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05/05

Assignment No: 1 Advance Devops DATE: 27/09/2

Q1.] Use S3 bucket and host Video Streaming

Ans: Hosting video streaming using an S3 bucket on AWS involves the following steps:-

Step1: Login to your AWS Account

- If you dont have an AWS account, then sign up to aws.amazon.com.
- Sign in to the AWS management console.

Step2: Create an S3 bucket

- Go to the S3 service. Click on create bucket
- Choose a unique name and a region for the bucket
- Leave default settings for Versioning and logging unless you need them.
- Click create bucket

Step3: Upload Videos to the S3 bucket

- Click on the upload button, drag and drop your video files or browse them on your local syste-m and upload.
- Ensure That the video files are in formats suitable for web streaming such as MP4 or HLS (HTTP Live streaming)

Step4: Step Permissions for Video Access

- By default, objects in an S3 bucket are private. You need to make them public (if required).

DATE:

Step 5: Enable video Streaming using Cloud Front (Recommended)
Click create Distribution and choose the web option. In viewer protocol policy, select Redirect HTTP to HTTPs for secure streaming.

Step 6: Creat the Distribution
It may take a few minutes for distribution to deploy

Step 7: Stream videos using the URL
To stream your video, use cloudfront URL for your video files.

Step 8: Monitor and optimize Streaming
Use Cloudfront logs and AWS Cloudwatch to monitor the performance of your video Streaming.

Conclusion: By following these steps you can successfully host video streaming using AWS S3 bucket.

Q2. Discuss BMW and Hotstar case study using AWS.

Ans: BMW and Hotstar are two prominent companies that have leveraged AWS to scale their infrastructure, improve performance and optimize user experience.

DATE:

BMW Case study
BMW adopted case AWS to enhance its customer experience by leveraging AWS's cloud servica for connected vehicles, data analytics and mobility services. BMW uses AWS for:

→ Scalability: AWS allows BMW to scale up their connected car services to handle millions of vehicle and customers.

→ Data storage: BMW uses Amazon S3 for storing vehicles and sensor data from millions at cars globally.

→ Analytics and AI: By using Amazon Kinesis BMW streams and processes real-time vehicle data to provide advanced analytics, improving services like predictive maintainance and personalized experiences.

→ Innovation: With AWS IOT services, BMW enhances connected vehicle functionalities, offering features like remote vehicle updates, vehicle monitoring

Hotstar case study (AWS)
Hotstar is one of India's leading platforms leverages AWS to handle high traffic, especially during live sports events like IPL cricket matchs.
Scalability: Hotstar uses AWS to scale their services in real time to handle over 10 million concurrent users.
Elastic load balancing: AWS elastic load balancing ensures seamless content delivered by distributing

DATE:

Incoming application traffic across multiple servers.

→ Global Reach: By utiliging AWS cloud front (CDN), Hotstar ensures that user around the world can stream content without latency

→ Data latency: Aws Lambda and kinesis are are used for processing data streams allowing real time analytics

Q3.] Why kubernetes and advantage and disadvantages of kubernetes. Explain how adidas uses kubernetes

Ans: Kubernetes is an open source container orchestration platform used for, automating the deployment, scaling and management of containerized applications.

Advantages of kubernetes

→ Scalability: kubernetes scales application up down automatically depending on traffic.

→ Portability: kubernetes works on different environment con-promises public or hybrid (clouds), offering flexibility.

Advantages of kubernetes

→ Scalability: kubernetes scales application up down automatically, depending on traffic.

→ High availability: It ensures high availability of applications by maintaining multiple containers

DATE:

replicas and providing self-healing.

Disadvantages of Kubernetes

> Complexity: Kubernetes has a steep learning curve, requiring knowledge of containers networks and infrastructure.

> Overhead: Managing Kubernetes can add overhead in terms of resource usage and operational costs.

> Security: Configuring and maintaining security for Kubernetes cluster can be challenging especially when deploying at scale

Adidas uses Kubernetes to improve agility and performance of its e-commerce platforms some highlights include:

1. Microservice Architecture: Adidas migrated its monolithic e-commerce application to microser-vice.
2. Scalability: During high traffic events like product launches, Adidas can dynamically scale its infrastructure using Kubernetes ensuring that site remains responsive.
3. Cloud Agnosticism: Adidas runs its Kubern-etes cluster across multiple cloud providers enhancing availability and performance.

DATE:

Q4] What is Nagios and how is it used in E-services?

Ans: Nagios is an open-source monitoring tool used for monitoring the performance, health and availability of IT infrastructur.

How Nagios used in E-services

> Monitoring uptime: Nagios monitors the availability and uptime of websites applications and server to ensure seamless access for users.

> Performance monitoring: It teams the performance of server, database and applications notifying administrator

> Alerting: Nagios sends alerts if any critical components fail or if theres a degrade in service quality allowing for quick response and resolution.

> Incident prevention: By continuously monitoring system metrics, Nagios can detect anomolies and trends.

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