MINDEX

Running Microsoft Workloads with Mindex on AWS

EBOOK

aws partner network

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Introduction

Why AWS for Microsoft Workloads?

Customers have been running Microsoft workloads on Amazon Web Services (AWS) for over a decade. Our experience running Windows applications has earned our customers' trust, and the number of AWS enterprise customers using Amazon Elastic Compute Cloud (Amazon EC2) for Windows Server has grown 5x since 2015.

We support everything you expect to build and run on Windows, including Active Directory, .NET, Microsoft SQL Server, Windows Virtual Desktop (WVD), and supported versions of Windows Server. We also provide the first and only fully-managed native-Windows file system available in the cloud with Amazon FSx for Windows File Server, and durable, performant block storage with Amazon Elastic Block Store (Amazon EBS) for your most demanding SQL Server deployments. With our proven expertise, we are able to help you select and implement the right solution for you.

Business opportunities you can achieve with AWS:

- Accelerate business transformation
- Reduce operating costs
- Improve security and compliance
- Develop cloud skills
- Increase agility and innovate faster
- Unlock the full potential of the cloud

Windows on Amazon Elastic Compute Cloud (Amazon EC2) instances powered by 2nd Generation Intel® Xeon® Scalable Processors provides the ease in application portability, speeds application development on AWS, and allows for the reuse of current application software. You can commission one, or scale to hundreds or thousands of server instances simultaneously.

AWS can help optimize Microsoft workloads

We've provided unbridled scaling for our customers' largest and most complex workloads and delivered:

- 36% savings using AWS over three years by right-sizing instances with Migration Evaluator
- 2x price/performance advantage for Microsoft SQL Server vs. the next largest cloud provider[1]
- 442% projected five-year ROI running Windows on AWS[2]
- 2x more regions with multiple availability zones than the next largest cloud provider
- 5x more services offering encryption than the next largest cloud provider

Navigate your journey with unparalleled expert guidance:

- AWS Consulting Partners help organizations of all types and sizes accelerate their journey to the cloud. These professional services firms include system integrators, strategic consultancies, agencies, managed service providers (MSPs), and value-added resellers.
- AWS Professional Services is a global team of experts who can help you realize your desired business outcomes when using the AWS Cloud. AWS Professional Services works with your chosen AWS Partner to help you architect, design, develop, and implement on AWS while transforming your organization to a services-based model.
- AWS Microsoft Workloads Competency Partners help you select the most qualified AWS Partners for migrating and modernizing your Windows-based applications to AWS. These partners have validated technical capabilities and demonstrated success in helping you build, manage, and/or deploy Microsoft workloads on AWS.

[1]Benchmarking Research, July 2018

[2]IDC, The Business Value of Efficiently Running High-Performing Windows

[3]Workloads in the AWS Cloud, Doc #US45111619, June 2019

Every business is unique. We help you choose the right migration strategy

Migration to the cloud is not just a journey: it's a transformation, and AWS is with you every step of the way. We help you manage your migration and optimize your Microsoft workloads after you migrate—so you can continue to save, automate, and scale. AWS helps you break free from the high costs of commercial licensing to modernize your applications and accelerate innovation. This eBook highlights why and how to migrate, modernize, and build your Windows workloads on AWS.

Rehost "lift-and-shift"

The most popular choice for organizations that want to rapidly scale migration to meet a business case. Most rehosting can be automated, although you may prefer to do it manually and learn how to apply your legacy systems to AWS. Applications are often easier to optimize and re-architect once they're already running in the cloud.

Replatform

Make a few cloud optimizations during migration, but otherwise keep your core architecture. By swapping common components, you improve performance without the risk, complexity, cost, and time of a full refactor. You can also take advantage of some cloud-native benefits, including less management, higher availability, and lower costs.

Refactor/Re-architect

Re-imagine how an application is architected and developed, typically using cloud-native features. Refactoring is usually driven by a strong business need to add features, scale, or performance that would otherwise be difficult to achieve in the application's existing environment. For example, if you are looking to migrate from a monolithic architecture to a service-oriented (or server-less) architecture to boost agility or improve business continuity, refactoring may be the solution.

Retire

Once you've discovered everything in your environment, you may find some of your applications are no longer adding value. We've discovered that as much as 10% of an enterprise IT portfolio is no longer useful and can simply be turned off. These savings can boost the business case, direct your team's scarce attention to the things that people use, and reduce the number of applications you have to secure.

Retain

Usually, this means "revisit" or do nothing (for now). Maybe you are still riding out some depreciation, are not ready to prioritize an application that was recently upgraded, or are otherwise not inclined to migrate some applications.

Migrating to AWS

Cloud has become the new normal as companies of every size have realized the benefits of increased agility and improved performance. For most organizations, the question isn't "if" anymore; it's "how fast can we move?" and "what are we moving first?"

By moving to AWS, you have access to the critical Windows infrastructure you depend on at a compelling price, with more reliable infrastructure than you were able to commit to in an on-premises world.

Assess

Your journey begins. The Assess phase establishes your readiness for cloud migration, analyzes your specific requirements, and begins building the business cases for migrating each workload.

Assess your readiness

Evaluate Microsoft workloads in on-premises and cloud environments to determine your readiness to migrate.

Analyze your usage

Analyze resource utilization, third-party licensing, and application dependencies to inform cost optimization scenarios.

Build a business case

Build a total cost of operations (TCO) model that includes a migration and licensing strategy using AWS programs and tools.

AWS Optimization and Licensing Assessment

AWS Optimization and Licensing Assessment (OLA) is a free program for new and existing customers to assess and optimize current on-premises and cloud environments, based on actual resource utilization, third-party licensing, and application dependencies. AWS OLA identifies everything in your organization's environment—regardless of platform, application, or geography—and provides recommendations for Optimized Licensing, Dedicated Hosts, Optimized CPU and Reserved and Spot instances. AWS also provides additional tools, questionnaires, workshops, and reports to help you quantify your migration readiness. You can use Migration Evaluator to ingest millions of data points and determine the best fit for each of your workloads on AWS.

- AWS Optimization and Licensing Assessment

Migrate

The Migrate phase includes building a secure landing zone, migrating resources and data, reporting, and providing visibility on the progress of your migration.

Identify cloud capabilities

Uncover gaps in your existing skills and processes and identify capabilities needed for a successful migration.

Build and mobilize

Address the capability gaps and dependencies in your environment and determine which workloads to migrate first.

Migrate

Migrate your applications, servers, and databases with AWS tools and services while testing for application performance and security.

AWS Migration Acceleration Program (MAP) for Windows is a comprehensive program that helps your organization execute large-scale migrations and modernizations of Microsoft workloads on AWS. MAP for Windows follows our proven three-step migration process and provides unique tools, services, best practices, and service credits to accelerate your migration.

With expert guidance from our AWS Partner and Professional Services teams, including training and service credits, MAP for Windows helps you reduce risk and lower costs as you embark on your migration journey.

Why now is a great time to migrate your legacy SQL Server workloads to AWS

Microsoft ended its support for SQL Server 2008 on July 9, 2019, and is planning to end support for SQL Server 2012 Service Pack 4 on July 12, 2022. This means Microsoft will stop security updates, making your databases and applications vulnerable, making now the ideal time to migrate your legacy SQL Server workloads to AWS. AWS gives you the tools and programs to make your SQL Server migration efficient and cost-effective. What's more, you can use tools like AWS Systems Manager to easily upgrade your SQL Server 2008 and SQL Server 2012 to the latest SQL Server version to address the end-of-support timelines.

SQL Server on AWS Recommendation Matrix

AWS offers many ways to run your SQL Server workloads and manage your new and existing SQL Server licenses for all your business needs. Here are some ways to optimize your SQL Server workloads on AWS, whether you want to modernize or simply lift-and-shift.

- Choose Amazon Relational Database Service (Amazon RDS) for SQL Server if you want to stay on SQL Server and leverage Amazon RDS automation to offload the undifferentiated heavy lifting of database administration tasks like installation, configuration, patching, upgrades, etc.
- Rehost your SQL Server workloads on Amazon EC2 without making any code changes if you want to stay on SQL Server and need full database control.
- Leverage a cloud-native relational database with Amazon Aurora to get 3 - 5x faster performance at 1/10th the cost if you want to move away from SQL Server.

Flexible options for your SQL Server licenses

If you have existing SQL Server licenses and Software Assurance (SA), you can bring your own license (BYOL) to Amazon EC2 default/shared tenancy. If you don't have SA, you can choose Amazon EC2 Dedicated Hosts (as long as the licenses were purchased prior to October 1, 2019)[5]. If you don't have existing SQL Server licenses, you can choose SQL Server License Included (LI). It is a pay-as-you-go licensing model that eliminates the management of complex licensing terms and conditions. AWS License Manager makes it easier to track the usage of software licenses and reduce the risk of non-compliance. Gain control over license usage, cut costs, and reduce the risk of noncompliance through automated administrative controls for AWS Cloud accounts and on-premises environments.

Amazon EC2 offers z1d instances with high single thread performance provided by a custom Intel® Xeon® Scalable Processor that includes a sustained all core frequency of up to 4.0 GHz. It's ideal for SQLServer workloads because SQL Server is licensed per CPU core and z1d's higher clock speed of 4.0GHz will reduce the number of CPU cores, which can result in significant cost savings. Amazon Elastic Block Store (Amazon EBS), with new Amazon EC2 R5b instances powered by custom 2nd Generation Intel® Xeon® Scalable Processors (Cascade Lake), provides easy to use, high-performance block storage for Microsoft SQL Server. With R5b on Amazon EBS, you can utilize up to 60 Gbps of Amazon EBS bandwidth and 260K IOPS (I/O operations per second) for large relational database workloads. You can take advantage of this improved Amazon EBS performance to accelerate data transfer to and from Amazon EBS, reducing the data ingestion time for applications and speeding up delivery of results.

[5]Or added as a true-up under an active Enterprise Enrollment that was effective prior to October 1, 2019

Optimize

Optimize your costs, usage, and licenses to suit your business needs. Use AWS Managed Services to automate tasks and workloads, centralize management of operations, and open the doors to modernization.

Monitor usage and spend

Access custom reports to visualize, understand, and manage your costs and usage. Identify trends and cost drivers, and detect anomalies.

Optimize workloads

Analyze historical usage to optimize your workloads for additional cost savings and improved performance.

Automate operational tasks

Automate tasks such as monitoring, security, and backup services using AWS Managed Services.

After moving your Microsoft workloads onto AWS, you can continue optimizing your costs, usage, and licenses to suit your business needs. With AWS Cost Explorer, you can visualize, understand, and manage your AWS costs and usage over time to take control of spend. AWS Compute Optimizer recommends optimal AWS Compute resources for your workloads so you can reduce costs up to 25 percent by analyzing historical utilization data.

AWS Managed Services can help operate your cloud environment postmigration by analyzing alerts and responding to incidents, reducing operational overhead and risk. You can use AWS Systems Manager to automate operational tasks across your AWS resources and better manage your infrastructure at scale.

Modernizing with AWS

Migration is just the beginning. Modernization is where your business breaks free from licensing lock-ins and software audits, accelerates innovation, and unlocks the full potential of running in the cloud.

With AWS, you can transform your applications to increase agility, efficiency, cost savings, and security. You can free up resources and scale infrastructure on demand. Boost the skills and experience you need to achieve your objectives, or all of the above. Modernization can mean many things, but AWS will help you find the pathway that's right for you. Whether you choose to move to managed services or transform with open source technologies, here are a few of the pathways that you can use to modernize your Windows workloads on AWS.

Modernization pathways

AWS will help you follow the right pathway, and the right pace, of modernization for your organization.

Repackage your applications with managed services and containers
Let experts manage your cloud infrastructure while you use serverless API services. Moving to managed services can occur immediately or after relocating your workloads.

- Run managed SQL Server databases: Optimize your SQL Server workloads on Amazon RDS to increase performance and resilience without needing to manage database administration tasks. You can run Amazon RDS using the latest technology for the right balance of compute, memory, and networking for your commercial or open source database deployment—and only pay for what you use.

Restructure your code with open source
Break free from licensing and unlock the full capabilities of the cloud by moving to open source. Gain agility, cost savings, and performance by taking advantage of cloud-native technologies.

- Run .NET Core on containers: Embrace the full potential of open source by running your modernized Windows applications on container services such as AWS Fargate, Amazon Elastic Kubernetes Service (Amazon EKS), and Amazon Elastic Container Service (Amazon ECS).

Rebuild monolithic applications
Breaking monolithic apps into a collection of applications that enables each do one thing really well is a high-level way to describe microservices.

- Switching to microservices can unlock value and cut operating costs dramatically.
- Deploy .NET microservices: Transform your legacy .NET applications to take advantage of innovations in cloud-native technologies.

Modernize Microsoft workloads with AWS

Continuously realize the benefits of cloud innovation by progressively modernizing your application portfolio on AWS to accelerate digital transformation. We provide incentives, service credits, and benefits for modernization of .NET applications and SQL Server on AWS, including leveraging partners, modernization COEs, and self-service resources.

AWS Professional Services offers a one-day free Envisioning and Alignment workshop to help customers lay a foundation for a cloud and product modernization strategy. They can work with you to co-develop a Proof of Concept (POC) focused on a high-value use case that identifies a scaling pattern for modernization, including the high-level architecture to build, roadmap to follow, and cost model to use.

Taking this step toward digital transformation will enable you to increase application availability and performance with greater efficiency through automation. In turn, this frees up personnel to focus on innovative new products, services, and processes instead of maintenance. You will also reduce the burden of unplanned outages, and be able to more readily realize the benefits of flexibility and agility by more quickly adapting to changing market trends and evolving customer needs.

Build on AWS

Empower your .NET developers to build next-generation applications using their preferred tools and our industry leading services. AWS provides a reliable, scalable, and global infrastructure platform with a broad set of global cloud-based services.

With over 200 services that can be provisioned quickly without upfront capital expenses, AWS provides the ideal environment to not only deploy existing .NET applications but also to create new, modern, and innovative .NET applications with all the familiar tooling and integrations .NET developers expect. AWS supports both legacy customer use cases with .NET Framework and modern workloads with support for LTS and current releases of .NET Core/.NET 5.

Development tooling and DevOps

.NET developers and teams use a wide variety of tools to develop, deploy, and monitor their applications. With the advent of .NET Core, and now .NET 5, developers are able to take advantage of other platforms to develop application code. AWS offers free plug-ins for popular IDEs for .NET development and an SDK that makes integration of AWS services with application code easy and convenient.

Software Development Kits

AWS SDK for .NET

For developers looking to integrate AWS services in their application code, AWS provides the free AWS SDK for .NET. Available on NuGet, each AWS service is encapsulated in individual packages together with a shared common core package. The SDK makes calling AWS service APIs from within application code as easy as calling a method on an object. AWS also provides additional open source extension libraries to make application integration with AWS even easier. Each service package provides a client type implementing the service's API, and a collection of rich request, response, and model types associated with the API. The SDK handles all of the interactions with the services, including authentication, throttling, and retries.

AWS Cloud Development Kit

The AWS Cloud Development Kit (AWS CDK) is an open source software development framework that enables your developers to define cloud applications using familiar languages. Your teams can also build and share libraries of constructs configured to your organization's cloud resources.

Hosting Microsoft workloads on AWS with Mindex

Mindex is a software development company with a rich history of demonstrated software and product development success.

They are the creator of New York State's market leading Student Management System (SMS), SchoolTool™, and help private and public organizations of all sizes and industries tackle their application development challenges.

As an AWS partner, Mindex positions agile software engineering teams to deliver software solutions in AWS, cloud-first, specializing in Microsoft application modernization and Cloud-native software development.

Resources

- Learn more about Windows on AWS
- Microsoft Licensing on AWS
- Case Studies: Windows on AWS
- AWS migration resources
- Try AWS for free
- Getting Started Resource Center
- Mindex Cloud Services: Windows on AWS

About AWS

To learn more about AWS, visit aws.amazon.com.

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