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Assignment 1

Q.1 Use S3 bucket & host video streaming.

Step 1) Setup Amazon S3 bucket.

(i) Search for S3 on the services section, click on S3 then click on create bucket. This will direct you to the bucket creation page. Here, give a name to your bucket.

(ii) After creating the bucket, add the video to this bucket. click on the name of the bucket, this will redirect you to the object screen. click on upload.

(iii) Select the required MP4 file & upload it.

(iv) This will start the uploading process.

Step 2) Setup CloudFront

(i) Search for cloudfront on services, Open in new tab.

(ii) On the left panel, under security, click on origin access. Here, goto identities (Legacy). Create an origin access identity.

(iii) In the origin field → select the S3 bucket, where video is uploaded.

(iv) Under origin access, select Legacy access identities. Select the identity that has been created. Click on yes update the bucket policy.

In default cache behaviour, under, viewer, select Redirect HTTP to HTTPS.

Under web application firewall, select Enable security protections.

Create the distribution, This will deploy it.

step 3): Accessing the hosted video:

(1) Once the distribution is deployed copy its dom name.

(2) Go to the video in the bucket where it is uploaded. Click on its name. Copy the key of video.

(3) On your address URL bar, used the link as 2 domain name > / < key video.

Thus, we have deployed a video on an S3 bucket using a content Distribution Network (CDN) :- cloudfare.

Q.2 Discuss BMW & Hotstar case studies using AWS

→ BMW & Hotstar case studies using AWS. BMW a renowned global automotive leader, leverages AWS to have its digital transformation & its operational efficiency. BMW utilizes AWS to power its connected drive platform, offering real-time updates navigation & remote diagnostics by processing vast amounts of vehicle sensor data. AWS services like AMAZON Sagemaker & AWS IoT enable BMW to perform advanced data analytics machine learning, optimizing vehicle performances & customer experience.

Hotstar, a leading Indian streaming platform, relies on AWS to manages massive traffic super particularly during live events. Using AWS's scalable infrastructure Hotstar ensures seamless content delivery to millions of concurrent viewers through services like Amazon EC2 AWS's Pay-as-you-go model optimizes costs by scaling resources acc. to demand. The global CDN

provided by AWS ensures low latency & high performance delivering high-quality streaming experience. Additionally, AWS's security features protect Hostar's content & user data, while the platform's agility allows for rapid feature deployment getting pace with the fast-evolving entertainment industry.

Q.3. Why to use Kubernetes. Write its advantages & disadvantages. Explain how adidas uses it.

→ Kubernetes is an open-source container orchestration platform that automates the deployment, scaling & management of containerized applications.

• Advantages of kubernetes:

1) Automation: Automates deployment, scaling & mangement of containerized applications.
2) Compatibility: Runs on various environments.
3) Scalability: Easily scalable applications
4) Self-healing: Automatically restarts & reschedules containers that fail or go down.
5) Ecosystem Integration: Supports a wide range of tools & services enhancing flexibility

• Disadvantages: 1) Complexity: The learning curve can be steep for new users due to its intricate architecture.
2) Resource overhead: Requires significant resources to run, which might not be cost-effective for small appl's.
3) Debugging challenges: Troubleshooting can be difficult in a distributed environment.

- How Adidas uses kubernetes:
Adidas employs kubernetes to enhance its e-comme platform's scalability & reliability. By using kubernetes they can efficiently manage microservices, ensuring that their applications can handle high traffic during peak times. This ultimately leads to impro performance & customer satisfaction. Additionally, the self-healing capabilities allow them to minimize downtime, maintaining a robust digital presence.

4) What are Nagios & explain how Nagios are used in E-services

Nagios is an open-source monitoring & alerting services for servers, networks & applications. It allows users to track the performance & availability of various IT resources.

- How Nagios is used in E-services:

(1) Infrastructure Monitoring: Nagios monitors health of server network devices & applications to ensure they are running optimally.

(2) Alerting: It sends alerts to alerts administrators when issues arise, allowing for quick responses to prevent downtime.

(3) Performance Tracking: Nagios helps track resources usage (CPU, memory etc.) enabling proactive management of IT resources.

(4) Service Monitoring: It checks the availability of critical services ensuring that e-services remain operational.