

# STUDENT VERSION (Week-14)

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WAY TO REINVENT YOURSELF

## Meeting Agenda

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

# Teamwork Schedule

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## 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 command is used to terminate the Terraform-managed infrastructure?

A. terraform terminate

B. terraform erase     The `terraform destroy`

C. terraform delete     command terminates resources defined in your Terraform configuration. This command is the reverse of

D. terraform destroy     `terraform apply` in that it terminates all the resources specified by the configuration. It does *not* destroy resources running elsewhere that are not described in the current configuration.

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

A. Prometheus

B. Loki

C. MySQL

D. Graphite



### 3. 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

Configuring Prometheus to monitor itself

Prometheus collects metrics from *targets* by scraping metrics HTTP endpoints. Since Prometheus exposes data in the same manner about itself, it can also scrape and monitor its own health.

## http\_port

The port to bind to, defaults to **3000**.

### 4. 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**

The last block, `scrape_configs`, controls what resources Prometheus monitors. Since Prometheus also exposes data about itself as an HTTP endpoint it can scrape and monitor its own health. In the default configuration there is a single job, called `prometheus`, which scrapes the time series data exposed by the Prometheus server. The job contains a single, statically configured, target, the `localhost` on port `9090`. Prometheus expects metrics to be available on targets on a path of `/metrics`. So this default job is scraping via the URL: `http://localhost:9090/metrics`.

### 5. What is a Kubernetes volume?

- A. The software within an OS that controls capacity allocation for nodes
- B. A directory for the data accessible to containers in a pod
- C. Layering software that puts apps into compartments for easier deployment
- D. Code that enables two software programs to communicate

At its core, a volume is just a directory, possibly with some data in it, which is accessible to the containers in a pod. How that directory comes to be, the medium that backs it, and the contents of it are determined by the particular volume type used.

## Interview/Certification Questions

20m

1. You own a MySQL RDS instance in AWS Region us-east-1. The instance has a Multi-AZ instance in another availability zone for high availability. As business grows, there are more and more clients coming from Europe (eu-west-2) and most of the database workload is read-only. What is the proper way to reduce the load on the source RDS instance?

- A. Create a snapshot of the instance and launch a new instance in eu-west-2.
- B. Promote the Multi-AZ instance to be a Read Replica and move the instance to eu-west-2 region.
- C. Configure a read-only Multi-AZ instance in eu-west-2 as Read Replicas cannot span across regions.
- D. Create a Read Replica in the AWS Region eu-west-2.

Read Replica should be used to share the read workload of the source DB instance. Read Replica can also be configured in a different AWS region. Refer to [https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/USER\\_ReadRepl.html](https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/USER_ReadRepl.html).

2. Your development team has just finished developing an application on AWS. This application is created in .NET and is hosted on an EC2 instance. The application currently accesses a DynamoDB table and is now going to be deployed to production. Which of the following is the ideal and most secure way for the application to access the DynamoDB table?

- A. Pass API credentials to the instance using instance user data.
- B. Store API credentials as an object in Amazon S3.
- C. Embed the API credentials into your JAR files.
- D. Assign an IAM role to the EC2 Instances

The AWS Documentation mentions the following:

- You can use roles to delegate access to users, applications, or services that don't normally have access to your AWS resources.
- It is not a best practice to use IAM credentials for any production based application. It is always a good practice to use IAM Roles.

For more information on IAM Roles, please visit the following URL:

- [https://docs.aws.amazon.com/IAM/latest/UserGuide/id\\_roles.html](https://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles.html)

**3. You have an application that has been dockerized. You plan to deploy the application in an AWS ECS cluster. As the application gets configuration files from an S3 bucket, the ECS containers should have the AmazonS3ReadOnlyAccess permission. What is the correct method to configure the IAM permission?**

- A. Add an environment to the ECS cluster configuration
- B. Add the AmazonS3ReadOnlyAccess permission to the ECS cluster
- C. Modify the user data of ECS instances to assume a role
- D. Attach the AmazonS3ReadOnlyAccess policy to the IAM role when creating the ECS cluster**

ECS containers have access to permissions that are supplied to the container instance IAM role. Details please check the ECS documentation in [https://docs.aws.amazon.com/AmazonECS/latest/developerguide/instance\\_IAM\\_role.html](https://docs.aws.amazon.com/AmazonECS/latest/developerguide/instance_IAM_role.html).

- **Option A is incorrect:** Because ECS cluster uses the container instance IAM role instead of environment variables to control its permissions.
- **Option B is incorrect:** Because the IAM entity that creates the ECS cluster does not pass its permissions to the ECS cluster. You need to configure an IAM role and attach it to the ECS cluster.
- **Option C is incorrect:** This is not the correct method to configure IAM permissions for an ECS cluster.
- **Option D is CORRECT:** After the AmazonS3ReadOnlyAccess policy is attached to the IAM role, the ECS instances can use the role to get objects from S3. When launching an ECS cluster, you can associate the container instance role as follows:

**4. What is "idempotency"?**



**5. How to Terraform work?**

Terraform generates an execution plan describing what it will do to reach the desired state, and then executes it to build the described infrastructure. As the configuration changes, Terraform is able to determine what changed and create incremental execution plans which can be applied.

## Video of the Week

- [Terraform Explained](#)

Bir metodun bir defa çağrıldığında alınan sonuç ile birden fazla kez çağrıldığında alınan sonuç aynı ise bu bir idempotent metottur.

Bunu örnek vererek açıklayalım;

```
public void a(){
    i = 50;
}
```

## Retro Meeting on a personal and team

Ask the questions below:

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

```
public void b(){
    i = i + 1;
}
```

"a" metodu bir kez çağrıldığında "i" değişkeninin değeri 50 olacaktır. Biz bir kez daha çağrıldığında sonuç değişmeyecektir.

## Coding Challenge

- [Fibonacci](#)

"b" metodu bir kez çağrıldığında "i" değişkeninin değeri kaç ise bir fazlası olacaktır. Örneğin "i" nin ilk değeri 20 ise ilk kez çağırıldığında değeri 21 olacaktır. Bir kez daha çağırırsak "i" nin değeri 22 olacaktır.

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

## Closing

5m

-Next week's plan

-QA Session

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