Modernizing Microsoft Workloads in the AWS Cloud.

Applied Cloud Computing

Executive Summary

From burgeoning start-ups to large, established brands, Microsoft Workloads cloud migration has become a key step towards the security, scalability, and cost-effectiveness that businesses need. By migrating critical infrastructure and workloads to the cloud, organizations are able to unlock their full potential - leveraging cloud technology to accelerate business growth and success. Every organization has its own unique path to the cloud, tailored to address their differing priorities along the way. With this in mind, maximizing the rewards of migration while maintaining competitive operations can be a challenging process. This is particularly true for smaller enterprises and start-ups, who often lack the essential skills and resources for seamless cloud adoption.

This skills gap is an obstacle for many businesses pursuing digital transformation. Without large technology teams to do the implementation work internally, progress can stall, leaving essential processes to operate inefficiently — or worse still, at risk. To this end, not only must businesses first choose the right platform for their business-critical infrastructure, but it should also connect them with trusted experts in migration and modernization. With over 12 years of experience running Microsoft workloads, Amazon Web Services (AWS) goes one step further than the competition with a network of partners offering trusted guidance and expertise.

Why AWS for Microsoft Workloads

Windows Server-based enterprise applications (both .NET-based & SQL Server workloads) rely on the underlying infrastructure for platform performance, security, and availability. A better performing cloud platform enables them to perform better and hence prove to be more resource-optimized and cost-effective. AWS helps them build, deploy, scale, and manage Microsoft Workloads quickly, easily, securely and cost-effectively.

Most Experience

10+

Years of running Microsoft workloads "There is no compression algorithm for experience"

Growth of Microsoft workload on AWS

400+

Between 2015 & 2018, there was a 400% growth of windows workloads on AWS

Global reach & High Availability

68

Availability zones spanning 20 geographical regions

Customer obsession & Innovation

140+

Service offering

Security & Compliance

50+

Compliance certificates HIPAA, ITAR, FISMA and so on.

Improve total cost of ownership(TCO)

61

Price reductions since 2008

Source: https://amzn.to/2LtuZ

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The Most Experience:

AWS has been running Microsoft Workloads since the very beginning of their platform. So, with 10+ years of experience and hundreds of thousands of customers, there is just no competing offering that can come close to AWS.

50+ Compliance Certifications:

AWS has the deepest set of compliance certifications for the hyper-scale cloud. There are 50+ certifications such as HIPAA, ITAR, FISMA, and so on.

Growth of Microsoft Workloads on AWS:

According to AWS, between 2015 and 2018, there was a 400% growth of Microsoft Workloads on AWS using Amazon Elastic Compute Cloud (Amazon EC2) for Windows Server. This is incredible growth in a short period of time, and we continue to see a massive surge of Microsoft Workloads on AWS.

Continuous Innovation of Windows Offerings:

AWS has introduced dozens of major innovation points for Microsoft Workloads over the past 10 years including Windows, Windows Server, SQL Server, .Net, app modernization and much more. There are 143 instance types and 37 instance families for EC2 and 60 different AMIs available for Microsoft Workloads. So, they have a very deep capability set for Windows and a jump start over the other public clouds out there. In fact, AWS hosts almost twice as many Windows Server instances in the cloud than even Microsoft does!

Global Reach and High Availability:

AWS has more Availability Zones (AZs) and regions globally than any other cloud service provider. AWS has availability zones spanning over 20 geographic regions. Each region has 2 or more AZ's and each AZ has 2 or more data centers, giving you the right infrastructure, isolation and latency-oriented solutions

Customer Obsession & Innovation:

AWS currently offers 140+ services and one of the company's core values is, taking customer and partner feedback seriously.

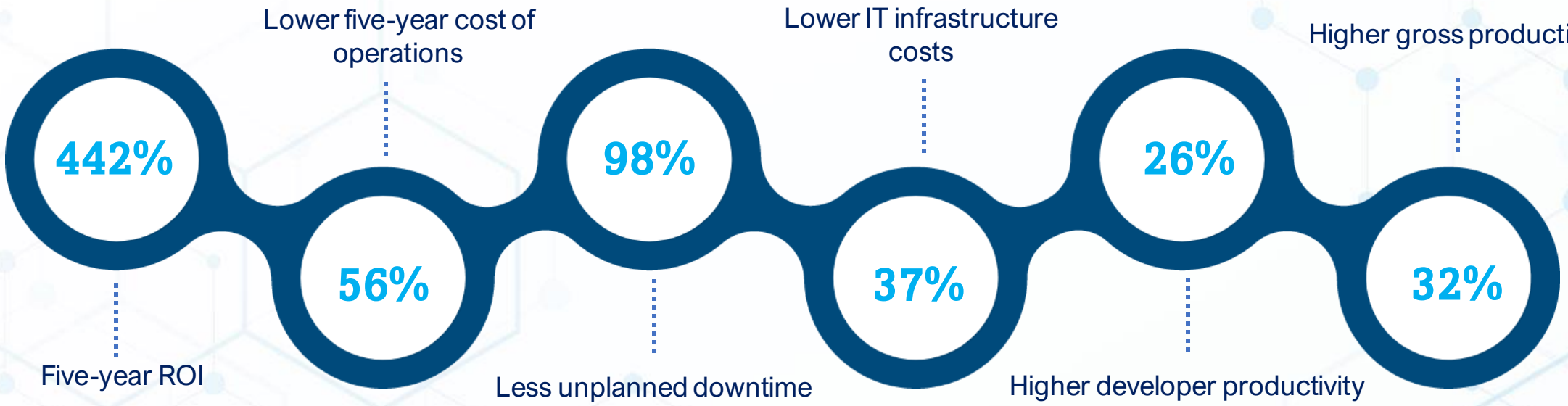
Total Cost of Ownership (TCO):

From a TCO perspective, it's going to be hard to beat AWS. They've never raised prices and have offered 61 major price reductions since 2008. We at Applied Cloud Computing are constantly working with customers to take advantage of the new capabilities that AWS offers for cost optimization. AWS is not only about price reduction and having the best price point, but it provides a lot of levers that you can push and pull to really optimize your environment and get the best TCO.

Flexible licensing options:

AWS offers the most options in the cloud for using new and existing Microsoft software licenses on AWS. By purchasing Amazon Elastic Compute Cloud (Amazon EC2) or Amazon Relational Database Service (Amazon RDS) license-included instances, you get new, fully compliant SQL Server licenses from AWS. You can also bring your existing licenses to AWS - BYOL (bring your own license) with Amazon EC2 Dedicated Hosts or instances using Microsoft License Mobility through Software Assurance. AWS License Manager makes it easier to track the usage of software licenses and reduces the risk of non-compliance.

Key Business Value Highlights of Microsoft on AWS



Source : https://d1.awsstatic.com/analyst-reports/Business%20Value%20of%20Efficiently%20Running%20High-Performing%20Windows%20Workloads%20in%20the%20AWS%20Cloud.pdf

Enterprise Experience with AWS

For businesses of all sizes, migrating Microsoft workloads to the AWS Cloud has become the go-to strategy for increased agility, scalability and price-to-performance. Offering 99.9% availability and a 442% ROI, cloud migration is no longer a question of “how”, but “when”.

"The traditional procurement cycle for buying infrastructure on-premise was a big hurdle for meeting business expectations. Cloud is cost neutral for us. And during times such as the present, our transaction volumes had shot up over 6 times. It would have been difficult to scale up the infrastructure during the pandemic. AWS has been a blessing for us,”

-Sankarson Banerjee
Chief Information Officer, RBL Bank

“Simply put, AWS helped enable Ziff Davis to grow and diversify revenue streams rapidly and successfully. AWS has proven to be a great choice for us.”

-Joey Fortuna
CTO, Ziff Davis

“By working with AWS, breaking down internal boundaries, and staying close to our partners, we were able to do something amazing for our business."

-Wayson Vannatta
Sr. Director of IT and Operations, InfoSpace

- AWS provides tools and enables services through technology partners to migrate and modernize Windows Server-based workloads on AWS.
- AWS proves to be an ideal platform for Windows Server-based applications through capabilities such as Amazon Autoscaling, cloud storage, and AI / ML / Data Analytics capabilities, better platform and network performance, and security features.
- Flexible licensing models such as BYOL, a simpler pricing model, and features to fine-tune resource optimizations provide enterprises with predictable and better TCO.

Enterprises find AWS a well-suited platform for App Modernization

Application Modernization refers to modifying a traditional application to leverage modern infrastructure constructs such as self-service provisioning, cloud-based services, cloud-native technologies, or serverless infrastructure, and modern application lifecycle management practices. Enterprises find AWS an optimized platform for Windows Server-based workloads modernization due to core technology capabilities, support for application migration & modernization, and cost-optimizations.

Pathways to Modernize

When customers modernize their Windows-based workloads with AWS, they can choose from a broad array of pathways and services, including:

SQL Server on EC2 Linux

Customers looking for a self-managed way to run SQL Server more cost-effectively, can operate on EC2 Linux, without compromising performance and security. SQL Server on Linux costs less than Windows and provides a familiar experience to Windows users.

SQL Server to Amazon Aurora

Amazon Aurora is a MySQL and PostgreSQL-compatible relational database built for the cloud, that combines the performance and availability of traditional enterprise databases with the simplicity and cost-effectiveness of open-source databases.

Enterprises find AWS a well-suited platform for App Modernization

Windows Containers Support with Amazon Elastic Kubernetes Service (Amazon EKS)
Amazon EKS is a fully managed Kubernetes service that offers the only production support for Windows containers. With EKS, you can run Windows worker nodes alongside Linux worker nodes, allowing you to use the same cluster for managing applications on either operating system.

.NET Core on Linux Containers
AWS Fargate allows you to run containers without needing to provision, manage, or scale any Amazon EC2 compute infrastructure. Fargate works with Amazon ECS and can run microservices developed in many programming languages or application frameworks, including .NET Core.

Serverless deployment of .NET applications using AWS Lambda
AWS Lambda lets you run code without provisioning or managing servers. It is a serverless compute service that runs your code in response to events, and automatically manages the underlying compute resources for you, so that you can avoid the heavy-lifting associated with scaling, patching, and managing your .Net applications.

Enterprises find AWS a well-suited platform for App Modernization

Containerize and migrate existing applications with App2Container
App2Container is a command line-tool that analyzes your applications and automatically generates a container image that is configured with the correct dependencies, network configurations, and deployment instructions for Amazon ECS or Amazon EKS.

Refactor from .NET Framework to .NET Core using the Porting Assistant for .NET
Porting Assistant for .NET quickly scans .NET Framework applications to identify incompatibilities with .NET Core, finds known replacements, and generates a detailed compatibility assessment to jumpstart your porting effort.

Espos Now Chooses Modernization on AWS to Help it Deliver a New API Environment

"By modernizing the API, we have started our journey towards releasing more frequently which means we can push out new features to customers when they need them. We have a DevOps approach to development now that we have modernized our Windows environment on AWS."

- Josh Hart, Cloud Architect, EposNow

Modernizing legacy .NET applications: DraftKings' principles for success

"We laid out a path to lower costs, increase scalability, application flexibility and improve developer efficiency. We identified an opportunity to get started on this path by modernizing our legacy .NET applications, with step one being a conversion to .NET Core."

- David Musicant, Director of Architecture, DraftKings Inc.

Technology Capabilities make running Windows Applications on AWS easier

Enterprises find running Windows Applications on AWS easier by virtue of AWS's enterprise-ready core technology capabilities including custom Virtual Machine sizing, superior platform and networking performance, platform security, AI/ML and Data Analytics, and modern infrastructure constructs such as cloud-native technologies and serverless infrastructure.

AWS SERVICES

- Custom VM sizing enables enterprise customers to fine-tune virtual instance sizes to provide an optimal price-performance ratio.
- AWS is well known for its security capabilities. Its secure platform enables fine granularity of access, data confidentiality, and easy flow of data. It offers various security services like AWS Identity & Access Management (IAM), Amazon GuardDuty, Amazon Inspector, AWS CloudTrail, AWS Shield, AWS Web Application Firewall (WAF), AWS Key Management Service (KMS), AWS Certificate Manager, Amazon CloudWatch etc. to keep your data breach-proof.
- AWS is continuously innovating in AI/ ML technologies. Data capabilities such as Amazon RedShift provide alternatives to on-premises data-warehousing and analytics without the operational overhead.
- At AWS, the familiar Windows services are made easier to use. Amazon FSx for Windows File Server provides fully managed, highly reliable, and scalable file storage that is accessible over the industry-standard Server Message Block (SMB) protocol. It is built on Windows Server, delivering a wide range of administrative features such as user quotas, end-user file restores, and Microsoft Active Directory (AD) integration.
- AWS Auto Scaling monitors your applications and automatically adjusts capacity to maintain steady, predictable performance at the lowest possible cost. Using AWS Auto Scaling, it's easy to setup application scaling for multiple resources across multiple services in minutes. AWS Auto Scaling makes scaling simple with recommendations that allow you to optimize performance, costs, or balance between them.

AWS provides Enterprises with Cost Optimization

Windows Server & Microsoft SQL Server licensing models are hardware-based and are optimized towards on-premises consumption. They are well-suited for steady-state workloads that can be scaled up. **Pay-As-You-Go pricing models** on the public cloud are better suited for bursty utilizations and elastic workloads that can be scaled-out. Enterprises find Windows Server and SQL Server licensing on the public cloud for such workloads to be less expensive.

Through **BYOL** models, AWS enables enterprises to utilize any existing licenses, thereby providing cost-savings. Further, AWS supports capabilities (such as Custom VM Sizing), which enable enterprises to fine-tune their cloud resources. Enterprises have observed that AWS's superior platform and network performance enabled them to utilize fewer resources on AWS than on other platforms for comparable performance. They also found AWS's pricing models to be simpler

LICENSING

BYOL

RESOURCE OPTIMIZATION

Custom VM Sizes/
Platform Performance

PRICING

Simple Pricing model

AWS provides Enterprises with Cost Optimization

- A recent IDC study shows that organizations will **lower their cost** of running Windows workloads **by 56%** over five years when they migrate to AWS. Customers not only reduce their infrastructure and operational costs, but also minimize the economic impact related to unplanned outages. IDC also projects that customers will realize an **average return on investment (ROI) of 442%** over five years.
- Based on independent testing done by DB Best, ZK Research found that AWS offers more than **2x better price-performance** for running SQL Server on AWS than the next leading cloud provider.

"We've seen much stronger performance for our database-backup workloads with the Amazon EBS st1 volumes, and we're also saving 75% on our monthly backup costs."

- Randy Young
Director of Cloud Operations, Infor

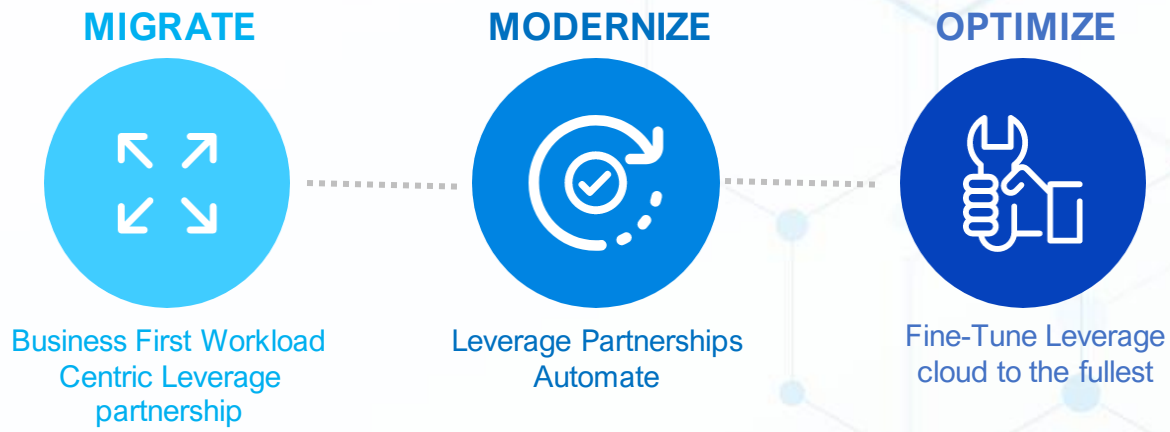
"When we moved our SQL Server licenses to Amazon EC2 Dedicated Instances and Dedicated Hosts, we saved 15% on SQL licensing costs. Additionally, when we move our Windows licenses to Amazon EC2 Dedicated Hosts, we will save 10% on Windows licensing."

- Cris Carlin
Vice President Global Cloud Operations, Deltek

Perception and Ways to overcome Cloud Migration Challenges

Public cloud adoption is not without challenges. Enterprises cite a lack of in-house expertise on cloud technologies, unpredictable costs, and decision fatigue as primary inhibitors to public cloud adoption.

Enterprises also observe generic challenges with public cloud adoption, such as unpredictable TCO and loss of transparency on the underlying infrastructure. These challenges do not pertain to AWS alone, but to cloud service providers in general.



Taking a workload-centric, multi-phased approach to cloud migration is the key to overcome the above challenges. As enterprises progress in cloud adoption maturity, they can modernize their applications and invest in automation and agile development practices. Once they are set up with automation at the organization level, they can leverage capabilities such as Custom VM Sizing to fine-tune resource allocations on the cloud. As they optimize their resource consumption, they can move other business-critical/ mission-critical applications to the public cloud to leverage the advantages that the cloud platform enables to the fullest. Leveraging the right partnerships to mitigate the lack of in-house expertise on cloud technologies is critical.

Amazon Web Services

AWS Cloud offers a first-class experience for Microsoft Workloads with powerful, scalable infrastructure coupled with the choice to self-manage workloads or rely on managed services. You can purchase licenses from AWS or bring your own licenses and run them on the Cloud. Moving workloads to AWS Cloud also lays the foundation for modernization of Windows on Kubernetes and gaining access to AI/ML and data analytics services. Google Cloud aims to simplify the migration process to help you solve this puzzle.

For more information visit: https://aws.amazon.com/windows/?blog-posts-content-windows.sort-by=item.additionalFields.createdDate&blog-posts-content-windows.sort-order=desc

Applied Cloud Computing

Applied Cloud Computing (ACC) is an advanced AWS consulting partner. ACC accelerates end-to-end cloud adoption with the best implementation services, software and processes available. ACC's comprehensive framework for cloud adoption and dedicated software development capabilities help clients achieve business results faster, no matter where they are in their cloud transformation.

ACC works with companies to understand their existing infrastructure and to outline a plan aligned with their critical business and technology objectives, so they can migrate and run their Microsoft Windows Workloads on AWS quickly and efficiently. ACC provides solutions in helping businesses move successfully to AWS, through all phases of complex migration projects, discovery, planning, and operations.

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