Case Study on AWS (Amazon Web Server)

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 described data centres available to many users over the Internet. Large clouds, predominant today, of 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.

What is AWS?

Amazon Web Server (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 Server (AWS) is the world's most comprehensive and broadly adopted cloud platform, offering over 175 fully-features services from data centres globally. Millions of customers - including the fastest growing startups, enterprises + leading government are using AWS at lower costs.

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 company several years earlier.

A popular myth says that Amazon began selling public cloud computing serives 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 experience with eCommerce did help lay the groundwork for AWS.

In early 2000s, Amazon.com's internal development team had a problem. They were adding a lot of software engineers. The issue was that each developer was setting up new and unique compute, storage and database resources for each project. The IT group realized that if they could standardize those resources and simplify the process of deploying new IT infrastructure, they might be able to speed things up.

Benefits of Amazon Web Services

• Most functionality -
AWS has significantly more services, and more features within those services, than other cloud provider - from infrastructure the technologies like compute, storage, and databases - to emerging technologies, such as machine learning and artificial intelligence (AI), data lakes and analysis, 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.

• The largest community of customers and partners

Largest and most dynamic community, with millions of active customers and tens of thousands of partners gteel globally. Customers across virtually every industry and of every size, including startups, enterprises, and public sector organization are running every imaginable use case on AWS. The AWS partner Network (APN) includes thousand of system integrators who specialize in AWS services and tens of thousands of independent software vendors (ISVs)

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- Most Secure.

AWS is architected to be the most flexible and Secure cloud computing environment available today. Our core Infracstructure is buit to Satify 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.

- 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.

- Cost Saving

The cloud allows you to trade capital expenses for variable expences and only pay for IT as you consume it. Plus it is way more cheaper than any other services

Case Study on Android OS

* Introduction

Across the globe, in more than 190 countries, hundreds of millions of mobile devices are powered by Android Operating System.

It's has strong user base and conquered around 75% of the global market share by the end of 2020. Google sponsored project at initial stages and in the year 2005, it acquired the whole company.

It's popular because it has long list of features, user-friendly, has huge community support, provides a greater extent of customization, and a large number of company build Android-compatible smart phones.

* Features of Android OS

1) User Interface: Android provides a great user interface which allow user to communicate with his device.

2) Storage: Uses "SQLite" to store the data. SQLite being a relational data base processing queries are fast.

3] File Manager : Data Storage related activities will be managed by the file Manager.

4] Media : Supports wide range of media like JPEG, PNG, GIF, Ogg, MP3, WAV, etc.

5] Messaging :- Provides various messaging Services like MMS, SMS.

6] Connectivity : Android provide various range of connectivity like GSM, EDGE, CDMA, Wi-Fi, LTE, etc.

7] GPS : It contains multiple APIs to support location-tracking services such as GPS.

8] Multitasking : Android provides multitasking capability for the user. They can operate multiple applications at the same time.

9] Multitouch : Android support multitouch functionality where user is allowed to make multiple touches at the same time and the OS will process it this is majorly used for gaming.

* Layered Architecture of Android OS

Android operating System is a Stack of software components which is roughly divided into five Sections and four main layers. and shown below in the architecture diagram are listed below.

1] Linux Kernel

→ Linux is the buttom layer. The bottom layer offers a level of abstraction between hardware and it contains all the essentials required for hardware drivers like camera, Keypad, display, etc.

2] Libraries

→ A rich set of libraries are present on top of linux kernel. Along with open-source Library Web browser engine Webkit, a collection of popular libraries like SQlite database which is a useful repository for Storage and Sharing application data, library to play and record audio and video, SSL libraries responsible for internet security etc.

Java based libraries are used for the purpose of application data, libraries and development of Android OS.

The application framework libraries are used for purpose of addition to those that facilitate user interface (UI) building graphics drawing and databases access

3] Android Runtime

→ This section is the part of libraries layer which contains a key component called Dalvik Virtual Machine (Dalvik VM) which is an optimised Android library acts as of Java Virtual Machine.

4] Application Framework

→ Several to high level services will be provided to applications through Application Framework layer. These application services are available in the form of Java Classes.

A] Android frameworks includes following key services:-

• Activity Manager
• Content Providers
• Resource Manager
• Notifications Manager
• Windows Manager
• View System

5] Application

→ The top layer of Android Architecture is Application-layer. Users have to install their own applications on this layer. Browser, Games, Contact Books, etc. are some of examples of such applications.

The application layer runs within the Android runtime using classes and services made available from application framework.