

THE SPARKS FOUNDATION INTERNSHIP

Internship Under WEB DEVELOPMENT

Report on Comparison Between Various Cloud Platform



BY:

ASHWATHAMAN K

INTRODUCTION:

**In this report we are going to see the difference about Cloud Computing and Cloud platforms with respect to their availability, speed, easy to access, popularity, and some other features.**

CLOUD COMPUTING:

**Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software**.

HOW IT WORKS:

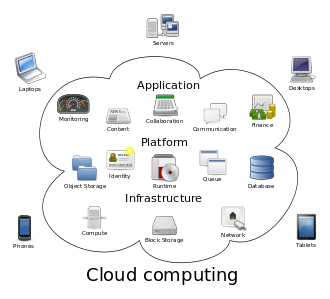
**While keeping files on a proprietary hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database.**

SERVICES OF CLOUD COMPUTING:

**It is helpful in different online services like online banking, social media networking, online shopping portals, Google drive, etc.**

USE OF CLOUD COMPUTING:

**Organizations of every type, size, and industry are using the cloud for a wide variety of use cases, such as data backup, disaster recovery, email, virtual desktops, software development and testing, big data analytics, and customer-facing web applications. Financial services companies are using the cloud to power real-time fraud detection and prevention. And video game makers are using the cloud to deliver online games to millions of players around the world.**



CLOUD PLATFORMS:

**Cloud platforms are just a portal for accessing Cloud services. Cloud platforms are the operating bodies of servers over an internet-based data centre ,where different developers and operators work together for better user experience by improving their cloud services. Now we understand cloud services which we can access by Cloud Platform.**

CLOUD SERVICES:

**"cloud services" refers to a wide range of services delivered on demand to companies and customers over the internet. These services are designed to provide easy, affordable access to applications and resources, without the need for internal infrastructure or hardware. From checking email to collaborating on documents, most employees use cloud services throughout the workday, whether they’re aware of it or not.**

BENEFITS OF CLOUD COMPUTING:

**Reduced IT Cost**

**Scalability**

**Business Continuity**

**Collaboration Efficiency**

**Flexibility of work practices**

Let us discuss about CLOUD PLATFORMS such as:

**AWS(Amazon Web Services)**

**Microsoft Azure**

**GOOGLE CLOUD PLATFORM(GCP)**

AMAZON WEB SERVICES:



**AWS is the best example of evolving cloud platform provided by Amazon .**

**It Includes SaaS (Software as a service) , IaaS(Infrastructure as a service) and PaaS(Platform as a service) , all these services acts as the working framework for 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.**

**These cloud computing web services provide a variety of basic abstract technical infrastructure and distributed computing building blocks and tools. One of these services is Amazon Elastic Compute Cloud (EC2), which allows users to have at their disposal a virtual cluster of computers, available all the time, through the Internet**

**Amazon Web Services (AWS) is the world’s most comprehensive and broadly adopted cloud platform, offering over 175 fully featured services from data centers 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. AWS operates from many global geographical regions including 6 in North America.**

SERVICES OF AWS:

**AWS operates on different services depending upon the user’s needs Services can be Storing databases, networking, security, analytics, etc.**

**Amazon EC2 provides you virtual servers so that you can operate the system anytime you need.**

**Amazon Elastic Block Store provides block level storage volume for data storage which you can apply on creation of an EC2 vm. Amazon has a Simple Storage Service known as S3 which provides you data storage for backup or analytics.**

MICROSOFT AZURE:



**Microsoft Azure is getting bigger and better in coming days .**

**It is a cloud services catalogue which developers and IT professionals use to build, deploy and manage cloud applications through a global network of data centers which Microsoft has created for this purpose.**

**More tools and more functionality are getting added.**

**It has two releases as of now. Its famous version Microsoft Azure v1 and later Microsoft Azure v2.**

**Azure includes Virtual Machines, Virtual Machine Scale Sets, Functions for server less computing, Batch for containerized batch workloads, Service.**

**Fabric for micro services and container orchestration, and Cloud Services for building cloud-based apps and APIs.**

**The Azure Service Platform is comprised of three cloud centric products:**

**Windows Azure**

**SQL Azure**

**Azure App Fabric controller**

TECHNOLOGY USED BY AZURE:

**Azure uses a technology known as virtualization.**

**Virtualization separates the close coupling between a computer’s CPU or server and its operating system by means of an abstraction layer called a hypervisor.**

**The hypervisor emulates all the functions of a real computer or server and its CPU in a virtual machine.**

**You can run multiple virtual machines at the same time and each virtual machine can run any compatible operating system such as Windows or Linux.**

**As other cloud services Azure uses a set of physical servers in one or several data centres that run virtualized hardware on behalf of clients.**

**Azure is an immense collection of servers and network hardware, together with a complex set of distributed applications which makes the configuration, the functioning of the virtualized hardware and these servers’ software.**

**And this makes Azure efficient, users are now not responsible for maintaining and updating the hardware, as Azure takes care of all this in the background like AWS.**

GOOGLE CLOUD PLATFORM (GCP):



**It is a cloud computing service offered by GOOGLE. It provides a series of modular cloud services including computing, data storage, data analytics and machine learning. Registration requires a credit card or bank account details.**

**The platform provides various services like compute, storage, networking, Big Data, and many more that run on the same infrastructure that Google uses internally for its end users like Google Search and YouTube. Google server hasn’t gone down in years. So, if you are planning to run your application on the Google Cloud infrastructure, then you can be assured of your applications being safe and secure.**

**Google Cloud has been one of the top cloud providers in the IT industry. The services they offer can be accessed by software developers, as it provides a reliable and highly scalable infrastructure to build, test, and deploy their applications.**

**GCP provides a numerous features like other cloud services like :**

**Compute Services, Storage Services, Networking, Big Data Services, Security and Identity Management, Management Tools, Cloud AI,etc.**

**Google uses Platform as a Service to deploy Java, PHP, and other applications. It provides online file storage web service for storing and accessing data. It uses VPC (Virtual Private Cloud) ,CLB(Cloud Load Balancing) and CDN(Content Delivery Network for IP allocation , routing, distributing workloads on different users, etc. Cloud IOT Core allows you to easily and securely connect, manage, and ingest data from devices that are connected to the Internet.**

**In April 2008, Google announced App Engine, a platform for developing and hosting web applications in Google-managed data centers, which was the first cloud computing service from the company. The service became generally available in November 2011. Since the announcement of the App Engine, Google added multiple cloud services to the platform. Google Cloud Platform is a part of Google Cloud, which includes the Google Cloud Platform public cloud infrastructure, as well as G Suite, enterprise versions of Android and Chrome OS, and application programming interfaces (APIs) for machine learning and enterprise mapping services.**

Before getting in to the final point ,

**Let us see some comparitive Advantages and Disadvantages of these cloud platforms:**

ADVANTAGES:

AWS:

**1. Ease of Use**

**2. Incredibly Diverse Array of Tools**

**3. Unlimited Server Capacity**

**4. Reliable Encryption & Security**

**4. Managed IT Services Are Available**

**5. AWS Offers Flexibility & Affordability**

AZURE:

**1. Ability to Scale on Demand**

**2. Flexibility**

**3. Cost Competitive**

**4. Customer support**

**5. Hybrid Capability**

GCP:

**1.Better Pricing Than Competitors.**

**2. Private Global Fiber Netork.**

**3.Live Migration of Virtual Machines.**

**4. Improved Performance.**

**5. State of the Art Security**

DISADVANTAGES:

AWS:

**1. Billing can be confusing**

**2. Amazon’s EC2 Limits**

**3. Common Cloud Computing Problems**

AZURE:

**1.Lack of Integrated Backup.**

**2. Poor Management GUI and Tools.**

**3.No Access to Windows Client Images.**

GCP:

**1. Support**

**2. Documentation**

**3. Rate Of Innovation**

**RESULT:**

**After a wide comparison between these platforms**

AWS is at top because of ,

**Services**

**Most popular**

**Available in large areas**

SERVICES:

**AWS computing services are by far the most evolved and functionally rich. IaaS- AWS uses Elastic Compute Cloud**

**Azure uses Virtual Machines**

**GCP uses Google Compute engine.**

**PaaS- Elastic Beanstalk is used by AWS**

**Azure makes use of App Service and Cloud Services**

**Google App Engine is used by GCP for PaaS services.**

MOST POPULAR:

**AWS is leading with around 30 percent of public cloud share ,**

**Azure which owns 16 percent of worldwide market share**

**GCP which owns 10 percent of market share worldwide.**

AVAILABLE IN LARGER AREAS:

**AWS has 66 availability zones with 12 more on the way.**

**Azure has 54 regions worldwide and is available in 140 countries all around the world.**

**Google Cloud Platform has been made available in 20 regions around the world with 3 more on their way**

**So after discussing different parameters and comparing each cloud platform:**

**we can surely conclude that AWS stands out to be the top cloud platform among the three based on several discussed factors.**

**Even though the other two cloud platforms are gaining a good response with growing needs and services of Cloud Computing.**

**Looking at the public cloud industry, both earning announcements earlier this year from Microsoft and AWS demonstrate that cloud services are growing and most importantly profitable.**