Name: Snehal A. Patil
Class: D15A
ROLL NO: 39

ASSIGNMENT NO: 1

Q. 1 Use S3 bucket and host video streaming. Give proper each and every step for this in short but all the steps.

Ans: Step 1: create an S3 bucket
1. Sign in to AWS management console
2. Navigate to S3:
- In AWS Management Console, select S3.
3. Create a Bucket
- Click on create bucket
- Enter a unique bucket name.

step 2: Upload video to S3 bucket:
1. Open your Bucket by clicking on bucket name your created.
2. Upload Files.
- Click on upload.
- Drag and drop your files and click upload.
3. Set Permissions:
- For public access under permissions, check Grant Public read access.

Step 3: create a CloudFront Distribution.
1. Navigate to CloudFront from aws console.
2. click on create distribution.
- Choose web as delivery method.

3. Configure the distribution:
- Origin Domain name: Select your S3 bucket
- Viewer protocol Policy: Choose Redirect HTTP to HTTPS for secure access
- Cache Behaviour settings: Configure Caching
- Click create distribution.

Step 4: Configure CloudFront for secure Access:
1. create an origin access Identity (OAI)
- In CloudFront origin console, go to distribution settings.
- Under origins and origin group, click Edit.
- create a new origin access Identity.
2. Update S3 bucket policy.
- Go to your S3 bucket
- Click on permission & then bucket Policy.
- Add to policy to grant access to OAI.

Step 5: Access the video through CloudFront
1. Get the CloudFront URL
- In CloudFront Console, Go to your distribution.
- Copy the Domain Name.
2. Use the URL.
- use this URL in your web application to stream the video.

Q: 2 Discuss BMW and Hot Star case studies using AWS.

Ans! BMW Case Study:

Overview: BMW leverages AWS to enhance its digital transformation, focusing on innovation in connected vehicles and improving operational efficiency.

Key points:

1. Data Analytics:

- BMW uses AWS for big data analytics, enabling real-time processing of vehicle data. This allows for predictive maintenance and improved customer service.

2. Cloud Infrastructure:

- By migrating to AWS, BMW benefits from scalable and flexible cloud infrastructure, reducing IT costs and enhancing agility.

3. Connected vehicles:

- AWS supports BMW's connected car initiatives, allowing for seamless integration

of services like navigation, entertainment, and remote diagnostics.

4. Security and Compliance:
- AWS provides robust security measures that help BMW maintain compliance with automotive industry standards.

Hot Star Case study:
Overview: Hot Star, a popular streaming service in Asia, utilizes AWS to deliver high-quality content to million of users.

Key Points:

1. Scalability:
- During peak events (like sports finals), Hot Star scales its infrastructure dynamically with AWS services to handle massive spikes in user traffic.

2. Content Delivery:
- The use of Amazon CloudFront enhances the delivery of streaming content globally, ensuring low latency and high availability.

3. Machine Learning:

- Hot Star employs AWS machine learning services to personalize user experiences and optimize content recommendations.

4. Cost Management:

- By using AWS's pay-as-you-go model, Hot Star manages operational costs effectively, aligning expenses with user demand.

Conclusion:

Both BMW and Hot Star demonstrate how AWS can drive innovation and operational efficiency in different industries. BMW focuses on enhancing connected vehicle experiences and data management, while Hot Star emphasizes scalability and content delivery for a superior streaming experience. Their successful integration of AWS highlights the platform's versatility and robustness in meeting diverse business needs.

Q. 3 Why Kubernetes and advantages and disadvantages of Kubernetes. Explain How adidas uses Kubernetes.

Ans: Kubernetes is an open-source container orchestration platform designed to automate deploying, scaling and managing Containerized applications.

Advantages of Kubernetes:

1. Scalability: Automatically adjusts resources based on demand.
2. Portability: Consistent performance across cloud and on-premises environments.
3. High Availability: Self-heals and ensures uptime.
4. Load Balancing: Distributes traffic effectively.

Disadvantage Of Kubernetes:

1. Complexity: Steep learning curve and setup time.
2. Resource Intensive: Requires significant computing resources.
3. Operational Overhead: Needs Continuous management and monitoring.
4. Networking Challenges: Complicated Configurations Can be tricky to troubleshoot.

How Adidas Uses Kubernetes:

Adidas uses Kubernetes to scale their e-Commerce platform globally. It allows them to manage microservices efficiently. By adopting a microservices architecture with Kubernetes, Adidas can handle high-traffic events like product launches with ease through auto-scaling, ensuring reliable performance. Kubernetes also supports their Continuous Integration / Continuous Deployment (CI/CD) pipelines, allowing for faster updates and feature rollouts without downtime. Its self-healing capabilities ensure minimal service disruptions, & the platform's flexibility allows Adidas to implement a multi-cloud strategy, optimizing their infrastructure across various cloud providers.

Q.4 What are Nagios and explain how Nagios are used in E-services?

Ans: Nagios is an open-source monitoring tool used to oversee systems, networks, & services. It helps detect issues by continuously monitoring resources like servers, applications, and network devices. When problems occur, Nagios sends alerts to administrators, enabling quick action to

prevent downtime or performance degradation.

Key Features of Nagios:

1. Monitoring of Network Services: Nagios monitors services such as HTTP, FTP, SMTP, etc.
2. Monitoring of Host Resources: CPU usage, memory, disk space, etc., can be tracked for servers and network devices.
3. Alerting System: When critical thresholds are reached, Nagios sends alerts via email, SMS.
4. Web Interface: It offers a web-based interface for viewing system statuses, logs, & trends.
5. Scalability: It can be used to monitor both small & large infrastructures, thanks to its Architecture.

How Nagios is used in E-Services:

1. Uptime Monitoring: It monitors the availability of e-services, ensuring that websites, Payment gateways, & other critical components remain operational.
2. Performance Monitoring: Nagios tracks the performance of server resources, databases, and networks, ensuring that service are delivered efficiently to users.

3. Incident Detection: If there is a system failure, service outage or performance degradation, Nagios instantly detects the issue & alerts the IT team to take corrective action.

4. Security Monitoring: Nagios can track suspicious activities, detect unauthorized access, & monitor the health of security systems, helping in safeguarding e-services from cyber threats.

5. Capacity Planning: By monitoring resource usage trends over time, Nagios helps in planning upgrades or resource allocation to avoid slowdowns or outages.