

# An Eye On Amazon AWS

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**Abstract** - This study analyzes Amazon Web Services (AWS). Due to Cloud Computing technology, many services and resources become available for end-users. On the other hand in terms of cloud service providers Amazon Web Services(AWS) has shown a rapid growth hence creating competition in the market. This paper also critically analysis the competitive pricing and service strategy to create an edge in the market and gives an overview of Amazon AWS For businesses to build dedicated virtual clouds and maintain total configuration control over their environment, Amazon offers a collection of IT tools and services. IT developments and enterprises can both use Amazon Web Services. Moving to the cloud appeals to security experts because to its cost advantages and effectiveness, but it also introduces a number of transition security risks and compliance issues. By delivering a range of features and services, such as specialised Elastic Compute Cloud instances that claim to make cloud computing safe for highly regulated enterprises, Amazon Web Services (AWS) has made an effort to address enterprise security and compliance concerns with cloud computing..

demand cloud computing and APIs to consumers, businesses, and governments on a metered pay-as-you-go basis. With planned plans for 24 additional Availability Zones and 8 additional AWS Regions, the AWS Cloud is currently distributed across 84 geographic regions and 26 countries. It is the most widely used cloud platform in the world and provides over 200 fully featured services from data centres. Customers use AWS to cut expenses, improve their agility, and develop more quickly. These customers include the largest corporations, largest startups, and top government agencies. Regions are shown by the green and yellow dots in this diagram, respectively.



Fig 1: AWS regions and availability zones

**Key Words:** AWS, Amazon, Cloud provider, cloud service, Amazon Web Services, Cloud Service Providers.

## 1. INTRODUCTION

**Cloud Computing:** In order to deliver faster innovation, flexible resources, and scale economies, cloud computing is the on-demand supply of IT resources through the Internet, including servers, storage, databases, networking, software, analytics, and intelligence. Pay for only the cloud services you really use, which will cut your computing expenses, improve the operation and efficiency of your infrastructure, and allow you to scale as your company's needs evolve. Cloud is flexible, highly scalable, dependable, location independent, and reasonably priced because it operates in a distributed environment.

Selecting a cloud service provider (CSP) has evolved into a complex decision. Given the foregoing considerations, it can be assumed that each firm should decide on a CSP based on its IaaS, SaaS, and PaaS capabilities. Any organization searching for IaaS should focus on CSPs that have a competitive advantage over IaaS.

### 1.1 Amazon Web Services

Amazon Web Services delivers dependable, scalable, and reasonable cloud computing services and offers user-on-

### 1.2 Amazon's annual/quarterly net income growth rate from 2010 to 2022

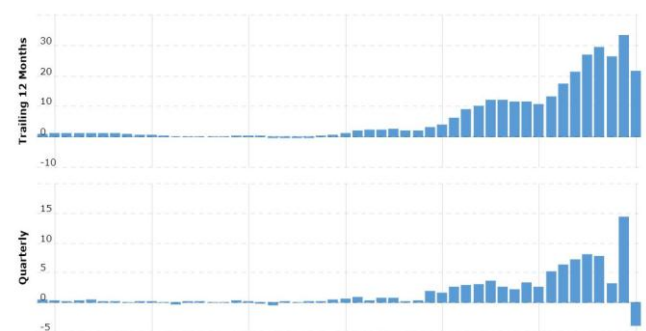


Fig 2: Growth rate

- For the three months ending March 31, 2022, Amazon's net income was \$-3.844B, a 147.42 percent decrease from the prior year.
- Amazon's fiscal year 2022 net income was \$21.413B, down 20.41 percent from the prior year.

- Amazon's 2021 net income was \$33.364 billion, up 56.41 percent from the previous year.
- Amazon's net income for the year 2020 was \$21.331 billion, up 84.08 percent from the previous year.
- Amazon's net income for the year 2019 was \$11.588 billion, up 15.04 percent over the previous year.

### 1.3 Pay as you go model

AWS offers 200+ services with a pay-as-you-go pricing model. With AWS, there are no lengthy contracts or complicated licencing requirements; you only pay for the services you utilise. Similar to how you pay for utilities like water and electricity, AWS pricing is flexible. Once you cease using a service, there are no more fees; you only pay for the services you actually utilise. Pay-as-you-go increases your ability to adapt to changes and makes it simple to meet changing business needs without overspending your budget. You may adjust your business based on demand with a pay-as-you-go strategy, lowering the risk of overprovisioning or running out of capacity. In exchange for a commitment to consume a certain amount (measured in \$/hour) of an AWS service or a category of services, for a one- or three-year term, Discounts Plans for AWS Compute and AWS Machine Learning offer savings over On-Demand. AWS also allows you the option to customise services to meet your particular company needs.

Some of the **Customers** using AWS are **MakeMyTrip, Samsung, Vanguard, Disney+, Aerobotics, Mantle Labs, Veritone, Punchh, Momenta, Nokia, Unilever, Toshiba, Netflix, Adobe,** and so on.



Fig 3: Amazon Customers

### 1.3 Featured AWS Services

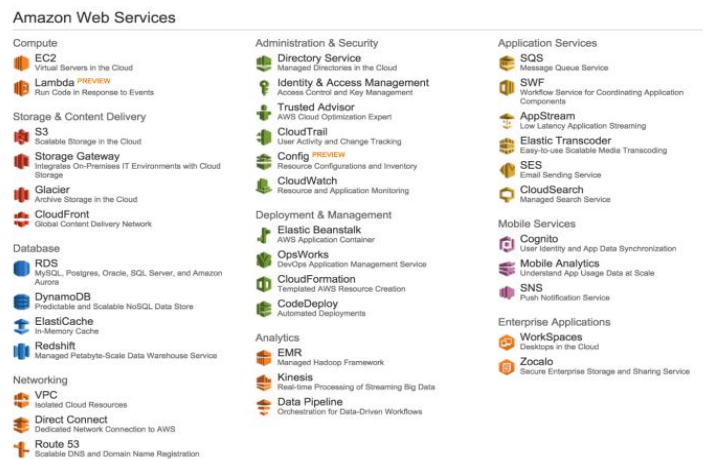


Fig 4: AWS Services

Amazon EC2, Amazon S3, Amazon Aurora, Amazon RDS, Amazon DynamoDB, AWS Lambda, Amazon LightSail, Amazon SageMaker, Amazon VPC, Amazon IAM, and Amazon CloudFront are some of the Amazon Web Services (AWS) products that are mentioned in this article.

**Amazon EC2:** Elastic Compute Cloud, also known as Amazon EC2, offers scalable processing power. By using EC2, you can develop and deploy apps effectively and efficiently without having to make hardware investments. Using Amazon EC2, you may launch as few or as many instances as your business requires, configure its networking and security settings, and take command of its storage. Instance types refer to various arrangements of your virtual machines' CPU, memory, storage, and networking capabilities.

**Amazon RDS:** A relational database may be set up, run, and scaled effectively and efficiently using Amazon RDS, which stands for Amazon Relational Database Service. It manages typical workloads and offers relational databases affordable, resizable capacity. The database services MySQL, MariaDB, PostgreSQL, Oracle, and Microsoft SQL Server are all available for use.

**Amazon S3:** Amazon S3 delivers scalability, data availability, security, and performance. In order to satisfy your unique commercial, organisational, and regulatory needs, Amazon S3 also offers management options that optimise, organise, and configure access to your data.

**AWS IAM:** AWS Identity and Access Management, also known as Amazon IAM, manages access across all of Amazon Web Services. You can specify who has access to which resources and services and under what circumstances using IAM. With IAM, you can control which users and systems have access to what minimal permissions.

**Amazon CloudFront:** It is a service that distributes your data through edge locations and expedites the release of your web content, such as HTML, CSS, JS, and picture files, to your users..

**Amazon Aurora:** With full MySQL and PostgreSQL compatibility, Amazon Aurora is built for unmatched high speed and availability on a global scale. It also offers security, backups, serverless computing, automated multi-Region replication, and integrations with other AWS services. It is a relational database management system (RDBMS) designed specifically for the cloud, and it fully supports both MySQL and PostgreSQL. You can get commercial-grade databases' availability and performance with Aurora for a reasonable price.

**Amazon DynamoDB:** It is a fully managed NoSQL database service that effectively and efficiently delivers quick and predictable performance with seamless scalability. Users can implement a database table using DynamoDB that can handle any volume of request traffic and store and retrieve any quantity of data.

**Amazon Lambda:** Users don't need to provision or manage servers to run programming. There is no fee when your code is not executing; users only pay for the compute time they actually utilise. Users can execute code for practically any kind of backend service or application without any supervision. Simply upload your code, and Lambda will take care of all the necessary steps to run and grow it effectively.

**Amazon Lightsail:** Building websites or web applications utilizing AWS is made easier for developers with Amazon LightSail. Instances, databases, object storage, load balancers, content delivery network distributions, SSD-based block storage, DNS administration, and backups are among the capabilities you need to start your project on it. All of these features can be had for a reasonable monthly fee.

**Amazon Sagemaker:** It is a service for machine learning. With this, data scientists and developers can easily create and hone machine learning models before deploying them into a hosted environment that is prepared for use in production. It enables users to quickly create training datasets for machine learning that are extremely accurate.

**Amazon VPC:** In order to launch resources in a virtual network, users can provision a logically isolated area of the cloud. Users can establish and customise their virtual private clouds (VPCs) with it, link their VPCs to other VPCs, and access resources from different VPCs. Users' IP address management operations are automated by Amazon VPC IP Address Manager. Assigning, monitoring, troubleshooting, and auditing IP addresses across accounts and regions inside their AWS Organization are all included in this.

## 2. SECURITY

The customer's data's confidentiality, integrity, and availability are of utmost importance to AWS. AWS seeks to win over customers' faith and confidence. The architecture of AWS infrastructures is based on security principles, which are crucial for protecting client data. When entering AWS data centres, there is high security present. Electronic tools like CCTV cameras, video surveillance, intrusion detection systems, etc. are used by AWS. Visitors must present identification that is permitted staff members' signatures before being admitted if they have business demands. Automatic fire detection and suppression technology, a 24 hour, seven day a week uninterrupted power supply, and climate control are all used to regulate the environment of data centres in order to limit risk. Since every piece of equipment is managed, any problems should be found right away. Due to its amazing network architecture and meticulous management, AWS boasts astounding network security.

## 3. ANALYSIS OF GARTNER MAGIC QUADRANT



### Amazon Web Services is a Leader in this Magic Quadrant.

Being a comprehensive service provider, AWS. Future goals for AWS include trying to acquire ever-larger chunks of the supply chain that is utilised to provide services to customers.

### 3.1 Strengths

**Engineering supply chain:** The engineering prowess of Amazon Web Services is being used to innovate in areas like AWS-designed CPUs, which offer better price/performance in comparison to x86 counterparts for particular workloads.

**Large financial commitments:** Regarding the amount and frequency of significant financial commitments made by enterprise companies using the platform, as well as the company's continuous market share dominance, Amazon Web Services continues to perform best in the industry.

**Innovation leader:** The innovation speed in the market is set by Amazon Web Services, which influences the roadmaps of other CIPS providers. Amazon Web Service is significantly more popular than any other providers among a wide range of customer types since it is the innovation leader.

### 3.2 Cautions

**Challenging renewals:** There has been unanticipated pressure from Amazon Web Services sales, which have accelerated over the past year, on several of Gartner's clients in various locations to increase yearly spend commitments by 20% in order to retain existing contracts. These users may believe they have little options because they frequently rely on the platform.

**Offering complexity:** Technical knowledge is necessary to understand the differences between the various solutions, such as those relating to databases, data management, and containers, and to make the best decision. The intricacy necessitates third-party support for many organisations.

**Bare-bones offerings:** Because these basic offers have matured in the public, Amazon Web Services' new services take some time to be ready for serious enterprise adoption. Additionally, Amazon Web Services' dominance in IaaS and dbPaaS has a misleading impact on other services, like as Amazon Web Services Outposts, which has gained only moderate traction so far.

### 4 COMPARISION OF AWS WITH AZURE AND GCP

Parameter	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Starting year	2006	2011	2010
Available Region	26	24	54
Computing types provided	IaaS, PaaS, and SaaS with major contributions in IaaS	IaaS, PaaS, and SaaS with major contributions in PaaS	IaaS, PaaS, and SaaS with major contributions in PaaS
IDE Support	SDK support for Eclipse	Direct support in Cloud9 IDE	SDK support for Eclipse & Visual Studio
Virtualization Technology	XEN Virtualization Technology	KVM Hypervisor Virtualization technology	Hyper-V Hypervisor Virtualization technology
Pricing types	On-Demand, per-second billing	Pay as you go, on-demand per second	Pay as you go pricing

			billing	
<b>Compute Services</b>		Elastic Compute Cloud	Compute Engine	Virtual Machine Virtual Machine Scale sets
<b>PaaS</b>		Elastic Beanstalk	App Engine Standard App Engine Flexible	Cloud Services
<b>VPS</b>		LightSail		Virtual Machine Images
<b>Kubernettess/Docker containers</b>		Kubernettess(EKS) EC2 Container Services	Container Engine Kubernettess Engine	Container Services(AKS)
<b>Integrate systems and run backend logic process</b>		Lambda	Cloud Functions	Functions Event Grid
<b>Key tools</b>		Athena, Quick sight, SageMaker, Kex, Greengrass IoT, Lambda, Deplens	BigQuery, Cloud Dataflow, MLengine, IOT core, Functions	HDinsight, DataFactory, ML Studio, Azure Boot, Cognitive, IOT hub
<b>Storage Service</b>	Object Storage	Amazon Simple Storage Service	Google Cloud Storage	Blob Storage
	Virtual Server Disks	Amazon Elastic Block Store	Google Compute Engine Persistent Disks	Managed Disks
	Cold Storage	Amazon Glacier	Google Cloud Storage Nearline	Archive Blob Storage
	File Storage	Amazon Elastic File System	ZFS/Avere	Azure File Storage
<b>Database service</b>	RDBMS	Amazon RDS	Cloud SQL	SQL database
	NoSQL: Key-Value	Amazon DynamoDB	Cloud DataStore Cloud Bigtable	Table Storage
	NoSQL: Indexed	Amazon Simple DB	Google Cloud Datastore	Cosmos DB
<b>Networkin g Service</b>	Virtual Networ k	<u>Amazon Virtual Private Cloud(VPC)</u>	Virtual Private Cloud	Virtual Networks
	Elastic Load Balance r	<u>Elastic Load Balancer</u>	Google Cloud Load Balancing	Azure Load Balancers
	Peering	Direct Connect	Google Cloud Interconnect	ExpressRoute
	DNS	<u>Amazon Route 53</u>	Google Cloud DNS	Azure DNS
<b>Pre-configured OS</b>		1. Amazon Linux 2. Cent OS 3. Debian 4. Oracle Linux 5. Red Hat Linux	1. Cent OS 2. Debian 3. Ubuntu 4. Red Hat Linux 5. Windows Server	1. Cent OS 2. FreeBSD 3. OpenSUSE Linux 4. Oracle Linux 5. Ubuntu

	6. Ubuntu 7. Windows Server		6. Windows server
<b>Hybrid and Multi Cloud</b>	AWS Snowball AWS Snowcone AWS Outposts AWS Local Zones VMware Cloud on AWS AWS Wavelength Amazon ECS Anywhere Amazon EKS Anywhere	Anthos Traffic Director Looker Cloud Build Operations Cloud Run for Anthos	Azure Arc Azure Backup Azure Active Directory Azure Security Center Azure Blob Storage Azure Stack Azure Sentinel
<b>Available runtimes</b>	1. .NET 2. JAVA 3. PHP 4. Python 5. Ruby	1. Python 2. JAVA 3. Node 4. PHP 5. Ruby 6. GO	1. .NET 2. JAVA 3. Node 4. PHP 5. Python 6. Ruby
<b>Machine Learning Frameworks Supported</b>	1. Apache 2. MXNet (With Gluon API) 3. TensorFlow 4. Caffe framework	1. TensorFlow 2. DistBelief 3. Many in-built API's to support development	1. PyTorch 2. TensorFlow 3. Scikit-learn 4. MXNet 5. Chainer 6. Keras
<b>Benefits</b>	Breadth and depth of its services Developer functionality Economic benefits for customers Gold standard for reliability and security Control market position Sizeable, develop fully offerings Help for huge organizations Worldwide reach	Deep expertise technology Adjustable pricing model Advance costing than Competitors Live Migration of Virtual Machines Delegation to Continued	Adjustable billing Accuracy and expandable. High level availability Price-effective differentiate to the competition Integrated public and private cloud Help for open source
<b>Limitations</b>	Cost prohibitive Usage is not facile Stewardship of price Overcoming Technical support fee	Safety and privacy Bounded control and flexibility Vendor pin-down Insufficient characters or services Historically not as enterprise focused	Consequences with documentation Imperfect management devices Comparatively hard to use Expensive Data transfer cost Require platform expertise

## 5. ANALYSIS REPORT

- AWS has a five-year head start.
- There are numerous regions and availability zones in AWS.
- About one-third of the market is held by AWS.
- The growth rate of GCP is almost 100%.
- Premium clients utilizing all three cloud platforms
- There are numerous services offered by AWS.
- Azure offers the ability to integrate with open-source and on-premises systems, like MS tools, which are largely utilised in businesses.
- GCP offers more affable pricing and discount schemes.

## 6. CONCLUSION

Amazon Web Services is easily analyzed as being at the top of all the major cloud providers in today's cloud battle between Microsoft Azure, Amazon AWS, and Google Cloud. Given Microsoft Azure and Google Cloud Platform are consistently moving up the list of the top cloud leaders, it is difficult to anticipate how long Amazon Web Services will reign as the top cloud provider. While Azure and Google Cloud Platform also have benefits, Amazon AWS has the unique benefit of being the first of its kind. Many businesses that utilise Microsoft tools find that using the Azure cloud platform makes more sense because it makes it simple to employ MS tools. The only reason clients should choose Google Cloud Platform is because it has the best pricing structure for the services, including YouTube and Google Search. Taking the analysis report into account, it would be preferable to argue that choosing the best cloud service provider for your needs is more important than choosing the greatest cloud service provider overall.

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## 7. BIOGRAPHY



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