

Experiment No: 11

Title: Case Study on Amazon EC2.

Aim: To prepare a case study on Amazon EC2.

Case Study:

A Case Study On Amazon Web Services



Introduction to cloud computing

Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. The term is generally used to describe data centres available to many users over the Internet. Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an edge server.

There are many Cloud Platforms in the market but AWS is one of the most popular clouds.

What is AWS?

Amazon Web Services (AWS) is a subsidiary of Amazon providing on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis.

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud platform, offering over 175 fully-featured services from data centres globally. Millions of customers — including the fastest-growing startups, largest enterprises, and leading government agencies — are using AWS to lower costs, become more agile, and innovate faster.

History of AWS

Amazon launched its first [cloud computing service](#), Simple Storage Service (S3) in March of 2006. But the idea for the [public cloud](#) began germinating at the company several years earlier.

A popular myth says that Amazon began selling public cloud computing services because it had “excess capacity” from running its eCommerce website. Executives have repeatedly contradicted that story, saying that Amazon Web Services was designed from the ground up as a service for outside customers. However, the company's experiences with eCommerce did help lay the groundwork for AWS.

In 2003, former Amazon employee Benjamin Black and his boss Chris Pinkham [wrote a paper](#) for Amazon founder and CEO Jeff Bezos. It described “a vision for Amazon infrastructure that was completely standardized, completely automated, and relied extensively on web services for things like storage.” In a blog post, Black explained, “Near the end of it, we mentioned the possibility of selling virtual servers as a service.”

That idea cropped up again that same year when Amazon executives were attending a retreat at Bezos’ house. As current AWS CEO [Andy Jassy tells the story](#), the group was working to identify their core competencies when they realized they had become pretty good at running IT infrastructure. They began to consider the idea of offering those IT services to other companies. The idea gained momentum, and in 2004, Black, Pinkham and their team began work on the project that eventually became AWS. After the launch of S3 in the spring of 2006, AWS followed up by taking its Simple Queue Service into production and launching its Elastic Compute Cloud (EC2) that summer. By the following year, the company amassed a reported 180,000 developers as customers.

In the years that followed, Amazon’s cloud quickly expanded with additional services and more regions. In 2010, Netflix became the first company to Announce publicly that it would run all of its infrastructure on AWS. After that, customers began to sign up even more quickly, and AWS developed the market share that put it far ahead of all the other competitors who began to offer their own cloud computing services.

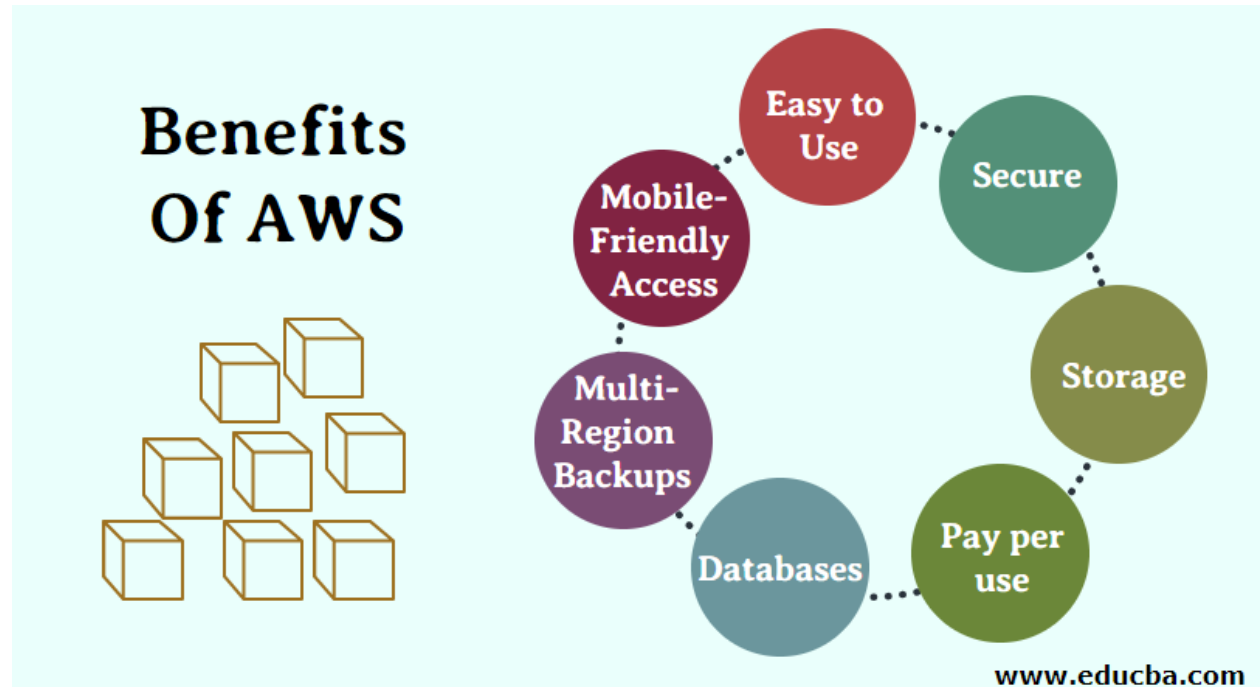
AWS Regions



Data Centre of AWS -



Benefits of Amazon Web Services



- **Most functionality** -AWS has significantly more services, and more features within those services, than any other cloud provider—from infrastructure technologies like compute, storage, and databases—to emerging technologies, such as machine learning and artificial intelligence, data lakes and analytics, and Internet of Things. This makes

it faster, easier, and more cost-effective to move your existing applications to the cloud and build nearly anything you can imagine. AWS also has the deepest functionality within those services.

- **The largest community of customers and partners** -AWS has the largest and most dynamic community, with millions of active customers and tens of thousands of partners globally. Customers across virtually every industry and of every size, including startups, enterprises, and public sector organizations, are running every imaginable use case on AWS.
- **Most secure**-AWS is architected to be the most flexible and secure cloud computing environment available today. Our core infrastructure is built to satisfy the security requirements for the military, global banks, and other high-sensitivity organizations.
- **Fastest pace of innovation** -With AWS, you can leverage the latest technologies to experiment and innovate more quickly. We are continually accelerating our pace of innovation to invent entirely new technologies you can use to transform your business.
- **Most proven operational expertise** — AWS has unmatched experience, maturity, reliability, security, and performance that you can depend upon for your most important applications. For over 13 years, AWS has been delivering cloud services to millions of customers around the world running a wide variety of use cases. AWS has the most operational experience, at greater scale, of any cloud provider.
- **Agility**- The cloud gives you easy access to a broad range of technologies so that you can innovate faster and build nearly anything that you can imagine. You can quickly spin up resources as you need them—from infrastructure services, such as compute, storage, and

databases, to the Internet of Things, machine learning, data lakes and analytics, and much more. You can deploy technology services in a matter of minutes, and get from idea to implementation several orders of magnitude faster than before. This gives you the freedom to experiment, test new ideas to differentiate customer experiences and transform your business.

- **Elasticity** -With cloud computing, you don't have to over-provision resources upfront to handle peak levels of business activity in the future. Instead, you provision the number of resources that you actually need. You can scale these resources up or down to instantly to grow and shrink capacity as your business needs change.
- **Cost Savings**-The cloud allows you to trade capital expenses (such as data centres and physical servers) for variable expenses and only pay for IT as you consume it. Plus, the variable expenses are much lower than what you would pay to do it yourself because of the economies of scale.
- **Deploy Globally in minutes**-With the cloud, you can expand to new geographic regions and deploy globally in minutes. For example, AWS has infrastructure all over the world, so you can deploy your application in multiple physical locations with just a few clicks. Putting applications in closer proximity to end users reduces latency and improves their experience.

Types of cloud computing

The three main types of cloud computing include Infrastructure as a Service, Platform as a Service, and Software as a Service. Each type of cloud computing provides different levels of control, flexibility, and management so that you can select the right set of services for your needs.

1.IaaS (Infrastructure as a Service)- IaaS contains the basic building blocks for cloud IT. It typically provides access to networking features, computers (virtual or on dedicated hardware), and data storage space. IaaS gives you the highest level of flexibility and management control over your IT resources. It is most similar to the existing IT resources with which many IT departments and developers are familiar.

2.Platform as a Service -PaaS removes the need for you to manage underlying infrastructure (usually hardware and operating systems), and allows you to focus on the deployment and management of your applications. This helps you be more efficient as you don't need to worry about resource procurement, capacity planning, software maintenance, patching, or any of the other undifferentiated heavy lifting involved in running your application.

3.Software as a Service-SaaS provides you with a complete product that is run and managed by the service provider. In most cases, people referring to SaaS are referring to end-user applications (such as web-based email). With a SaaS offering, you don't have to think about how the service is maintained or how the underlying infrastructure is managed. You only need to think about how you will use that particular software.

Best Public Cloud Providers

Amazon Web Services

Amazon Web Services (AWS) is the undisputed market leader in cloud computing, from overall market share to most expansive cloud offering. It has vast resources,

allowing it to design and execute new solutions at a dizzying pace, sometimes — or often — faster than customers can understand or incorporate them.

The company offers a complete range of IaaS and PaaS services. Among the best known are its Elastic Compute Cloud (EC2), Elastic Beanstalk, Simple Storage Service (S3), Elastic Block Store (EBS), Glacier storage, Relational Database Service (RDS), and DynamoDB NoSQL database. It also offers cloud services related to networking, analytics and machine learning, the Internet of Things (IoT), mobile services, development, cloud management, cloud security and more.

When to Use AWS

AWS offers something for everyone — whether you are a developer working on a hobby project or a Fortune 500 company looking to become more agile. It is the generalist of the public cloud computing market with a huge array of services available. It is often used in hybrid IT.

As the first and largest cloud provider, AWS has very mature, tested offerings. It is unlikely to go out of business anytime soon, and it is a solid choice for most cloud computing use cases. Additionally, the company is innovating at a breathless pace, and it's reasonable to assume that its product and solution portfolio will expand considerably in the years ahead.

AWS Use Cases

Millions of customers — including the fastest-growing startups, largest enterprises, and leading government agencies — are using AWS to lower costs, become more agile, and innovate faster.

In every field, the AWS service is used. Below are some areas and some top companies use AWS.

- Aerospace (NASA, Maxar, ESA etc.)
- Gaming (MPL, FanFight, Gammation etc.)
- Education (Coursera, BYJU's etc.)
- Telecommunication (Pinterest, Vodafone, Aircel etc.)
- Entertainment (Netflix, Hotstar etc.)
- Media (BBC, The Hindu, Punjab Kesri etc.)
- Software (Share chat, Slack etc.)

Case studies on AWS

Netflix AWS Case Study

Netflix was originally a DVD shipping business where they would send out DVDs of your chosen programs to you. This was going well until 2008 where they experienced a major database loss and for 3 days could not ship out any DVDs to their customers. That was when the senior management at Netflix realized that they had to shift from continuous vertical scaling which leads to single points of failure to a more reliable and scalable horizontal scaling system. They chose Amazon Web Services despite having Amazon as a competitor (Amazon has their own streaming service known as Amazon Prime) because AWS provided them with the greatest

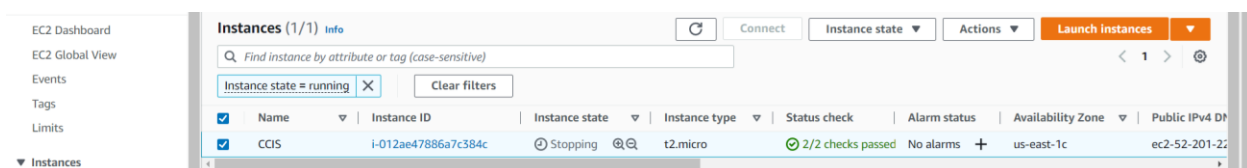
scaling capabilities and the biggest set of available features. It took 7 years of migration for Netflix to shut down their last remaining data centres and move completely to the cloud.

Moving to the cloud has allowed Netflix to keep its existing members well engaged with overall viewing growing exponentially.

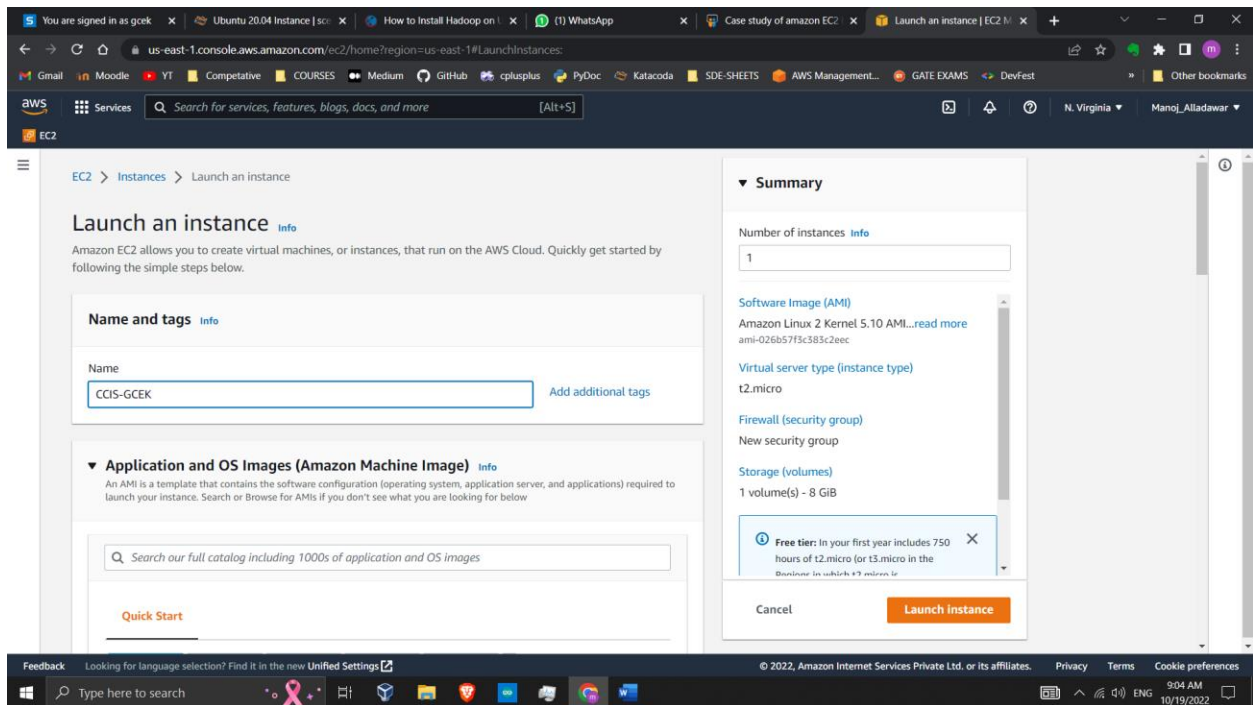


Creating the Ec2-Instace on aws.

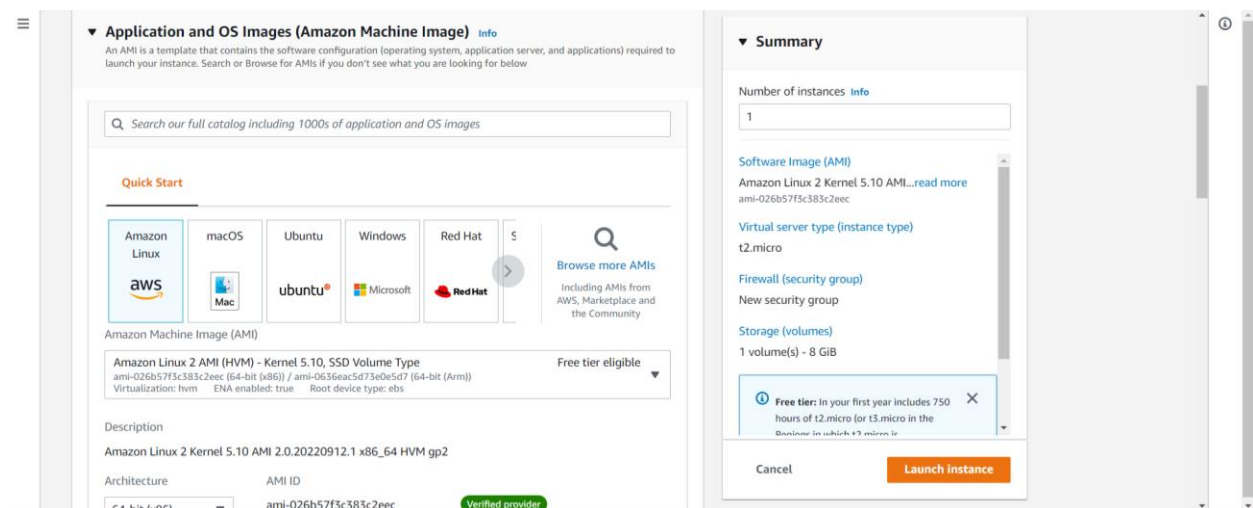
Select Launch Instances in aws



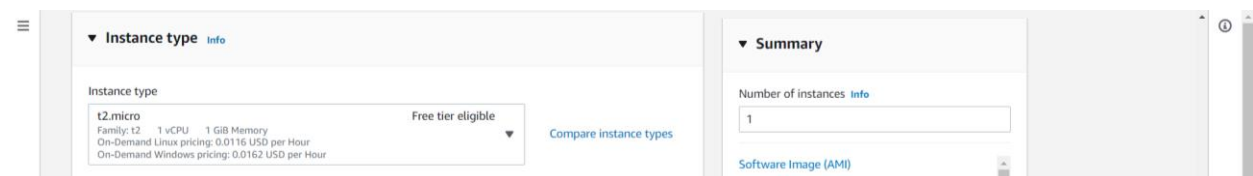
Step 1: Give name and tags to ec2 instance.



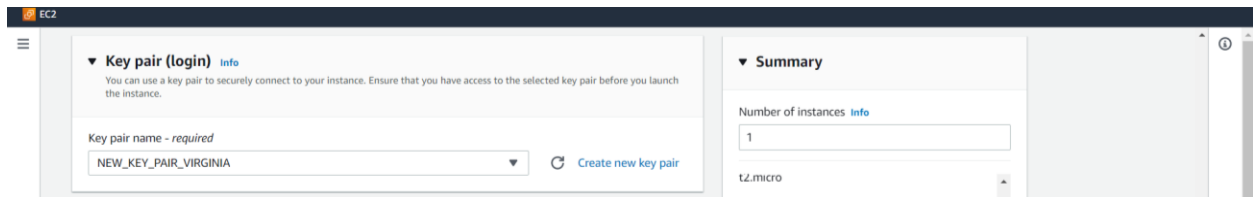
Step 2: We have to select one bootable image to launch the instance.



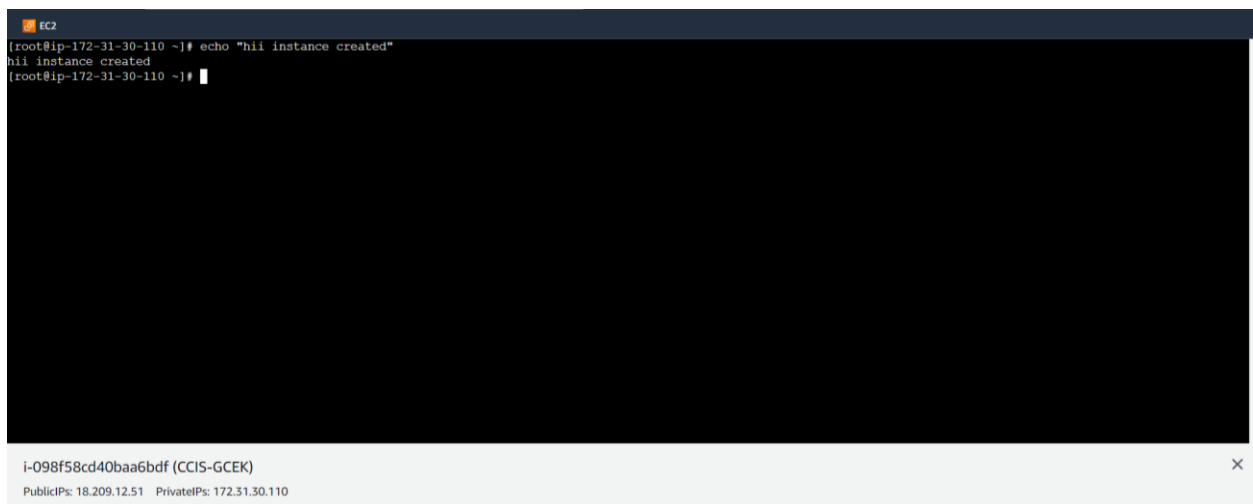
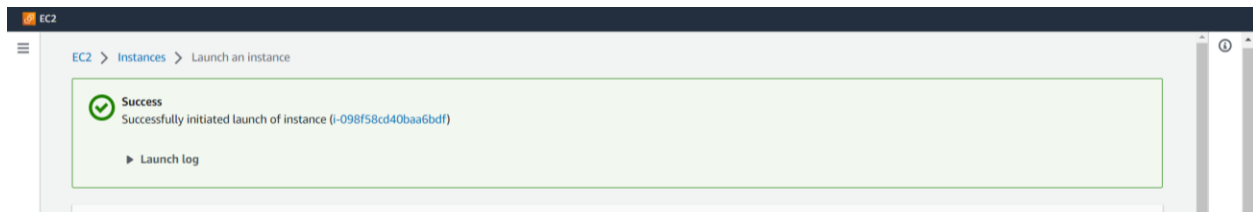
Step 3: Set instance type like how much ram is required or cpu required.



Step 4: Create a Key pair login for login purpose.



Step 5: Set the network settings and Launch instance and Add the EBS block storage for os to save data.



Conclusion: Thus we have prepared case study on Amazon EC2.