

TEAM LEAD VERSION (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

10m

- 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 Git command downloads commits, files, and refs from a remote repository into your local repo, but it doesn't integrate any of this new data into your working files?

- A. clone
- B. pull
- C. fetch
- D. merge
- E. push

Answer: C

2. What is the service provided by AWS that allows developers to easily deploy and manage applications on the cloud?

- A. CloudFormation
- B. Elastic Beanstalk
- C. Route53
- D. Container service

Answer: B

3. Containers include the application and all of its dependencies, but share the kernel with other containers. They run as an isolated process in userspace on the host operating system. They're also not tied to any specific infrastructure – Docker containers run on any computer, on any infrastructure, and in any cloud.

- A. True
- B. False

Answer: A

4. What command should you run to see all running container in Docker?

- A. docker run
- B. docker ps
- C. docker --help
- D. docker build
- E. docker pull

Answer: B

5. Which of the following is not a state of Docker container?

- A. Running
- B. Freezed
- C. Paused
- D. Restarting
- E. Exited

Answer: B

Interview/Certification Questions

20m

1. A company requires to deploy an existing Java-based application to AWS. Which of the following should be used to fulfill this requirement in the quickest way possible?

- A. Deploy to an S3 bucket and enable website hosting.
- B. Use the Elastic Beanstalk service to provision the environment.
- C. Use EC2 with Auto Scaling for the environment.
- D. Use AMIs to build EC2 instances for deployment.

Answer: B

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

You can simply upload your code and Elastic Beanstalk will automatically handle the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, you retain full control over the AWS resources powering your application and can access the underlying resources at any time.

For more information on the Elastic Beanstalk service, please visit the following [Link](#)

2. 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. Elasticsbeanstalk 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.

3. You are the architect of a custom application running inside your corporate data center. The application runs with some unresolved bugs that produce a lot of data inside custom log files generating time-consuming activities to the operation team who is responsible for analyzing them.

You want to move the application to AWS using EC2 instances, and at the same time, take the opportunity for improving logging and monitoring capabilities but without touching the application code.

What AWS service should you use to satisfy the requirement?

- A.** AWS Kinesis Data Streams
- B.** AWS CloudTrail
- C.** AWS CloudWatch Logs
- D.** AWS Application Logs

Answer: C

Option A is INCORRECT because in order to feed a Data Streams from custom logs you have to change the application code. AWS documentations describes this with the following sentence: "To put data into the stream, you must specify the name of the stream, a partition key, and the data blob to be added to the stream." Option B is INCORRECT because is unrelated to the scenario and custom log files. Option C is CORRECT because AWS CloudWatch Logs has the capability to reuse existing application logs increasing efficiency in operation with the ability to generate on them metrics, alerts and analytics with AWS CloudWatch Logs Insight.

As the application and custom log files are exactly as they were when the application was running on-prem you don't need to change any piece of application code that make them ingestible by AWS CloudWatch Logs

AWS official documentation in the FAQ section highlights the reusing capability with the sentence "AWS CloudWatch Logs lets you monitor and troubleshoot your systems and applications using your existing system, application and custom log files... so, no code changes are required."

You can also leverage CloudWatch Metrics, Alarms and Dashboards with Logs to get full operational visibility into your applications. This empowers you to understand your applications, make improvements, and find and fix problems quickly, so that you can continue to innovate rapidly.

Option D is INCORRECT because AWS Application Logs does not exist.

4. Your company currently has a set of EC2 Instances hosted in AWS. The states of these instances need to be monitored and each state needs to be changed when a metric breaches a threshold value. Which step could be helpful to fulfill this requirement? (SELECT TWO)

- A.** Use CloudWatch logs to store the state change of the instances.
- B.** Create an Amazon CloudWatch alarm that monitors an Amazon EC2 instance
- C.** Use SQS to trigger a record to be added to a DynamoDB table.
- D.** Use AWS Lambda to store a change record in a DynamoDB table.

Answer: A and B

Create Alarms That Stop, Terminate, Reboot, or Recover an Instance

Using Amazon CloudWatch alarm actions, you can create alarms that automatically stop, terminate, reboot or recover your instances. You can use the stop or terminate actions to save money when you no longer need an instance. You can use the reboot and recover actions to automatically reboot those instances or recover them onto new hardware if a system impairment occurs.

The `AWSServiceRoleForCloudWatchEvents` service-linked role enables AWS to perform alarm actions on your behalf. The first time you create an alarm in the AWS Management Console, the IAM CLI, or the IAM API, CloudWatch creates the service-linked role for you.

There are a number of scenarios in which you might want to automatically stop or terminate your instance. For example, you might have instances dedicated to batch payroll processing jobs or scientific computing tasks that run for a period of time and then complete their work. Rather than letting those instances sit idle (and accrue charges), you can stop or terminate them, which could help you to save money. The main difference between using the stop and the terminate alarm actions is that you can easily restart a stopped instance if you need to run it again later, and you can keep the same instance ID and root volume. However, you cannot restart a terminated instance instead, you must launch a new instance.

You can add the stop, terminate, reboot or recover actions to any alarm that is set on an Amazon EC2 per-instance metric, including basic and detailed monitoring metrics provided by Amazon CloudWatch (in the `AWS/EC2` namespace), as well as any custom metrics that include the `InstanceId` dimension, as long as its value refers to a valid running Amazon EC2 instance.

Option A is correct. Using Cloudwatch logs collect, store, view, and search logs from AWS and non-AWS resources.

Option B is correct. CloudWatch alarms are used to trigger notifications for any metric. Alarms can go to auto-scaling, EC2 actions(stop, terminate, recover, or reboot) and SNS notifications.

Option C is incorrect as SQS cannot be used for monitoring.

Option D is incorrect as AWS Lambda cannot be used for monitoring.

5. What is difference between virtualization and containerization?

Answer:

Containers provide an isolated environment for running the application. The entire user space is explicitly dedicated to the application. Any changes made inside the container is never reflected on the host or even other containers running on the same host. Containers are an abstraction of the application layer. Each container is a different application.

Whereas in Virtualization, hypervisors provide an entire virtual machine to the guest(including Kernel). Virtual machines are an abstraction of the hardware layer. Each VM is a physical machine.

Video of the Week

5m

- [Containerization](#)

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: Find the Non-Repeated Values](#)

We assume that each group has two sub teams. Each week, one of the sub-teams will present their solution.

Case study/Project

10m

Case study should be explained to the students during the weekly meeting and has to be completed in one week by the students. Students should work in small teams to complete the case study.

- [Project-006 : Kittens Carousel Static Website deployed on AWS Cloudfront, S3 and Route 53 using Cloudformation](#)

Closing

5m

-Next week's plan

-QA Session
