Soham Satpute
Roll no - 52/015A

04/05

AdDevops Assignment No: 1

Q1] Use S3 bucket and host Video streaming

→ Hosting video streaming using S3 involves storing video files in the bucket and then distributing them for playback via a content delivery Network.

Here's step by step guide to achive this:

a] Step 1: Upload Videos to S3

i] Create an S3 bucket, name it and select a region

ii] Drag and drop your video in the bucket.

iii] Modify the bucket policy

b] Step 2: Set UP CloudFront Distribution:

i] &@! Create a CloudFront Distribution: set the "origin domain name" to S3 bucket

ii] Configure the cache behaviour.

iii] Enable CORS.

c] Step 3: Stream the Video

i] Generate streaming URL using cloud front domain.

ii] Use HTML tag to embed the video on the site.

Q2] Discuss BMW and hotstar case studies using AWS

→ BMW and AWS case study:

Objective: BMW wanted to transform its global operations by levaraging data analytics, AI, and connected vehicle technologies.

solution: BMW built highly scalable and secure data & platform on AWS to connect millions of vehicless and enable real-time processing and analytics.

1] Data Lake and Analytics:

- BMW used amazon S3 to build a data Lake, storing petabytes of data from connected cars, and R&D.
- Services like Amazon Redshift, Athena, EMR enabled advanced dataanalytics.

2] IOT and connected Vehicles:

- The BMW connectedDrive Platform provided by AWS IOT, allows vehicles to communicate with cloud based services.

3] Machine learning:

- BMW utilized Amazon SageMaker to develop, train, and deploy machine learning models for applications like automated driving, predictive maintaining etc.

Outcomes:

- Improved customer experience through personalized vehicles.
- Enhanced operational efficiency and predictive capabilities.

Hotstar and AWS Case study:

Objective: Hotstar, one of India's largest streaming platforms, needed to scale rapidly to support millions of concurrent users during IPL live streaming and other events.

Solution: Hotstar build a highly scalable and resilient streaming platform of AWS, capable of handling peak traffic.

1] Scalable Infrastructure:

- Hotstar used AWS EC_2 auto scaling and Amazon cloudfront to dynamically scale its infrastructure based on demand.

FOR EDUCATIONAL USE

2] Content delivery:

- Hotstore used CloudFront, a global content delivery network, to deliver video with minimal latency and buffering
- Amazon S3 was used to store and distribute static content.

3] Real-time Analytics:

- Hotstar utilized Amazon Kinesis to process and analyse streaming data in real-time providing user behaviour, viewership and application ~~insht~~ insights.

Outcome:

- Successfully handled over 25 million concurrent viewers during live events.
- Reduced latency and buffering.
- Achieved scalability, allowing rapid growth and deployment of new projects.

Q3] Why Kubernetes and advantages and disadvantages of Kubernates.
How adidas uses Kubernates?

→ Kubernetes is a powerful open-source that automates the deployment, scaling and management of containerized applications. It is widely used because it simplifies complex application management, especially in distributed environments, by orchestrating containers effectively.

i] Advantages:

- Scalability: Automatically scales applications.
- High Availability: Ensures apps are always running
- Portability: Work across multiple cloud, on-perm environments.
- self-healing: Restarts or reschedules failed containers.
- Efficient resource use.

ii] Disadvantages:

- Complexity: steep learning curve and setup challanges.
- Overhead: Resource-heavy, may not suit small apps.
- Debugging: Troubleshooting can be difficult in large deployments.
- Cost: Requires significant resources and expertise at scale.

How Adidas uses Kubernetes:

- Scalability: Dynamically scales during high traffic events.
- Microservices: Uses Kubernetes for a microservices architecture, allowing independent service scaling and faster deployment.
- Continuous Deployment: Automates releases through CI/CD pipelines.
- GlobalReach: Deploys services across multiple regions ensuring for better customer experience.

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

→ Nagios is an open source monitering tool used to track the health and performance of IT infrastructure, including servers, applications, and network devices. It provides alerts when problems arise and helps prevent down time.

How Nagios are used in E-services:

1] Service Monitoring: Tracks the availability and performance of e-services like web servers and databases, alerting when issues occur.

2] Performance tracking: Moniters metrics like CPU, memory, and response times to prevent bottlenecks

3] Alerting: sends rea-time alerts when issues are detected

4] Log Monitering: Analyzes log for errors or unsual activity in e-services.

5] Security: Moniters for unauthorized access or unusal traffic.