



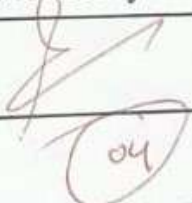
# Vivekanand Education Society's Institute of Technology

(An Autonomous Institute Affiliated to University of Mumbai)

## Department of Information Technology

A.Y. 24-25

### Advance DevOps Lab

Experiment No.	Assignment-1	
Title.		
Roll No.	13	
Name	Granesh Gupta	
Class	D15 C	
Subject	Advance DevOps	
Lab Outcome	LO1: To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements.	
Signature:		
Grade:	04	

use S3 bucket & host video streaming.

Setup on Amazon S3 bucket.

search for S3 on the services section. click it, then click on create bucket. This will direct you to the bucket creation page, now name it. maintain other options as default, click on create bucket after bucket has been created, now we need to add our video on this bucket. For that click on the name of the bucket, this will restrict you to the objects screen which will show the objects of your bucket click on upload select add files. An mp4 extension file is needed as we need to host video.

Setup cloudfront:

As the video is being uploaded, search for the cloudfront on the services tab & open it.

On the left pane under security you will find origin access click on it, then click on create origin access identity give the identity a name & click on create.

Go back to distribution on the left pane & click on create cloudfront distribution.

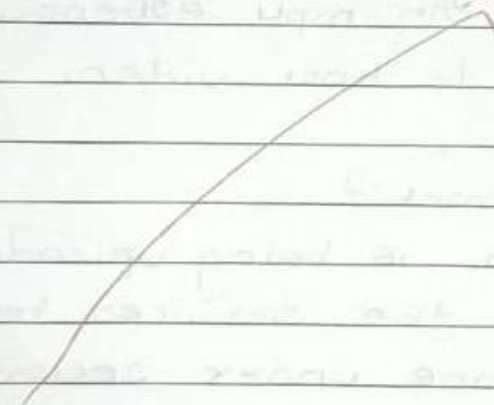
Here in origin field, select the S3 bucket, where the video is uploaded under origin, access, select legacy access, identities here select the identity you have created under bucket policy, select update the S3 bucket policy. In default cache behaviour under viewer, select redirect http to https.



Under which application firewall, select a security protections to provide a layer of security.

5) keep remaining options as default & click create distribution.

c. Accessing hosted video

- 1) Once the distribution is deployed, copy the domain name of your distribution.
  - 2) Now go to S3 bucket & click on its name. On the name of your video you have uploaded.
  - 3) combine the domain name of the distribution & the key of the video to make your link of the video that is streamed.
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Discuss BMW & Hot Star studies using AWS.

BMW group case study with AWS.

Overview: BMW group one of the world's leading premium automobile manufacturing uses AWS to drive innovation & efficiency in its infrastructure. The company leverages AWS services to build a serviceless & highly scalable platform, which supports its connected car architecture & provides a seamless connection to customers.

Challenges: BMW faced challenges in managing a global network of data centers that required significant maintenance & operational cost. The need to analyze vast amounts of data generated by connected cars & delivers updates to millions of vehicles worldwide made scalability & realtime processing crucial.

Solutions with AWS:-

Connected car platform: BMW builds ~~IoT~~ connected car platform on AWS using services like Amazon S3, Amazon EC2 & AWS Lambda. This platform connects & processes through the data, enabling realtime analytics & enhancing predictive maintenance.

Data storage & analytics: BMW uses Amazon S3 for scalable data storage & Amazon Redshift for data analytics machine learning. Used Amazon Machine Learning to build models for improved safety & services.



Hotstar case study with AWS.

- Overview: Hotstar, one of India's largest streaming platforms, uses AWS to manage traffic during high profile live Events.

- Challenge: Hotstar needed to handle upper traffic spikes especially during events like IPL, with millions of concurrent viewers.

- AWS Solutions:

• Scalable architecture: Hotstar implemented AWS service like Amazon CloudFront & Amazon S3 to manage traffic peaks effectively. This allowed Hotstar to scale dynamically & handle over 25 million concurrent viewers during

• Serviceless architecture: AWS Lambda & Amazon DynamoDB were used to build serviceless deployments, reducing the operational overhead ensuring that the infrastructure scaled automatically with increasing traffic.



Why kubernetes & advantages & disadvantages of kubernetes? Explain how adidas uses kubernetes.

kubernetes is an open source container platform that automate the deployment, scaling & management of containerized application. It allows for efficient management of clusters of containers, typically used in microservices architecture.

### Advantages:-

- scalability: kubernetes enables automatic scaling of applications based on the demand for resources.
- High availability: It ensures high availability of applications through container redundancy.
- self healing: It is a container, crashes kubernetes automatically, restarts it & if a node fails, it redistributes the containers.
- flexibility:- It works across different platforms, whether on premise or cloud.

### Disadvantages:

- complexity: Setting up & managing kubernetes can be complicated, especially for small teams or organization.
- learning curve:- It requires a deep understanding of containerization, networking & cloud native concepts.
- Resource overhead:- Running kubernetes clusters consumes significant system resources which might be overkill for small applications.

- or
- operational overhead: maintaining Kubernetes clusters can require maintenance & manage often needing specialized devops expertise.

Adidas leverages Kubernetes to power its digital transformation & improve the scalability & reliability of its digital infrastructure.

- microservices architecture.
- Scaling for peak demand
- agile development
- cloud native approach
- Improved CI/CD pipelines.



What are Nagios & explain how Nagios are used in E-services?

Nagios is a opensource monitoring system that helps organization monitor systems, networks & applications & network devices.

Key features of Nagios.

Monitoring: Tracks the status of host & services.

Alerting: Sends notifications via email or SMS when issues are detected.

Plugins: Supports various plugins to extend functionality for monitoring different hardware.

Web interface: Offers a user friendly dashboard to visualize system health.

Customizable: Highly customizable to meet specific needs.

How Nagios works in E-Services:-

Uptime monitoring:- Ensures that web applications & services are always available to users. Nagios can continuously check the availability of websites & alert administrations of any downtime.

Performance monitoring: Tracks resource usage (CPU, memory, disk, network) to ensure that servers are operating efficiently. This helps in proactive resource management.



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- Service monitoring: monitors specific applications & services like databases or email servers to ensure they are running correctly & respond to requests.
- Alerting & Reporting: Provides real time alerts for system failures or performance degradation, enabling quick responses to issues that should affect service delivery.
- Capacity planning: Gathers historical data that can help in forecasting future needs also organizations to scale their infrastructure accordingly.

Exper  
No.  
Title.  
Roll No  
Name  
Class  
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Lab  
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Grade: