

### **SCHOOL OF INFOCOMM TECHNOLOGY**

Diploma in DS, IT, FI, CSF

**Cloud Architecture and Technologies (CAT)**

**April 2022 Semester**

**Assignment 1**

**20% of CAT Module – (Individual 100%)**

**09 May – 22 May 2022 (Weeks 4 & 5)**

**Deadline for submission:**

**SOFTCOPY:** Submit in BrightSpace by 22 May 2022, 23:59

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| Name: | Chong Xin Le |
| Student ID: | S10221973 |

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# Network Diagram

Graphical user interface, application

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# Explanation of Network Diagram

The AWS cloud is used to create the VPC. When the AWS cloud region is created, we also get multiple availability zones. The above diagram shows 2 availability zones. VPC scope is region level that means when you create a VPC you can leverage any of the availability zones to create your EC2 instances.

Inside, availability zone 1 contains a public subnet and availability zone 2 contains a private subnet. The subnet is necessary to launch the ec2 instance. The EC2 instance in the private subnet means that nobody from the internet can reach the EC2 and neither the EC2 instances can go out to fetch data from the internet. EC2 also known as Amazon Elastic Compute Cloud is a web service that provides secure, resizable compute capacity in the cloud.

Autoscaling is enabled for EC2 meaning you can provision based on actual demand rather than on estimated demand. Auto scaling can also drop EC2 instances that are not responding and replace them with newly spun up healthy version. This functionality works across multiple availability zones within a region and can help increase resiliency against natural disasters. Auto scaling can also ensure that you have at least one EC2 in one or both your availability zones always running.

For the subnet to connect with the internet, the internet gateway is attached to the VPC as shown in the network diagram.

The VPC endpoint is attached to the VPC, this is so the S3 and DynamoDB can be reached through the VPC endpoint. S3 (Simple Storage Service) provides object storage through a web service interface while DynamoDB is a fully managed NoSQL database service that offers built-in security, backup and restores, and in-memory caching

Internet gateway is a component that allows communication between the VPC and the internet. It is important because it enables inbound and outbound access to the internet

Below a diagram showing S3 auto redundancy, whereby S3 redundantly stores data across multiple AWS facilities within the region. This increases resiliency which can be used for backup and disaster recovery.

A picture containing text, screenshot

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# Screenshot of the NoSQL database

Graphical user interface, text, application, email

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# Video of ec2 showing auto-scaling of servers under network load

Graphical user interface

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