

## Introduction

This piece of work was focus on the requirements and configuration needs of a Cloud Computing System that provides a range of modern services and applications which is AWS.

The student constructed a Cloud-based Computing System using cloud computing technical and management tools, which delivers services that must be designed, built, maintained, analysed, and debated.

This report will be separated into 2 main parts Task 1 and Task 2 where in Task 1 there is a sub-section.

### Task 1

The implementation of a cloud system using the Amazon Web Service

- Getting Amazon Web Service instances up and running
- The creation of a load balancer for the cloud system
- Monitoring with a cloud monitoring solution designed for the industry
- Using an industrial cloud storage service tool, create a cloud database

Deploy a web Application into the Cloud Environment

### Task 2

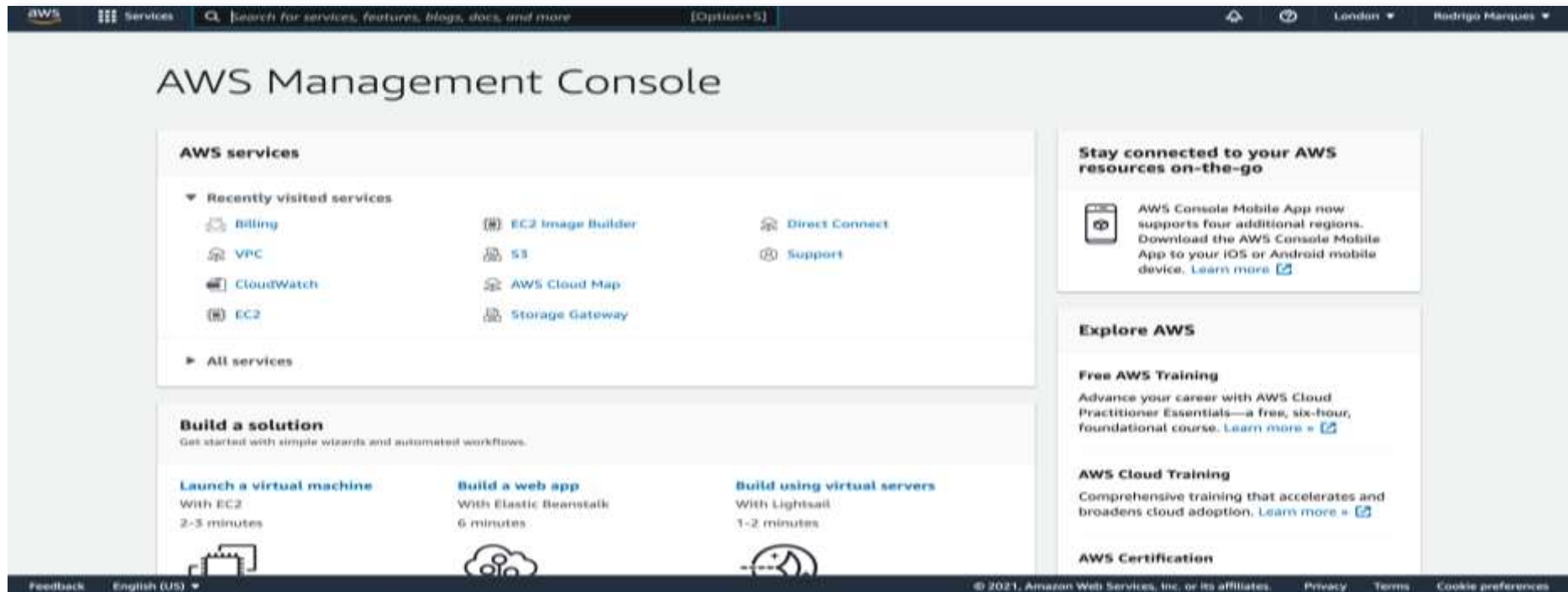
A Topic of my choice which was to discuss the difference between AWS lightsail vs beanstalk vs TCO and support my work with a case study.

# The Construction and Development of a Cloud Computing System using AWS.

## **Task 1**

## Task 1a

- Each student must register to the European Amazon Cloud.



- Each student has to show/prove in all of Amazon's European Regions.

Rodrigo Marques – 21906416

## CO654 Cloud Computing

AWS			Services		Search for services, features, blogs, docs, and more		[Option+S]				Global		Rodrigo Marques	




## VPC – LONDON:

vpc-04aa588d2b08e5e24 / My CW VPC

Actions

Details

Info

VPC ID	State	DNS hostnames	DNS resolution
 vpc-04aa588d2b08e5e24	 Available	Disabled	Enabled
Tenancy	DHCP options set	Main route table	Main network ACL
Default	<a href="#">dopt-07320b15f8007e4fd</a>	<a href="#">rtb-0889763a0ff9f6691</a>	<a href="#">acl-02a6100a337c0a3fe</a>
Default VPC	IPv4 CIDR	IPv6 pool	IPv6 CIDR (Network border group)
No	12.0.0.0/16	–	–
Route 53 Resolver DNS Firewall rule groups	Owner ID		
–	 042220924373		


CIDRs

Flow logs

Tags

IPv4 CIDRs

Info

CIDR	Status
12.0.0.0/16	 Associated

## Public-subnet-1 - London

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The screenshot displays the AWS Management Console interface. At the top, the navigation bar includes the AWS logo, a 'Services' menu, a search bar, and the user's profile 'Rodrigo Marques' in the 'eu-west-2' region. The left-hand navigation pane is expanded to 'VIRTUAL PRIVATE CLOUD', with 'Subnets' selected. The main content area shows the details for 'subnet-04591e34571cc195c / public-subnet-1'. The details are organized into a grid of key-value pairs across four columns.

Details			
Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-04591e34571cc195c	arn:aws:ec2:eu-west-2:042220924373:subnet/subnet-04591e34571cc195c	Available	12.0.1.0/24
Available IPv4 addresses	IPv6 CIDR	Availability Zone	Availability Zone ID
250	-	eu-west-2a	euw2-az2
Network border group	VPC	Route table	Network ACL
eu-west-2	vpc-04aa588d2b08e5e24   My CW VPC	rtb-0b6d38cb9b71343fc   mycw public route	acl-02a6100a337c0a3fe
Default subnet	Auto-assign public IPv4 address	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address
No	No	No	No
Customer-owned IPv4 pool	Outpost ID	IPv4 CIDR reservations	IPv6 CIDR reservations
-	-	-	-
IPv6-only	Hostname type	Resource name DNS A record	Resource name DNS AAAA record
No	IP name	Disabled	Disabled
Owner			
042220924373			

The footer of the console shows the URL 'https://eu-west-2.console.aws.amazon.com/vpc/home?region=eu-west-2#', the copyright notice '© 2021, Amazon Web Services, Inc. or its affiliates.', and links for 'Privacy', 'Terms', and 'Cookie preferences'.

Private-subnet-1 - London

Services

Search for services, features, blogs, docs, and more
[Option+S]

London
Rodrigo Marques

New VPC Experience
Tell us what you think

VPC Dashboard
EC2 Global View

Filter by VPC:
Select a VPC

VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways
Egress Only Internet Gateways
Carrier Gateways
DHCP Options Sets
Elastic IPs
Managed Prefix Lists
Endpoints
Endpoint Services
NAT Gateways
Peering Connections

SECURITY
Network ACLs

subnet-0729d77c5491c2fa6 / private-subnet-1
Actions

Details

Subnet ID subnet-0729d77c5491c2fa6	Subnet ARN arn:aws:ec2:eu-west-2:042220924373:subnet/subnet-0729d77c5491c2fa6	State Available	IPv4 CIDR 12.0.2.0/24
Available IPv4 addresses 251	IPv6 CIDR -	Availability Zone eu-west-2a	Availability Zone ID euw2-az2
Network border group eu-west-2	VPC vpc-04aa588d2b08e5e24   My CW VPC	Route table rtb-0889763a0ff9f6691	Network ACL acl-02a6100a337c0a3fe
Default subnet No	Auto-assign public IPv4 address No	Auto-assign IPv6 address No	Auto-assign customer-owned IPv4 address No
Customer-owned IPv4 pool -	Outpost ID -	IPv4 CIDR reservations -	IPv6 CIDR reservations -
IPv6-only No	Hostname type IP name	Resource name DNS A record Disabled	Resource name DNS AAAA record Disabled
Owner 042220924373			

Flow logs

Route table

Network ACL

CIDR reservations

Sharing

Tags

Feedback
English (US)
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Privacy
Terms
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## London Internet Gateway

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The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, a search bar, and the user's name 'Rodrigo Marques' in the 'London' region. The left sidebar contains a 'New VPC Experience' toggle and a list of navigation links under 'VIRTUAL PRIVATE CLOUD' and 'SECURITY'. The main content area displays the details for the Internet Gateway 'igw-07c9218a685828056' in the 'CW London' region. The 'Details' section shows the gateway is 'Attached' to VPC 'vpc-04aa588d2b08e5e24' (My CW VPC) with owner '042220924373'. The 'Tags' section shows a single tag with the key 'Name' and value 'CW PARIS'.

**igw-07c9218a685828056 / CW London**

**Details** [Info](#)

Internet gateway ID	State	VPC ID	Owner
igw-07c9218a685828056	Attached	vpc-04aa588d2b08e5e24   My CW VPC	042220924373

**Tags** [Manage tags](#)

Search tags

Key	Value
Name	CW PARIS

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Route Tables - London



Services

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[Option+S]

London

Rodrigo Marques

New VPC Experience

Tell us what you think

VPC Dashboard

EC2 Global View

Filter by VPC:

Select a VPC

VIRTUAL PRIVATE CLOUD

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

Carrier Gateways

DHCP Options Sets

Elastic IPs

Managed Prefix Lists

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

SECURITY

Network ACLs

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Details

Info

Route table ID

rtb-0b6d38cb9b71343fc

Main

No

Explicit subnet associations

subnet-04591e34571cc195c / public-subnet-1

Edge associations

-

VPC

vpc-04aa588d2b08e5e24 | My CW VPC

Owner ID

042220924373

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (2)

Edit routes

Filter routes

Both

< 1 >

Destination	Target	Status	Propagated
12.0.0.0/16	local	Active	No
0.0.0.0/0	igw-07c9218a685828056	Active	No

Feedback

English (US)

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Instance – London

Rodrigo Marques – 21906416

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The screenshot displays the AWS Management Console interface for an EC2 instance. The top navigation bar includes the AWS logo, a search bar, and the user's name 'Rodrigo Marques' in the London region. The left sidebar contains a navigation menu with options like 'EC2 Dashboard', 'Instances', 'Events', 'Tags', 'Limits', 'Images', and 'Elastic Block Store'. The main content area is titled 'Instance summary for i-0d1acffbd06846ab8 (Instance)' and shows various details for the instance, including its ID, public IPv4 address, instance state (Running), and instance type (t2.micro). Below the summary, there are tabs for 'Details', 'Security', 'Networking', 'Storage', 'Status checks', 'Monitoring', and 'Tags'. The 'Details' tab is selected, showing 'Instance details' such as the platform (Amazon Linux), AMI ID, and monitoring status.

**Instance summary for i-0d1acffbd06846ab8 (Instance)** [Info](#)

Updated less than a minute ago

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0d1acffbd06846ab8 (Instance)	18.133.235.146   <a href="#">open address</a>	12.0.1.237
IPv6 address	Instance state	Public IPv4 DNS
-	Running	-
Hostname type	Private IP DNS name (IPv4 only)	Answer private resource DNS name
IP name: ip-12-0-1-237.eu-west-2.compute.internal	ip-12-0-1-237.eu-west-2.compute.internal	IPv4 (A)
Instance type	Elastic IP addresses	VPC ID
t2.micro	-	vpc-04aa588d2b08e5e24 (My CW VPC) <a href="#">↗</a>
AWS Compute Optimizer finding	IAM Role	Subnet ID
Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a> <a href="#">↗</a>	-	subnet-04591e34571cc195c (public-subnet-1) <a href="#">↗</a>

**Details** | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ **Instance details** [Info](#)

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-0d37e07bd4ff37148	detailed
Platform details	AMI name	Termination protection
Linux x86_64	ami-0d37e07bd4ff37148	Disabled

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aws

Services

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[Option+5]

London

Rodrigo Marques

New EC2 Experience

Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

Instance details

Info

Platform

Amazon Linux (Inferred)

Platform details

Linux/UNIX

Launch time

Fri Dec 31 2021 01:51:43 GMT+0000 (Hora de Greenwich) (about 11 hours)

Stop-hibernate behavior

disabled

State transition reason

-

State transition message

-

Owner

042220924373

Use RBN as guest OS hostname

Disabled

Host and placement group

Info

AMI ID

ami-0d37e07bd4ff37148

AMI name

amzn2-ami-kernel-5.10-hvm-2.0.20211201.0-x86\_64-gp2

AMI location

amazon/amzn2-ami-kernel-5.10-hvm-2.0.20211201.0-x86\_64-gp2

AMI Launch index

0

Credit specification

standard

Usage operation

RunInstances

Enclaves Support

-

Answer RBN DNS hostname IPv4

Enabled

Monitoring

detailed

Termination protection

Disabled

Lifecycle

normal

Key pair name

MycwKey

Kernel ID

-

RAM disk ID

-

Boot mode

-

Feedback

English (US)

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Terms


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## Firewall – MyRule

 Services  [Option+S]   London  Rodrigo Marques

 New EC2 Experience  
Tell us what you think

EC2 Dashboard

EC2 Global View




Events

Tags

Limits

▼ Instances

Security Groups (1/3) [Info](#)

 Actions  Export security groups to CSV  [Create security group](#)

☒

Name

▼

☐

Security group ID

▼

☐

Security group name

▼

☐

VPC ID

▼




☐

Description

▼

☐

Owner

<input checked="" type="checkbox"/>	MyRule	sg-0a3e64adca49cf587	public-lb	vpc-04aa588d2b08e5e24 	public lb	04222092
<input type="checkbox"/>	-	sg-0a614100edb34c67e	default	vpc-01e4502fea16102ce 	default VPC security gr...	04222092
<input type="checkbox"/>	-	sg-0fee8ff23b23b6c96	default	vpc-04aa588d2b08e5e24 	default VPC security gr...	04222092

## **What is the difference between a private and a public IP address?**

A public IP address is an internet-accessible IP address that is globally unique to a certain computing device, such as a phone, tablet, or desktop computer.

Private IP addresses, on the other hand, are used to provide computers with a private area. For example, if you have numerous computers in one house or workplace, the router's DHCP protocol can provide you with a private IP address.

The Internet Assigned Numbers Authority is the industry body in charge of registering IP address ranges for organisations and Internet service providers, allowing them to freely issue private IP numbers.

Public DNS/IP: It is assigned from a pool of accessible IP addresses and is required to connect to your EC2 instance from anywhere on the planet. Private IP: It is assigned based on the vpc/subnet in which EC2 is configured. Every subnet has a set of IP addresses, one of which is assigned to the newly started EC2.

## **Private and Public DNS**

A public DNS keeps track of publicly accessible domain names that may be accessed from any device with internet connectivity. Private DNS is a service that keeps track of internal websites behind a company's firewall.

The majority of individuals are familiar with public DNS. Your ISP is usually the one that provides them to your company. A public DNS keeps track of publicly accessible domain names that may be accessed from any device with internet connectivity.

Private DNS is a service that keeps track of internal websites behind a company's firewall. Employees can access internal sites and services using the private DNS instead of remembering IP addresses.

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## Running Zones and Launching Times

### London – Launch Time

The screenshot shows the AWS Management Console interface for an EC2 instance. The top navigation bar includes the AWS logo, 'Services', a search bar, and the region 'London' with the user 'Rodrigo Marques'. The left sidebar contains navigation links for 'New EC2 Experience', 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Tags', 'Limits', 'Instances', 'Images', 'Elastic Block Store', and 'Snapshots'. The main content area displays the details of an EC2 instance named 't2.micro'. The 'Security' tab is selected, showing 'Security details' and 'Inbound rules'. The 'Launch time' is 'Fri Dec 31 2021 01:51:43 GMT+0000 (Hora de Greenwich)'. The 'Inbound rules' table lists three rules for the 'public-lb' security group.

Security group rule ID	Port range	Protocol	Source	Security groups
sgr-071141cece688ec20	22	TCP	0.0.0.0/0	public-lb
sgr-0a07be79810fd1f43	80	TCP	::/0	public-lb
sgr-08514b5cd58db6b9b	80	TCP	0.0.0.0/0	public-lb

## Available Zone

aws Services Search for services, features, blogs, docs, and more [Option+S] London Rodrigo Marques

New EC2 Experience Tell us what you think

EC2 Dashboard  
EC2 Global View  
Events

Instances (1) Info

Search

Connect Instance state Actions Launch instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
Instance	i-0d1acffbd06846ab8	Running	t2.micro	2/2 checks passed	1 alarms +	eu-west-2a

## Ireland – VPC

New VPC Experience Tell us what you think

VPC Dashboard  
EC2 Global View New

Filter by VPC:  
Select a VPC

VIRTUAL PRIVATE CLOUD

Your VPCs  
Subnets  
Route Tables New  
Internet Gateways  
Egress Only Internet Gateways  
DHCP Options Sets  
Elastic IPs  
Managed Prefix Lists  
Endpoints  
Endpoint Services  
NAT Gateways  
Peering Connections

SECURITY  
Network ACLs  
Security Groups

vpc-07b48d6e6b48eae34 / MYCWVPC-Ireland

Actions

Details Info

VPC ID vpc-07b48d6e6b48eae34	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP options set dopt-0de416a7c5f5d07a8	Main route table rtb-03624f270b36fa8dc	Main network ACL acl-02a41aa978973dd63
Default VPC No	IPv4 CIDR 12.0.0.0/16	IPv6 pool -	IPv6 CIDR -
Route 53 Resolver DNS Firewall rule groups -	Owner ID 042220924373		

CIDRs Flow logs Tags

IPv4 CIDRs Info

CIDR	Status
12.0.0.0/16	Associated



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## Ireland – Public-subnet-2

The screenshot displays the AWS Management Console interface for a specific subnet. The top navigation bar includes the AWS logo, a search bar, and the user's name 'Rodrigo Marques' in the Ireland region. The left-hand navigation pane shows the 'VIRTUAL PRIVATE CLOUD' section expanded, with 'Subnets' selected. The main content area is titled 'subnet-0e70bf881517d4a02 / public-subnet-2' and contains a 'Details' tab. Below this, a table lists various subnet attributes and their values.

Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-0e70bf881517d4a02	arn:aws:ec2:eu-west-1:042220924373:subnet/subnet-0e70bf881517d4a02	Available	12.0.1.0/24
Available IPv4 addresses	IPv6 CIDR	Availability Zone	Availability Zone ID
250	-	eu-west-1a	euw1-az2
VPC	Route table	Network ACL	Default subnet
vpc-07b48d6e5b48eae34   MYCWVPC-Ireland	rtb-02e921875549e32f3   route-table-public	acl-02a41aa978973dd63	No
Auto-assign public IPv4 address	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address	Customer-owned IPv4 pool
No	No	No	-
Outpost ID	IPv4 CIDR reservations	IPv6 CIDR reservations	IPv6-only
-	-	-	No
Hostname type	Resource name DNS A record	Resource name DNS AAAA record	Owner
IP name	Disabled	Disabled	042220924373

At the bottom of the details section, there are tabs for 'Flow logs', 'Route table' (which is active), 'Network ACL', 'CIDR reservations', 'Sharing', and 'Tags'.



## Ireland – Private-subnet-2

The screenshot displays the AWS Management Console interface for a private subnet in the Ireland region. The page title is "subnet-067c599fcdf1504bb / private-subnet-2". The left sidebar shows the navigation menu with categories like "VIRTUAL PRIVATE CLOUD" and "SECURITY". The main content area is titled "Details" and contains a table of subnet properties.


Subnet ID	Subnet ARN	State	IPv4 CIDR
subnet-067c599fcdf1504bb	arn:aws:ec2:eu-west-1:042220924373:subnet/subnet-067c599fcdf1504bb	Available	12.0.2.0/24
Available IPv4 addresses		Availability Zone	Availability Zone ID
251		eu-west-1a	euw1-az2
VPC	IPv6 CIDR	Network ACL	Default subnet
vpc-07b48d6e6b48eae34   MYCWVPC-Ireland	-	aci-02a41aa978973dd63	No
Auto-assign public IPv4 address	Route table	Auto-assign customer-owned IPv4 address	Customer-owned IPv4 pool
No	rtb-03624f270b36fa8dc	No	-
Outpost ID	Auto-assign IPv6 address	IPv6 CIDR reservations	IPv6-only
-	No	-	No
Hostname type	IPv4 CIDR reservations	Resource name DNS AAAA record	Owner
IP name	-	Disabled	042220924373
	Resource name DNS A record		
	Disabled		

At the bottom of the details section, there are tabs for "Flow logs", "Route table", "Network ACL", "CIDR reservations", "Sharing", and "Tags". The "Route table" tab is currently selected.

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## Internet Gateway – Ireland

 new VPC experience  
Tell us what you think

VPC Dashboard

EC2 Global View New

Filter by VPC:

**VIRTUAL PRIVATE CLOUD**




- Your VPCs
- Subnets
- Route Tables New
- Internet Gateways**
- Egress Only Internet Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists

VPC > Internet gateways > igw-0dc2b546e21bb4c4b

### igw-0dc2b546e21bb4c4b / cw-gateway


Actions ▾

#### Details Info

Internet gateway ID	State	VPC ID	Owner
 igw-0dc2b546e21bb4c4b	 Attached	vpc-07b48d6e6b48eae34   MYCWVPC-Ireland	 042220924373

#### Tags

Manage tags

< 1 > 

Key	Value
Name	cw-gateway

## Route Table –

 New VPC Experience  
Tell us what you think

Internet Gateways

Egress Only Internet  
Gateways

DHCP Options Sets

Elastic IPs

Managed Prefix Lists

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

### ▼ SECURITY

Network ACLs

Security Groups

### ▼ NETWORK ANALYSIS

Reachability Analyzer

Network Access Analyzer

### ▼ DNS FIREWALL

Rule Groups new

Domain Lists new

### ▼ NETWORK FIREWALL

Firewalls

Firewall Policies

## rtb-02e921875549e32f3 / route-table-public

Actions ▼




 You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer



### Details [info](#)

Route table ID

 rtb-02e921875549e32f3


VPC

[vpc-07b48d6e6b48eae34](#) |  
MYCWVPC-Ireland

Main

 No

Owner ID

 042220924373

Explicit subnet associations

[subnet-0e70bf881517d4a02](#) /  
[public-subnet-2](#)

Edge associations

–

**Routes**

Subnet associations

Edge associations

Route propagation

Tags



### Routes (2)

Edit routes

 Filter routes

Both ▼

< 1 > 

Destination ▼	Target ▼	Status ▼	Propagated ▼
12.0.0.0/16	local	 Active	No
0.0.0.0/0	<a href="#">igw-0dc2b546e21bb4c4b</a>	 Active	No

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## Security Groups – Firewall –

New EC2 Experience  
Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

▼ Instances

Instances New

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances New

Dedicated Hosts

Scheduled Instances

Capacity Reservations

▼ Images

AMIs New

AMI Catalog

▼ Elastic Block Store

Volumes New

### sg-0fa28c0647e6bb063 - MYCWScurityGroup

Actions

Details

Security group name  
MYCWScurityGroup

Security group ID  
sg-0fa28c0647e6bb063

Description  
MYCWScurityGroup

VPC ID  
vpc-07b48d6e6b48eae34

Owner  
042220924373

Inbound rules count  
3 Permission entries

Outbound rules count  
1 Permission entry

Inbound rules

Outbound rules

Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (3)

Filter security group rules

	Name	Security group rule...	IP version	Type	Protocol	Port rang
<input type="checkbox"/>	-	sgr-01a2a28e64c8b358c	IPv4	SSH	TCP	22
<input type="checkbox"/>	-	sgr-07a3a00c64148c9bb	IPv6	HTTP	TCP	80
<input type="checkbox"/>	-	sgr-07936a48ee1744e...	IPv4	HTTP	TCP	80

## MyRule

AMIs New

<input checked="" type="checkbox"/>	MyRule	sg-0fa28c0647e6bb063	MYCWScurityGroup	vpc-07b48d6e6b48eae34	MYCWScurityGroup	0422209;
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## Ireland – Instance

The screenshot displays the AWS Management Console interface for an EC2 instance. The top navigation bar includes the AWS logo, a search bar, and the region 'Ireland' selected. The left sidebar shows the 'Instances' menu expanded, with 'Instances' highlighted. The main content area shows the 'Instance summary for i-05f9f56c53a2f9c8d' with a status of 'Running'. Below the summary, there are tabs for 'Details', 'Security', 'Networking', 'Storage', 'Status checks', 'Monitoring', and 'Tags'. The 'Details' tab is active, showing 'Instance details' with fields for Platform (Amazon Linux), AMI ID (ami-04dd4500af104442f), and AMI name. The bottom of the console shows the URL and copyright information.

**Instance summary for i-05f9f56c53a2f9c8d** Info

Updated less than a minute ago

Instance ID	Public IPv4 address	Private IPv4 addresses
i-05f9f56c53a2f9c8d	34.250.192.89   <a href="#">open address</a>	12.0.1.152
IPv6 address	Instance state	Public IPv4 DNS
–	Running	–
Hostname type	Private IP DNS name (IPv4 only)	Answer private resource DNS name
IP name: ip-12-0-1-152.eu-west-1.compute.internal	ip-12-0-1-152.eu-west-1.compute.internal	IPv4 (A)
Instance type	Elastic IP addresses	VPC ID
t2.micro	–	vpc-07b48d6e6b48eae34 (MYCWVPC-Ireland)
AWS Compute Optimizer finding	IAM Role	Subnet ID
Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>	–	subnet-0e70bf881517d4a02 (public-subnet-2)

**Details** Security Networking Storage Status checks Monitoring Tags

**Instance details** Info

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-04dd4500af104442f	detailed
Platform details	AMI name	Termination protection
		Disabled

<https://eu-west-1.console.aws.amazon.com/ec2/v2/home?region=eu-west-1#> © 2022, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

The screenshot displays the AWS Management Console interface. On the left, a navigation sidebar lists various services and categories: EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (expanded), Images, and Elastic Block Store. The main content area shows the details of an EC2 instance. The instance is in the 'standard' state, owned by '042220924373', and has a boot mode of 'Disabled'. It is associated with a 'Host and placement group' and a 'Capacity reservation'. The instance has a 'Host ID', 'Host resource group name', 'Virtualization type' of 'hvm', and a 'Reservation' of 'r-0aabc431575bfe28b'. It also has a 'Capacity Reservation ID', 'Capacity Reservation setting' of 'open', and an 'Elastic Graphics ID'. The instance is located in the 'Ireland' region, and the user is 'Rodrigo Marques'.

Property	Value
State transition message	standard
Usage operation	RunInstances
Owner	042220924373
ClassicLink	-
Use RBN as guest OS hostname	Disabled
Answer RBN DNS hostname IPv4	Enabled
RAM disk ID	-
Enclaves Support	-
Host ID	-
Host resource group name	-
Virtualization type	hvm
Tenancy	default
Reservation	r-0aabc431575bfe28b
Placement group	-
Partition number	-
Number of vCPUs	1
Capacity Reservation ID	-
Capacity Reservation setting	open
Elastic Graphics ID	-
Elastic inference accelerator ID	-

## Launch Time and Available Zone – Ireland

The screenshot shows the AWS Management Console interface for the Ireland region. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, and Instances. The main content area displays the details of an EC2 instance with the following information:

- IP name:** ip-12-0-1-152.eu-west-1.compute.internal
- Instance type:** t2.micro
- AWS Compute Optimizer finding:** Opt-in to AWS Compute Optimizer for recommendations. | [Learn more](#)
- Elastic IP addresses:** -
- IAM Role:** -
- IPv4 (A):** vpc-07b48d6e6b48eae34 (MYCWVPC-Ireland)
- VPC ID:** vpc-07b48d6e6b48eae34 (MYCWVPC-Ireland)
- Subnet ID:** subnet-0e70bf881517d4a02 (public-subnet-2)

Below the details, there are tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. The Security tab is selected, showing the following details:

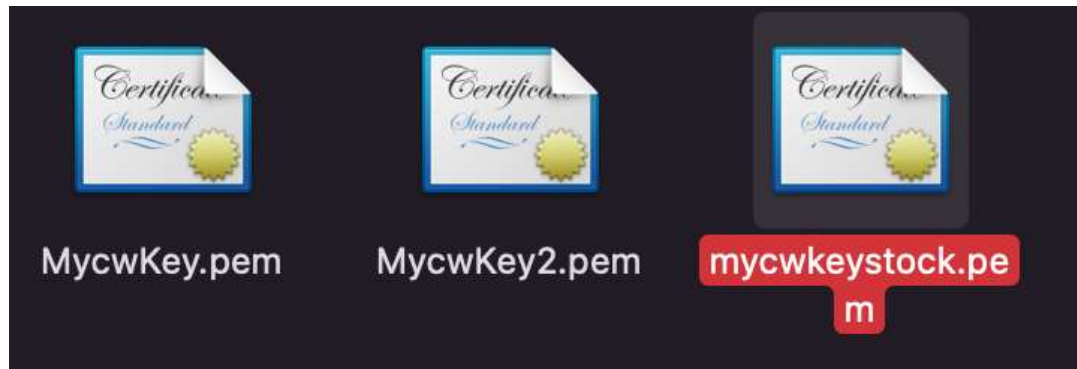
- IAM Role:** -
- Owner ID:** 042220924373
- Launch time:** Fri Dec 31 2021 12:27:59 GMT+0000 (Hora de Greenwich)

The screenshot shows the AWS Management Console interface for the Ireland region, displaying the list of EC2 instances. The top bar includes the AWS logo, Services link, search bar, and user information (Rodrigo Marques). The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, and Limits. The main content area shows the "Instances (1/1)" page with a search bar and a table of instances.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
-	i-05f9f56c53a2f9c8d	Running	t2.micro	2/2 checks passed	No alarms	eu-west-1a	-



- **Create a unique Private Key “MycwKey” for all instances and store it on your PC.**





- Create an Amazon EBS volume, then attach the volume to an instance, and create a snapshot of the created EBS.

aws Services Search for services, features, blogs, docs, and more [Option+S] Ireland Rodrigo Marques

New EC2 Experience Tell us what you think X

EC2 Dashboard  
EC2 Global View  
Events  
Tags  
Limits

▼ Instances  
Instances *New*  
Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances *New*  
Dedicated Hosts  
Scheduled Instances  
Capacity Reservations

▼ Images  
AMIs *New*  
AMI Catalog

▼ Elastic Block Store  
Volumes *New*

EC2 > Snapshots > snap-0cf6832885cef4694

## snap-0cf6832885cef4694

Refresh Delete Actions

### Snapshot settings

Snapshot ID snap-0cf6832885cef4694	Size 100 GiB	Progress Available (100%)	Snapshot status Completed
Owner 042220924373	Volume ID vol-00539d7afff0092ec	Started Sat Jan 01 2022 13:35:21 GMT+0000 (Hora de Greenwich)	Product codes -
Encryption Not encrypted	KMS key ID -	KMS key alias -	KMS key ARN -
Fast snapshot restore -	Description Snap-EBSVolume		

Permissions Storage tier Tags

Snapshot ID snap-0cf6832885cef4694	Storage tier Standard	Archive completed on -	Temporary restore expires on -
Volume ID vol-00539d7afff0092ec	Tiering status -	Last tier change started on -	Tier change progress -

Feedback English (US)

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- **Create AMI of any selected EC2.**

The screenshot shows the AWS Management Console interface for Amazon Machine Images (AMIs). The top navigation bar includes the AWS logo, a search bar, and user information. The left sidebar lists various services, with 'Instances' and 'Images' expanded. The main content area shows a table of AMIs. A modal dialog titled 'Select an AMI' is open, indicating a selection process.

Name	AMI ID	AMI name	Source	Owner
-	ami-02202193e60e26569	AMI-EC2	042220924373/AMI-EC2	042220924373

Select an AMI

Login to your Amazon EC2 instance by using PuTTY. (I used Terminal and FileZilla to connect)

SSH CONNECTION TO London Server:

```
rodrigomarques — ec2-user@ip-12-0-1-237:~ — ssh -i /Applications/Myc...
Last login: Fri Dec 31 12:33:41 on ttys000
[rodrigomarques@Air-de-Rodrigo ~ % ssh -i "/Applications/MycwKey.pem" ec2-user@18]
.133.235.146
Last login: Fri Dec 31 13:19:13 2021 from 90.194.72.32

  _ _ | _ _ | _ _ )
  _ | ( _ _ /   Amazon Linux 2 AMI
  _ _ | \ _ _ | _ _ |

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-12-0-1-237 ~]$ groups
ec2-user adm wheel apache systemd-journal
[ec2-user@ip-12-0-1-237 ~]$
```

SSH CONNECTION To Ireland Server:

```
rodrigomarques — ec2-user@ip-12-0-1-152:~ — ssh -i /Applications/Myc...
[rodrigomarques@Air-de-Rodrigo ~ % ssh -i "/Applications/MycwKey2.pem" ec2-user@3]
4.250.192.89
Last login: Fri Dec 31 13:17:47 2021 from 90.194.72.32

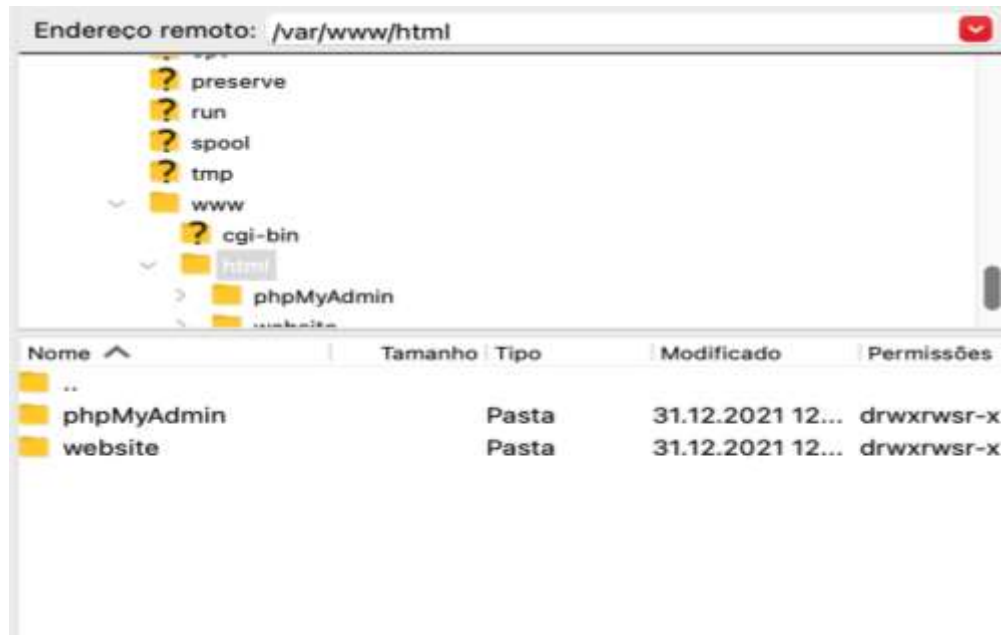
  _ _ | _ _ | _ _ )
  _ | ( _ _ /   Amazon Linux 2 AMI
  _ _ | \ _ _ | _ _ |

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-12-0-1-152 ~]$
```

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## Filezilla



## Instance Creation - Text Box

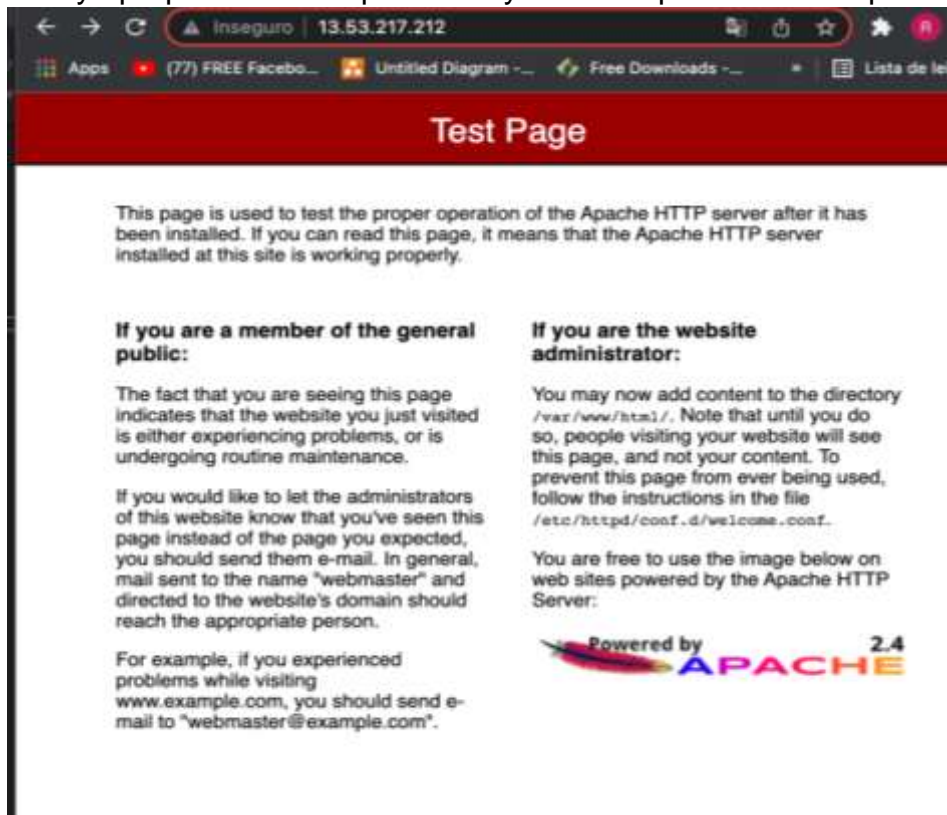
```
#!/bin/bash
# Install Apache Web Server and PHP
yum install -y httpd mysql php
# Download Blank App folder
wget https://superprestige.co.uk/app.zip
unzip app.zip -d /var/www/html/
chmod -R 777 /var/www/html/
chmod -R 777 /var/www/html/app
chkconfig httpd on
service httpd start
```

Setup of Instance – Lamp Server

Setup Lamp Server –

Documentation: <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-lamp-amazon-linux-2.html>

Firstly I prepared the lamp server by install requirements of apache server. Once that was done I had to set permissions.

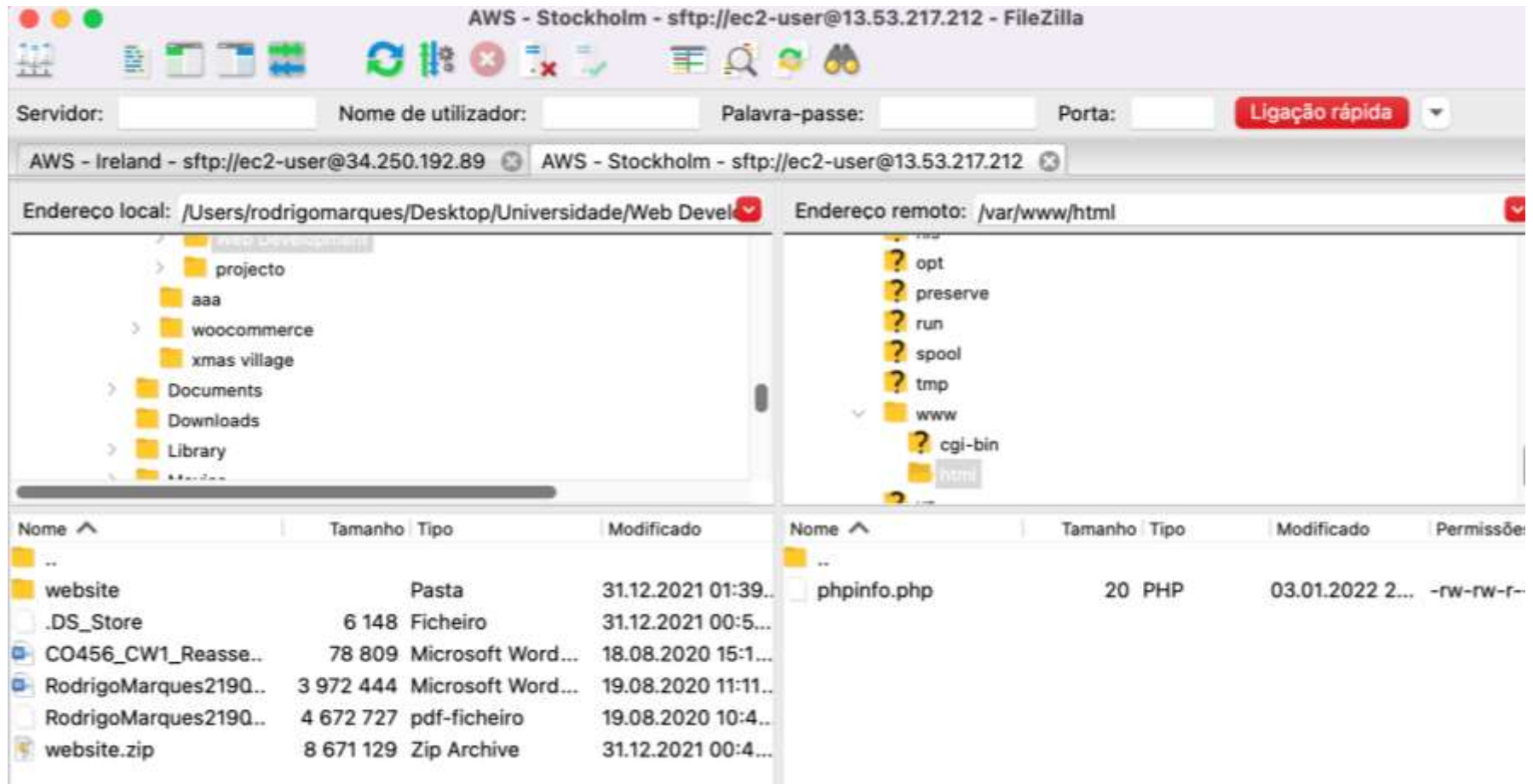


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I ended up creating a php file in the apache document root

```
echo "<?php phpinfo(); ?>" > /var/www/html/phpinfo.php
```



## PHP Version 7.2.34



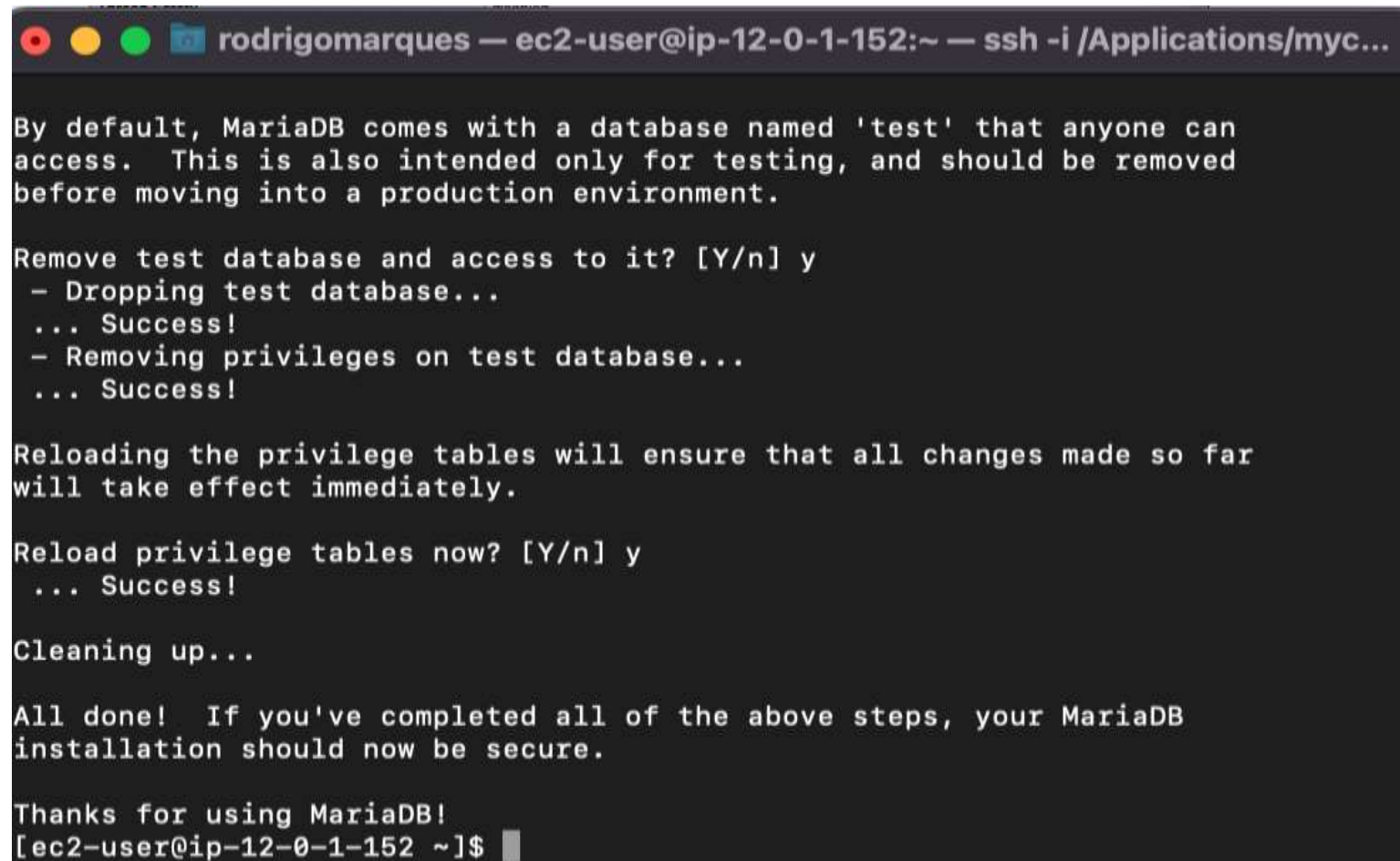
System	Linux ip-12-0-1-152.eu-north-1.compute.internal 5.10.75-79.358.amzn2.x86_64 #1 SMP Thu Nov 4 21:08:30 UTC 2021 x86_64
Build Date	Oct 21 2020 18:04:56
Server API	FPM/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc
Loaded Configuration File	/etc/php.ini
Scan this dir for additional .ini files	/etc/php.d
Additional .ini files parsed	/etc/php.d/20-bz2.ini, /etc/php.d/20-calendar.ini, /etc/php.d/20-ctype.ini, /etc/php.d/20-exif.ini, /etc/php.d/20-fileinfo.ini, /etc/php.d/20-ftp.ini, /etc/php.d/20-gettext.ini, /etc/php.d/20-iconv.ini, /etc/php.d/20-json.ini, /etc/php.d/20-mysqld.ini, /etc/php.d/20-pdo.ini, /etc/php.d/20-phar.ini, /etc/php.d/20-sockets.ini, /etc/php.d/20-sqlite3.ini, /etc/php.d/20-tokenizer.ini, /etc/php.d/20-zip.ini, /etc/php.d/25-curl.ini, /etc/php.d/30-mysqli.ini, /etc/php.d/30-pdo_mysqli.ini, /etc/php.d/30-pdo_sqlite.ini
PHP API	20170718
PHP Extension	20170718
Zend Extension	320170718
Zend Extension Build	API320170718,NTS
PHP Extension Build	API20170718,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled
IPv6 Support	enabled
DTrace Support	available, disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, compress.bzip2, phar, zip
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, sslv3, tls, tlsv1.0, tlsv1.1, tlsv1.2
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, dechunk, bzip2.*, convert.iconv.*



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The next set was to secure the database server

A terminal window with a dark background and light text. The title bar shows three colored circles (red, yellow, green) and a blue icon, followed by the text 'rodrigomarques — ec2-user@ip-12-0-1-152:~ — ssh -i /Applications/myc...'. The terminal content shows the following text:

```
By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] y
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!

Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] y
... Success!

Cleaning up...

All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
[ec2-user@ip-12-0-1-152 ~]$
```



One that was done I installed phpMyAdmin on the server to access and store data



The image shows the phpMyAdmin login page. At the top is the phpMyAdmin logo, which consists of a stylized sailboat icon above the text "phpMyAdmin". Below the logo is the text "Bemvindo ao phpMyAdmin". Underneath this is a section for language selection, labeled "Lingua - Language", with a dropdown menu currently set to "Português - Portuguese". Below the language section is the login section, labeled "Entrada", which contains two input fields: "Utilizador :" (Username) and "Palavra-passe:" (Password). At the bottom right of the login section is a button labeled "Executar" (Execute).

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## Task 1b

### Creation of a Load Balancer

The screenshot displays the AWS Management Console interface for an Elastic Load Balancing Target Group. The top navigation bar includes the AWS logo, a search bar, and the user's name 'Rodrigo Marques' in the 'London' region. The left sidebar shows the 'Instances' section expanded, with options like 'Instances', 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', and 'Capacity Reservations'. The main content area shows the 'Details' tab for a Target Group with the ARN 'arn:aws:elasticloadbalancing:eu-west-2:042220924373:targetgroup/LoadBalancerTargetGroup/d6bc74f6347ee2f3'. The details table lists 'Target type' as 'Instance', 'IP address type' as 'IPv4', 'Protocol : Port' as 'HTTP: 80', 'Protocol version' as 'HTTP1', and 'VPC' as 'vpc-04aa588d2b08e5e24'. Below this, a summary row shows 'Total targets' as 0, 'Healthy' as 0, 'Unhealthy' as 0, 'Unused' as 0, 'Initial' as 0, and 'Draining' as 0. The 'Health checks' tab is selected, showing 'Health check settings' with an 'Edit' button. The settings table includes 'Protocol' (HTTP), 'Path' (/), 'Port' (Traffic port), 'Unhealthy threshold' (3 consecutive health check failures), 'Timeout' (5 seconds), 'Interval' (20 seconds), 'Healthy threshold' (4 consecutive health check successes), and 'Success codes' (200). The footer contains 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc.

arn:aws:elasticloadbalancing:eu-west-2:042220924373:targetgroup/LoadBalancerTargetGroup/d6bc74f6347ee2f3

Details					
Target type	Instance	Protocol : Port	HTTP: 80	Protocol version	HTTP1
IP address type	IPv4	Load balancer	-	VPC	<a href="#">vpc-04aa588d2b08e5e24</a>
Total targets	0	Healthy	0	Unhealthy	0
Unused	0	Initial	0	Draining	0

Targets Monitoring **Health checks** Attributes Tags

Health check settings			
Protocol	Path	Port	Healthy threshold
HTTP	/	Traffic port	4 consecutive health check successes
Unhealthy threshold	Timeout	Interval	Success codes
3 consecutive health check failures	5 seconds	20 seconds	200

- Public DNS Name
- Instance Status Load
- Balancer Status
- Availability Zones
- VPC ID

New EC2 Experience

Tell us what you think

×

EC2 Dashboard

EC2 Global View

Events

Tags

Limits

▼ Instances

Instances New

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances New

Dedicated Hosts

Capacity Reservations

▼ Images

AMIs New

AMI Catalog

▼ Elastic Block Store

Volumes New

Snapshots New

Create Load Balancer

Actions ▼

search : mycwbalancer

Add filter

1 to 1 of 1

Name	DNS name	State	VPC ID	Availability Zones
mycwbalancer	mycwbalancer-163315180.eu-west-2.elb.amazonaws.com	Active	vpc-04aa588d2b08e5e24	eu-west-2a, eu-west-2c

Load balancer: mycwbalancer

Description

Listeners

Monitoring

Integrated services

Tags

Basic Configuration

Name	mycwbalancer
ARN	arn:aws:elasticloadbalancing:eu-west-2:042220924373:loadbalancer/app/mycwbalancer/e73ec0c35de2f0b7
DNS name	mycwbalancer-163315180.eu-west-2.elb.amazonaws.com

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- Hosted Zone ID

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', a search bar, and user information for 'Rodrigo Marques' in the 'London' region. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances, Images, and Elastic Block Store. The main content area is titled 'Create Load Balancer' and shows a table with one entry for 'mycwbalancer'. Below the table, details for a hosted zone are displayed, including the subnet ID, IPv4 address, hosted zone ID, and creation time.

Name	DNS name	State	VPC ID	Availability Zones
mycwbalancer	mycwbalancer-163315180.eu-west-2.elb.amazonaws.com	Active	vpc-04aa588d2b08e5e24	eu-west-2a, eu-west-2c

subnet-073fd6854654e9d57 - eu-west-2c  
IPv4 address: Assigned by AWS  
Edit subnets  
Hosted zone: ZHURVBPSTC4K8  
Creation time: January 1, 2022 at 3:04:32 PM UTC

Security

A load balancer distributes workloads throughout more than one compute assets, including digital servers.

You can upload and take away compute assets out of your load balancer as your wishes change, without disrupting the general float of requests on your applications. Using a load balancer will increase the supply and fault tolerance of your applications.

You will be able to tack health checks, which reveal the fitness of the compute assets, in order that the burden balancer sends requests simplest to the healthful ones. You also can offload the paintings of encryption and decryption on your load balancer in order that your compute assets can awareness on their major paintings.

### **Advantages:**

- High-performing apps...
- Greater scalability...
- High-availability...
- Safety and security.
- Advanced Monitoring

### **Task 1c**

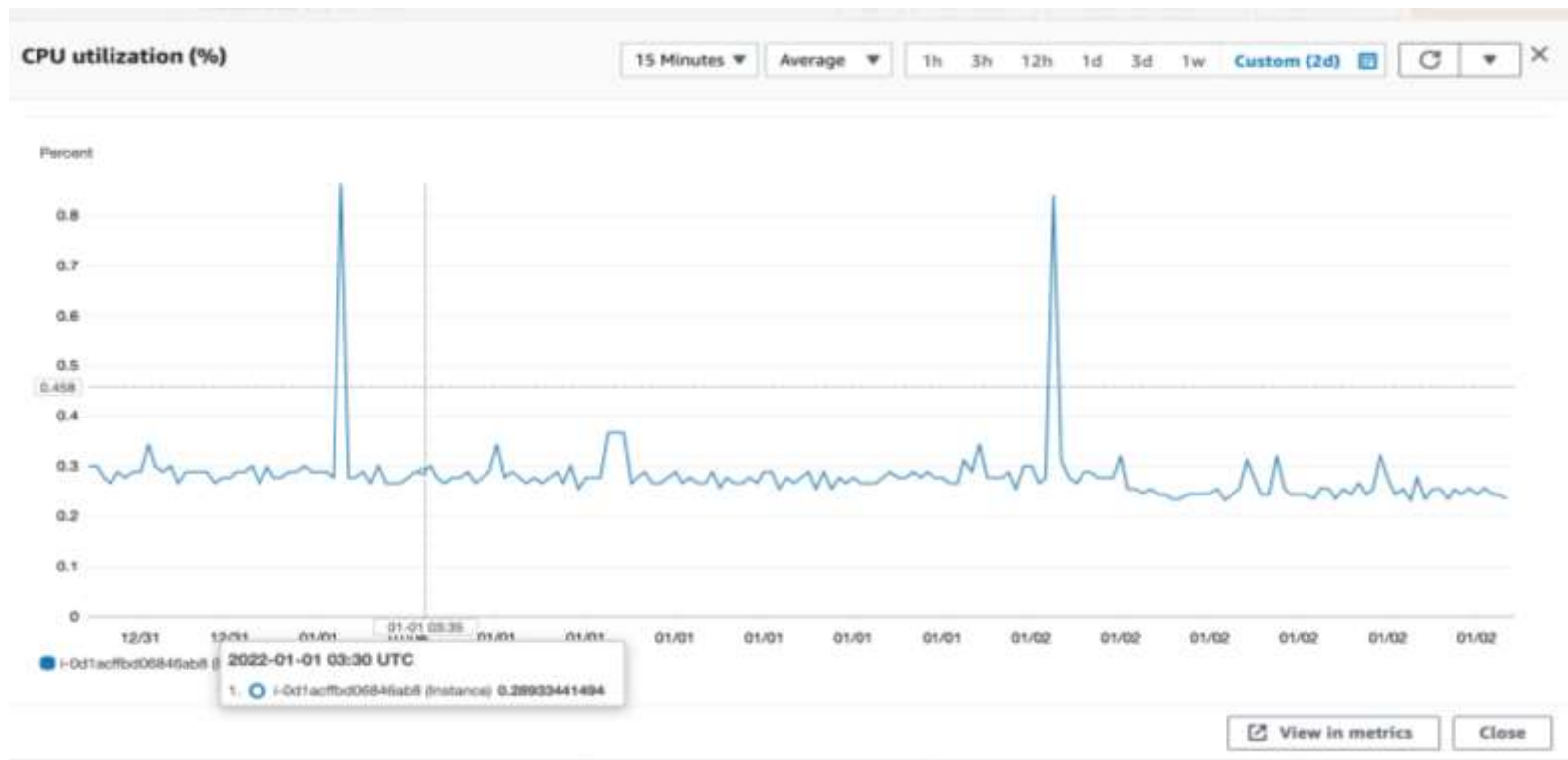
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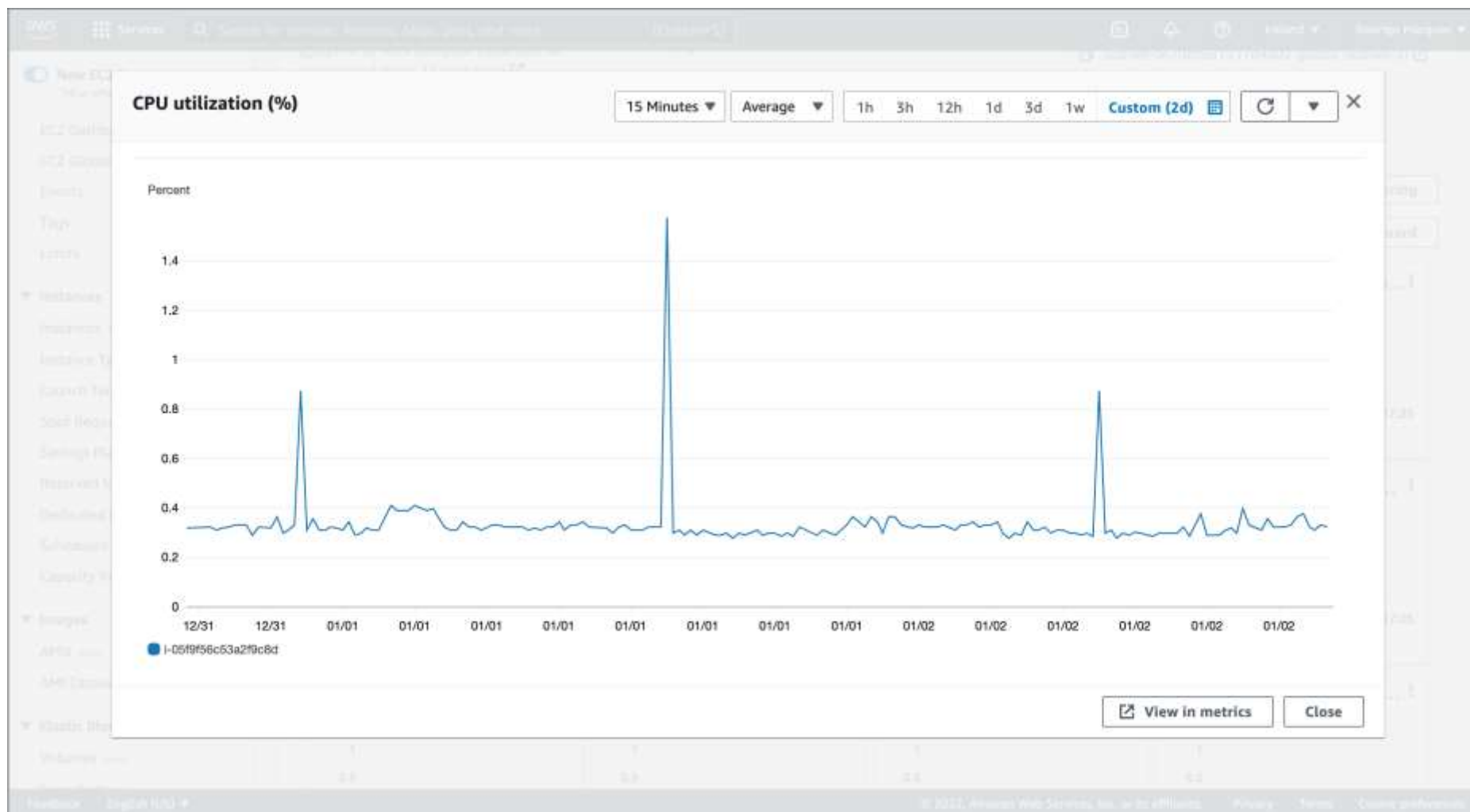
London

- The Percentage of average statistics of CPU utilisation during the first two days of your system setting and for each 15 minutes cycle.

### London CPU Utilization -Instance



Ireland CPU Utilization -Instance

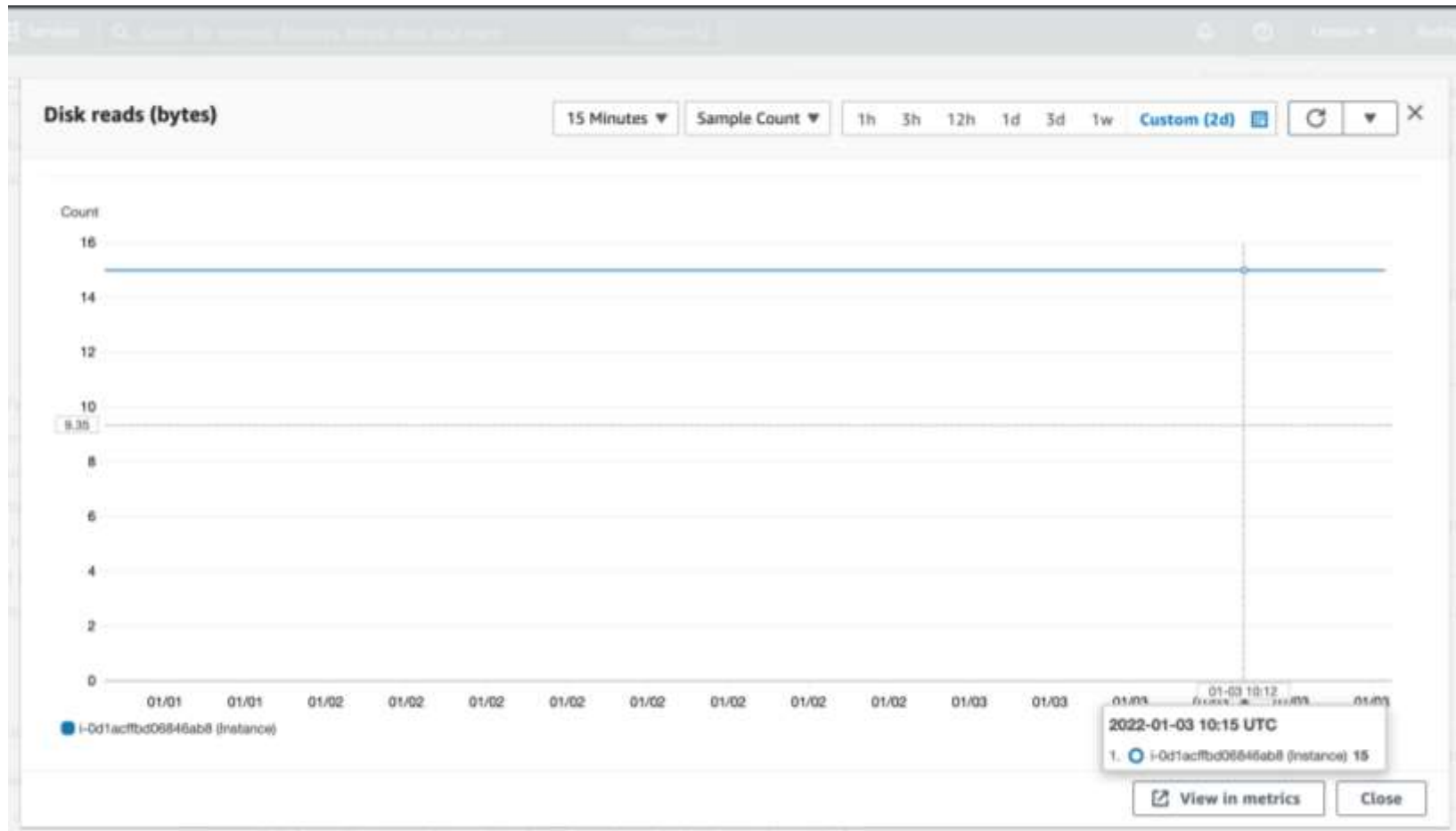


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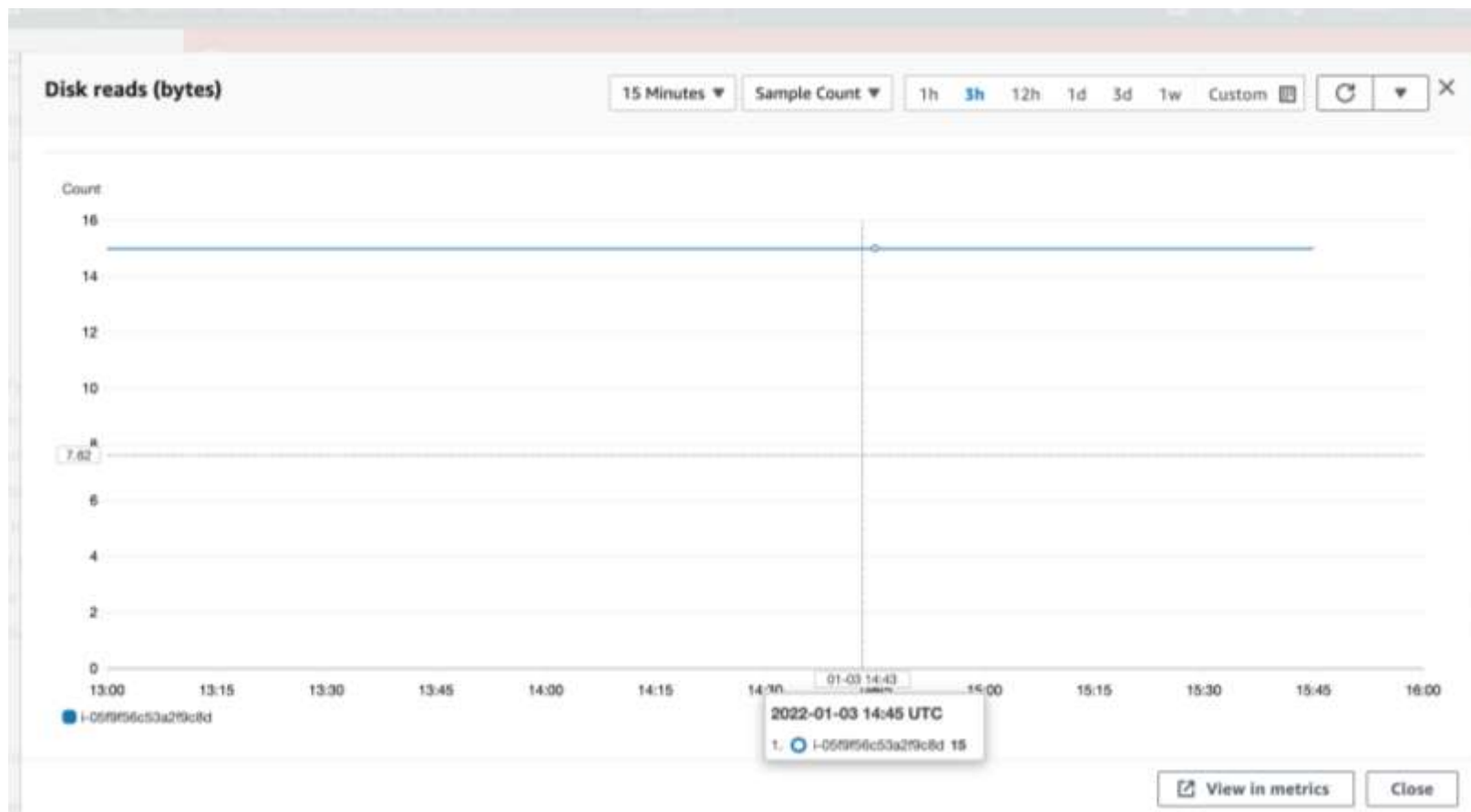
- **How many Bytes of data have been read during the same period?**

London:





## Ireland DiskRead –

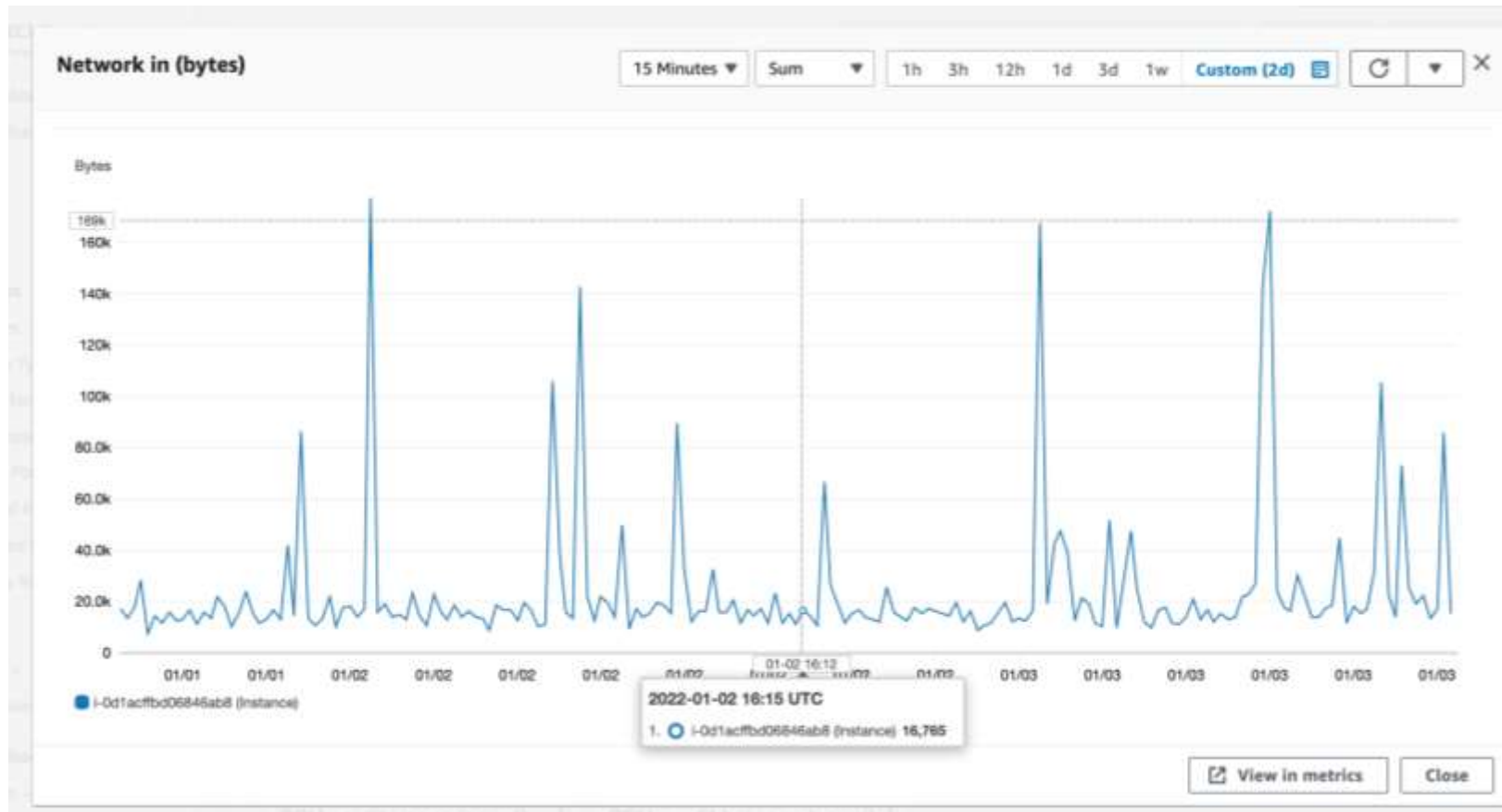


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- **Amount of data that has been transferred via Network during the last two days ONLY.**

London:



## Network out (bytes)

15 Minutes ▼

Sample Count ▼

1h

3h

12h

1d

3d

1w

Custom (2d) 



Count

15.9

14

12

10

8

6

4

2

0

12/31

12/31

01/01

01/01

01/01

01/01

01/01

01/01

01-01 17:48  
01/01

01/01

01/02

01/02


01/02

01/02

01/02

01/02

 i-0d1acffbd06846ab8 (Instance)

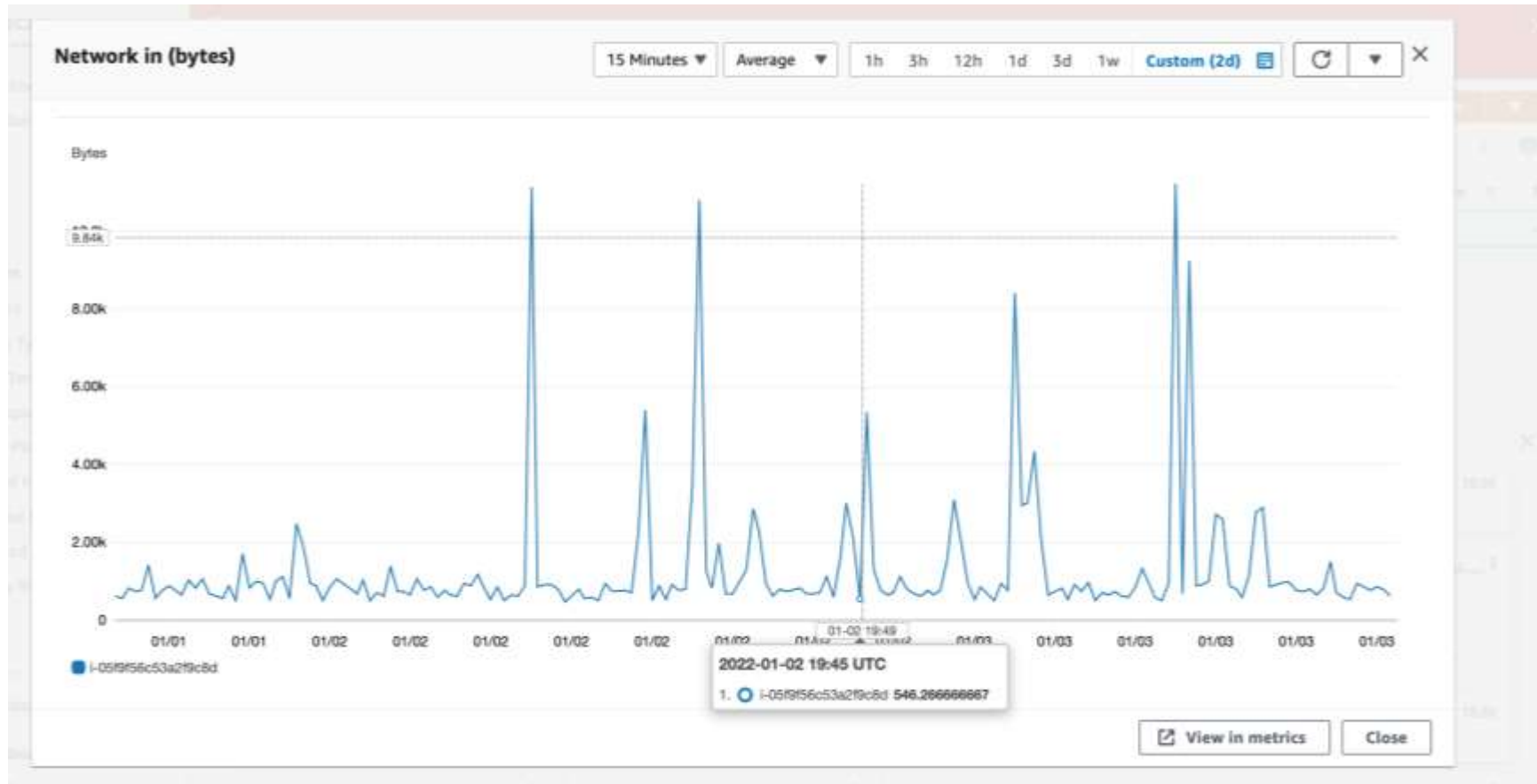
 View in metrics

Close

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Ireland:



## Network out (bytes)

15 Minutes ▾

Sample Count ▾

1h

3h

12h

1d

3d

1w

Custom (2d) 



Count

16

14

12

10.5

10

8

6

4

2

0

12/31 12/31 01/01 01/01 01/01 01/01 01/01

01-01 17:28

01/01

01/02

01/02

01/02

01/02

01/02

01/02

 i-05f9f56c53a2f9c8d

2022-01-01 17:30 UTC

1.  i-05f9f56c53a2f9c8d 15

 View in metrics

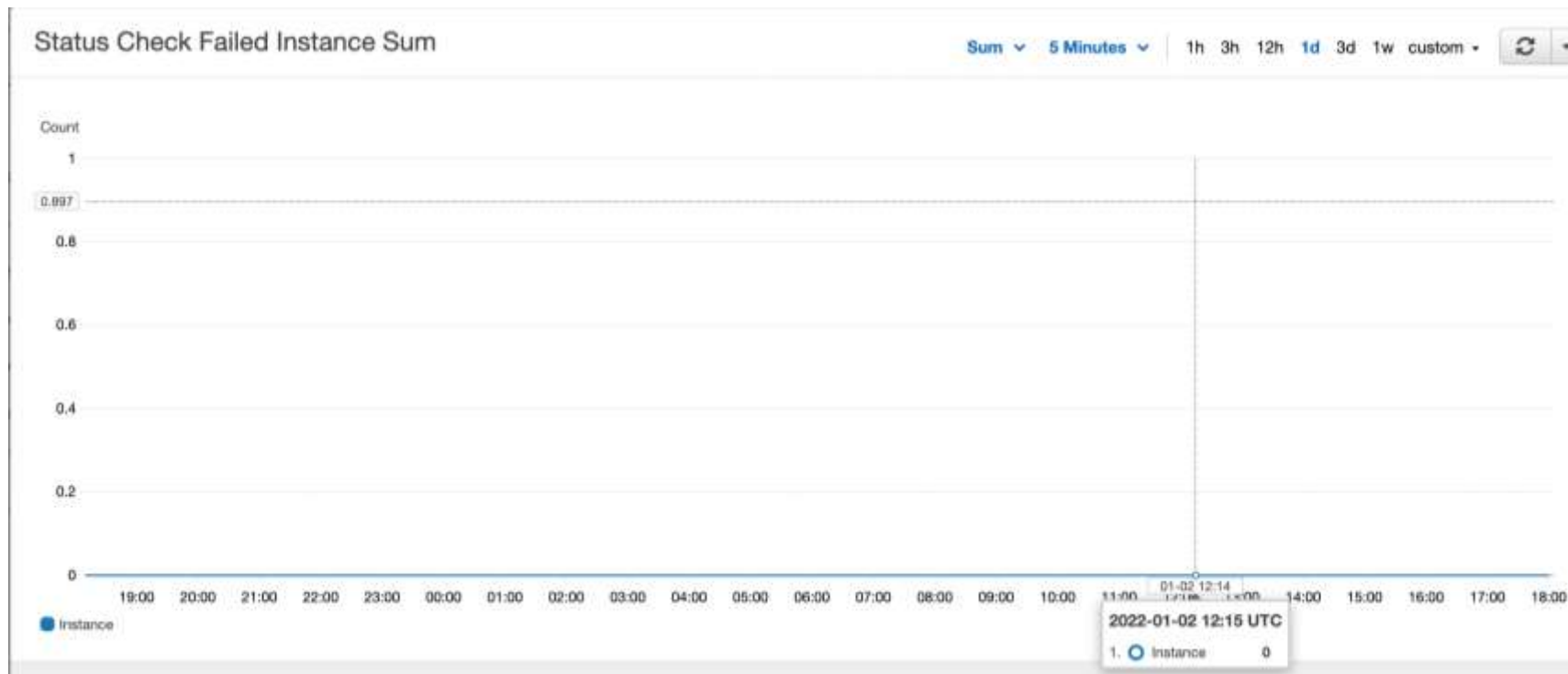
Close

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- **Status of failed instances during the last day. Checks to be shown for every 5 minutes.**

London:

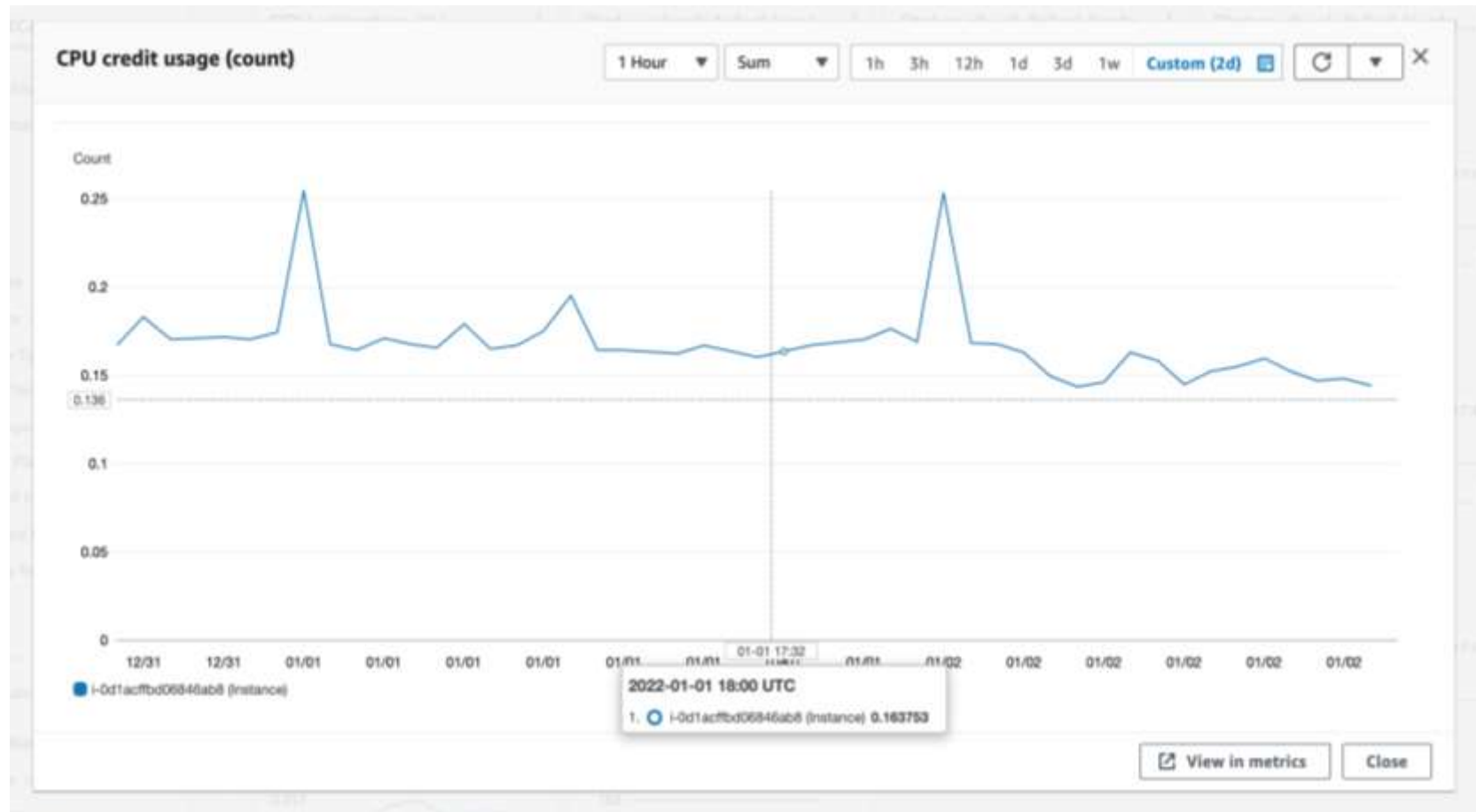


Ireland:



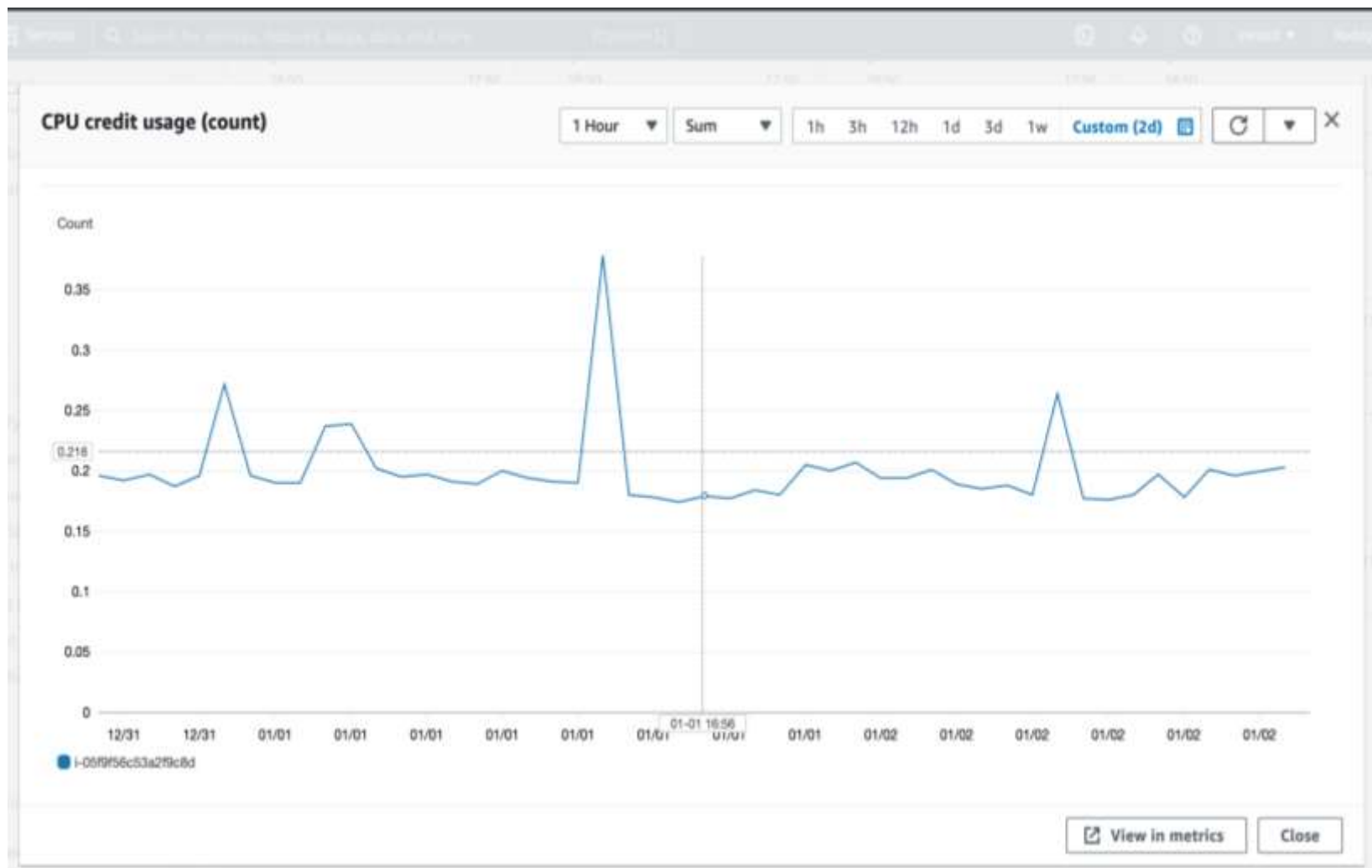
- **The sum of the CPU Credit Usage during two days for every hour.**

**London:**





Ireland:



Task C) Technical Terms

### **CPU Consumption:**

The operating system's process/task scheduler calculates CPU consumption. Indeed, if a process's CPU utilisation is 10%, it means the task is actively executing for 10% of the task scheduler's unit periods; other applications may run in the remaining 90% of CPU time, or the OS may just idle.

Similarly, if overall CPU use for all applications is 10%, this means that no programmes on the system are being performed 90% of the time. The total amount of work handled by a Central Processing Unit is known as CPU usage. It's also used to predict how well a system will operate. Because certain jobs demand a lot of CPU time while others require less, CPU usage might vary depending on the kind and quantity of computing work.

### **Bytes**

A byte is the smallest unit of computing that may represent a letter, number, or typographic sign. For example, and byte can store a string of bits that must be combined into a bigger unit for usage in an application. For example, in a software that displays pictures, a stream of bits can be used to create a visual image.

### **CPU Credit Balance**

The quantity of CPU Credit accessible in your account at any given time is referred to as CPU Credit Balance. You will receive an initial CPU Credit when you create an instance. Every hour, you will automatically receive a specific quantity of CPU credits (this amount depends on the type of instance).

### **Failed Instances**

A system status check failure indicates a problem with the AWS systems that your instance runs on. When a problem with an underlying host impacts your production, you can stop and start your instance to migrate from the current underlying host.

## **Task D)**

A public cloud storage resource provided in Amazon Web Services' (AWS) Scalable Storage Platform (S3), an object storage solution, is an Amazon S3 bucket. Amazon S3 buckets are comparable to file folders in that they hold objects that include data and descriptive information.

I have managed to create two folders with names “CWone” and “CWtwo”, each of which contains pictures.

Once the files were uploaded, I created a policy that allow the user to read, download and modify the s3 bucket, and create an IAM user account for one my colleagues to enter the s3 bucket.

- Create two folders with names “CWone” and “CWtwo”, each of which contains pictures. - Upload your course work brief into you bucket.

Upload succeeded  
View details below.

Files and folders

Configuration

Files and folders (7 Total, 1.1 MB)

< 1 >

Name	Folder	Type	Size	Status	Error
<a href="#">Assignment Brief CW1 _ CO654 Cloud Computing _ 2021-22(2).pdf</a>	-	application/pdf	1.0 MB	✔ Succeeded	-
<a href="#">download-1.jpg</a>	CWtwo/	image/jpeg	8.4 KB	✔ Succeeded	-
<a href="#">download-1.jpg</a>	CWOne/	image/jpeg	6.1 KB	✔ Succeeded	-
<a href="#">download-2.jpg</a>	CWtwo/	image/jpeg	5.3 KB	✔ Succeeded	-
<a href="#">download-2.jpg</a>	CWOne/	image/jpeg	4.8 KB	✔ Succeeded	-
<a href="#">download.jpg</a>	CWtwo/	image/jpeg	7.8 KB	✔ Succeeded	-
<a href="#">download.jpg</a>	CWOne/	image/jpeg	6.3 KB	✔ Succeeded	-

Feedback

English (US)

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Privacy

Terms

Cookie preferences

- We're continuing to improve the S3 console to make it faster and easier to use. If you have feedback on the updated experience, choose [Provide feedback](#).

Provide feedback

Amazon S3 > mycw-bucket

mycw-bucket [Info](#)

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (3)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions.  
[Learn more](#)

Copy S3 URI

Copy URL

Download

Open

Delete

Actions ▾

Create folder

Upload

Find objects by prefix

< 1 >

<input type="checkbox"/>	Name ▲	Type ▼	Last modified ▼	Size ▼	Storage class ▼
<input type="checkbox"/>	Assignment Brief CW1 _ CO654 Cloud Computing _ 2021-22(2).pdf	pdf	December 31, 2021, 00:56:43 (UTC+00:00)	1.0 MB	Standard
<input type="checkbox"/>	CWOOne/	Folder	-	-	-
<input type="checkbox"/>	CWtwo/	Folder	-	-	-

</

## Sharing s3 bucket – cross account – Roles

The screenshot shows the AWS IAM console interface. On the left is a navigation menu with options like Dashboard, Access management, Roles, Policies, and more. The main area displays the details of a role named 'CrossAccountS3bucketsharingrole'. Key information includes the Role ARN, Role description (with an 'Edit' link), Instance Profile ARNs, Path, Creation time (2022-01-01 15:38 UTC), Last activity, and Maximum session duration (1 hour). A link is provided for users to switch roles. Below this, there are tabs for Permissions, Trust relationships, Tags, Access Advisor, and Revoke sessions. The 'Permissions' tab is active, showing 'Permissions policies (1 policy applied)'. A button 'Attach policies' is visible, along with an 'Add inline policy' link. A table lists the attached policy 'PolicyBucket' as a 'Managed policy'. Below the table, there are buttons for 'Policy summary', 'JSON', 'Edit policy', and 'Simulate policy'. A search filter is also present. The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc. or its affiliates.

**Role ARN** `arn:aws:iam::042220924373:role/CrossAccountS3bucketsharingrole`

**Role description** [Edit](#)

**Instance Profile ARNs**

**Path** `/`

**Creation time** 2022-01-01 15:38 UTC

**Last activity** Not accessed in the tracking period

**Maximum session duration** 1 hour [Edit](#)

Give this link to users who can switch roles in the console: <https://signin.aws.amazon.com/switchrole?roleName=CrossAccountS3bucketsharingrole&account=042220924373>

**Permissions** | Trust relationships | Tags | Access Advisor | Revoke sessions

▼ Permissions policies (1 policy applied)

[Attach policies](#) [Add inline policy](#)

Policy name	Policy type
PolicyBucket	Managed policy

Policy summary | JSON | Edit policy | Simulate policy

Filter

Service	Access level	Resource	Request condition
Allow (1 of 314 services) <a href="#">Show remaining 313</a>			

Trusted entities:

<https://042220924373.signin.aws.amazon.com/console>

student

Password1234

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### Permissions:

The screenshot displays the AWS IAM console interface. The top navigation bar includes the AWS logo, 'Services', a search bar, and the user's name 'Rodrigo Marques'. The left sidebar shows the 'Identity and Access Management (IAM)' menu with options like Dashboard, Access management, Users, Roles, Policies, and more. The main content area shows the 'Summary' page for a user named 'student'. A blue notification banner at the top right states: 'New feature to generate a policy based on CloudTrail events. AWS uses your CloudTrail events to identify the services and actions used and generate a least privileged policy that you can attach to this user.' Below the notification, the user's details are listed: User ARN (arn:aws:iam::042220924373:user/student), Path (/), and Creation time (2022-01-01 15:52 UTC). The 'Groups (1)' tab is selected, showing a table with one group named 'bucket' and its attached permissions, 'PolicyBucket'. The bottom of the page features a footer with 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc. or its affiliates.

**Identity and Access Management (IAM)**

- Dashboard
- Access management
  - User groups
  - Users**
  - Roles
  - Policies
  - Identity providers
  - Account settings
- Access reports
  - Access analyzer
    - Archive rules
    - Analyzers
    - Settings
  - Credential report
  - Organization activity
  - Service control policies (SCPs)

Q Search IAM

**Summary** Delete user ?

**User ARN** arn:aws:iam::042220924373:user/student ?

**Path** /

**Creation time** 2022-01-01 15:52 UTC

**Permissions** **Groups (1)** **Tags** **Security credentials** **Access Advisor**

**Add user to groups**

Group name	Attached permissions
bucket	PolicyBucket

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Screenshots of Colleague accessing my s3 Bucket:

### Sign in as IAM user

Account ID (12 digits) or account alias

042220924373

IAM user name

student

Password

\*\*\*\*\*

☐ Remember this account

Sign in

[Sign in using root user email](#)

[Forgot password?](#)



English ▼

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The screenshot displays the Amazon S3 console interface in a web browser. The browser's address bar shows the URL `s3.console.aws.amazon.com/s3/home?region=eu-west-2`. The console's left-hand navigation pane lists various S3 features, including Buckets, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, Access analyzer for S3, Storage Lens, and AWS Marketplace for S3. The main content area, titled 'Amazon S3', features an 'Account snapshot' section with a 'View Storage Lens dashboard' button. Below this is the 'Buckets (1)' section, which includes a search bar and a table of buckets. The table contains one entry, 'mycw-bucket', with its creation date listed as 'December 31, 2021, 00:49:38 (UTC+00:00)'. The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc. or its affiliates.

Amazon S3

**Account snapshot**  
Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

[View Storage Lens dashboard](#)

**Buckets (1)** [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

Find buckets by name

Name	AWS Region	Access	Creation date
mycw-bucket			December 31, 2021, 00:49:38 (UTC+00:00)

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### Amazon S3

- Buckets
- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- Access analyzer for S3

Block Public Access settings for this account

Storage Lens

- Dashboards
- AWS Organizations settings

Feature spotlight 3

AWS Marketplace for S3

Amazon S3 > mycw-bucket

## mycw-bucket [Info](#)

Objects Properties Permissions Metrics Management Access Points

### Objects (3)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

[Refresh](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#)

[Upload](#)

☐ Show versions < 1 >

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	<a href="#">Assignment Brief CW1 _ CO654 Cloud Computing _ 2021-22(2).pdf</a>	pdf	December 31, 2021, 00:56:43 (UTC+00:00)	1.0 MB	Standard
<input type="checkbox"/>	<a href="#">CWOne/</a>	Folder	-	-	-
<input type="checkbox"/>	<a href="#">CWtwo/</a>	Folder	-	-	-

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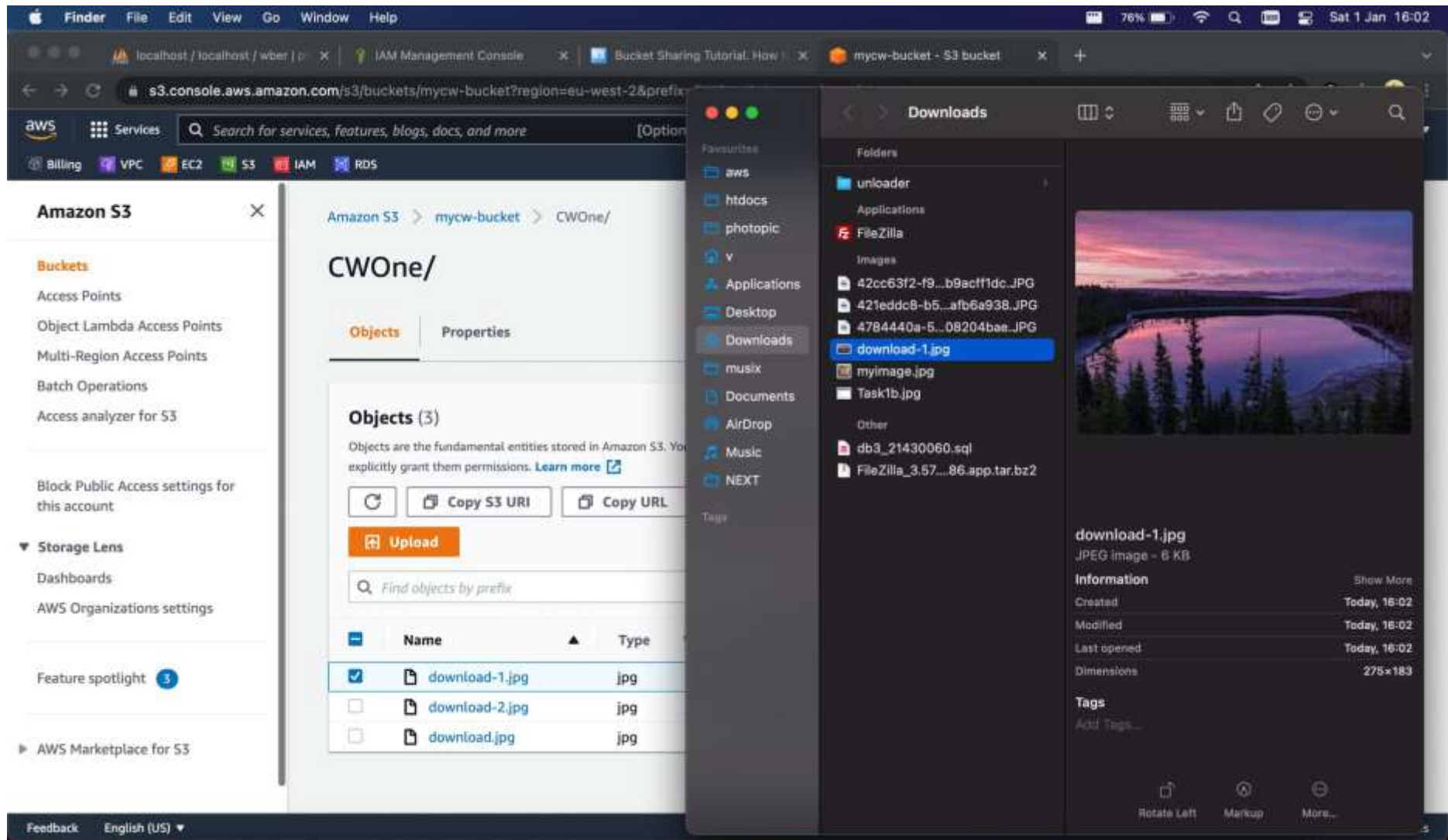
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## CO654 Cloud Computing

The screenshot shows the Amazon S3 console interface in a web browser. The browser's address bar displays the URL: `s3.console.aws.amazon.com/s3/buckets/mycw-bucket?region=eu-west-2&prefix=CWOne/&showversions=false`. The console header includes the AWS logo, a search bar, and navigation links for Billing, VPC, EC2, S3, IAM, and RDS. The left sidebar contains the 'Amazon S3' menu with options like Buckets, Access Points, Object Lambda Access Points, Multi-Region Access Points, Batch Operations, Access analyzer for S3, Storage Lens, Dashboards, AWS Organizations settings, Feature spotlight, and AWS Marketplace for S3. The main content area shows the 'CWOne/' bucket with a 'Copy S3 URI' button. Below the bucket name, there are tabs for 'Objects' and 'Properties'. The 'Objects' tab is active, displaying a list of three objects. Above the list are buttons for 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', and 'Create folder'. An 'Upload' button is also present. A search bar with the placeholder 'Find objects by prefix' and a 'Show versions' toggle are located above the object list. The object list table has columns for Name, Type, Last modified, Size, and Storage class. The first object, 'download-1.jpg', is selected with a checkbox.

	Name	Type	Last modified	Size	Storage class
<input checked="" type="checkbox"/>	download-1.jpg	jpg	December 31, 2021, 00:56:46 (UTC+00:00)	6.1 KB	Standard
<input type="checkbox"/>	download-2.jpg	jpg	December 31, 2021, 00:56:45 (UTC+00:00)	4.8 KB	Standard
<input type="checkbox"/>	download.jpg	jpg	December 31, 2021, 00:56:45 (UTC+00:00)	6.3 KB	Standard

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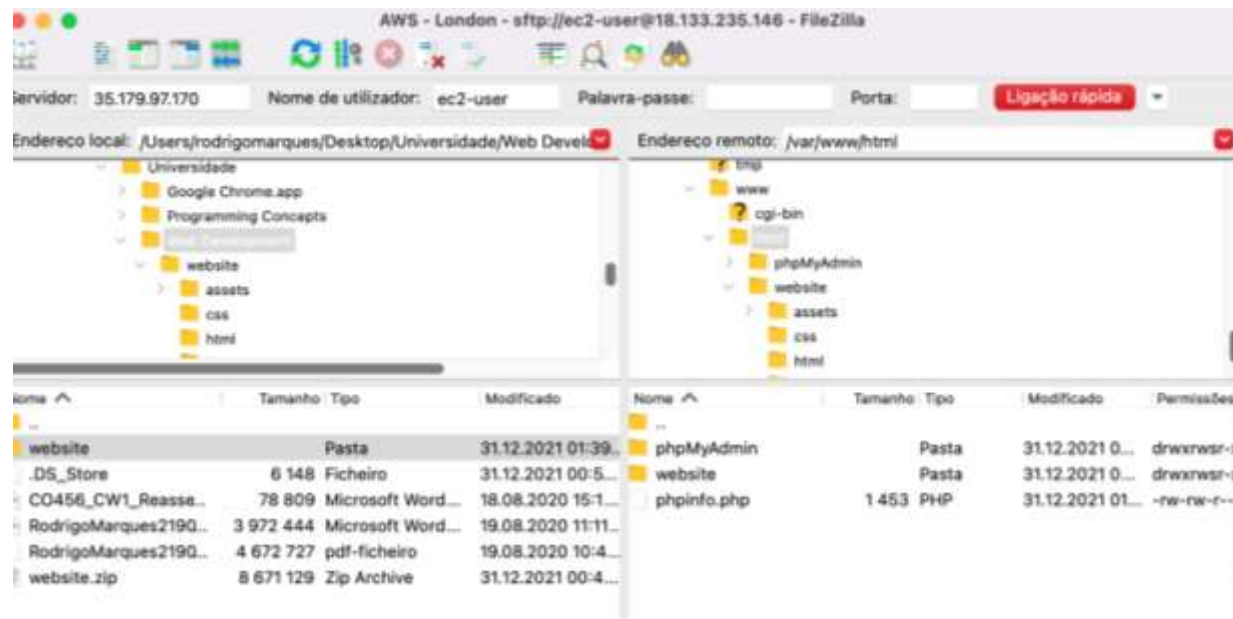
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### Task 1e

- Launch/deploy your application (as example your website, web based application ...etc.) into your cloud system. Then try to access your cloud based application remotely.

#### Files for the website



## Output on the browser



### Index of /website

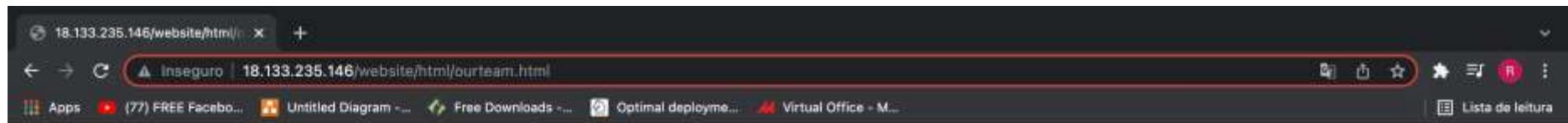
<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
<a href="#">Parent Directory</a>		-	
<a href="#">assets/</a>	2021-12-31 01:57	-	
<a href="#">css/</a>	2021-12-31 01:57	-	
<a href="#">html/</a>	2021-12-31 01:57	-	
<a href="#">js/</a>	2021-12-31 01:57	-	
<a href="#">phpinfo.php</a>	2021-12-31 01:57	20	

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# Hot Beans

TEAM

[HOMEPAGE](#) [ABOUT US](#) [OUR TEAM](#) [JOBS & COURSES](#) [APPLY NOW](#)



## Aaron Joshua - Manager

He is 29 years old and has been part of our team for over 8 years  
He is a senior software engineer and has been part of companies such  
He loves to work as a team and he will help anyone in any way possible



## Sarunas Georgina - Senior Developer

She is 24 years old and has been part of our team for 3 years  
She is a expert on javascript and achieve recently senior and  
loves to work in group.  
She is very passionate and works very hard.

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18.133.235.146/website/html/applynow.html

Hot Beans

APPLY TO JOIN THE TEAM

HOMEPAGE ABOUT US OUR TEAM JOBS & COURSES APPLY NOW

First Name

Your first name..

Last Name

Your last name..

Birth Date

Your Date of birth..

Email address

Your Email address..

Phone Number

Your Phone Number..

Gender

Your Gender..

**Instance London Deployment –**

**<http://18.133.235.146/website>**

**Instance Ireland Deployment**

**<http://34.250.192.89/website/html/homepage.html>**

**Instance StockHolm Deployment**

**<http://13.53.217.212/website/html/homepage.html>**

## Case Study – LightSail – Gourmeat

**Gourmeat**, a Uruguayan meat boutique with US operations in Miami, Florida, was manually managing segregated stocks using Microsoft Excel spreadsheets, but this time-consuming approach was stifling its expansion.

Gourmeat resorted to Amazon Web Services (AWS) and AWS Select Consulting Partner Nub8 to upgrade its data solution. The firm had a new inventory management system up and running in weeks, thanks to Amazon Lightsail, a simple-to-use virtual private server that includes everything you need to construct a web application. The comprehensive cloud-based inventory solution from Gourmeat saves time on inventory management, ensures accurate and secure data, and allows key decision makers in the firm to access data at the same time.

Advantages of moving to AWS lightsail:

- Reporting time was reduced from 4 hours per week to just under 20 minutes.
- Data from previously disparate providers was merged into a single application.
- Product shelf life is extended due to better delivery timing.
- Productivity increased by more than 40%.
- Decision makers now have accessibility to business-critical data in real time.

Gourmeat's decision makers can make better decisions faster with simultaneous access to trustworthy inventory data that is updated in real time, leading in better-timed shipments to retailers and extended shelf life for meat products. Gourmeat's ecommerce site may also be customised as needed. On Amazon Lightsail, uploading information, updating goods, and executing other backend processes are substantially quicker.

## Case Study – Beanstalk – Zillow

The Zillow Group is reinventing real estate to make it simpler to move on to the next chapter of one's life.

Zillow and its affiliates, as the most-visited real estate website in the United States, provide clients with an on-demand experience for selling, buying, renting, and financing that is transparent and practically frictionless from beginning to end. In dozens of areas throughout the country, Zillow Offers buys and sells houses directly, giving sellers control over their schedule.

AWS Elastic Beanstalk, a solution for delivering and scaling web applications and services, was also implemented by Zillow. Elastic Beanstalk allows developers to submit code and have it deployed automatically, including capacity provisioning, load balancing, and auto-scaling, as well as application health monitoring. The firm is running a Python Imaging Library with bespoke code in an Elastic Beanstalk worker environment.

Zillow manages image download requests from listing feeds via a download server (DLS) in its data Center, and it employs an Amazon Elastic Beanstalk REST API as a front-end service in the cloud for the DLS. This service queues each picture download request in an Amazon SQS message-queuing server for each feed.

When it comes to image processing, Zillow gets the original photos from S3 and runs them through multiple image quality algorithms while providing a uniform set of sizes for the specific image. All pictures are stored in Amazon CloudFront and served through Amazon S3. The firm provides 15,000 photos every second on average.

Advantages of using Beanstalk in Zillow:

- S3 Bucket
- Cost-Effective
- Performance increased

- High Performance

## Reference list

**Amazon Web Services, Inc. (2015). *Estudo de caso da Zillow*. [online] Available at:**

**[https://aws.amazon.com/solutions/case-studies/zillow/?nc1=h\\_ls](https://aws.amazon.com/solutions/case-studies/zillow/?nc1=h_ls) [Accessed 9 Jan. 2022].**

**Amazon Web Services, Inc. (2021a). *Gourmeat Case Study | Amazon Lightsail | AWS*. [online] Available at:**

**<https://aws.amazon.com/pt/solutions/case-studies/gourmeat-lightsail/> [Accessed 9 Jan. 2022].**

**Amazon Web Services, Inc. (2021b). *Lightsail vs EC2 - Compare Free Cloud Servers - AWS*. [online] Available at:**

**<https://aws.amazon.com/pt/free/compute/lightsail-vs-ec2/> [Accessed 9 Jan. 2022].**

**Amazon.com. (2022). *Lightsail*. [online] Available at:**

**<https://lightsail.aws.amazon.com/ls/webapp/create/instance?region=eu-west-2> [Accessed 9 Jan. 2022].**

**Camp, A. (2016). *Elastic Beanstalk: Advantages and Drawbacks - Andy Camp - Medium*. [online] Medium. Available at:**

**<https://medium.com/@acamp/elastic-beanstalk-advantages-and-drawbacks-be814615af01> [Accessed 9 Jan. 2022].**

Latt (2020a). *AWS Elastic Beanstalk or AWS LightSail — When to use which?* [online] Medium. Available at: <https://medium.com/@kyawzinlatt/aws-elastic-beanstalk-or-aws-lightsail-when-to-use-which-f448e4a49147> [Accessed 9 Jan. 2022].

Latt (2020b). *AWS Elastic Beanstalk or AWS LightSail — When to use which?* [online] Medium. Available at: <https://medium.com/@kyawzinlatt/aws-elastic-beanstalk-or-aws-lightsail-when-to-use-which-f448e4a49147> [Accessed 9 Jan. 2022].

Lawton, G. (2017). *Compare Amazon Lightsail vs. EC2 for your web app needs.* [online] SearchCloudComputing. Available at: <https://searchcloudcomputing.techtarget.com/tip/Compare-Amazon-Lightsail-vs-EC2-for-your-web-app-needs> [Accessed 9 Jan. 2022].

Man, A. (2019). *AWS - What are the exact differences between EC2, Beanstalk and LightSail?* [online] Stack Overflow. Available at: <https://stackoverflow.com/questions/54981074/aws-what-are-the-exact-differences-between-ec2-beanstalk-and-lightsail> [Accessed 9 Jan. 2022].

Sourceforge.net. (2022). *SourceForge.* [online] Available at: <https://sourceforge.net/software/compare/Amazon-Lightsail-vs-AWS-Elastic-Beanstalk/> [Accessed 9 Jan. 2022].

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**Zuckerman, A. (2019). *AWS Elastic Beanstalk Review: Pricing, Pros, Cons & Features*. [online] CompareCamp.com.**

**Available at: <https://comparecamp.com/aws-elastic-beanstalk-review-pricing-pros-cons-features/> [Accessed 9 Jan. 2022].**

**SERVER, LAMP. “Tutorial: Install a LAMP Web Server on Amazon Linux 2 - Amazon Elastic Compute Cloud.”**

***Amazon.com, 2022, docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-lamp-amazon-linux-2.html. Accessed 9 Jan. 2022.***