What is AWS? An Introduction for Business Owners

Contents

The Cloud: From Novelty to Necessity

In today's digital age, moving to the cloud is less of a novelty and more of a necessity for businesses.

Why? The cloud offers a workforce access to data and files from any device and any location. It offers unbeatable scalability with potentially unlimited storage space available in an instant. The cloud even supercharges security with no chance of data-loss from server damage or theft. And that's just the start.

With businesses increasingly moving to the cloud, forward-thinking organisations need to consider their own migration merely to avoid falling behind the competition.

In truth, the question isn't whether you should adopt the cloud or not. Instead, it's about which cloud computing platform is right for you.

Amazon Web Services (AWS) has attracted countless businesses, big and small, from across the globe. But, should your company join them?

AWS allows companies to move their systems, or specific operations, to the cloud without any unnecessary complications. An arsenal of cloud computing services, tools and applications are available on-demand, on a pay-as-you-go basis.

Ready to find out more? This e-book provides a complete introduction to AWS for business owners, including:

- What is AWS?
- Who uses AWS?
- The benefits of AWS
- Brands using AWS

And a whole lot more... Enjoy!

Tel 0800 019 3878
Email sales@greencloudhosting.co.uk

Part 1: AWS History

First things first, where did it come from? Well, the short answer is Amazon – one of the world's biggest companies, renowned for its global ecommerce services. But there's a lot more to the story than that alone.

Not so humble beginnings

Despite only seeming to take off in recent years, AWS was actually launched way back in 2002. As a subsidiary of Amazon, it's fair to say the platform had plenty of resources at its disposal, initially focussing on tools and services for cloud computing. However, over the first few years of its existence, the platform's focus was shifted with a vision of automated, standardised computing infrastructure, offering virtual servers to users across the world.

In 2004, AWS released its first product – Simple Queue Service (SQS). SQS facilitates the sending of messages online between consumers and companies. While similar technology was available through IBM and Microsoft, AWS offered the whole thing as a service. There was no need for users to maintain servers – a huge disruption to the industry.

Following this realise, AWS began working on their elastic cloud service (EC2), now one of their keystone products.

2006 relaunch

With this new, clearer focus, AWS relaunched in 2006, offering SQS, EC2 and Amazon cloud storage. In short, they provided a full suite of services to developers, other sites and businesses – as a service. There was no need to worry about where to store data, whether that data will be secure and how much it would all cost.

This proved particularly popular with developers, with 150,000 signing up to AWS by its 2006 re-launch. At the end of 2007 and 2008, Amazon launched S3 and EC2,

respectively, in Europe. This significantly reduced latency and bandwidth for European users – allowing AWS to take off in another market.

The rise of competitors

2008 was the first sign of competition for AWS, as Google launched its own platform-as-a-service offering. The Google App Engine allowed users to develop and host web applications through Google's managed data centres as part of the Google Cloud.

Almost two years later, Microsoft joined the market with Azure. Because so many enterprise-level data centres and businesses already used Microsoft products, Azure had a considerable advantage over both AWS and Google.

Virtual Private Cloud

After its relaunch, Amazon continued to release new products to bolster its as-a-service offering. In 2009, they launched the Amazon Virtual Private Cloud (VPC). This allowed customers to create their own isolated network within the AWS cloud. Rather than simply targeting developers, this focussed on companies who would need to move larger workloads to the cloud on a more permanent basis.

Continued expansion

In April 2010, Amazon further expanded its reach setting up a 'region' in Singapore with local data centres. This was the first Asia-Pacific AWS region, providing better bandwidth and lower latency for their Asian customer base. This expansion was continued in 2011 with the Asia-Pacific Northeast region in Tokyo, Japan and 2012 with Asia-Pacific Southeast in Sydney, Australia.

In 2012, AWS also launched its 'sa-east-1' region in Sao Paulo, Brazil – the first South American AWS region. AWS now has over 20 availability zones worldwide, spread across the US, Europe and the Asia-Pacific region. At the end of 2018, they even announced plans for data centres in Cape Town, South Africa, putting them in every one of the world's continents except Antarctica.

AWS Re:Invent

In 2012, AWS held its first developer conference in Las Vegas. Re:Invent was held in Las Vegas, which has become an annual event. The conference attracts over 30,000 people every year, with local events in different regions across the globe.

Re:Invent conferences have become the place for new product announcements and launched. At 2018, AWS announced Outposts – a dedicated hybrid cloud product. The fully-managed service provides customers with ready-made hardware and software for on-premises data centres, so applications can be run cloud-natively.

The AWS of today – and the future

AWS now has more than 100 services, providing everything businesses need to work seamlessly in the cloud. Best of all, they're constantly developing new services and feature to keep their customers at the forefront of cloud computing.

Part 2: AWS Services

It's fair to say that 'cloud computing services' is a pretty broad scope. Scratch the surface, and you'll find over 100 services, covering a plethora of different tasks, tools and resources.

Storage

Starting with the simplest service, Amazon's Simple Storage Service (S3) offers cloud storage for a range of data and file types. Files can be accessed instantly for analytics and regularly updated for back-up. They can also be archived with infrequent access storage at a smaller cost.

Compute

One of the most popular AWS services is the Elastic Compute Cloud (EC2). EC2 provides 'instances', which are virtual computing environments. These instances are built for different application types, allowing them to be deployed and run in the cloud. Customers can launch as many instances as they want, so the service is completely scalable.

Messaging

The Simple Queue Service (SQS) was one of AWS's first products. It enables users to send, receive and store messages between software components without the need for additional services. Queues scale automatically, with a choice of standard queues or 'first in, first out' (FIFO).

Data

Customers can also create databases in the cloud using Amazon's Relational Database Service (RDS). RDS makes it easier to set up and run cloud-based

7

databases, managing and automating backups, patching, failure detection and recovery.

AWS also provides a broad set of analytic services:

- Amazon Athena – Interactive analysis
- Amazon EMR – Big data processing
- Amazon Redshift – Data warehousing
- Amazon Kinesis – Real-time analytics
- Amazon Elasticsearch Service – Operational analytics
- Amazon QuickSight – Dashboards and visualisations

Migration

Within AWS, there are also a range of tools to help customers migrate their applications, data or servers to the cloud. That includes the AWS Migration Hub – a single place to track migration process for multiple applications with different partners. The hub is complete with metrics to track the progress of migrations, giving customers complete visibility of their portfolio.

Developing

AWS has an arsenal of tools for developers to create bespoke applications. CodeBuild and CodeDeploy allow developers to build, test and deploy code, while CodeCommit provides private repositories for code storage. CodePipeline enables continuous delivery of software, with Command Line Interface to manage the whole process.

Security

Security is paramount for any business. It's also one of customers' primary concerns when it comes to working in the cloud. AWS has you covered, with a variety of services dedicated to governance and security. Identity and Access Management (IAM) allows admins to manage AWS users and groups. Create permissions to allow or deny access to specific resources or data.

AWS also benefits from Amazon Inspector and Amazon Macie. Inspector automatically assesses AWS environments for any vulnerabilities, while Macie uses machine learning to automatically classify and protect data stored through AWS.

AI

Amazon AI is a full suite of tools for AI development and delivery. Amazon Lex allows users to build their own conversational interface using voice and text, while Amazon Polly turns text into lifelike speech. Translation – developers can create applications that talk with AWS. Amazon Rekognition even equips users with image and facial analysis technology.

IoT

AWS offers a selection of tools to facilitate Internet of Things (IoT) solutions. In short, that's extending internet connection to physical objects – like appliances, speakers or cameras. AWS IoT allows users to design, create and manage IoT solutions within the AWS cloud. With IoT functionality, you can collect and analyse data from all kinds of devices, whether it's industrial operations, home security or traffic monitoring.

9

Part 3: AWS Marketplace

As well as the services, part of the reason AWS is so popular is the wide range of add-ons. These are all available through the AWS Marketplace. Here's how it works…

Understanding the basics

The AWS Marketplace is a digital catalogue of all the third-party software, services and products available to users. It's essentially an app store for AWS, with a range of different categories, including:

- Dev Ops
- Intelligence Databases
- Machine Learning
- Operating Systems
- Security Networking
- Storage Business

Providers and subscribers

There are two distinct user groups for the AWS Marketplace – namely, providers and subscribers.

Subscribers

Subscribers are the end users. They're the companies and their staff who use AWS for cloud hosting, data management or a range of other cloud computing solutions. Anyone with an AWS account can use the AWS Marketplace as a subscriber.

When your company buys a product, you agree to the terms and conditions which includes the pricing. This is added to your AWS bill and paid to AWS Marketplace, who will then pay the provider.

Providers

On the other hand, providers are the party – individuals or companies – who develop products and make them available through the AWS Marketplace. Anyone can register to become a provider through the AWS Marketplace Management Portal, falling into one of three broad categories:

- Independent software vendor
- Value-added reseller
- Individual software developer

As mentioned, you can offer your product with a charge or make it free to use, with more than one option available for each product. So, you may have a free version and a paid version with added features. If you choose to charge for your product, you'll need to provide banking and tax information.

Despite the fact that anyone can become a provider, not all products make it onto the AWS Marketplace. They have to go through curation. In short, this is because Amazon doesn't want its users to have to filter through deficient products from disreputable providers.

To clarify, AWS providers are not the same as providers of AWS services, who are important to help your business succeed on AWS.

Benefits of AWS Marketplace

The main benefit of the AWS Marketplace is how easy it is to use. This convenience manifests in a number of ways…

Searching

On the AWS Marketplace, you can choose the category of product you're looking for, filtering by:

- Vendor
- Operating system

11

- Pricing plan
- Free trial availability
- Delivery method
- Rating
- Architecture
- Region
- Instance type

It takes the hassle out of finding software for specific functions of your company, with an option to search by name if you have a better idea of what you're looking for.

Payment

Paying is also easy through AWS. If you use multiple software solutions, as many companies do, it can soon become complicated paying several different providers at different times of the month. Through AWS, you get billed in one sum. They take care of all payments to providers.

Deployment

AWS Marketplace products are available as an Amazon Machine Image (AMI) or Software as a Service (SaaS). They are preconfigured, so they can be deployed instantly after purchase. Because AWS has regulated all software, they can also be downloaded as a free trial without the need for developers to provide a separate version of their product.

Building applications with Docker

Docker is one of the most useful tools available through the Marketplace, which makes it easier to create custom applications. The system streamlines applications into containers to simplify and speed up the whole process. Containers are essentially packages, comprising everything required to run applications.

Libraries, code and tools are all standardised, making it much quicker to build and deploy applications at scale. Containers can then be used as core building blocks to

12

create applications and platforms tailored to the needs of your company or your customers – without worries that the code will fail.

Docker: Free vs paid

Docker comes in two forms – Community Edition (CE) and Enterprise Edition (EE). Docker CE is an open source platform which is free to use on platforms including Windows, Mac and Linux.

Docker EE is a paid alternative with additional features. More specifically, it gives users more control over security and workflow management. There are also a range of Docker-based extensions available on the AWS Marketplace.

Both versions of Docker are supported on several AWS technologies, including:

- Amazon Elastic Container Service
- AWS Fargate
- Amazon Elastic Container Service for Kubernetes
- Amazon Elastic Container Registry
- AWS Batch.

13

Part 4: AWS Benefits

With all the noise and hype about AWS, it can be hard to actually decipher what the services provide and how they can help you. Here's a quick run-down of the four key benefits.

1. Security

Security is paramount in modern business. As such, AWS has always put it at the top of its list of priorities. To begin with, AWS virtual private cloud (VPC) environments have built in network firewalls. All users have complete control over access to their applications and instances, and can even choose a private, dedicated connection from their office or premises.

AWS encrypts all traffic on their global and regional networks automatically and allows users to encrypt all data stored in the cloud on their storage and database services. Most importantly, in a world where cyber criminals are constantly changing tack, AWS performs regular penetration tests on its infrastructure. They also provide support for customers that want to carry out their own security tests.

2. Speed

From January 2018, AWS has offered up to 25 gigabits per second (Gbps) in all its regions for EC2 instances. In simple terms, that means AWS customers get lightning fast speeds for loading data. To put it into context, the average UK download speed was 46.2 megabits per second (Mbps) in 2018, more than 500 times slower.

3. Scalability

While scalability might sound like a techy buzzword, it's actually hugely valuable to almost any business. Essentially, it means you can scale up or down – using more or less bandwidth, storage or services. With some providers, this simply isn't possible.

14

They will get you tied into a contract, where you have to wait months or even years before changing your circumstances.

With AWS, however, you simply use whatever you need. Most importantly, you only pay for what you use, as you use it. Unlike some service providers which offer standard packages, AWS allows customers to hand-pick what they need. That means no more being held back by limits on storage or speed. You'll never have to wait around for your services to be upgraded. On the flipside, it also means you won't have to pay over the odds for services you don't need.

4. Support

Developing, deploying and managing applications or servers isn't something you should attempt without training. Fortunately, AWS has a global partner program in place, so you can always find the best support and assistance.

The AWS Partner Network is made up of consulting and technology partners with all the experience, expertise and resources to help customers design, build and manage the solutions they need using AWS.

Part 5: Brands using AWS

Whether it's clothes or cars, we're all influenced by other people using products or services. It's a bit like looking for a busy restaurant when you want to eat out.

The same is true when it comes to cloud services. If other businesses and big brands are using a certain product, it goes some way to showing its quality and reliability. When it comes to AWS, those brands are some of the biggest in the world…

1. Netflix

When it comes to cloud storage requirements, it's hard to get bigger than Netflix. The TV & film-streaming service has an ever-growing library with thousands of titles stored online for its users to watch on demand – all supported by AWS.

2. Apple

It was recently revealed that tech giants Apple spend more than $30 million on AWS every month, in order to deliver services like iCloud.

3. NASA

Ever wondered how NASA sends images from space? With AWS of course. NASA used AWS to stream images and video from its Curiosity rover across the globe.

4. Airbnb

Airbnb has massively disrupted the travel world, allowing homeowners to let out their house or flat temporarily for a competitive price. Their entire database is hosted using AWS Relational Database Service.

5. Unilever

While Unilever itself might not be a household name, the company is responsible for a vast array of brands from Comfort, Cif and Vaseline to Wall's, Pot Noodle and PG Tips – to name just a few. The company has more than 1,700 web properties running on AWS for its worldwide marketing campaigns.

Part 6: AWS vs Azure

Microsoft Azure is considered the main competitor to AWS. They are two of the world's most popular cloud computing platforms, both used by thousands of businesses across the globe. The question most people want to know, however, is which is best?

What they offer

First and foremost, what do they two platforms offer?

By and large, they provide the same infrastructure-as-a-service model, whereby infrastructure is hosted and managed by a third-party provider. Hardware, servers, software and storage are all managed by the provider, with applications hosted in their external environment.

This includes similar platform-as-a-service and software-as-a-service options. In any case, customers are only charged for what they use, with the option to scale up or down whenever required.

Both AWS and Azure offer all the features you would expect from a public cloud provider, from instant provisioning and autoscaling to comprehensive security and compliance. However, AWS does offer a wider range of services, with well over 100 services from categories like:

- Compute capacity
- Storage
- Databases
- Migration
- Networking
- Development
- Monitoring
- Security
- Analytics

18

- AI
- Mobile
- Messaging

Usage

One area which potential customers consider is usage and existing customers. While this should never be your sole decision-maker when comparing the two, it does give an indication of which is most popular among like-minded businesses – like comparing a bustling restaurant with an empty one as you look for somewhere to eat.

AWS has more than a million active customers including the likes of Airbnb, Vodafone and Adobe. On the other hand, Azure is a bit more tight-lipped on the usage of its platform. More than 95 percent of Fortune 500 companies use Azure. However, according to Business Insider, a lot of these are customers who have been given Azure as part of their Windows or Microsoft Office subscription.

In terms of market share, Amazon was the dominant provider, with 51.8 percent compared to Microsoft's 13.3 percent in 2017.

Pricing and free tiers

Of course, no business is run on an unlimited budget, which is why pricing is also important when comparing AWS and Azure. Unfortunately, there is no definite answer in terms of which is more cost-effective, as it depends on the specific package, pricing model and any discounts.

What is worth noting, however, is that both providers offer free tiers. AWS has an always-free tier with impressive functionality like a million AWS Lambda requests and 4,000 Step Functions per month. On the other hand, Azure offers a free service tier including things like free virtual networks and 10 apps on App Service.

19

Finding a difference

The main difference between AWS and Azure is the developer-friendly nature of AWS. Generally, Azure targets for larger organisations whose main focus is Microsoft products. They simply want these applications moving to cloud infrastructure.

On the other hand, AWS is considered the more experienced cloud platform, with a vast network of dedicated developers growing since 2006. It offers more exclusive functionality, with a range of tools and services tailored to specific processes.

Because Azure is a Windows platform, it's arguably more familiar to users, while AWS has a lot more power for customisation and third-party integrations.

Part 7: AWS Locations

Is AWS available where you are? Most probably. Amazon is one of the world's biggest companies, with a truly global reach. AWS is no different, with data centres across the globe.

AWS availability zones

AWS is hosted in a number of regions across the world, spread out across Europe, Asia, the US and South America. Each region is split into Availability Zones, with a total of 55 AWS Availability Zones currently in use around the world. Each of these zones is backed by at least one of its own physical data centres, with five data centres backing the largest.

Essentially, by splitting each region into several separately backed zones, they reduce the chance of two zones failing at the same time.

New availability zones

Amazon is continually announcing plans for more Availability Zones as they continue to expand. In 2018, they announced plans for a new Africa (Cape Town) region. The infrastructure will be opened in the first half of 2020, along with another 12 Availability Zones across the Bahrain, Hong Kong, Sweden and GovCloud (US) regions.

The next steps

If you want to boost your business with AWS, the next step is to find the right advice and support. Fortunately, AWS has a well-established Partner Network with partners across the globe. Members of the AWS Partner Network have all the technical expertise and resources required to advise you on the best AWS solutions for your company and support you in designing, deploying and managing those solutions.

As part of the AWS Partner Network, Green Cloud Hosting can do all of that and more. We provide a range of AWS services, tailored to the needs of your business:

- AWS Consultancy
- AWS Migration
- AWS DevOps
- AWS Management
- AWS Cost Optimisation

We hope our eBook has answered your initial questions about AWS and whether it's right for your business. If you've got any more queries, please don't hesitate to get in touch with our expert team. We're here to help.

Email info@greencloudhosting.co.uk or call 0161 979 0691.