TEAM LEAD VERSION (DevOps-Week-8)

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. What kind of a repository do you need if you to connect to other repositories in order to obtain different binaries? (Nexus)

A. Proxy
B. Hosted
C. General
D. Dynamic

Answer: *A*

2. What is the main difference between an artifact repository manager and a version control system? (Nexus)

A. You store what you develop in a version control system and what you build in an artifact repository
B. Artifact repository can only be used by 1 person whereas version control systems are for teams
C. Artifact repositories give more memory for less price.
D. Version control systems are slower to obtain the code.

Answer: *A*

3. Which of the following is a log integration system of Grafana?

A. Prometheus
B. Loki
C. MySQL
D. Graphite

Answer: *B*

4. How does Prometheus collect its metrics?

A. By scraping HTTP endpoints based on pull mechanism
B. By using service discovery
C. By adding custom code to set which metrics will be monitored
D. Metrics are set through a YAML configuration file

Answer: *A*

5. What are the default ports for Prometheus and Grafana?

A. Prometheus: **8080** Grafana: **3306**
B. Prometheus: **9000** Grafana: **3030**
C. Prometheus: **9090** Grafana: **3000**
D. Prometheus: **3306** Grafana: **9090**

Answer: *C*

Interview/Certification Questions 20m

1. For which of the following scenarios should a Solutions Architect consider using ElasticBeanStalk? (Choose Two)

A. A web application using Amazon RDS
B. An Enterprise Data Warehouse
C. A long-running worker process
D. Capacity provisioning and load balancing of website
E. A management task run once on nightly basis

Answer: *A and D*

AWS Documentation clearly mentions that the Elastic Beanstalk component can be used to create Web Server environments and Worker environments.

For more information on AWS Elastic beanstalk Web server environments, please visit the following Link

Option B is incorrect. Elastcibeanstalk is used to deploy and manage the applications on AWS. It's not used to store the data. Link

For more information on AWS Elastic beanstalk Worker environments, please visit the following Link

Option C is incorrect. Beanstalk does not make sense to use for long-running processes. EC2 instances would be a better fit.

Option D is correct. We can use Elastic Beanstalk to distribute incoming application traffic across multiple targets, such as Amazon EC2 instances, containers, IP addresses, and Lambda functions. It can handle the varying load of

your application traffic in a single Availability Zone or across multiple Availability Zones. Link

Option E is incorrect. When you launch an Elastic Beanstalk environment, you first choose an environment tier. The environment tier that you choose determines whether Elastic Beanstalk provisions resources to support an application that handles HTTP requests or an application that pulls tasks from a queue. An application that serves HTTP requests runs in a web server environment. An environment that pulls tasks from an Amazon Simple Queue Service queue runs in a worker environment.

Further, when you create an environment, Elastic Beanstalk provisions the resources required to run your application. AWS resources created for an environment include one elastic load balancer (ELB in the diagram), an Auto Scaling group, and one or more Amazon EC2 instances.

So, these resources are required to run the application 24/7, not for only at night or day.

2. You have 2 development environments hosted in 2 different VPCs in an AWS account in the same region. There is now a requirement to access the resources of one VPC from another. How could this be accomplished?

A. Establish a Direct Connect connection.
B. Establish a VPN connection.
C. Establish VPC Peering.
D. Establish Subnet Peering.

Answer: *C*

A VPC peering connection is a networking connection between two VPCs that enables you to route traffic between them privately. Instances in either VPC can communicate with each other as if they are within the same network. You can create a VPC peering connection between your own VPCs, with a VPC in another AWS account, or with a VPC in a different AWS Region.

For more information on VPC peering, please visit the Link

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. 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

5. Which AWS services can be used to host and scale an application, in which the NGINX load balancer used? (SELECT TWO)

A. AWS EC2
B. AWS Elastic Beanstalk
C. AWS RDS.
D. AWS ELB

Answer: *A and B*

NGINX is open-source software for web serving, reverse proxying, caching, content-based routing rules, auto-scaling support, and traffic management policies.

NGINX can be hosted on an EC2 instance through a series of clear steps- Launch an EC2 instance through the console. Connect to the instance over SSH and use the command yum install -y Nginx to install Nginx. Also, make sure that it is configured to restart automatically after a reboot.

It can also be installed with an Elastic Beanstalk service. To enable the NGINX proxy server with your Tomcat application, you must add a configuration file to .ebextensions in the application source bundle that you upload to Elastic Beanstalk.

More information is available at: Link

Video of the Week 10m

- GitHub Workflow Strategies

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: Cloning a Remote Repository Using Ansible Playbook

Case study/Project 10m

Project should be explained to the students during the weekly meeting and has to be completed in one sprint (2 weeks) by the students. Students should work in small teams to complete the case study.

- Project-207 : Web Page Application (Postgresql-Nodejs-React) deployed on EC2's with Ansible, Docker and Nginx Proxy Server

Closing 5m

-Next week’s plan

-QA Session
