Case Study of Cloud Computing

1. Amazon EC2 Case Study

Amazon Elastic Compute Cloud (Amazon EC2) offers the broadest and deepest compute platform, with over 500 instances and choice of the latest processor, storage, networking, operating system. Amazon EC2 is the first major cloud provider that supports Intel, AMD, and Arm processors, the only cloud with on-demand EC2 Mac instances, and the only cloud with 400 Gbps Ethernet networking. It offers the best price performance for machine learning training, as well as the lowest cost per inference instances in the cloud. Amazon EC2 provides the broadest and deepest instance choice to match your workload'sneeds. General purpose, compute optimized, memory optimized, storage optimized, and accelerated computing instance types are available that provide the optimal compute, memory,storage, and networking balance for various workloads. Processors from Intel, AMD, NVIDIA and AWS power these instance types and provide additional performance and cost optimizations. Local storage and enhanced networking options available with instance types further help optimize performance for workloads that are disk or network I/O bound. Many instance types also offer bare metal instances that provide your applications with direct access to the processor and memory of the underlying server for running in non-virtualized environments or for applications where user want to use his/her own hypervisor. User can also use the AWS Compute Optimizer to get recommendations on optimal AWS Compute resources for your workloads to reduce costs and improve performance. 2.**What Is Microsoft Azure?**

Microsoft Azure is a Microsoft cloud service provider that provides cloud computing services like computation, storage, security and many other domains. Microsoft is one of the global leaders when it comes to Cloud solutions and global cloud infrastructure. Microsoft Azure provides services in 60+ global regions and serves in 140 counties. It provides services in the form of Infrastructure as a service, Platform as a Service and Software as a service. It even provides serverless computing meaning, developer need to put his/her own code and all his/her backend activities as managed by Microsoft Azure. It easily integrates with Microsoft Products making it very popular using Microsoft products. This platform is now 10 years old and it picked up to compete with the best of the best. Advantages

On-Demand Scalability Application Hosting can never be sure of how many resources are enough and how many are too much. This is the nature of businesses that rely on varying traffics. Microsoft Azure helps user to save all this effort. Microsoft Azure ensures users applications and data is distributed well enough that means user never run short of Server space. It also means applications do not run on a single server making them available even in awful situations. Since these resources are properly clustered out and they can scale at will and in no time, your applications function very differently then they would in an on-premise architecture.

Cost Effective

One of the major benefits with cloud service providers is the cut down of upfront costs. Since user can configure and scale as needed, hence not required to invest heavily here. Microsoft Azure ensures small scale investment does not require upfront costs. Also, when it comes to people who have signed up contracts, they get heavy discounts. It also offers to Pay as go, model, meaning user get cost-cutting in the right sense.Hybrid EnvironmentsThey say cloud is not a one fit solution for all. It is true indeed because every business will have its own set of problems. And not all businesses will always be in a state where theycan migrate to the cloud entirely. While other platforms suffer here, as people either haveto migrate to those platforms or call it off totally, Microsoft Azure benefits with

its Hybrid approach. Meaning, with Microsoft Azure user can build Hybrid infrastructures, where resources can partially reside on the cloud and can partially operate from an on- premise infrastructure. Hence users are safe from costly workaround.

Big data Applications Hadoop and Big data are the need of the hour. With data increasing exponentially we need applications that can help process this data. Microsoft Azure brings this capability of processing large volumes of data on top of its cloud platform. Azure HDinsight ensures user can use Apache Hadoop as a cloud solution. This is a power-packed service that lets user deal with large data volumes. That means users data crunching becomes easier. It also readily integrates with data visualization tools and also lets user move data to excel. This means data visualization concerns are resolved quickly. With excel user can create visualizations and with PowerBI integrating with Microsoft Azure users data be converted into any visual that you require

Integration Capabilities Microsoft has been in the software industry for decades. It has wide reach in the software market and not many can compete with it when it comes to customer base and stack of products it offers. The advantage for Microsoft Azure here is that it readily integrates with most of these products. Be it, connecting to SaaS, PaaS, IaaS applications or even something like Visual Studio or Active Directory, Microsoft Azure. Hence user can now leverage ERPs and CRMs to enhance business capacity to a greater level

Storage and Security:- Storage is very critical to any application. It is no different for applications running on cloud. The volume of data we handle these days is huge. It also comes in different formats and from different sources. Storage resources have to adept enough to handle this data. Microsoft Azure lets user store data in form of files, objects, structured and unstructured data and a lot more. This happens reliable and securely.Talking of security Microsoft Azure ensures high level of security for user applications. It ensures all the resources in Azure cloud are guarded with firewalls and data is moved over the network with encryption. User have access to authentication and access management meaning user data and application are secure to the core. Scheduling and Automation Everyone hates doing repetitive tasks.

- **Use Cases of Microsoft Azure** Microsoft has many popular customers out there, here are some use cases for you,
- ➢ **University Of Toronto**

This is the largest Canadian university and leads the global front when it comes to research at an institutional fare. It made use of Microsoft Azure to avoid heavy hardware renewal costs. It migrated some of its activities to Microsoft Azure Cloud. With it, the university managed to transform IT processes, saving a lot of time

➢ **AkzoNobel** AkzoNobel is a popular Dutch Company that leads way in paint and coating business. It serves in more than 100 countries and always needs better connectivity across the globe. Itharnessed the power of Microsoft Azure IoT services to improve its performance and

➢ **IHG (Intercontinental Hotel Group)**

This is one of the largest and leading hotel groups in the world. It owns around 5200properties across the globe and serves more than a hundred countries. The fact that you own 5200 properties tells you the group holds its values of service very truly and also must have experimented a lot to stay up to date with market needs as well. This fact is also supported by the fact that this group invests a lot of money in innovations to meet the experience quality the customers deserve. The company has many of its tools that require Agile practices. It already was based on Azure Cloud

platform. This is when they decided to use DevOps Services on MicrosoftAzure. Ever since it has moved to Azure StorSimple, which is a hybrid storage service for enterprises. The group has achieved great results when it comes to storing data. It has helped them save more 70 percent in terms of cost. This is something that was initiated four years ago. It needed very little support in setting up and does require too much intervention when it comes to administrative attention.

3.Google Cloud: Platform, offered by Google, is a suite of cloud computing services that runs on the same infrastructure that Google uses internally for its end-user products, such as GoogleSearch, Gmail, Google Drive, and YouTube.

Why Google Cloud

1.Run your apps wherever you need them Avoid vendor lock-in with Google Cloud's commitment to open source, multicloud, and hybrid cloud—allowing you to use your data and run your apps on any cloud or in any environment.

2. Make smarter decisions with the leading data platform :- Make smarter decisions with the leading data platformMaximize insights from your data with Google Cloud's machine learning and advancedanalytics capabilities. Our serverless data analytics and machine learning platform helps you automate processes, make intelligent predictions, and streamline management and operations.

3. Run on the cleanest cloud in the industry: Power your workloads on a net carbon-neutral cloud. Electricity used to run Google Cloudproducts and services is matched 100% with renewable energy. As the only major cloud provider to purchase enough renewable energy to cover all operations, Google Cloud offers your business a path to sustainability.

4.Operate confidently with advanced security tools:- Google Cloud protects your data, applications, infrastructure, and customers from fraudulent activity, spam, and abuse with the same infrastructure and security services Google uses. Google Cloud's networking, data storage, and compute services provide data encryption at rest, in transit, and in use. Advanced security tools support compliance and data confidentiality.

5.Save money, increase efficiency, and optimize spend:- 86% of Google Cloud customers agree that "Google Cloud helped increase their operational efficiency and optimize IT spend," according to a TechValidate study. Google Cloud saves you money with our transparent and innovative approach to pricing. Reduce time spent on platform management by 40% to 55% with Anthos. Save up to 32% when you migrate applications to Google Cloud versus running them on-premises.

Trust and security:

Trusted cloud infrastructure Take advantage of the same secure-by-design infrastructure, built-in protection, and global network that Google uses to protect your information, identities, applications, and devices. Our stack builds security through progressive layers that deliver true defense in depth at scale.

Encryption by default, at rest and in transit

We encrypt data in transit between our facilities and at rest, ensuring that it can only be accessed by authorized roles and services with audited access to the encryption keys. Learn more about how we encrypt data at rest and how we encrypt data in transit.