Microsoft Modernisation on AWS

Modernising Microsoft Workloads on AWS

Overview

Year after year, Amazon Web Services (AWS) continues to prove its mettle as an industry leading public cloud provider; from foundational Infrastructure as a Service (IaaS) to Artificial Intelligence (AI) and Internet of Things (IoT) offerings, the breadth and depth of the platform services is increasingly being used to realise business value from organisations of all shapes and sizes, all over the world.

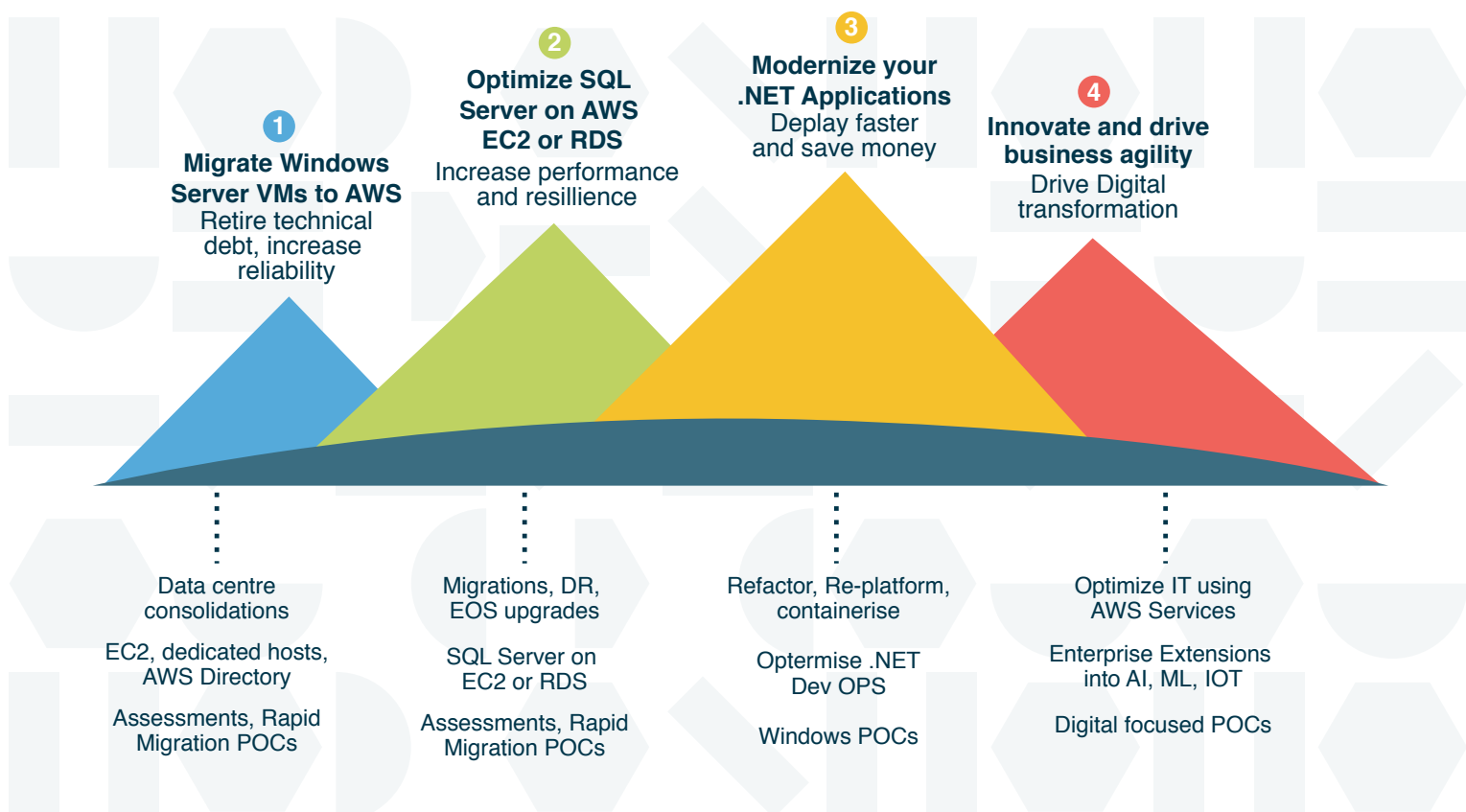One of the key benefits of any cloud platform is the concept of cloud-native, whereby organisations and systems are optimised to leverage automation and to embrace a shift-left mindset to increase business agility, staff productivity and operational resilience while reducing costs and complexity of building and running systems.

A good example of this is through a typical Microsoft modernisation exercise on AWS, which serves as the topic of this whitepaper and is supported through an in-depth example use case.

Microsoft on AWS

AWS is often touted as the most popular, secure and reliable cloud for Windows workloads. In an IDC study, participants realised a 98% reduction in unplanned downtime, as well as a 56% lower cost of operations and 442% return on investment over five-years. Customers often iterate through a few permutations on their modernisation journey, as shown below:

1 Migrate Windows Server VMs to AWS
Retire technical debt, increase reliability

Data centre consolidations

EC2, dedicated hosts, AWS Directory

Assessments, Rapid Migration POCs

2 Optimize SQL Server on AWS EC2 or RDS
Increase performance and resillience

Migrations, DR, EOS upgrades

SQL Server on EC2 or RDS

Assessments, Rapid Migration POCs

3 Modernize your .NET Applications
Deplay faster and save money

Refactor, Re-platform, containerise

Optermise .NET Dev OPS

Windows POCs

4 Innovate and drive business agility
Drive Digital transformation

Optimize IT using AWS Services

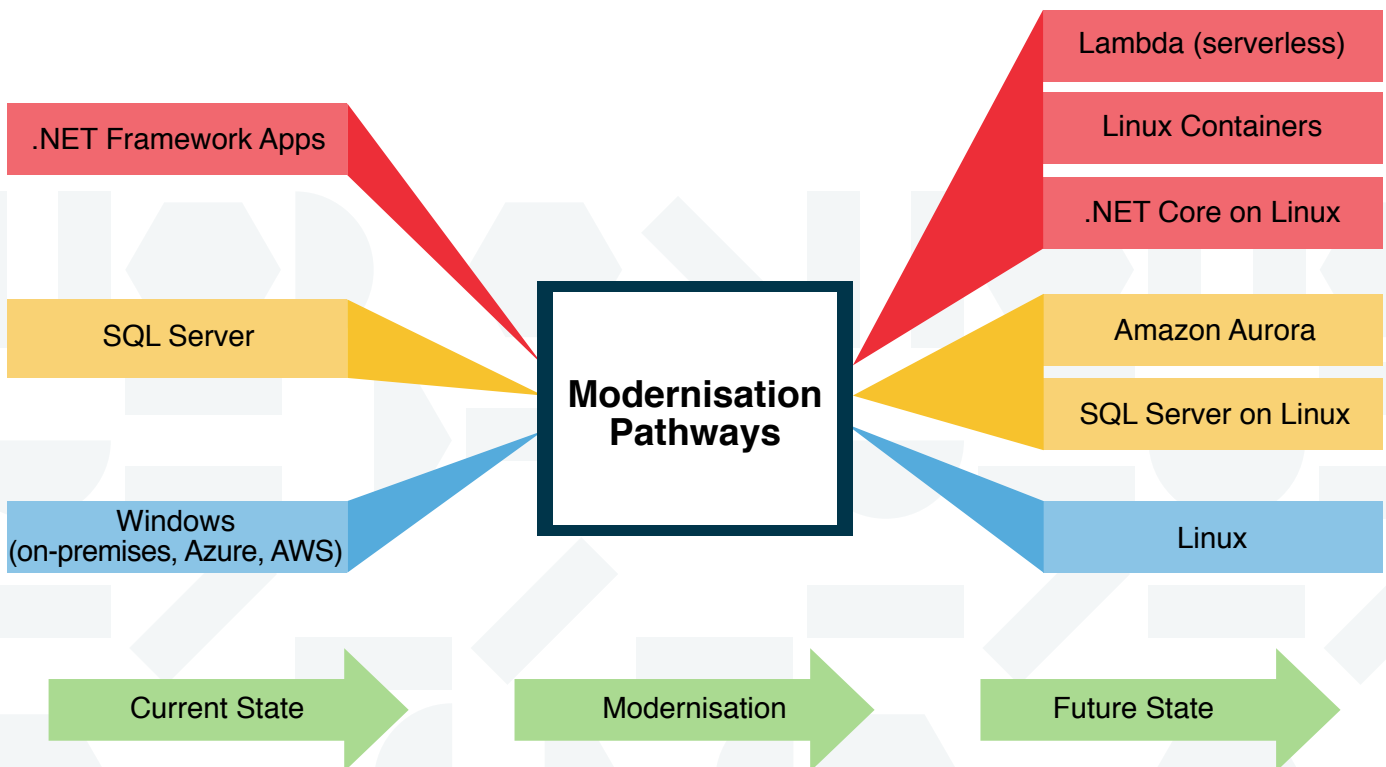Enterprise Extensions into AI, ML, IOT

Digital focused POCs

Phase 1 focuses on migrating Windows Server VMs to retire technical debt and increase reliability. Estate and licensing assessments, as well as rapid migration Proof of Concepts (POCs) are common in this phase, building customer confidence on the AWS platform and proving operational metrics.

Phase 2 focuses on optimising SQL Server installations on Amazon Elastic Cloud Compute (EC2) and modernisation to Amazon Relational Database Services (RDS), as well as the migration of legacy applications from unsupported Windows versions. Customers typically see increased price/performance metrics over their existing environments and in some cases a 2-3x performance over Azure when matched on workload price.

Phase 3 focuses on modernising .NET applications, allowing for faster deployments at lower operational costs. Customers look to refactor applications into cloud-native architectures, often decoupling from Windows in its entirety in opt of Linux hosted containers or serverless technologies, e.g. AWS Lambda. New DevOps practices are typically adopted in this phase as well.

Phase 4 focuses on innovating and driving business agility through digital transformation. Customers begin to adopt more AWS-native services, further decoupling reliance on Microsoft platforms, e.g. moving from MSSQL Server to Amazon Aurora. Higher order platform services, such as AI/ML or IoT services, are increasingly adopted at this stage as customers realise the value of managed or integrated, out-the-box services from AWS.

Modernisation can include any/all of the following pathways:

Current State	Modernisation	Future State

.NET Framework Apps → **Modernisation Pathways** → Lambda (serverless), Linux Containers, .NET Core on Linux

SQL Server → **Modernisation Pathways** → Amazon Aurora, SQL Server on Linux

Windows (on-premises, Azure, AWS) → **Modernisation Pathways** → Linux

Example use case

Phase 1

Looking for opportunities to offer greater value (at pace) to customers while increasing service performance and availability, the leadership of Example.com decide to evaluate a proof of concept (POC) in the cloud.

In their POC (as with many customers), they begin their cloud journey through the use of foundational services, such as Infrastructure as a Service (IaaS). This provides them with a low barrier to entry to the cloud, whereby they can lift-and-shift existing systems directly into AWS. This typically constitutes the use of services such as Amazon Elastic Compute Cloud (EC2), Elastic Block Storage (EBS) and Virtual Private Cloud (VPC) for the respective needs of compute, storage and networking. They also investigate the economic case for the cloud, including estate, licensing and migration costs.

The results are promising for Example.com; they're able to quite easily replicate their existing environment with AWS, with little to no redevelopment required.

They also notice a marked improvement in performance over their on-premise installation, even when matching on compute, memory and storage capacity specifications.

During this time, their small technical team (two developers, a sysadmin and a database administrator) became suitably versed in foundational AWS capabilities, getting to grips with the on-demand, pay-per-use model, the AWS shared responsibility model and the ease of which high-availability and scalability can be achieved. They also jointly agree to go on an AWS certification journey to further validate their newfound cloud capabilities! In their evaluation, they also notice a number of native Platform as a Service (PaaS) capabilities on AWS; for example, Amazon Relational Database Services (RDS).

Phase 2

As organisations mature in their understanding of how cloud technologies work, and how they can best leverage these capabilities, they begin to explore higher order platform services, such as PaaS. This shifts elements of the operational burden to the provider (provisioning, maintenance, monitoring and uptime SLAs), thereby freeing up organisational resources to rather focus on strategic business initiatives. In this case, if the team choose to adopt the AWS managed services of RDS, they not only benefit from increased reliability, performance and availability, moreover they crucially win back a number of hours that would otherwise be spent in day-to-day operational functions.

For the team's database administrator, the out-the-box capability of RDS to manage the deployment across multiple Availability Zones (AZs) significantly reduces the operational burden of monitoring and managing the availability, data durability, and fault tolerance for database instances, freeing up capacity to rather assist the development team with new features and services.

Utilising the AWS End-of-Support Migration Program Windows, the team also manage to migrate their legacy Windows Server applications to the latest, supported versions of Windows Server on AWS, without any code changes.

Phase 3

Recognising the operational savings that are beginning to materialise, the Example.com team look to evolve the application layer as well, trading server hosted apps for containers. This requires the modernisation of .NET Framework to .NET Core, a review of their microservices architecture and a renewed investment in DevOps tooling to embrace a shift-left mindset.

One of the key outcomes of the modernisation is that they are able to move off expensive Windows hosted servers, to Linux. Additionally, they are well positioned to adopt one of AWS' many managed container services, such as Amazon Elastic Container Service (ECS), Amazon Elastic Kubernetes Service (EKS).

AWS Fargate and serverless technologies, such as AWS Lambda, take this concept even further, allowing Example.com to run their code without the need to provision or manage servers. AWS handles the heavy lifting for them.

The use of DevOps enabled microservices architectures (shifting possible issues closer to the source through build pipelines, offsetting the operational burden, built-in patterns of logging and monitoring) enable the team to individually save up to 10 hours per week; the equivalent of an entire 40-hour work week won back for the team!

Hours saved

10 hours per week saved individually

40 hours per week saved by the team

Phase 4

The team use the opportunity to also review their use of MSSQL Server, experimenting with Amazon's native Aurora service and its MySQL flavour. Using AWS native database migration tooling, they are able to migrate from MSSQL to Aurora MySQL over several weeks, realising significant cost savings without sacrificing the expected enterprise performance and availability.

As a means to meet their innovation and digital transformation goals, the Example. com begin to treat cloud as the default destination for new workloads.
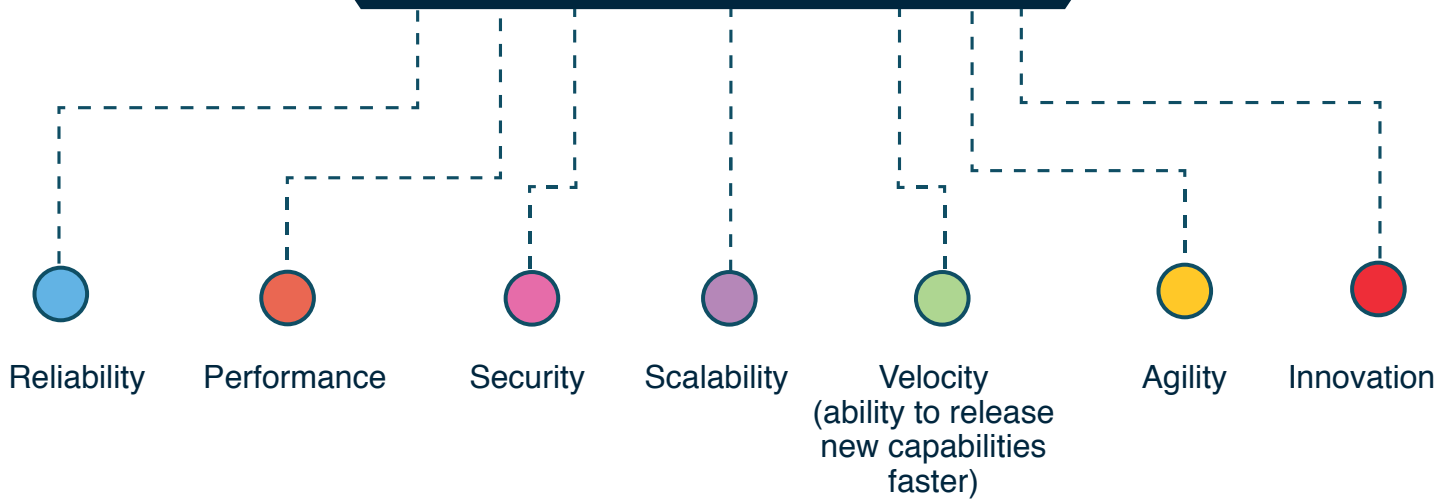
Fail Fast
Fail Cheap
Fail Forward

The downstream effect of their improved agility means that they are able to conduct more business experiments, more frequently. This follows the very simple concept of failing fast, inexpensively and always in a progressive way. Building on their ability to match demand, the team can now also conduct experiments to further enhance their offering, all the while gathering data on what's working for their customers and what's not; data that is crucial in deciding on which high-value initiatives they should pursue next.

The time, effort and cost of executing through ideation to implementation of Example.com's strategic initiatives are all significantly reduced.

This turnaround time ensures that data-driven decisions become an easily achieved and expected norm for the company.

Results

By the end of a Microsoft modernisation journey on AWS, and through the tracking, quantification and reporting of key metrics, customers reap the rewards of increased:

Reliability   **Performance**   **Security**   **Scalability**   **Velocity** (ability to release new capabilities faster)   **Agility**   **Innovation**

The net effect of these benefits is a significant saving in organisational time and effort, allowing organisations to spend more time improving their agile development approaches, DevOps initiatives and critically, delivering more application and service features with reduced downtime.

About Synthesis

At Synthesis, we believe in leveraging the power of Cloud Computing to create customer experiences that notably excite, engage and inspire longevity in consumer relationships.

With the global acceptance of Cloud Computing as the new normal for any digitally enabled business, we have, over the last six years, deliberately cultivated vast experience and authentic expertise in helping our customers holistically adopt AWS at scale.

We have helped our clients solve some of the most challenging problems and ensured they deliver on their digital journeys.

Combining over 20 years of industry experience and successful delivery to industry leading institutions, we ensure a seamless Cloud journey.

As an AWS Advanced Consulting Partner, we've continued to build on our strategic partnership with AWS by being one of the first partners (in region) to achieve the AWS Financial Services, DevOps and MS Workload competencies, part of the Well-Architected and Immersion Day Programs as well as holding over 150 AWS certifications.

aws 100 certified
AWS PARTNER NETWORK

aws partner network

Advanced
Consulting
Partner

Well Architected

DevOps Competency

Financial Services
Competency

Microsoft Workloads
Competency

Immersion Day Partner

Special offers

AWS provides us with significant discounts due to our Microsoft Workloads Competency and we are choosing to pass this on to our clients. Contact us to take advantage of this special offer.

Discovery

One-month detailed analysis of the application/s to understand component architecture, dependencies, deployment methodology and licensing model and projected migration costs.

Receive up to **75**% **DISCOUNT** when commencing a modernisation Discovery project.
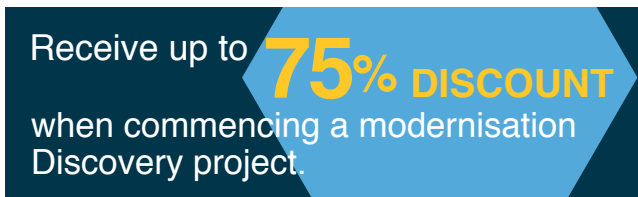
Execution

Phased migration/modernisation approach into AWS, taking into account priority, criticality, dependency and cost considerations.

Receive up to **50**% **DISCOUNT** of the execution of modernisation into AWS.

Resources

- [Running Windows Workloads on AWS](#)

- [The Business Value of Efficiently Running High-Performing Windows Workloads in the AWS Cloud](#)

- [Comparing SQL Server Deployments on Microsoft Azure and Amazon Web Services](#)

- [Microsoft Licensing on AWS](#)

- [Case Studies: Windows on AWS](#)

- [AWS Migration Resources](#)

Contact us to learn how to modernise your workloads:

Johannesburg: +27 87 654 3300
Cape Town: +27 21 003 9198
Email: insights@synthesis.co.za