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Adv. DevOps Assignment No: 1

05/05

Q1. Use S3 Bucket and host Video Streaming.

Ans. Steps to host video streaming using an Amazon S3 bucket :

1. Create a S3 bucket :
   - Sign in to the AWS Management Console and navigate to S3.
   - Click on 'Create bucket', name it, and choose a region.
2. Upload Video Files :
   - Open the created bucket and click 'Upload' to add your video files.
   - Ensure proper file format for streaming (e.g. MP4)
3. Set Permissions :
   - Select the video file, go to 'Permissions', and set the appropriate access permissions (public or private).
4. Enable Static Website Hosting :
   - In the bucker properties, enable static website hosting.
   - Set the index document as your video file name.
5. Access the Video :
   - Obtain the bucket URL and use it in your application or share it directly for streaming.
6. Consider CloudFront (optional) :
   - For better performance and lower latency, configure Amazon CloudFront to serve your videos.

Q.2 Discuss BMW and HotStar case studies using AWS.

Ans. BMW utilized AWS to enhance its digital services and improve customer experiences. By integrating AWS IoT Core, BMW connected its vehicles to gather real-time data from sensors, facilitating predictive analytics for maintenance via

AWS SageMaker. This approach enabled personalized services and improved operational efficiency, leading to higher customer satisfaction and brand loyalty.

HotStar, an Indian streaming platform, leveraged AWS to manage traffic surges during live events. Using AWS Auto Scaling, it dynamically adjusted resources to handle millions of concurrent viewers. Amazon CloudFront ensured low-latency content delivery, enhancing the viewing experience. Additionally, AWS analytics tools helped Hotstar track viewer preferences, enabling personalized recommendations.

Both case studies demonstrate how AWS facilitates scalability, reliability, and enhanced customer engagement across different sectors, ultimately driving improved outcomes and user satisfaction.

Q.3. Why Kubernetes and advantages and disadvantages of Kubernates. Explain How Adidas uses kubernetes.

Ans. Kubernetes is an open-source container orchestration platform that automates the deployment scaling, and management of containerized applications. It enables developers to manage complex applications efficiently across clusters of machines.

• Advantages of Kubernetes:

1. Scalability: Automatically scales applications up or down based on demand.
2. High Availability: Ensures application uptime by managing container health and redeploying failed containers.

3. Load Balancing : Distributes network traffic evenly across containers, optimizing resource use.
4. Resource Management : Efficiently allocates resource among containers, improving performance.
5. Portability : Works on any environment that supports containers, from local development to cloud platforms.

• Disadvantages of Kubernetes:

1. Complexity : Steep ~~fear~~ learning curve for setup and management.
2. Overhead : Can introduce additional overhead due to its orchestration features.
3. Monitoring and Logging : Requires additional tools for effective monitoring and logging.
4. Initial Setup : Setting up a Kubernetes cluster can be time-consuming and complex.

Adidas and Kubernetes

Adidas uses Kubernetes to enhance its e-commerce platform's flexibility and scalability. By deploying its microservices architecture on Kubernetes, Adidas can rapidly develop and deploy and deploy new features, ensuring a seamless customer experience. The platform allows Adidas to handle peak traffic during events like sales or product launches efficiently, improving load times and site reliability. This agile approach also helps in streamlining operations, reducing time to market for new innovations.

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

Ans. Nagios is an open-source monitoring tool that provides comprehensive monitoring of systems, networks, and applications. It helps IT teams ensure that services are operational, efficient, and available.

In e-service, Nagios is primarily used for :

1. System Monitoring : Tracks server performance, ensuring uptime and resource utilization is optimal. Alerts are generated for CPU usage, memory load, and disk space.
2. Network Monitoring : Monitors network services and hardware, such as routers and switches, to ensure seamless connectivity and performance.
3. Application Monitoring : Observes the performance and availability of web applications, databases, and APIs, allowing for quick detection of issues.
4. Alerting and Reporting : Sends real-time alerts via email or SMS when service disruptions occur, enabling swift responses to minimize downtime.

By implementing Nagios, e-service providers can maintain high availability and performance, ultimately enhancing customer satisfactions and trust.