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D15C (07)

04/05

Adv. DevOps

Assignment 1

Q1 Use S3 bucket and host Video Streaming

Sol:-

Step 1: Set up S3 bucket

(a) Search for S3 bucket on your AWS account. Click on create bucket.

(b) Maintain all the options as default; give your bucket a name

(c) Bucket is created. Now, add a video to that bucket. For that, click on the name of the bucket, this will redirect you to the objects screen which shows the object of your bucket

(d) Click on upload, Here now select an .mp4 extension file for video; Once selected click on upload

Step 2: Set up CloudFront

(a) Search for CloudFront on the services tab. On the lft dashboard you will find <origin access> under the <security> tab

(b) Under origin access, click on create origin access identity; give identity a name & click create

(c) Now go to Distribution from the left pane and click on create a cloudfront distribution

(d) In the origin field select the S3 bucket we created

(e) Under Origin Access, select legacy access identities

(f) Under Origin access identities, select the identity that we created

(g) Update the bucket policy : In default cache behaviour > review > Redirect HTTP or HTTPS naky hosting secure

(h) Keep the remaining options as default & click on create distribution

Step 3: Accessing the hosted video

(a) Once the distribution is deployed, copy the domain name

(b) Go to S3 bucket, copy the key for the video

(c) Combine them like < domain name > / < key of video >

(d) The video is now streaming.

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Q2 Discuss BMW & Hotstar case study using AWS

Sol:-

BMW and Hotstar are prime examples of how organisations can leverage the power of Amazon Web Services (AWS) to enhance their operations and deliver exceptional customer experiences. Let's explore how these companies have used AWS to achieve their goals.

BMW: Driving Innovation in the Automotive Industry

BMW faced the challenge of managing vast amounts of vehicle data, ensuring data security, and accelerating the development of new connected car features. By migrating its on-premises data lake to AWS, BMW created a centralized platform for processing & analyzing data from millions of vehicles. This enabled them to:

- Gain deeper insights into driving patterns, vehicle performance & customer preferences
- Develop innovative connected car features like over-the-air updates, voice-activated assistants, and predictive maintenance

- Strengthen data security with robust measures on the AWS platform

Hotstar: Revolutionizing Digital Entertainment

Hotstar, a leading digital entertainment platform in India, sought to deliver high-quality streaming content to millions of users with varying internet speeds and devices. By adopting AWS, Hotstar built a scalable and reliable streaming platform capable of:

- Delivering seamless streaming experiences to users worldwide, regardless of their internet connections or devices
- Scaling to meet peak demand during major sporting events & other popular content releases
- Reducing latency and improving user experience through AWS's global network.

Key Takeaways:

1. AWS empowers innovations: Both BMW & Hotstar have used AWS to drive innovation & enhance their offerings

(2) Scalability is essential: AWS's elastic infrastructure has enabled these companies to scale their operations to meet increasing demands

(3) Data-driven insights: By leveraging AWS, BMW has been able to gain valuable insights from its vehicle data

(4) Exceptional user experiences: Hotstar has used AWS to deliver a superior streaming experience to its customers.

In conclusion, BMW & Hotstar demonstrate how organizations can effectively leverage AWS to achieve their business objectives & provide exceptional value to their customers. By embracing cloud technology, these companies have been able to stay ahead of the curve & drive innovation in their respective industries.

3 Why Kubernetes and advantages and disadvantage of Kubernetes. How adidas uses Kubernetes
Sol:-

Kubernetes, an open-source platform for managing containerized applications, has revolutionized the way businesses deploy, scale and operate their software. For Adidas, a global sportswear giant, Kubernetes has been a game-changer enabling them to enhance their e-commerce operations and deliver a superior customer experience

Advantages of Kubernetes

- Scalability: Kubernetes can effortlessly scale applications up or down to meet fluctuating demands. For Adidas, this means their e-commerce platform can handle peak traffic during sales seasons like Black Friday without compromising performance
- Portability: Kubernetes applications can be deployed across various cloud platforms and on-premises infrastructure. This flexibility allows Adidas to choose the most suitable environment based on their specific needs & cost considerations

Q3

- Efficiency: Kubernetes optimizes resource utilization by dynamically allocating resources based on application demands. This helps Adidas reduce costs & improve overall performance.

Disadvantages of Kubernetes

- Complexity: Kubernetes can be complex to learn & manage, especially for organizations new to containerization

- Operational Overhead: Managing Kubernetes requires specialized knowledge and can introduce additional operational costs

- Vendor lock-in: Some Kubernetes distributions may be tied to specific cloud providers or vendors, potentially limiting flexibility & increasing dependency

How Adidas leverages Kubernetes

- Scalability: Adidas can dynamically scale their e-commerce platform to handle peak traffic during sale seasons

- Reliability: Kubernetes ensures high availability & minimizes downtime, guaranteeing a consistent

customer experiences

- portability: Adidas can deploy their e-commerce platform and on-premises infrastructure
- Efficiency: Kubernetes optimizes resources utilization, reducing costs & improving overall performance

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

Sol:-

Nagios is a popular open-source network monitoring system that has become an essential tool for organization that rely on e-services. It provides real-time information on the health and performance of computer systems, applications & network infrastructure, allowing administrators to proactively identify & resolve potential issues

Key Features of Nagios

① Comprehensive Monitoring: Nagios can monitor a wide range of systems and services, including servers, networks, applications and databases

Q 4

(2) Customizable Alerts: Users can configure Nagios to send alerts via email, SMS or other Notification Methods

(3) Detailed Reporting: Nagios generates detailed reports on system performance, allowing administrators to analyze trends and identify areas for improvement

(4) Extensibility: Nagios supports a vast ecosystem of plugins, extending its capabilities to monitor specific systems & applications

Uses in E-services

In world of e-services, Nagios plays a crucial role in ensuring the reliability and performance of online applications. Here are some common use cases

- Website Monitoring: Nagios can monitor the availability & response time of websites, ensuring that they are accessible to users
- Application performance Monitoring: Nagios can track the performance of key application metrics such as CPU usage, memory consumption & database query times