TEAM LEAD VERSION (DevOps-Week-3)

TEAMWORK

CLARUSWAY
WAY TO REINVENT YOURSELF

Meeting Agenda

- ▶ Icebreaking
- ▶ Questions
- ▶ Interview/Certification Questions
- ▶ Coding Challenge
- ▶ Video of the week
- ▶ Retro meeting
- ▶ Case study / project

Teamwork Schedule

Ice-breaking 5m

- Personal Questions (Stay at home & Corona, Study Environment, Kids etc.)
- Any challenges (Classes, Coding, AWS, studying, etc.)
- Ask how they're studying, give personal advice.
- Remind that practice makes perfect.

Team work 10m

- Ask what exactly each student does for the team, if they know each other, if they care for each other, if they follow and talk with each other etc.

Ask Questions 15m

1. Which of the following is the native clustering for Docker?

A. Docker Hub
B. Docker Swarm
C. Kubernetes
D. Docker Compose

Answer: *B*

2. By default, all manager nodes are also worker nodes and are capable of executing tasks when they have the resources available to do so. (Docker Swarm)

A. True
B. Flase

Answer: *A*

3. Which command is used to initialize Docker Swarm mode?

A. docker swarm create
B. docker init swarm
C. docker swarm init
D. docker swarm run

Answer: *C*

4. What are the advantages of Jenkins?

A. At integration stage, build failures are cached
B. For each code commit changes an automatic build report notification generates
C. To notify developers about build report success or failure, it is integrated with LDAP mail server
D. All of the above

Answer: *D*

5. Which of the following commands runs Jenkins from the command line?

A. java -jar jenkins.war
B. java -war jenkins.jar
C. java -jar jenkins.jar
D. java -war jenkins.war

Answer: A

Interview/Certification Questions 20m

1. What is Docker Compose? What can it be used for?

Answer:
Docker Compose is a tool that lets you define multiple containers and their configurations via a YAML or JSON file.

The most common use for Docker Compose is when your application has one or more dependencies, e.g., MySQL or Redis. Normally, during development, these dependencies are installed locally—a step that then needs re-doing when moving to a production setup. You can avoid these installation and configuration parts by using Docker Compose.

Once set up, you can bring all of these containers/dependencies up and running with a single docker-compose up command.

2. What is Docker Swarm and which network driver should be used with it?

Answer:
Docker Swarm is an open-source container orchestration tool that is integrated with the Docker engine and CLI. If you want to use Docker Swarm, you should use the overlay network driver. Using an overlay network enables the Swarm service by connecting multiple docker host daemons together.

3. You are an architect in your organization. Your organization would want to upload files to AWS S3 bucket privately through AWS VPC. In an existing VPC, you created a subnet and VPC endpoint for S3.

You also created one route table which routes the traffic from the subnet to a NAT gateway and also the traffic to S3 through the internet via the NAT gateway. But in AWS S3 server logs, you noticed that the request to S3 bucket from an EC2 instance is not coming via the Internet through the NAT Gateway. What could be causing this situation?

A. When NAT Gateway and VPC end-point exist on the same route table, NAT Gateway always takes precedence.
B. EC2 instance is having an elastic IP address associated with it.
C. The request was redirected through the VPC endpoint.
D. AWS S3 is a managed service, all requests will always go through internet.

Answer: *C*

Option A, the opposite is true. VPC Endpoint always takes precedence over NAT Gateway or Internet Gateway. In the absence of VPC endpoint, requests to S3 are routed to NAT Gateway or Internet Gateway based on their existence in route table.

Option B, the elastic IP address is IPv4 public address with which you can mask the failure of an instance or software by rapidly remapping the address to another instance in your account.

Elastic Ips are not used for routing requests from an EC2 instance.

Option C, A NAT gateway cannot send traffic over VPC endpoints, AWS Site-to-Site VPN connections, AWS Direct Connect, or VPC peering connections. If your instances in the private subnet must access resources over a VPC endpoint, a Site-to-Site VPN connection, or AWS Direct Connect, use the private subnet's route table to route the traffic directly to these devices and also add a route to the S3 VPC Endpoint.

Please refer to the following Link

Option D is false. VPC Endpoint helps to route traffic internally within the AWS network without the need to go over through internet. This makes your S3 bucket private to your network. For more information, refer VPC endpoint documentation. Link

4. You have a web application hosted on AWS VPC with a single EC2 instance with Auto Scaling enabled. You have also assigned elastic IP address to the EC2 instance. When you access the elastic IP address, you are able to successfully connect to your web application. You decided to route requests to your application from a custom domain through Route 53. You have performed the setup on Route 53. However, when you access your custom domain name from the internet, you get "Server Not Found" error. Which of the following could be a reason?

A. Route 53 service is for internal application routing. It does not support routing trac from the internet.
B. You must configure elastic load balancer in order to use Route 53 for web application hosting.
C. IP address configured in Route 53 DNS record set might be incorrect.
D. The resource on EC2 instance that you're routing trac to is unavailable.

Answer: *C*

Option A and B are not valid statements.
Although option D looks correct, the question states the connection to the web application was successful when connected through elastic IP address. So this option is not the cause of failure.

5. Your company is planning on hosting an application that will be based on Docker containers. They need to setup an orchestration service that would automatically scale based on the load. As much as possible , the company does not want the burden of managing the underlying infrastructure. Which of the following can assist in this scenario?

A. AWS ECS with service Auto Scaling
B. Use an Elastic Load Balancer in front of an EC2 Instance. Use Docker containers on the EC2 Instance.
C. Use Auto Scaling with Spot Instances for the Orchestration Service.
D. Install and use Kubernetes on the EC2 Instance

Answer: *A*

Your Amazon ECS service can optionally be configured to use Service Auto Scaling to adjust its desired count up or down in response to CloudWatch alarms. Service Auto Scaling leverages the Application Auto Scaling service to provide this functionality. Service Auto Scaling is available in all regions that support Amazon ECS.

Amazon ECS publishes CloudWatch metrics with your service's average CPU and memory usage. You can use these service utilization metrics to scale your service out to deal with high demand at peak times, and to scale your service in to reduce costs during periods of low utilization.

Options B is incorrect because load balancer won't help scale up, but Auto Scaling can be used with a load balancer which is not mentioned in the question. Moreover, if all the things are in place then also this architecture would involve a lot of manual maintenance.

Option C is incorrect since Spot Instances are volatile and should not be used for the orchestration service

Option D is incorrect since this would involve a lot of manual maintenance

Video of the Week 10m

- What is Continuous Integration?

Retro Meeting on a personal and team level 10m

Ask the questions below:

- What went well?
- What could be improved?
- What will we commit to do better in the next week?

Coding Challenge 5m

- Coding Challenge: Fibonacci

Case study/Project 10m

- Project-203: Dockerization bookstore api on python-flask-mysql

Closing 5m

-Next week's plan

-QA Session

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https://docs.docker.com/engine/swarm/how-swarm-mode-works/nodes/
https://docs.docker.com/engine/reference/commandline/swarm_init/
https://www.edureka.co/blog/what-is-jenkins/
https://www.jenkins.io/doc/book/installing/war-file/
https://docs.docker.com/compose/
https://docs.docker.com/compose/samples-for-compose/
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