWS, such as Amazon Aurora	• Need time and effort to refactor existing apps		• Eliminates SQL Server licensing costs • Commercial-grade performance and availability at 1/10th the cost • The broadest selection of purpose-built databases • Empowers the highest pace of innovation

Choose your path

For your on-premises SQL Server workloads facing the EOS, AWS provides three options for you to start your cloud journey—rehost to Amazon EC2 for SQL Server, replatform to Amazon RDS for SQL Server, and refactor to purpose-built databases—each with its own unique benefits best suited for your situation.

Rehost SQL Server to Amazon EC2

Rehost is a common use case also known as lift-and-shift, allowing customers to move applications to AWS without any code changes. This use case is ideal for customers who want to move to the cloud faster, protect existing SQL licensing investments, and seek full control of infrastructure. AWS provides flexible licensing options for customers planning to rehost SQL Server on Amazon EC2—customers can choose to either bring their own licenses (BYOL) or buy licenses included from AWS (LI).

Customers rehosting to Amazon EC2 for SQL Server have achieved numerous benefits, such as familiar administration experience, fastest and easiest migration to AWS, and full control of the environment. Additionally, customers can also use AWS Systems Manager Automation runbook to easily upgrade SQL Server 2012 to newer supported versions such as SQL Server 2014, 2016, 2017, and 2019.

REHOST

infor

Infor adopted an all-AWS strategy to save time and money as they manage their exponential business growth. They use Microsoft SQL Server on Amazon EC2 instances to run 1,000's of SQL databases, saving 75% on monthly backup costs and backing up 2 petabytes of data daily 30% faster.

Rehost SQL Server to Amazon EC2

AWS also provides customers with services to help streamline the migration process and achieve significant cost savings. AWS Optimization and Licensing Assessment (AWS OLA) is a free program for new and existing customers to assess and optimize target cloud environments based on actual resource utilization, third-party licensing, and application dependencies. According to an Enterprise Strategy Group report, AWS OLA optimization recommendations for Microsoft SQL Server reduced customer SQL Serve licensing requirement on AWS by an average of 45% compared to on-premises deployments, giving organizations the opportunity for significant cost savings at their next EA renewal.

REHOST

PARSONS

"Our migration was seamless and simple because of the tools and the intelligence that came from Migration Evaluator and the AWS OLA."

—Jai Kasinathan
Director of Cloud and Productivity Applications
Parsons Corporation

Rehost SQL Server to Amazon EC2

For SQL Server workloads that cannot be upgraded, customers can use AWS End-of-Support Migration Program (EMP) for Windows Server to future-proof legacy databases. EMP compatibility package decouples the legacy application from the underlying OS. With EMP, customers don't have to purchase expensive security updates anymore because upgrading the underlying OS significantly reduces the security and compliance risks.

REHOST

Rehost SQL Server to Amazon EC2 Linux

Some customers with in-house Linux expertise choose to leverage SQL Server on Amazon EC2 Linux to save Windows Server licensing costs. SQL Server on Amazon EC2 Linux offers a familiar experience to Windows users. The majority of the tools that developers and DBAs use to work with SQL Server on the Windows platform work as-is with Linux. Customers have the flexibility to choose from various Linux distributions available on AWS, including Ubuntu, RHEL, SUSE, and Amazon Linux 2. Although the core SQL Server database engine is the same on Linux as it is on Windows, Microsoft currently does not support some features for SQL Server on Linux.

Replatform to Amazon RDS for SQL Server

Replatform is a use case to move a database from a self-service model to a fully-managed database service. Replatforming to Amazon RDS for SQL Server is ideal for customers who need to spend less time managing infrastructure and more time innovating. Amazon RDS for SQL Server makes it easy to set up, operate, and scale SQL Server deployments in the cloud with just a few clicks. With Amazon RDS for SQL Server, customers can deploy SQL Server in minutes with cost-efficient and resizable compute capacity.

By replatforming to RDS for SQL Server, customers can take advantage of a fully-managed database service and offload undifferentiated, heavy-lifting database administration tasks, such as provisioning, configuration, patching, backups, and high-availability deployment. This ultimately frees up resources for organizations to focus more on their applications and business.

REPLATFORM

nationale nederlanden

"Using Amazon RDS for SQL Server, I'm no longer worried about the infrastructure and the sizing of data. We can now focus on functionality."

—Maarten Woolthuis
Innovation Program Lead
NN Investment Partners

Replatform to Amazon RDS for SQL Server

For customers who want the best of both Amazon EC2 and Amazon RDS, Amazon RDS Custom may be the right choice. Amazon RDS Custom is a managed database service for legacy, custom, and packaged applications that require access to the underlying operating system and database environment. Customers will have the flexibility and control they have on Amazon EC2 in a self-managed environment but with the automation they know and value from Amazon RDS.

Besides traditional migration methods like backup-restore or replication, AWS provides AWS Database Migration Service (AWS DMS) to help you migrate databases to AWS quickly and securely while minimizing downtime during migration. Many of our customers leverage the AWS DMS Homogeneous Database Migrations option to migrate Microsoft SQL Server to Amazon RDS for SQL Server with ease.

REPLATFORM

KAPLAN

"Amazon RDS allows our DBA team to focus less on the day-to-day maintenance and use their time to work on enhancements. Our goal is to move completely to RDS for all databases for ease of management and resizing capabilities. We have a level of control and standardization that we could not achieve within our on-premises data centers."

—Chad Marino
Executive Director of Tech Services
Kaplan

LIRA MEDIKA Rumah Sakit

"Amazon RDS allows backup and failover happen in near real-time, contributing to a database performance improvement of 20% versus on-premises servers at Lira Medika."

—Moch Firmansyah
Head of Information Technology
Pundi Raya Niaga

Refactor to AWS purpose-built databases

Refactor is a practice that involves reimagining how the application is architected and developed, typically using technologies built for the cloud. Simply put, refactoring is changing application code for the better. It is driven by strong business needs to scale and innovate faster with agility, which would be difficult to achieve in the application's existing environment.

Refactoring databases frees you from the old-guard monolithic vendor offerings, which often come with punitive licensing terms. Purpose-built database services combine the flexibility and low cost of open-source databases with the robust, enterprise feature sets of commercial databases.

Refactoring is also the most rewarding method for long-term business outcomes as it accelerates the pace of innovation and reduces cost while increasing performance, resilience, and responsiveness. Many AWS customers have modernized their SQL Server databases and accelerated innovation with purpose-built databases like Amazon Aurora, achieving commercial-grade performance and availability at a fraction of the cost.

"We migrated from Microsoft SQL Server to Amazon Aurora to take advantage of Aurora's scaling capabilities, which couldn't be better suited to meet the spikes in traffic we get during the football season while also allowing us to minimize costs. We get all of the capacity we need, but don't pointlessly run at high capacity on non-game days where our needs are much, much smaller."

—Sully Syed
Senior Director of Technology
Canadian Football League

Refactor to AWS purpose-built databases

For example, Expedia opted to perform a phased migration to Amazon Aurora PostgreSQL and plans to migrate completely from SQL Server to AWS. Amazon Aurora eliminates licensing fees and provides flexible costs and infrastructure.

Expedia no longer has to spend money on unused capacity in its data centers, enabling them to adapt during the COVID-19 pandemic.

The fully-managed AWS system also means that Expedia spends zero time on maintenance and doesn't need an in-house database administrator.

expedia group

"On Aurora PostgreSQL, we pay only for what we use, and it automatically adjusts as our data grows."

—Nirupama Jagarlamudi
Senior Director
Software Development
Expedia Group

Refactor to AWS purpose-built databases

To help customers streamline the modernization process and make the most of purpose-built database offerings, AWS has built database refactoring tools to help navigate the processes. AWS Database Migration Service (AWS DMS) allows SQL Server customers to migrate to open-source databases like MySQL, PostgeSQL, and MariaDB, as well as purpose-built databases Amazon Aurora and Amazon Redshift. AWS DMS Fleet Advisor automates migration planning and helps you migrate database and analytics fleets to the cloud at scale, while the AWS Schema Conversion Tool (AWS SCT) is a tool that converts the source schema and code to match that of the target database. Additionally, Babelfish for Aurora PostgreSQL enables Amazon Aurora to understand commands from applications written for Microsoft SQL Server. As a result, the effort required to modify and move applications running on SQL Server to Amazon Aurora is reduced, leading to faster, lower-risk, and more cost-effective refactoring.

REFACTOR

JOBVITE

"We were fortunate to have had the opportunity to partner with AWS during the development/rollout of the DMS migration service to migrate from Microsoft SQL Server to Aurora MySQL. In performing this migration, Jobvite realized cost reduction of 40%, improved responsiveness to customer requests by up to 40%, eliminated monthly database maintenance that took the application down for 3 hours, and reduced refresh time from 20 hours to 2 hours. All of these benefits have allowed Jobvite to invest efforts into other aspects of the business to improve customer satisfaction."

—Chaitanya Konduri
DevOps Manager
Jobvite

Get started on your migration & modernization journey

Rather than offering a temporary fix with Extended Security Updates and incentivizing a cloud compromise, AWS and our partners have been focusing on helping customers upgrade, migrate and modernize their SQL Server workloads with dedicated programs, tools, and technical assistance developed over the course working with hundreds of thousands of customers. Where it meets customers long term innovation goals, AWS has accelerated the modernization of applications and databases to technologies built for the cloud and open source offerings to deliver unmatched price performance, helping customers break free from the upgrade and refresh cycle.

Next steps

Migrating and modernizing SQL Server workloads to the cloud is a multi-stage but rewarding journey. We encourage you to check out the services and programs designed to help manage, migrate and modernize SQL Server, including Optimization and Licensing Assessment, End-of-Support Migration Program, Migration Acceleration Program, Database Migration Service, Schema Conversion Tool, and more. Our AWS Microsoft Workloads Competency Partners with specialized technical capabilities can also help you accelerate the migration and modernization of your SQL Server workloads.

Start your journey with AWS today by visiting: https://aws.amazon.com/sql/sql-eos/

GET STARTED TODAY

APPENDIX

ADDITIONAL RESOURCES

1. Automated upgrade of Windows and SQL Server instances on AWS with AWS Systems Manager Automation runbooks
2. Microsoft SQL Server on AWS
3. AWS Database Migration Service
4. AWS Prescriptive Guidance—Migrating Microsoft SQL Server databases to the AWS Cloud
5. Amazon RDS for SQL Server
6. Babelfish for Aurora PostgreSQL

REFERENCES

[1] Reduce Licensing and Infrastructure Costs while on the Move to the AWS Cloud, ESG Showcase April 2022

[2] Deliver better performance for transactional database workloads at a lower cost by choosing an Amazon EC2 R5b instance, Principled Technologies November 2021