Nam   Assignment - 1

Q1 Use s3 bucket and host video streaming.
→ steps to host video on Aws s3 bucket.

① Downtend any sample video from internet

② Now break the whole video into smaller segments so that it can be easily transmitted over network

③ To make smaller chunts we would tool. the general syntax is if mpeg-i < USER.NAME -Profile :v baseline -level 3.0 Startnumber :0- his time 3.5 -hls.list.size 0 . f his output .m348.

④ Ensure you download the ffmpeg before executing above. command.

⑤ After that create a new s3 bucket, name it and allow public access.

⑥ Now, change the bucket policy so that anyone can access bucket objects.

⑦ we also need to set up cops policy so that any endpoint can request for resources of bucket.

⑧ After setting up all necessary configurations, we need to upload video segments that we head created previously.

⑨ Create a new folder named 'his' inside bucket and upload all video segments in it.

⑩ Now we would create a simple HTML document that would be hosted on s3 bucket so that video can be played.

⑪ The HTML file would contain the link of the main Playlist of the video segments.

⑫ open the link provided inside object properties
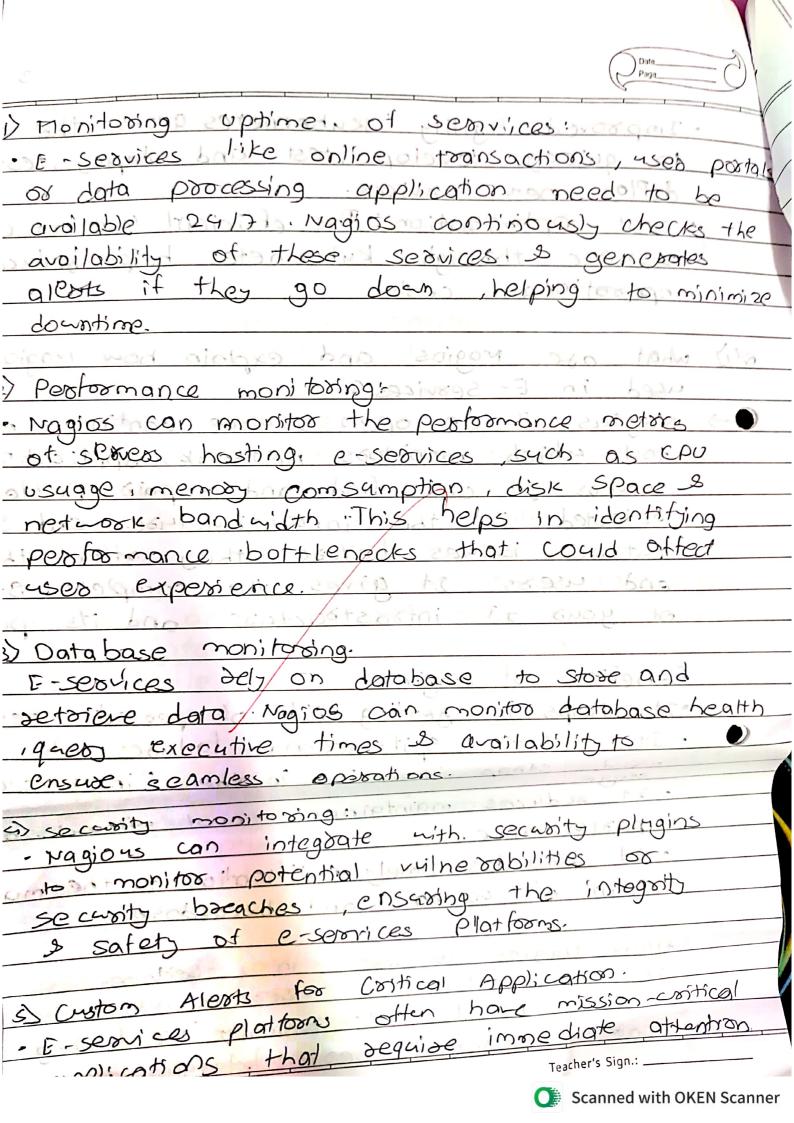
⑬ The video will start streaming.

Q2) Discuss BMW and Hoststar case studies using AWS ?

→ • BMW user AWS to power its connected car services, enabling real-time analysis & secure processing of vehicle data from millions of cars world wide with Aws's scalable cloud infrastructue, Bmw can provide features like remote software updates, Predictive maintenance & realtime driver assistance. key services include Amazon EC2 for ● processing this data & cloud front for distributing content globally. This setup allows BMW to scale its services across regions & comply with varying regulatory standards for data security & privacy. Aws's flexibility also helps BMW enhance user experience by offering foster updates & better connectivity.

✱ HOTSTAR   ●

• Hotstar relies on Aws to handel surges in viewership, especially during live events like the Indian Premier legue [IPL]. During these events, Hotstar records millions of concurrent viewers, which requires a higly scalable & reliable infrastructue. using Aws Autoscaling, Hotstar dynamically adjusts its resources to accomodate real time spikes in traffic, while Amazon cloudfront ensures low latency content delivery. Aws services like EC2, Elastic load Balancing

and S3 enable Hotstar to manage huge amounts of data provide uninterupted streaming. This scalable architecture helps optimize costs during off peak times while ensuring smooth streaming during high demand events.

23) why kubernetes and advantages & disadvantages of Kubernates. Explain How adidas uses Kubernetes.

→ kubernetes overview: kubernets is an open source Platform designed to automate deploying, scaling & managing containerized applications. It helps in orchestrating container, (such as Docker container) across a cluster of machines, making it easier to mange applications that require high availability, scalability & resilience.

* Advantages:
① Automated scaling: Kubernetes can automatically scale your application up or down based on traffic & load.
② Self Healing: It restarts failed containers replaces unresponsive containers & kills containers effciently on nodes.
③ Efficient Resource mangement: kubernetes helps optimize resource utilization by packing containers efficiently on nodes
④ Rolling updates & Rollbacks: kubernetes allows smooth deployment of updates without downtime. It case of an issue, it can

Teacher's Sign.:

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→ Advantages:

1) complexity: setting up & managing kubernetes can be compex, especially for beginners or small teams.

2) Learning curve: The platform has a steep learning curve, requiring knowledge of networking security & infrastructure.

3) Resource Intensive: Running kubernetes requires substantial infrastructure resource, which can be costly for small applications

· Adidas, like many large-scale companies, leverages kubernetes to enhance the scalability & resilence of its infrastructure. Addidas adopted kubernetes to accelerates its digital transformation, Particularity to handle traffic spikes during product lanches and events, ensuring a seamless experience for users. By containearizing their Services and running them on Kubernetes, Adidas improved their time to market for new features and updates, optimized resource utilization and enabled continuous delivery and integration [CI/CD] pipelines.

Benefits of using kubernetes:
· scalability: Adidas can handle millions of users accessing their platform during peak times without disruptions.

- Improved Agility : Kubernetes allows the company to quickly develop, test and deploy, test and deploy new services.
- Cost Optimization : The efficient use of cloud resource through kubernetes helps reduce operational costs.

Q4) what are Nagios and explain how Nagios are used in E-Services ?

→ Nagias is an open source continous monitoring tool which monitors network, applications and servers. It can find and repair problems detected in the infrastructure. and stop future issues before they affect the end users It gives the complete status of your IT infrastructure and its performance

Benefits of Nagios:
- It helps in getting rid of periodic testing.
- It detects spit-second failures when the crist strap is still in the "intermittent" stage.
- It reduces maintainace cost without sacrificing performance.
- It provides timely notification to the management of control and breakdown.

*How Nagios is used in E-Services
In the context of E-Services, which refers to services provided electronically (like banking, health care, government services). Nagios plays crucial

1) Monitoring uptime of services:
• E-services like online transactions, user portals or data processing application need to be available 24/7. Nagios continuously checks the availability of these services & generates alerts if they go down, helping to minimize downtime.

2) Performance monitoring:
• Nagios can monitor the performance metrics of servers hosting e-services, such as CPU usage, memory comsumption, disk space & network bandwidth. This helps in identifying performance bottlenecks that could affect user experience.

3) Database monitoring.
E-services rely on database to store and retrieve data. Nagios can monitor database health, query executive times & availability to ensure seamless operations.

4) Security monitoring:
- Nagios can integrate with security plugins to monitor potential vulnerabilities or security breaches, ensuring the integrity & safety of e-services platforms.

5) Custom Alerts for Critical Application.
- E-services platforms often have mission-critical applications that require immediate attention

if an issue arises .Nagios allows custom configuration for these applications , ensuring rapid response and issues resolution.

By providing real time monitoring & alterting nagios ensures that e-services remain operational ,secure & performant ,helping to improve user satisfaction & business continuity.