Name: Vaishnal Mali
Div : D15A
Roll No: 27
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DS/OS 2

Q.1 Use S3 bucket and host video streaming.

→ Amazon S3 bucket with Amazon Cloudfront it is used to host on-demond videos (video content is stored on server and viewers can watch it any time).

Amazon cloudfront is web-service that speeds up distribution of static and dynamic web content to users. Cloudfront delivers content through worldwide network of datacenters called edge collections. Cloudfront used the cache for the lowest latency. If content is already in edge collection it will deliver immediately. Otherwise it will retrive from the origin (S3 bucket) in our case, Mediapackage, HTTP Server.

Steps for host video Streaming Using S3 bucket:

1) Create an S3 bucket.
2) Upload a video to the S3 bucket.
3) Create a cloudfront origin ocess identity.
4) Create a cloudfront distribution.
5) Access the video through the cloudfront distribution.
6) Configure your cloudfront distribution to use your custom domain name.
7) Access S3 video through cloudfront distribution with the custom domain name.
8) (optional) View data about requests received by your cloudfront distribution.
9) Clean up.

Q.2 Discuss BMW and Hotstar case studies using AWS.

→ Case study of BMW using AWS:

BMW group transfer its data infrastructure by migrating from an on-premises data lake to AWS enabling to process 10 terrabytes of data daily from over 1.2 million vehicles. It uses AWS services like Amazon Sage Maker, Amazon kinesis, Amazon Glue. BMW efficiently collects telemetry data from vehicles including speed, battery levels, engine status and mor This allow company to improve vehicle health monitoring, Predictive maintenance and offer real-time insights for enhancing customer experience. Before AWS BMW system struggled with scalibility causing delays in inovation. By moving to AWS BMW democrtized data access to organization more efficiently.

Case study of Hotstar using AWS.

Disney+ Hostar an indian streame service owned by Star India, has significantly transformed its web structure with AWS. to handle massive user demand especially during high traffic events like IPL (Indian premeir league), world cup. Hotstar uses AWS services like Route 53, Amazon EC2, Amazon cloudfront, Amazon S3. Hotster can deliver seamless video Streaming to over 300 million active users with bandwidths reaching 5700 Gbps during live events. AWS enables Hotster to process vast amounts of data, delivering real-time Streaming and maintain low latency and high speed transfer Amazon route 53 provides DNS services for routing traffic efficiently while Amazon EC2 ensures scalable computer power Amazon Cloudfront serves as Content delivery network (CDN)

ensuring fast and stable video streaming at high speeds. Amazon S3 offers scalable storage allowing Hotstar to store, retrive and analyze large datasets essential for managing millions of concurrent viewers.

Q.3 Why kubernetes and aduantage and disaduantage of kubernetes. Explain how adidas use kubernetes.

→ kubernets (k8s) is open source platform designed to automate deployment, scaling and managment of containerized applicati-ons.

Aduantages of kubernetes:

(i) Automated deployment and scailing: It automates process of deployment and scailing containerized application.

(ii) Self-healing: kubernets monitors health of containers and automatically restarts, replace containers if they fail.

(iii) Scalibility: kubernets can scale up or scale dacun based on demand.

Disaduantages of kubernetes:

(i) complexity: kubernetes is powerful but complex to setup and manage.

(ii) Steep learning curve: Mastering kubernets required strong understanding of containerization, networking.

(iii) Security conserns: kubernetes has many components that must be secured and attack surface if not configured correctly.

How Addidas use kubernetes:

Adidas embaraced kubernetes to streamline its operation and empower its engineer. By November 2017, 100% of Adidas e-commerce website was running on kubernetes which

significantly improve performance. Site load time was halved and release cycles accelerated from 4-6 weeks to 3-4 times per day. Adidas operates with 4000 poads, 200 nodes and manages 80,000 builds per month with 40% of its critical system now on its cloud native platform.

Q. 4 what are Nagios and Explain how Nagios used in E-services?

→ Nagios is an open-source monitoring platform/tool designed to oversee system, networks and infrastructure. It helps organ--ization identify and resolve IT infrastructure problems before they impact critical business processes.

Nagios used in E-services:

Publicly available services such as HTTP, FTP, SMTP, etc. This services are network-accessible services like web servers email servers while private services need intermediary agents for monitoring.

Nagios used plugins to monitors E-services many of which come pre-installed and additional plugins can be found online or developed by users. To monitor a service a host must first be defined in Nagios configuration files. Once host is defined services like HTTP, FTP or SSH can be monitored by associating them with specific plugins.

Nagios provide alert if services failed to respond within defined time frames or if errors are detected.