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Assignment No: 1

Q1] Use S3 bucket and host "Video Streaming"

→ Following are the steps to hosting video streaming on AWS using S3 bucket.

Step 1: Create an S3 bucket
Login to AWS management console and click on create bucket name, select region and click create.

Step 2: Upload Video File to S3.
Navigate to S3 bucket and click upload, give permission to "Public" and click upload.

Step 3: Configure S3 bucket for Video Streaming.
In S3 bucket click properties and enable static website hosting. Set index document to you video file name. Set "Error document" to custom error page.

Step 4: Create an CloudFront Distribution.
Go to CloudFront dashboard and click create distribution and select "Web" distribution. Also set "Origin" to S3 bucket Set "Default root object" to your video file name and click create distribution

Step 5: Configure CloudFront for Video Streaming
Click Behaviour in CloudFront distribution and click create new behaviour. Set path pattern to ("wildcard"). Also set Compress objects automatically" to "Yes" and save.

Step 6: Go to AWS Elemental MediaConvert dashboard and create a new job. Select video from S3 and choose output format as HLS, DASH and click create job.

Step 7: Test Video Streaming.
Access your CloudFront distribution URL and verify video playback.

Q2] Discuss BMW and HotStar case studies using AWS.

Ans: BMW is a leading luxury automobile manufacturer wanted to create and improve operational efficiency.

Challenge: BMW faced scalability issues with its on-premises infrastructure, hindering its ability to analyze vast amounts of data from connected vehicles.

AWS Solution:
Migrated data analytics platform to AWS, utilizing services like S3, EC2 and Redshift. Implemented AWS lake formation for data warehousing and governance. Used Aws lamda for real-time data processing and API gateway for secure APIs.

Benefits:
Supported 10 million concurrent users during live event. Reduced latency by 50% and improved streaming quality. Achieved 30% cost savings compared to on-premises infrastructure.

Hotstar: Hotstar is India's largest streaming platform.
Challenge: Hotstar faced challenges in handling massive traffic spikes during live events ensuring low

latency and high availability.

Solution: Serverless Video Processing - 1) AWS Elemental Media Convert transcode and package videos for various devices. Providing scalable content delivery which handles massive traffic spikes. It supported 10 million concurrent users during live events. It also reduced video processing time by 75%.

Benefits: Reduced latency by 50% and improved streaming quality. Achieved 30% cost savings compared to on-premises infrastructure.

8] Why Kubernetes and advantages and disadvantages of Kubernetes. Explain How adidas uses Kubernetes.

ans. Kubernetes is an open-source container orchestration system for automating the deployment, scaling and management of containerized applications.

Advantages:

Scalability: It automatically scales applications to meet changing demands.

High availability: Ensures applications are always available even in case of node failures.

Disadvantages:

It has steep learning curve due to complex architecture

It requires significant resources for large-scale deployments.

How Adidas uses kubernetes :-
Adidas opts for containerization in which they containerized its applications using dockers. It then implemented orchestration in which kubernetes manages and scales containers. Adidas adopted microservices architecture to improve scalability and flexibility.
The company deployed kubernetes on Google Kubernetes Engine (GKE) for scalability, reliability and reduced infrastructure management. Thus by implementing kubernetes adidas achieved improved scalability, flexibility, reliability and efficiency in its e-commerce platform.

Q4] What are Nagios and explain how Nagios are used in E-services?

Ans: Nagios is a popular open-source monitoring tool for tracking IT infrastructure, networks and applications. Following is the way how Nagios is used in E-services.

1) Monitors server and application uptime performance and availability.
2) Tracks network devices, services and protocols.
3) Detect errors, failures and security breaches.
4) Sends alerts and notifications to admins for prompt action.
5) Provides real-time dashboards and reporting for performance optimization.
6) Ensures high availability and reliability of e-services such as online shopping, banking and streaming.