

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.

Rodrigo Marques – 21906416

CO654 Cloud Computing

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

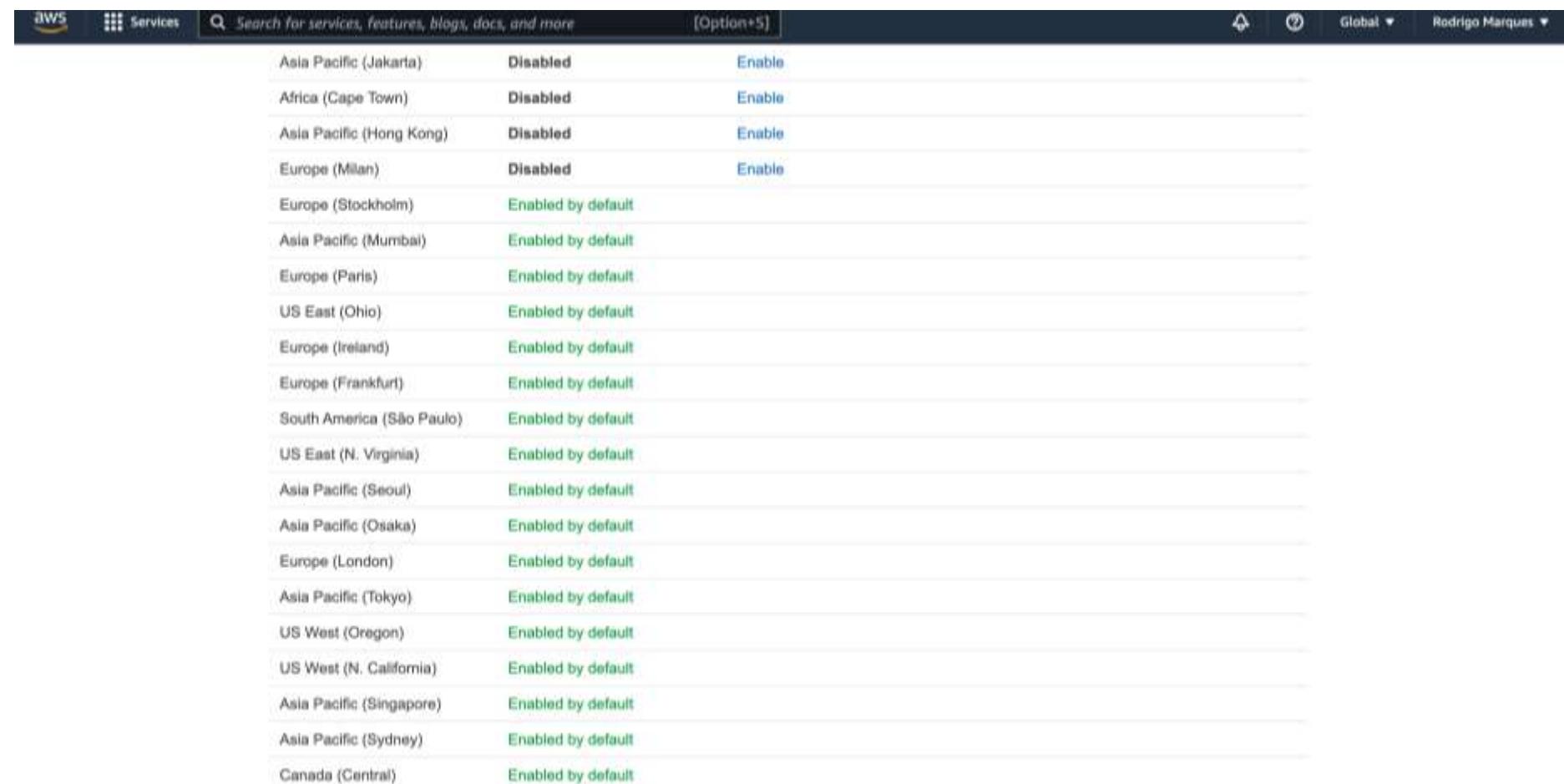
Task 1

Task 1a

- Each student must register to the European Amazon Cloud.

The screenshot shows the AWS Management Console homepage. At the top, there's a navigation bar with the AWS logo, a search bar, and options for services, blogs, and docs. On the right, it shows the location as London and the user as Rodrigo Marques. Below the navigation is the main title "AWS Management Console". To the left, there's a sidebar titled "AWS services" with sections for recently visited services (Billing, EC2 Image Builder, Direct Connect, VPC, S3, Support, CloudWatch, AWS Cloud Map, EC2, Storage Gateway) and a link to "All services". In the center, there's a section titled "Build a solution" with three options: "Launch a virtual machine" (With EC2, 2-3 minutes), "Build a web app" (With Elastic Beanstalk, 6 minutes), and "Build using virtual servers" (With Lightsail, 1-2 minutes). To the right, there are two boxes: one for "Stay connected to your AWS resources on-the-go" featuring the AWS Console Mobile App, and another for "Explore AWS" with sections for "Free AWS Training" (Advancing career with AWS Cloud Practitioner Essentials), "AWS Cloud Training" (Comprehensive training for cloud adoption), and "AWS Certification". At the bottom, there are links for Feedback, English (US), and various AWS terms like Privacy, Terms, and Cookie preferences.

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



The screenshot shows a table of regional settings for CloudFront. The columns are Region, Current Setting, and Action. Most regions have 'Enabled by default' as the current setting, while Asia Pacific (Jakarta), Africa (Cape Town), Asia Pacific (Hong Kong), Europe (Milan), and Canada (Central) are currently disabled.

Region	Current Setting	Action
Asia Pacific (Jakarta)	Disabled	Enable
Africa (Cape Town)	Disabled	Enable
Asia Pacific (Hong Kong)	Disabled	Enable
Europe (Milan)	Disabled	Enable
Europe (Stockholm)	Enabled by default	
Asia Pacific (Mumbai)	Enabled by default	
Europe (Paris)	Enabled by default	
US East (Ohio)	Enabled by default	
Europe (Ireland)	Enabled by default	
Europe (Frankfurt)	Enabled by default	
South America (São Paulo)	Enabled by default	
US East (N. Virginia)	Enabled by default	
Asia Pacific (Seoul)	Enabled by default	
Asia Pacific (Osaka)	Enabled by default	
Europe (London)	Enabled by default	
Asia Pacific (Tokyo)	Enabled by default	
US West (Oregon)	Enabled by default	
US West (N. California)	Enabled by default	
Asia Pacific (Singapore)	Enabled by default	
Asia Pacific (Sydney)	Enabled by default	
Canada (Central)	Enabled by default	

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	dopt-07320b15fb007e4fd	rtb-0889763a0ff9f6691	acl-02a6100a337c0a3fe
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

The screenshot shows the AWS VPC Subnets details page for a subnet named `subnet-04591e34571cc195c` within a VPC named `public-subnet-1`. The subnet is currently available and has an IPv4 CIDR range of `12.0.1.0/24`. It is associated with the availability zone `eu-west-2a` and a route table named `rtb-0b6d38cb9b71343fc`. The subnet is part of a network border group `eu-west-2` and is connected to a default VPC. There are no customer-owned IPv4 pools or auto-assign IPv6 addresses. The subnet is owned by the user with ID `042220924373`.

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

Private-subnet-1 - London

AWS Services Search for services, features, blogs, docs, and more [Option+5] 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 ARN	State	IPv4 CIDR
subnet-0729d77c5491c2fa6	arn:aws:ec2:eu-west-2:042220924373:subnet/subnet-0729d77c5491c2fa6	Available	12.0.2.0/24
Available IPv4 addresses		Availability Zone	Availability Zone ID
251		eu-west-2a	euw2-az2
Network border group	IPv6 CIDR	Route table	Network ACL
eu-west-2	-	rtb-0889763a0ff9f6691	acl-02a6100a337c0a3fe
Default subnet	VPC	Auto-assign IPv6 address	Auto-assign customer-owned IPv4 address
No	vpc-04aa588d2b08e5e24 My CW VPC	No	No
Customer-owned IPv4 pool	Auto-assign public IPv4 address	IPv4 CIDR reservations	IPv6 CIDR reservations
-	No	-	-
IPv6-only	Outpost ID	Resource name DNS A record	Resource name DNS AAAA record
No	-	Disabled	Disabled
Owner	Hostname type		
042220924373	IP name		

Flow logs Route table Network ACL CIDR reservations Sharing Tags

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London Internet Gateway

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The screenshot shows the AWS VPC Internet Gateways page. The top navigation bar includes the AWS logo, a services menu, a search bar, and account information for Rodrigo Marques. The main content area displays the details of an internet gateway named **igw-07c9218a685828056 / CW London**. The left sidebar has a tree view under **VIRTUAL PRIVATE CLOUD**, with **Internet Gateways** selected. The right side shows the **Details** tab with fields: Internet gateway ID (**igw-07c9218a685828056**), State (**Attached**), VPC ID (**vpc-04aa588d2b08e5e24 | My CW VPC**), and Owner (**042220924373**). An **Actions** dropdown menu offers options like Attach to VPC, Detach from VPC, Manage tags, and Delete. Below the details is a **Tags** section with a table showing one tag: Name (Value: CW PARIS). The bottom of the page includes standard AWS footer links: Feedback, English (US), © 2021, Privacy, Terms, and Cookie preferences.

Details

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

Tags

Key	Value
Name	CW PARIS

Route Tables - London

AWS Services Search for services, features, blogs, docs, and more [Option+F5] London Rodrigo Marques

New VPC Experience Tell us what you think

You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer

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
- Carrier Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists
- Endpoints
- Endpoint Services
- NAT Gateways
- Peering Connections

SECURITY

- Network ACLs

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

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

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Instance – London

The screenshot shows the AWS EC2 Instances page for an instance named i-0d1acffbd06846ab8. The instance is currently running. Key details include its public IPv4 address (18.133.235.146), private IPv4 address (12.0.1.237), and its IP name (ip-12-0-1-237.eu-west-2.compute.internal). The instance type is t2.micro, and it is running on Amazon Linux (inferred). IAM Role and VPC ID information are also provided.

Detail	Value
Instance ID	i-0d1acffbd06846ab8 (Instance)
Public IPv4 address	18.133.235.146 open address
Private IPv4 addresses	12.0.1.237
IPv6 address	-
Instance state	Running
Public IPv4 DNS	-
Hostname type	IP name: ip-12-0-1-237.eu-west-2.compute.internal
Private IP DNS name (IPv4 only)	ip-12-0-1-237.eu-west-2.compute.internal
Answer private resource DNS name	IPv4 (A)
Instance type	t2.micro
Elastic IP addresses	-
VPC ID	vpc-04aa588d2b08e5e24 (My CW VPC)
AWS Compute Optimizer finding	Opt-in to AWS Compute Optimizer for recommendations. Learn more
IAM Role	-
Subnet ID	subnet-04591e34571cc195c (public-subnet-1)
Platform	Amazon Linux (inferred)
AMI ID	ami-0d37e07bd4ff37148
Monitoring	detailed
Platform details	-
AMI name	-
Termination protection	Disabled

Below the main summary, there is a detailed view of the instance's configuration, showing the AMI ID (ami-0d37e07bd4ff37148) and monitoring status (detailed).

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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
- Capacity Reservations

Images

- AMIs new
- AMI Catalog

Elastic Block Store

- Volumes new
- Snapshots new

Details Security Networking Storage Status Checks Monitoring Tags

▼ Instance details Info

Platform	AMI ID	Monitoring
<input type="checkbox"/> Amazon Linux (Inferred)	<input type="checkbox"/> ami-0d37e07bd4f37148	detailed
Platform details	AMI name	Termination protection
<input type="checkbox"/> Linux/UNIX	<input type="checkbox"/> amzn2-ami-kernel-5.10-hvm-2.0.20211201.0-x86_64-gp2	Disabled
Launch time	AMI location	Lifecycle
<input type="checkbox"/> Fri Dec 31 2021 01:51:43 GMT+0000 (Hora de Greenwich) (about 11 hours)	<input type="checkbox"/> amazon/amzn2-ami-kernel-5.10-hvm-2.0.20211201.0-x86_64-gp2	normal
Stop-hibernate behavior	AMI Launch index	Key pair name
disabled	0	<input type="checkbox"/> MycwKey
State transition reason	Credit specification	Kernel ID
-	standard	-
State transition message	Usage operation	RAM disk ID
-	<input type="checkbox"/> RunInstances	-
Owner	Enclaves Support	Boot mode
<input type="checkbox"/> 042220924373	-	-
Use RBN as guest OS hostname	Answer RBN DNS hostname IPv4	
<input type="checkbox"/> Disabled	<input type="checkbox"/> Enabled	

▼ Host and placement group Info

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Firewall – MyRule

The screenshot shows the AWS EC2 Security Groups page. The top navigation bar includes the AWS logo, 'Services' dropdown, a search bar ('Search for services, features, blogs, docs, and more'), and user information ('[Option+S]', 'London', 'Rodrigo Marques'). A sidebar on the left lists navigation options: 'New EC2 Experience' (with a feedback link), 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Tags', 'Limits', and 'Instances'. The main content area is titled 'Security Groups (1/3)' with an 'Info' link. It features a toolbar with a 'C' icon, 'Actions', 'Export security groups to CSV', and a 'Create security group' button. A filter bar contains a search icon and the placeholder 'Filter security groups'. Below is a table with columns: Name, Security group ID, Security group name, VPC ID, Description, and Owner. The table shows three rows: 'MyRule' (selected, highlighted in blue), 'sg-0a3e64adca49cf587', 'public-lb', 'vpc-04aa588d2b08e5e24', 'public lb', '0422209'; and two other rows with '-' in the Name column and 'default' in the Security group name column.

Name	Security group ID	Security group name	VPC ID	Description	Owner
MyRule	sg-0a3e64adca49cf587	public-lb	vpc-04aa588d2b08e5e24	public lb	0422209
-	sg-0a614100edb34c67e	default	vpc-01e4502fea16102ce	default VPC security gr...	0422209
-	sg-0fee8ff23b23b6c96	default	vpc-04aa588d2b08e5e24	default VPC security gr...	0422209

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

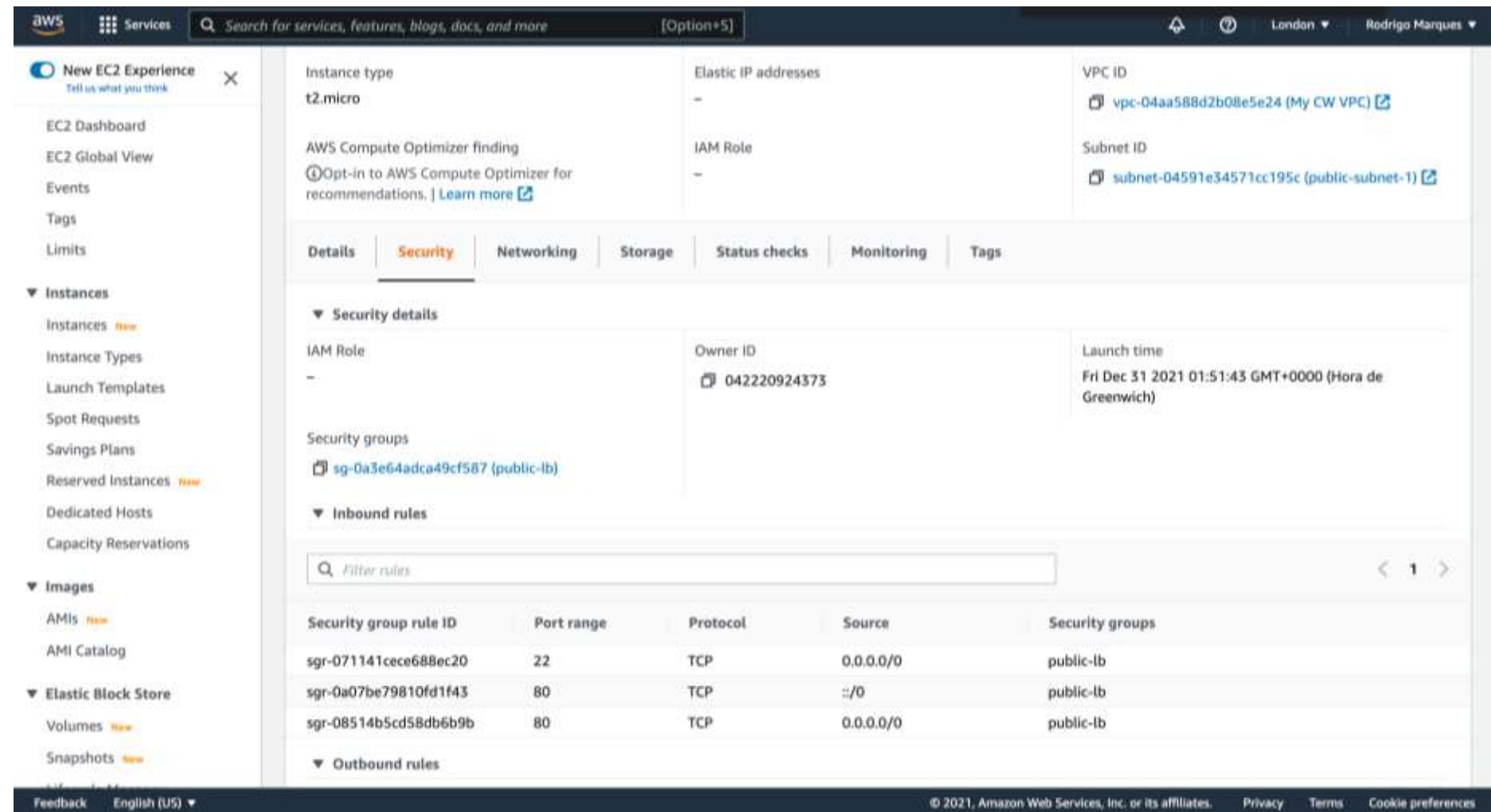
A public DNS keeps track of publicly accessible domain names that may be accessed from any device with internet connectivity. Private DNS is a service that keeps track of internal websites behind a company's firewall.

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.

Running Zones and Launching Times

London – Launch Time



The screenshot shows the AWS EC2 instance configuration page for a t2.micro instance. The instance is associated with a VPC ID (vpc-04aa588d2b08e5e24) and a Subnet ID (subnet-04591e34571cc195c). The Security tab is selected, displaying the IAM Role (not assigned), Owner ID (042220924373), and Launch time (Fri Dec 31 2021 01:51:43 GMT+0000 (Hora de Greenwich)). The Security details section shows the Security groups assigned (sg-0a3e64adca49cf587 (public-lb)). The Inbound rules table lists three rules:

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

The Outbound rules section is currently collapsed.

Available Zone

The screenshot shows the AWS Management Console interface for managing EC2 instances and VPCs.

EC2 Instances Page:

- Header: AWS Services Search bar (Search for services, features, blogs, docs, and more) and (Option+S).
- Left sidebar: New EC2 Experience (Tell us what you think), EC2 Dashboard, EC2 Global View, Events.
- Main content: Instances (1) Info. A table shows one instance: Name (Instance), Instance ID (i-0d1acffbd06846ab8), Instance state (Running), Instance type (t2.micro), Status check (2/2 checks passed), Alarm status (1 alarms +), Availability Zone (eu-west-2a). Buttons: Connect, Instance state, Actions, Launch instances.

VPC Details Page:

- Header: Ireland – VPC (vpc-07b48d6e6b48eae34 / MYCWVPC-Ireland), Actions.
- Left sidebar: 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).
- Main content:
 - Details:** 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: -.
 - Route 53 Resolver DNS Firewall rule groups: 042220924373.
 - IPv4 CIDRs:** CIDR (12.0.0.0/16), Status (Associated).

Ireland – Public-subnet-2

Screenshot of the AWS VPC Details page for subnet-0e70bf881517d4a02 / public-subnet-2.

Details

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-07b48d6e6b48eae34 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

Bottom navigation tabs: Flow logs, Route table (highlighted), Network ACL, CIDR reservations, Sharing, Tags.

Ireland – Private-subnet-2

Sales Services Search for services, features, blogs, docs, and more [Option+5] Ireland 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 DHCP Options Sets Elastic IPs Managed Prefix Lists Endpoints Endpoint Services NAT Gateways Peering Connections

SECURITY

Network ACLs Security Groups

subnet-067c599fcdf1504bb / private-subnet-2

Actions

Details

Subnet ID	subnet-067c599fcdf1504bb	Subnet ARN	arn:aws:ec2:eu-west-1:042220924373:subnet/subnet-067c599fcdf1504bb	State	Available	IPv4 CIDR	12.0.2.0/24
Available IPv4 addresses	251	IPv6 CIDR	-	Availability Zone	eu-west-1a	Availability Zone ID	euw1-az2
VPN	vpc-07b48d6e6b48eae34 MYCWVPC-Ireland	Route table	rtb-03624f270b36fa8dc	Network ACL	acl-02a41aa978975dd63	Default subnet	No
Auto-assign public IPv4 address	No	Auto-assign IPv6 address	No	Auto-assign customer-owned IPv4 address	-	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

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Internet Gateway – Ireland

The screenshot shows the AWS VPC Internet Gateways page. The top navigation bar includes links for 'VPC', 'Internet gateways', and the specific gateway ID 'igw-0dc2b546e21bb4c4b'. The main title is 'igw-0dc2b546e21bb4c4b / cw-gateway'. On the left, a sidebar under 'VIRTUAL PRIVATE CLOUD' lists 'Your VPCs', 'Subnets', 'Route Tables', and 'Internet Gateways' (which is currently selected). The main content area displays the 'Details' tab for the gateway. It shows the Internet gateway ID as 'igw-0dc2b546e21bb4c4b', the state as 'Attached', the VPC ID as 'vpc-07b48d6e6b48eae34 | MYCWVPC-Ireland', and the owner as '042220924373'. Below this, the 'Tags' section shows a single tag named 'cw-gateway'. A 'Manage tags' button is available for editing.

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

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer X

Details Info

Route table ID rtb-02e921875549e32f3	Main <input type="checkbox"/>	Explicit subnet associations: subnet-0e70bf881517d4a02 / public-subnet-2	Edge associations –
VPC vpc-07b48d6e6b48eae54 MYCWVPC-Ireland	Owner ID 042220924373		

Routes Subnet associations Edge associations Route propagation Tags

Routes (2)

Edit routes

Destination	Target	Status	Propagated
12.0.0.0/16	local	Active	No
0.0.0.0/0	igw-0dc2b546e21bb4c4b	Active	No

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Security Groups – Firewall –

The screenshot shows the AWS EC2 Security Groups interface. On the left, there's a navigation sidebar with links like EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, Images (selected), AMIs, and AMI Catalog. Below that is another section for Elastic Block Store (selected) with Volumes.

The main content area is titled "sg-0fa28c0647e6bb063 - MYCWSecurityGroup". It displays the following details:

Security group name	sg-0fa28c0647e6bb063	Description	VPC ID
Owner	042220924373	Inbound rules count	3 Permission entries
		Outbound rules count	1 Permission entry

Below the details, there are tabs for "Inbound rules" (selected), "Outbound rules", and "Tags". A message box says "You can now check network connectivity with Reachability Analyzer" with a "Run Reachability Analyzer" button.

The "Inbound rules (3)" section lists the following rules:

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-01a2a28e64c8b358c	IPv4	SSH	TCP	22
-	sgr-07a3a00c64148c9bb	IPv6	HTTP	TCP	80
-	sgr-07936a48ee1744e...	IPv4	HTTP	TCP	80

MyRule



Ireland – Instance

The screenshot shows the AWS EC2 Instances page for an instance named **i-05f9f56c53a2f9c8d**. The instance is currently running. Key details include:

Attribute	Value
Instance ID	i-05f9f56c53a2f9c8d
Public IPv4 address	34.250.192.89
Private IPv4 addresses	12.0.1.152
IPv6 address	-
Instance state	Running
Public IPv4 DNS	-
Hostname type	IP name: ip-12-0-1-152.eu-west-1.compute.internal
Private IP DNS name (IPv4 only)	ip-12-0-1-152.eu-west-1.compute.internal
IPv4 (A)	-
Instance type	t2.micro
Elastic IP addresses	-
VPC ID	vpc-07b48d6e6b48eae34 [MYCWVPC-Ireland]
AWS Compute Optimizer finding	Opt-in to AWS Compute Optimizer for recommendations. Learn more
IAM Role	-
Subnet ID	subnet-0e70bf881517d4a02 (public-subnet-2)

The page also includes tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. Below the main table, there's a detailed view for the Platform:

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-04dd4500af104442f	detailed

At the bottom of the page, there are links for <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](#), and [Cookie preferences](#).

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

<input checked="" type="radio"/> New EC2 Experience Tell us what you think X	-	standard	-
EC2 Dashboard	-	Usage operation	RAM disk ID
EC2 Global View	-	<input type="checkbox"/> RunInstances	-
Events	Owner	ClassicLink	Enclaves Support
Tags	<input type="checkbox"/> 042220924373	-	-
Limits	Boot mode	Use RBN as guest OS hostname	Answer RBN DNS hostname IPv4
▼ Instances	-	<input type="checkbox"/> Disabled	<input type="checkbox"/> Enabled
Instances New	<input type="checkbox"/> Host and placement group Info		
Instance Types	Host ID	Affinity	Placement group
Launch Templates	-	-	-
Spot Requests	Host resource group name	Tenancy	Partition number
Savings Plans	-	<input type="checkbox"/> default	-
Reserved Instances New	Virtualization type	Reservation	Number of vCPUs
Dedicated Hosts	<input type="checkbox"/> hvm	<input type="checkbox"/> r-0aabc431575bfe28b	1
Scheduled Instances	<input type="checkbox"/> Capacity reservation Info		
Capacity Reservations	Capacity Reservation ID	Capacity Reservation setting	
Images	-	open	
AMIs New	<input type="checkbox"/> Accelerators Info		
AMI Catalog	Elastic Graphics ID	Elastic inference accelerator ID	
Elastic Block Store	-	-	
Volumes New			

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Launch Time and Available Zone – Ireland

The screenshot shows the AWS EC2 instance details page for an instance launched in the Ireland region. The instance is an t2.micro type, running on AWS Compute Optimizer. It has an IPv4 address (ip-12-0-1-152.eu-west-1.compute.internal) and is associated with a VPC ID (vpc-07b48d6e6b48eae34) and a subnet (subnet-0e70bf881517d4a02). The launch time is listed as Fri Dec 31 2021 12:27:59 GMT+0000 (Hora de Greenwich).

Details	Security	Networking	Storage	Status checks	Monitoring	Tags
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				
① Opt-in to AWS Compute Optimizer for recommendations. Learn more	-	subnet-0e70bf881517d4a02 (public-subnet-2)				

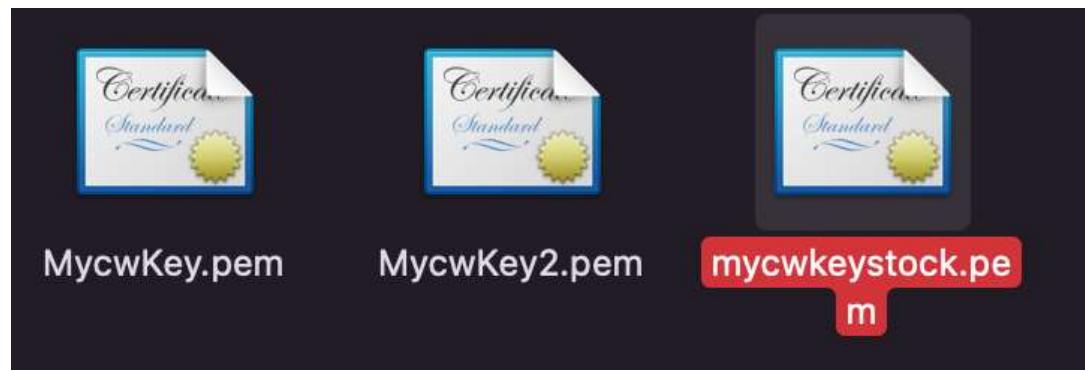
The screenshot shows the AWS EC2 Instances page displaying a single instance (1/1). The instance is named '-' and has the ID i-05f9f56c53a2f9c8d. It is currently running and is located in the eu-west-1a availability zone. The status check result is 2/2 checks passed.

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

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- 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.

The screenshot shows the AWS EC2 Snapshots page for a specific snapshot named "snap-0cf6832885cef4694". The page has a left sidebar with navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations), Images (with sub-links for AMIs and AMI Catalog), and Elastic Block Store (with sub-links for Volumes). The main content area displays the "Snapshot settings" for the selected snapshot. The settings include:

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

Below the main settings, there are tabs for Permissions, Storage tier, and Tags. The Storage tier tab is selected, showing:

Setting	Value	Unit
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	-	

At the bottom of the page, there are links for Feedback, English (US), and various legal and policy links.

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- Create AMI of any selected EC2.

The screenshot shows the AWS EC2 service interface. On the left, there's a navigation sidebar with options like New EC2 Experience, EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations), Images (with sub-options like AMIs, AMI Catalog), and Elastic Block Store (with sub-options like Volumes). The main content area is titled "Amazon Machine Images (AMIs) (1)" and displays a table with one row. The table columns are Name, AMI ID, AMI name, Source, and Owner. The single entry is: Name - (empty), AMI ID: ami-02202193e60e26569, AMI name: AMI-EC2, Source: 042220924373/AMI-EC2, Owner: 042220924373. Below this table is a modal window titled "Select an AMI" which is currently empty. The bottom of the screen shows the AWS footer with links for Feedback, English (US), © 2022, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

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

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:

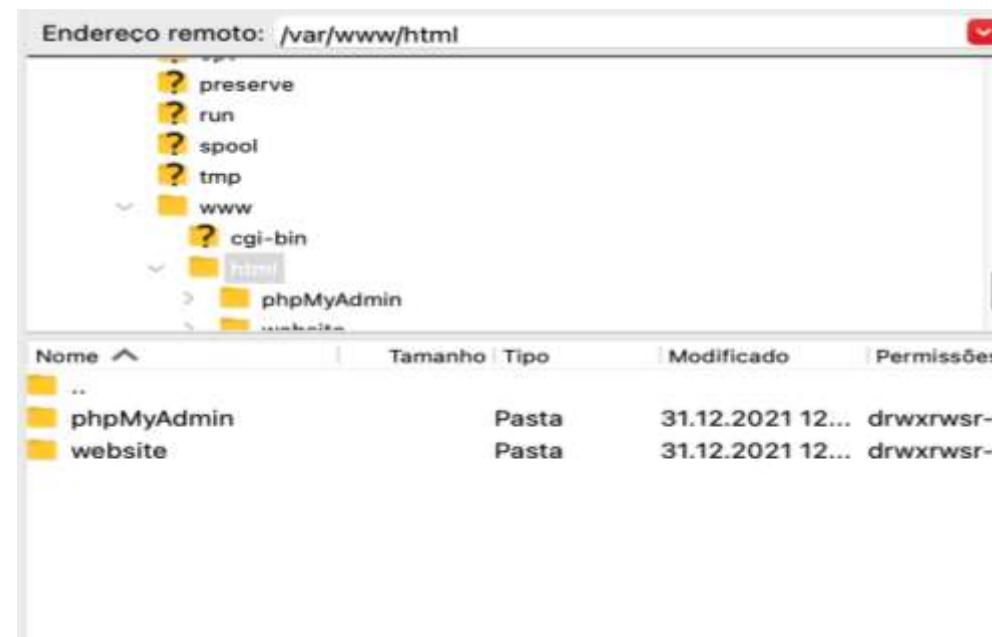
```
● ● ● rodrigomarques — ec2-user@ip-12-0-1-152:~ — ssh -i /Applications/Myc...
[rodrigomarques@Air-de-Rodrigo ~ % ssh -i "/Applications/MycwKey2.pem" ec2-user@3]
4.250.192.89
Last login: Fri Dec 31 13:17:47 2021 from 90.194.72.32

--| ( --|- )
-| (   /   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

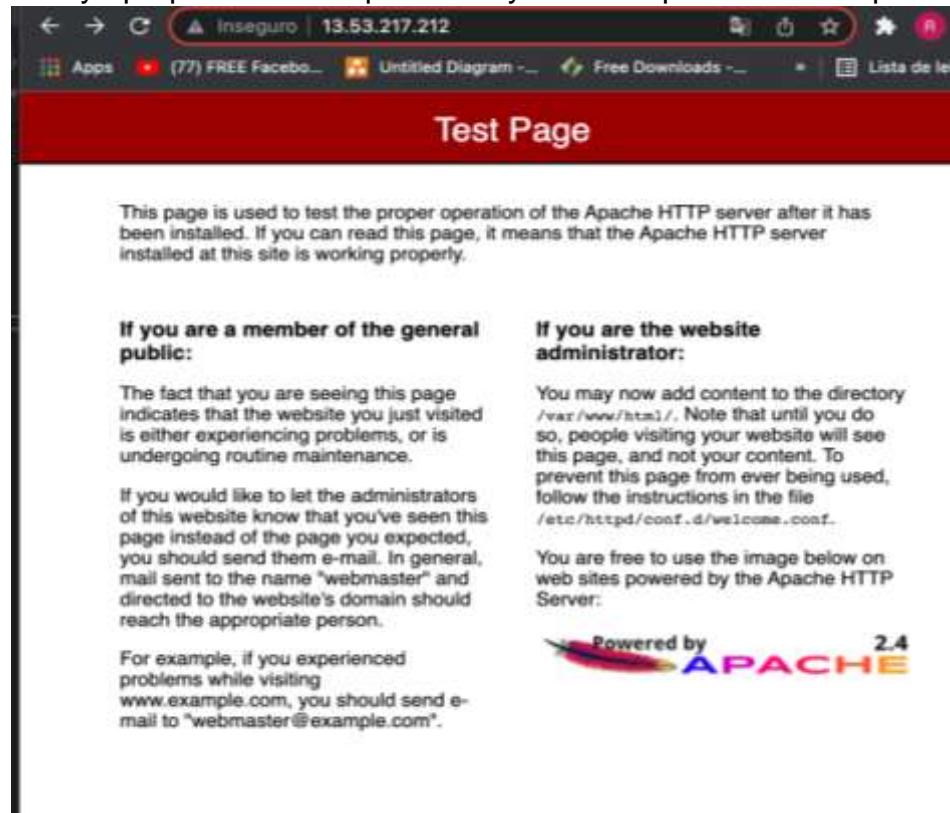
```
#!/bin/bash
# Install Apache Web Server and PHP
yum install -y httpd mysql php
# Download Blank App folder
wget https://superprestige.co.uk/app.zip
unzip app.zip -d /var/www/html/
chmod -R 777 d /var/www/html/
chmod -R 777 -d /var/www/html/app
chkconfig httpd on
service httpd start
```

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.

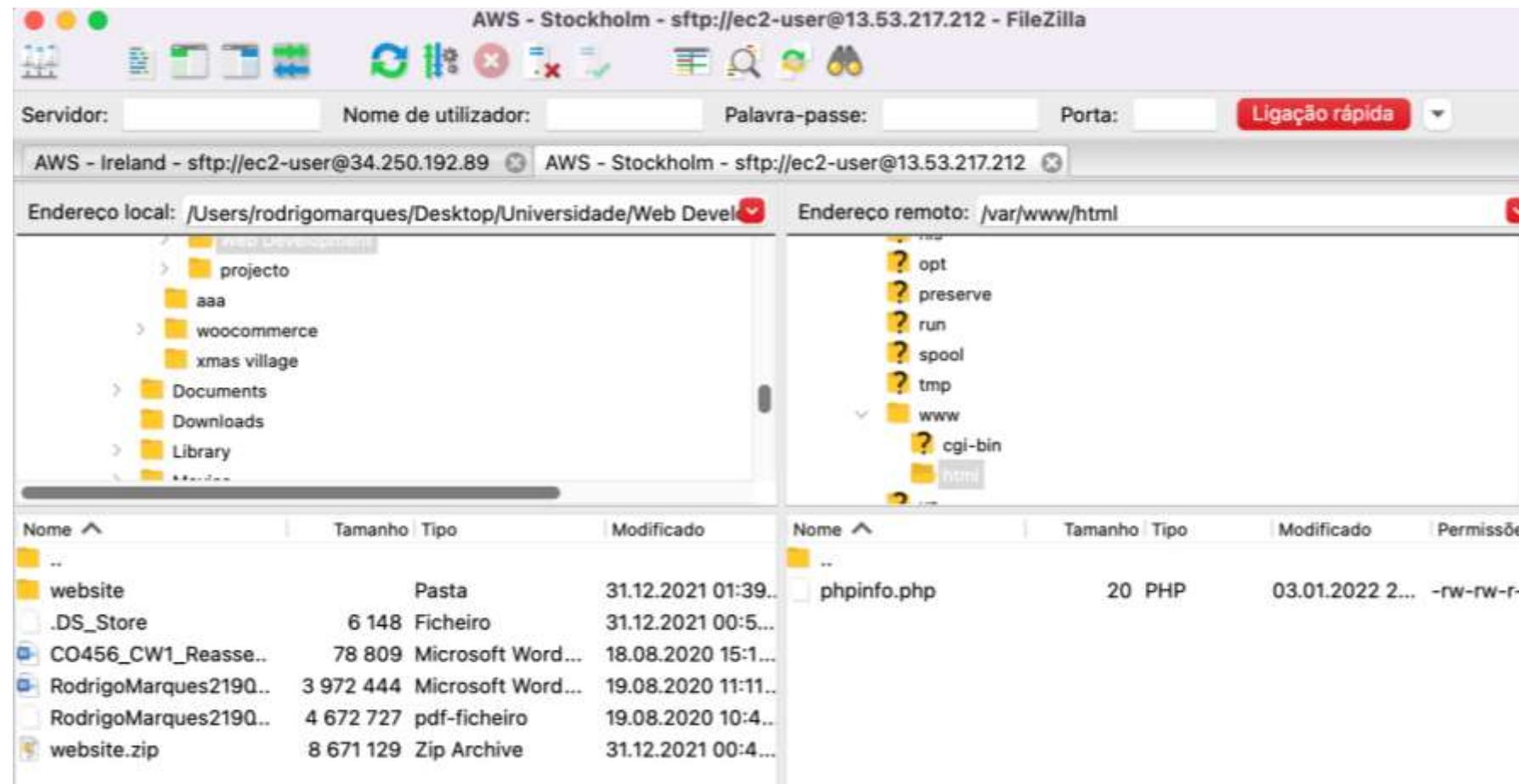


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I ended up creating a php file in the apache document root

```
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-mysqlind.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_mysql.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.toLowerCase, string.strip_tags, convert.*, consumed, dechunk, bzip2.*, convert.iconv.*

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The next set was to secure the database server

```
rodrigomarques — ec2-user@ip-12-0-1-152:~ — ssh -i /Applications/myc...
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



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Task 1b

Creation of a Load Balancer

The screenshot shows the AWS Elastic Load Balancing Target Groups page. The URL in the address bar is `arn:aws:elasticloadbalancing:eu-west-2:042220924373:targetgroup/LoadBalancerTargetGroup/d6bc74f6347ee2f3`. The left sidebar has a 'New EC2 Experience' section and categories like EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances, Images, and Elastic Block Store. The main content area is titled 'Details' and shows the following configuration:

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-04aa588d2b08e5e24
IP address type	Load balancer	-	
IPv4			
Total targets	Healthy	Unhealthy	Unused
0	0	0	0
Initial	Draining		
0	0		

Below this, there are tabs for Targets, Monitoring, Health checks (which is selected), Attributes, and Tags. The 'Health check settings' section shows the following parameters:

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

At the bottom, there are links for Feedback, English (US), and various AWS footer links.

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

New EC2 Experience Tell us what you think X

[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

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](#)

Load balancer: mycwbalancer

Description	Listeners	Monitoring	Integrated services	Tags
Basic Configuration				
Name	mycwbalancer			
ARN	arn:aws:elasticloadbalancing:eu-west-2:042220924373:loadbalancer/app/mycwbalancer/e73ec0c35de2f087			
DNS name	mycwbalancer-163315180.eu-west-2.elb.amazonaws.com			

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- Hosted Zone ID

The screenshot shows the AWS EC2 Load Balancer console. The left sidebar has sections for New EC2 Experience, EC2 Dashboard, Global View, Events, Tags, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes, Snapshots). The main content area shows a table for a load balancer named 'mycwbalancer'. The table includes columns for Name, DNS name, State, VPC ID, and Availability Zones. The DNS name is 'mycwbalancer-163315180.eu-west-2.elb.amazonaws.com', State is Active, VPC ID is 'vpc-04aa588d2b08e5e24', and Availability Zones are 'eu-west-2a, eu-west-2c'. Below the table, there's a section for 'Edit subnets' with a button labeled 'Edit subnets' and a sub-section for 'Hosted zone' with the value 'ZHURVBSTC4KB'. The creation time is listed as 'January 1, 2022 at 3:04:32 PM UTC'. At the bottom, there are links for Feedback, English (US), and various AWS service links.

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-073fd6854654e8d57 - eu-west-2c

IPv4 address: Assigned by AWS

Edit subnets

Hosted zone: ZHURVBSTC4KB

Creation time: January 1, 2022 at 3:04:32 PM UTC

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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

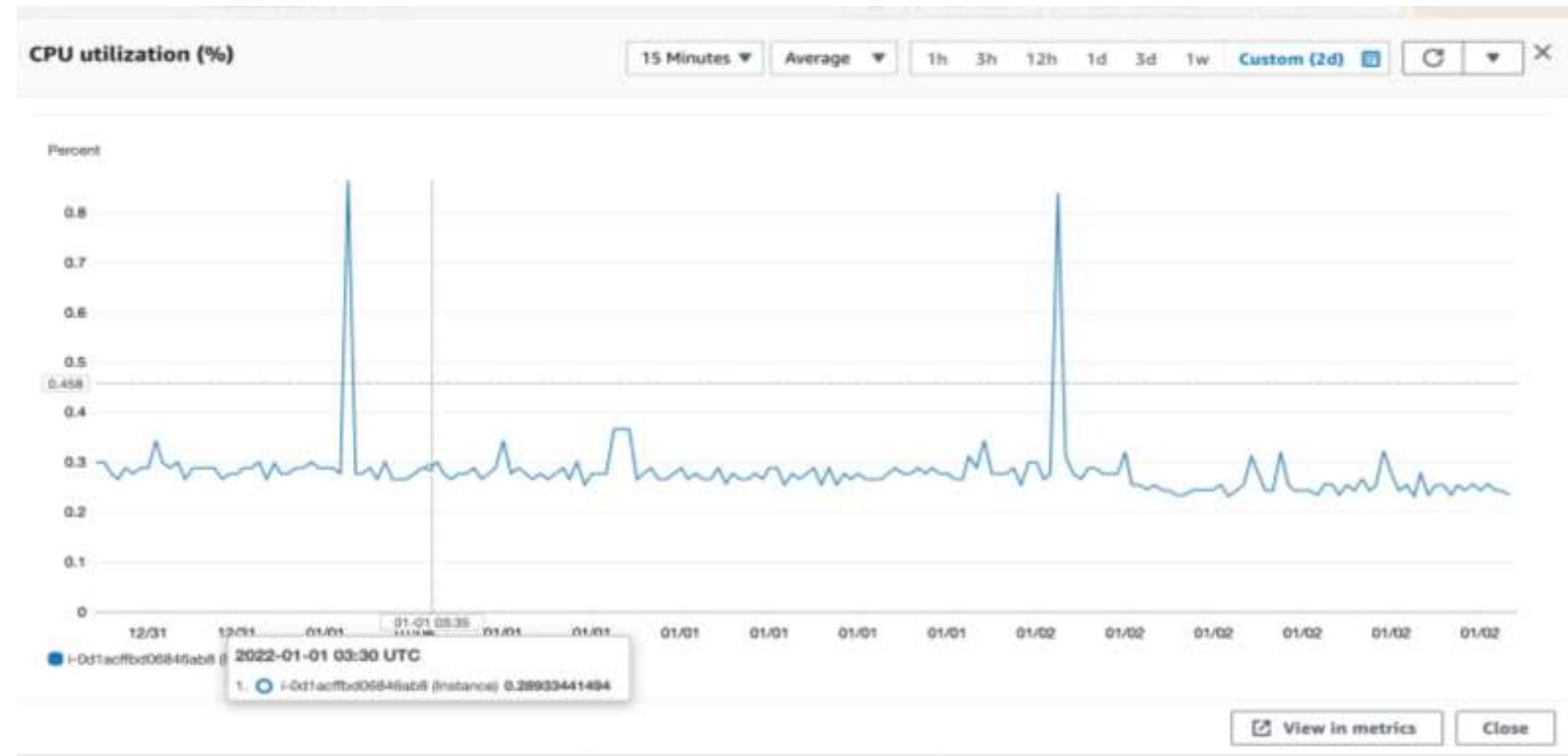
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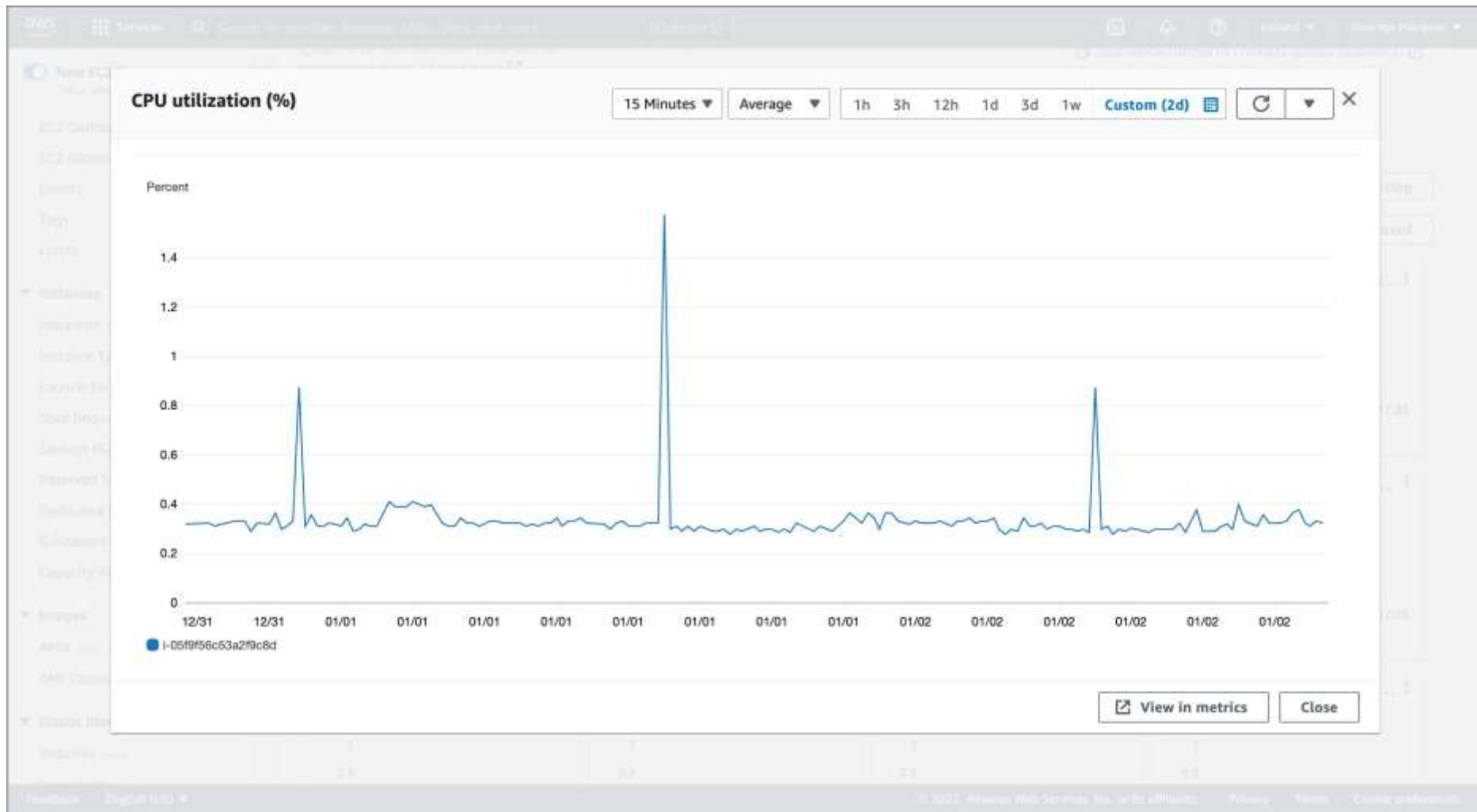
London

- 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

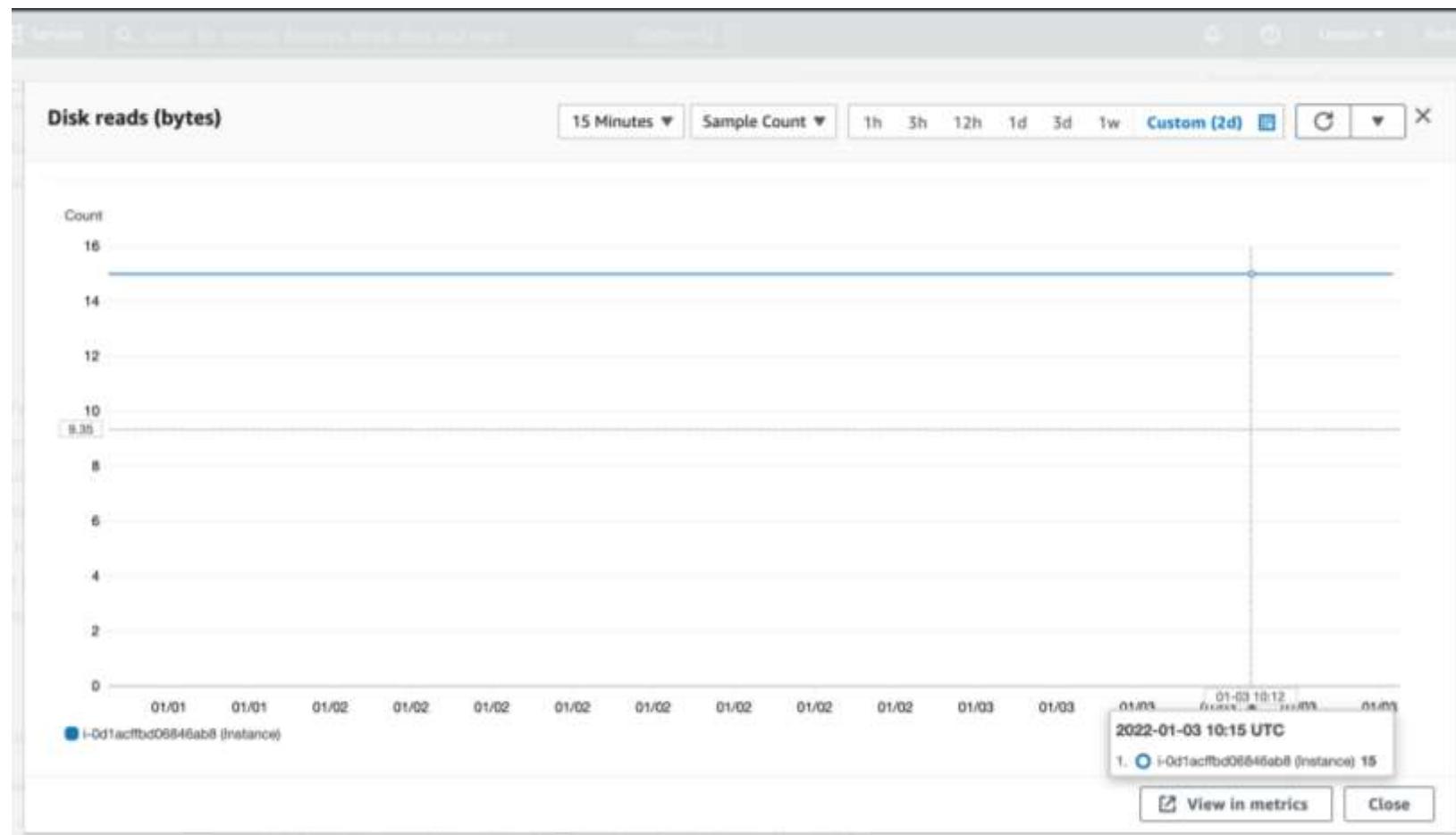


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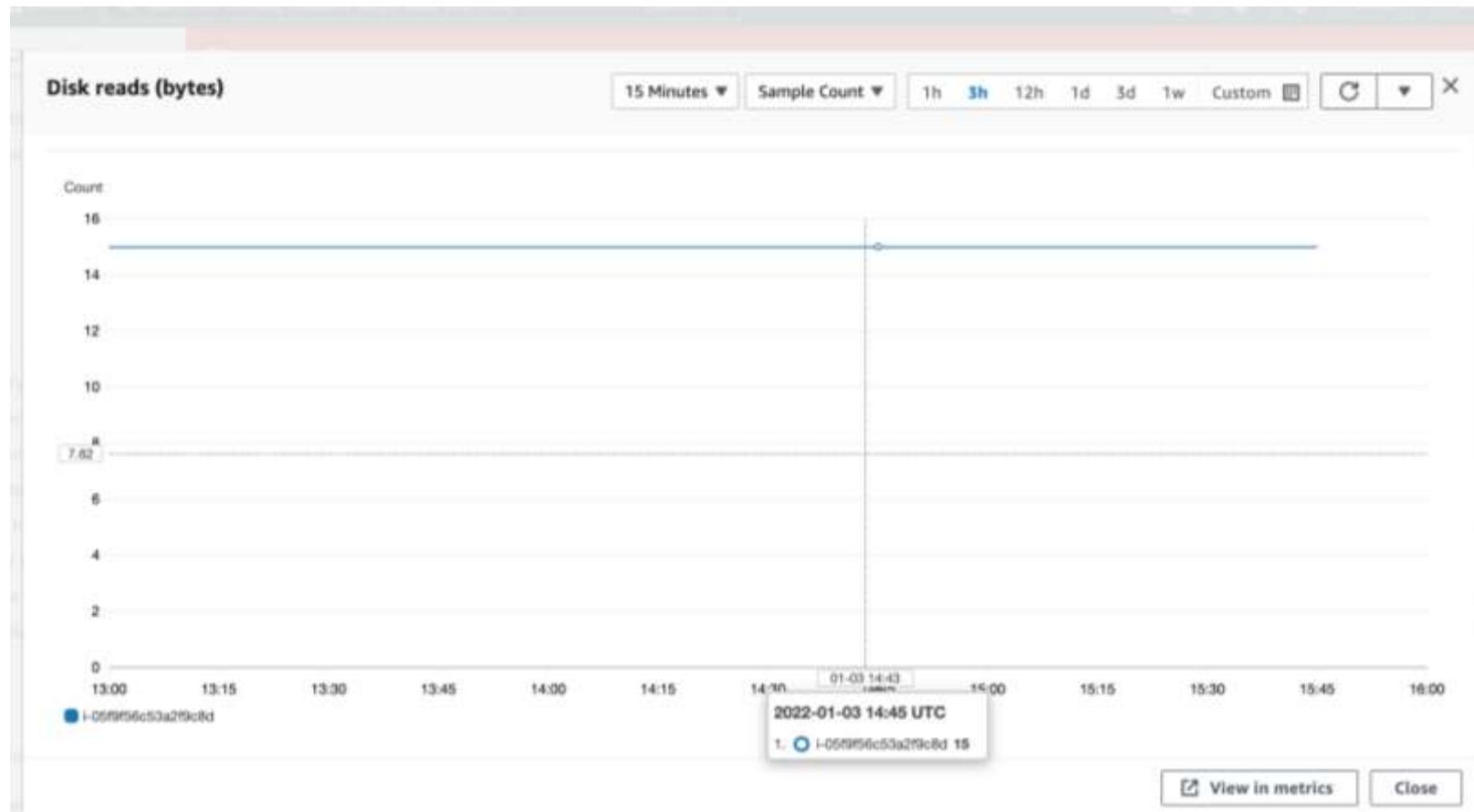
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- **How many Bytes of data have been read during the same period?**

London:



Ireland DiskRead –

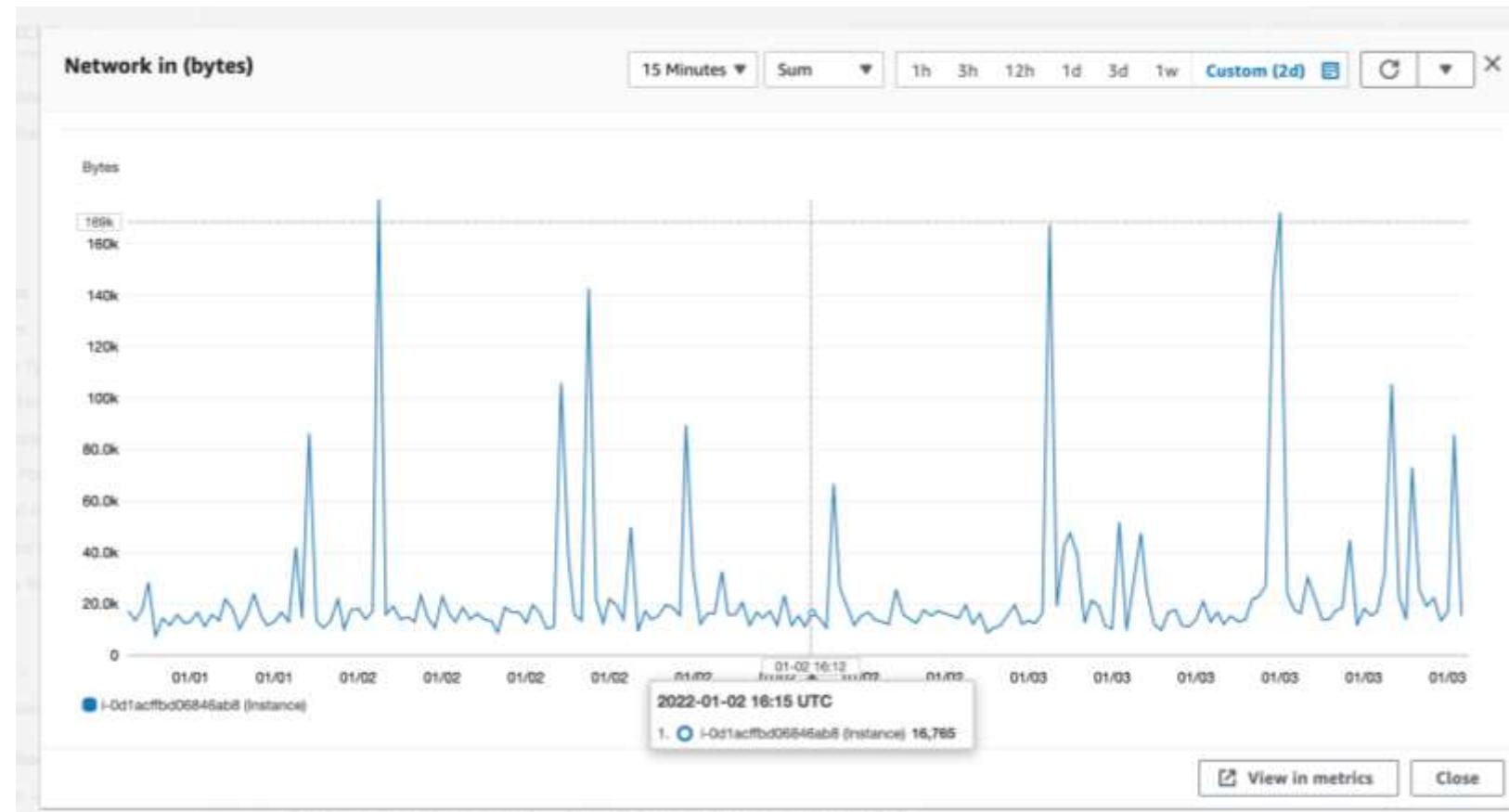


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- Amount of data that has been transferred via Network during the last two days ONLY.

London:



Network out (bytes)

15 Minutes ▾

Sample Count ▾

1h

3h

12h

1d

3d

1w

Custom (2d) 

▼

X

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 01/01 01/02 01/02 01/02 01/02 01/02

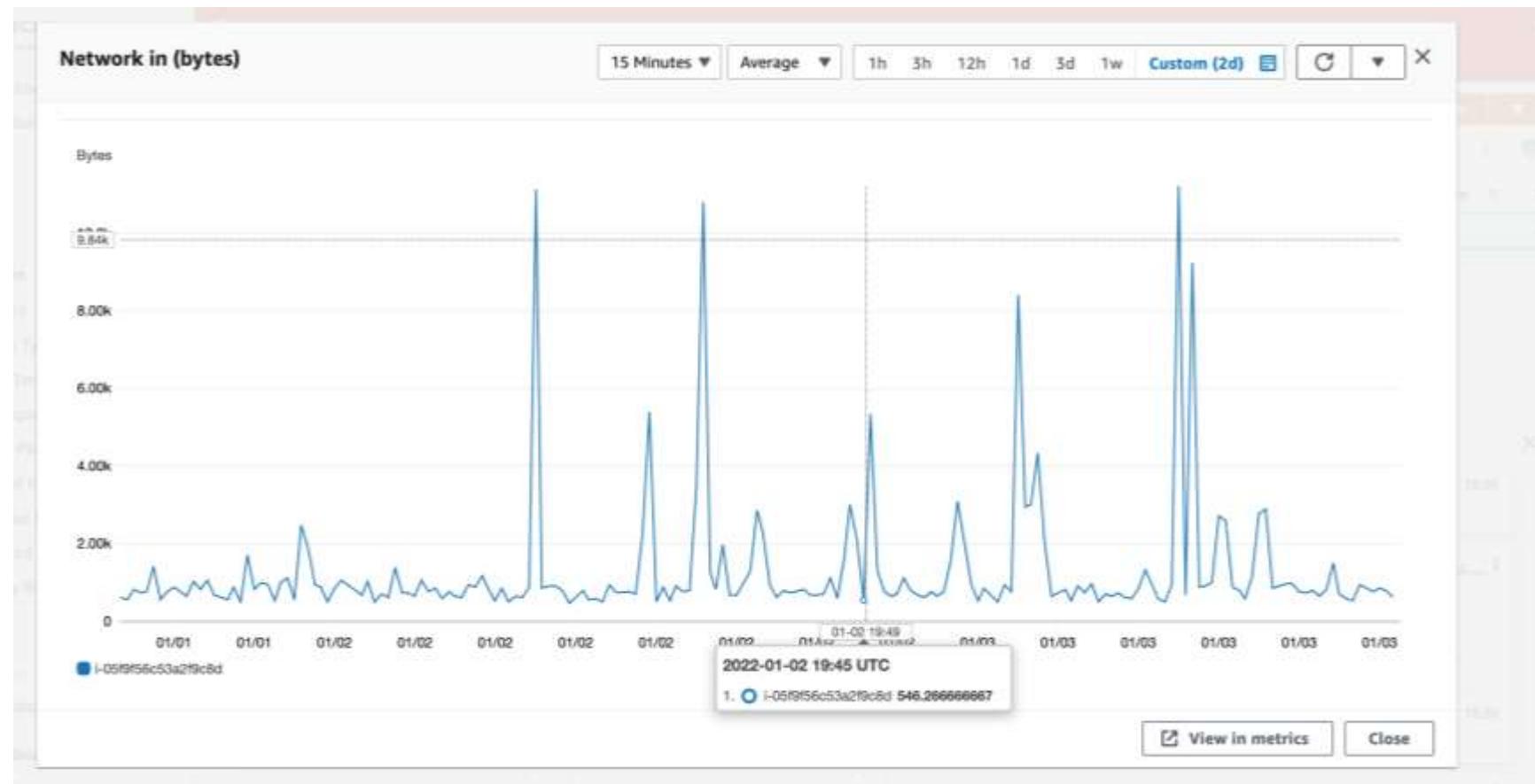
 i-0d1acf7bd06846ab8 (Instance) View in metrics

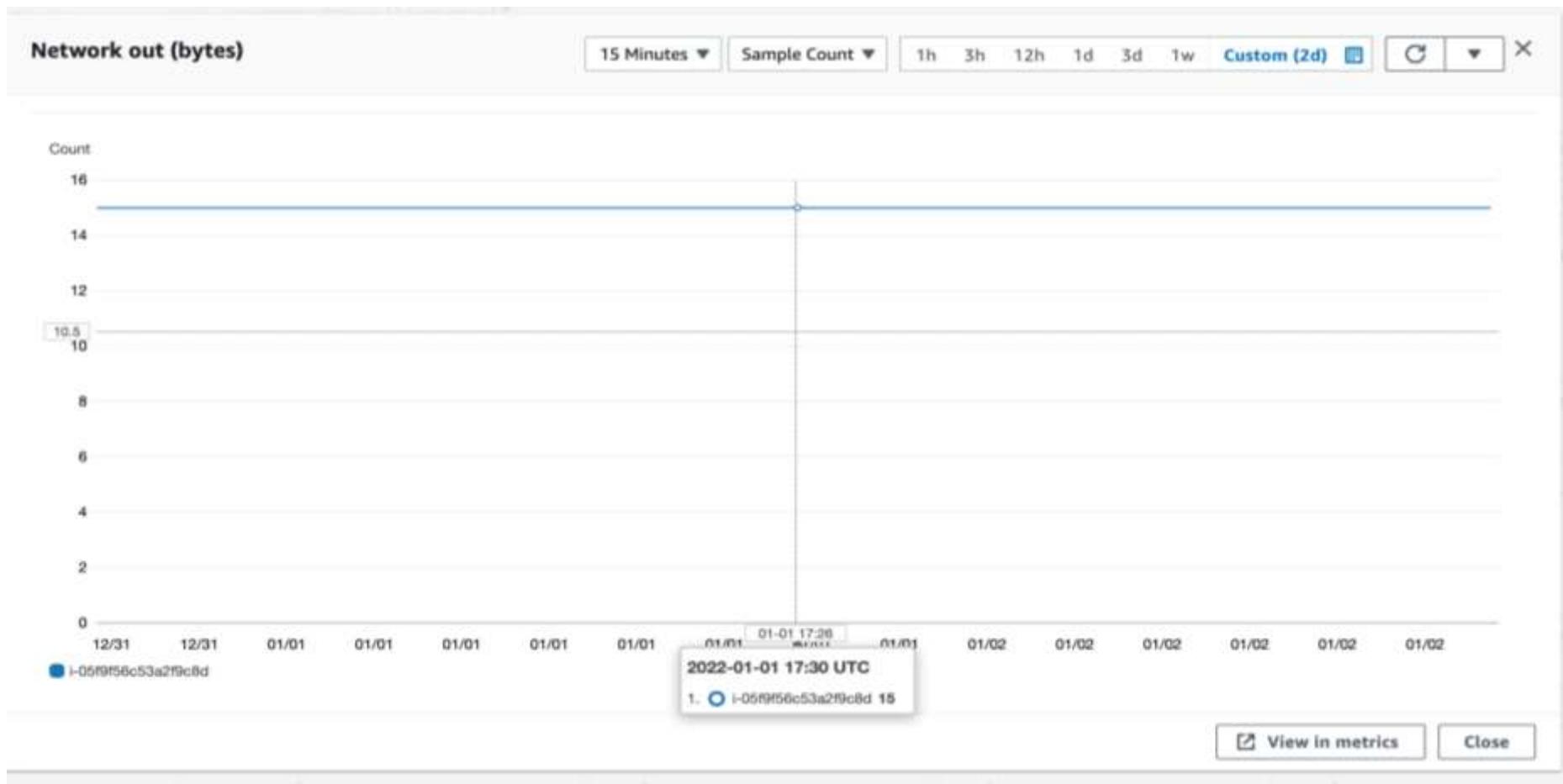
Close

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Ireland:



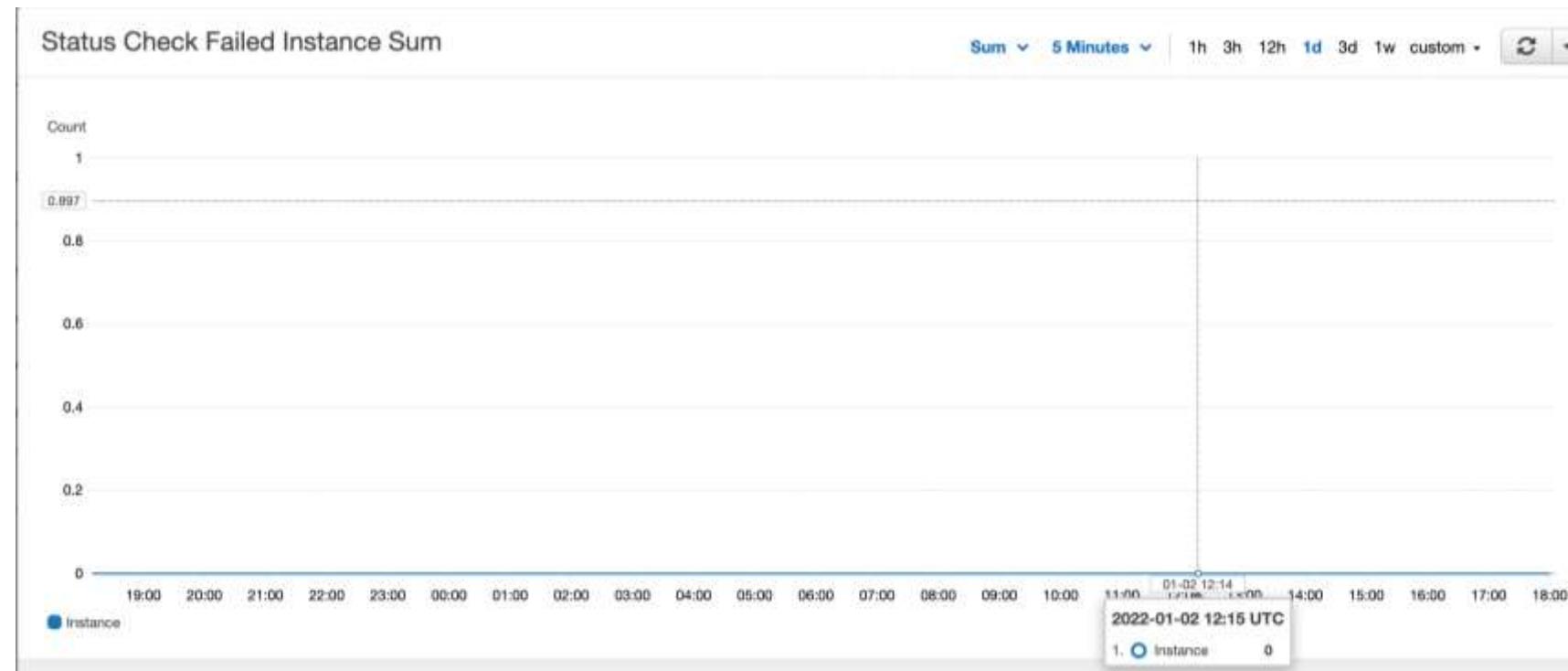


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- **Status of failed instances during the last day. Checks to be shown for every 5 minutes.**

London:

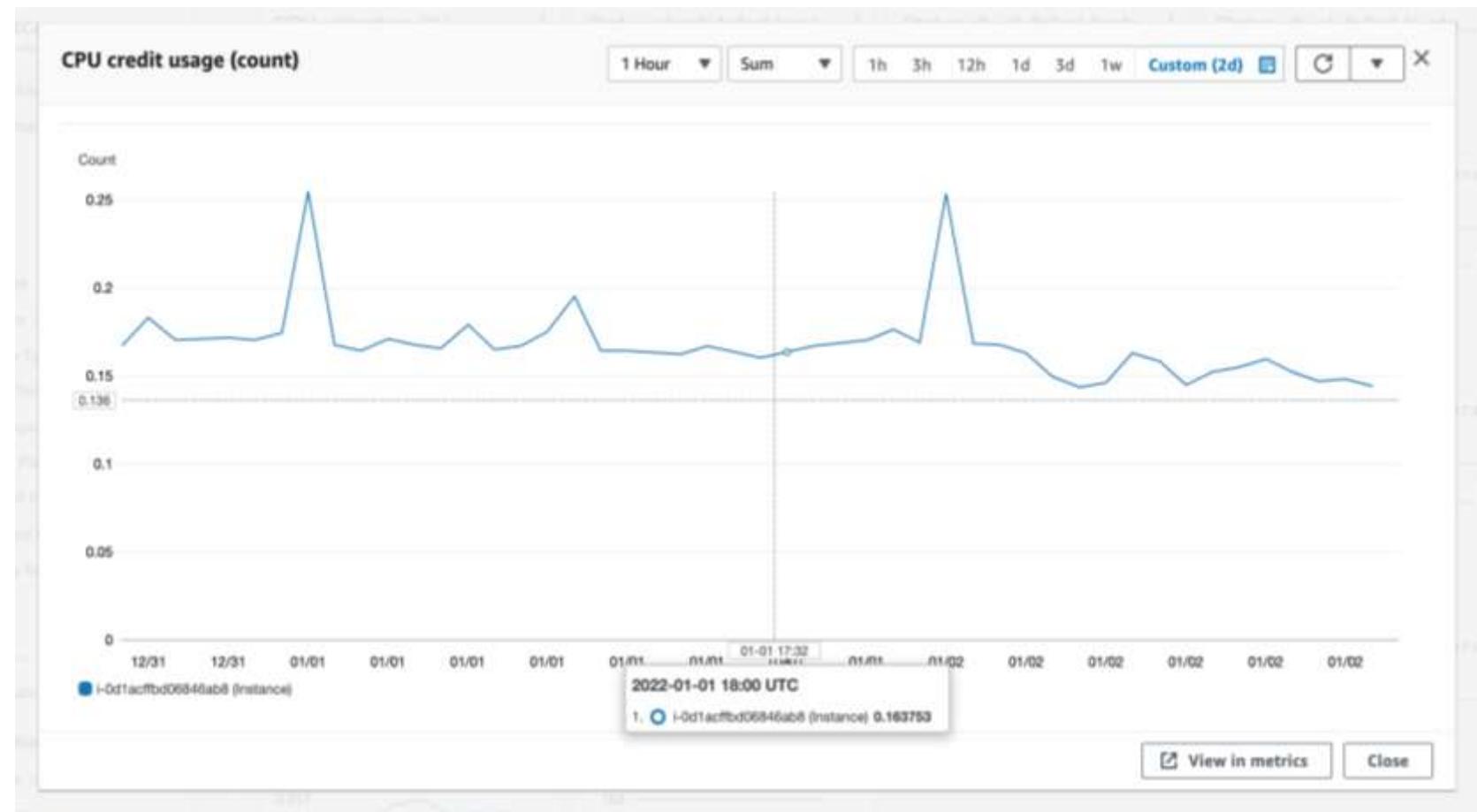


Ireland:

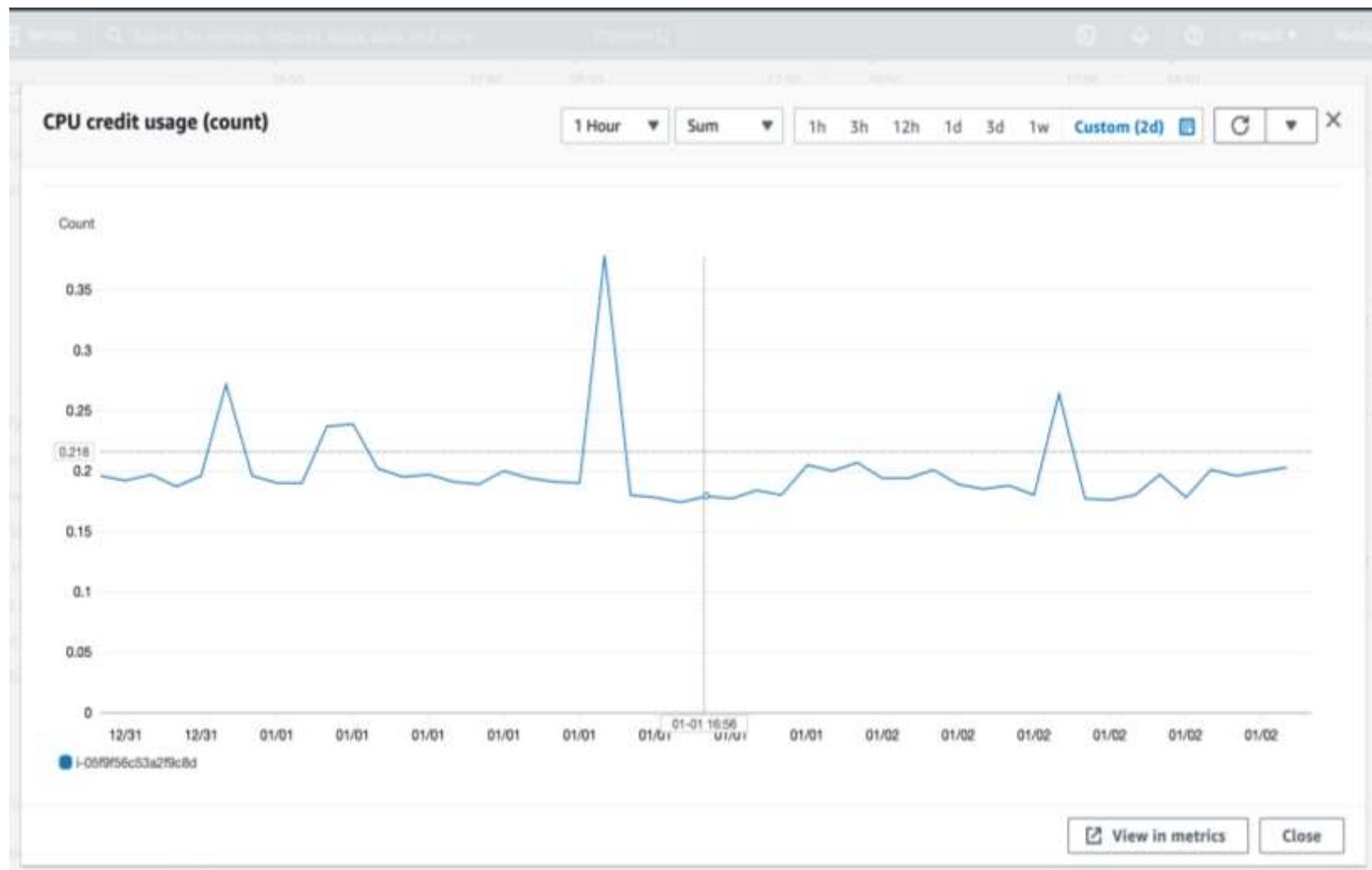


- The sum of the CPU Credit Usage during two days for every hour.

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, a 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.

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

The screenshot shows the AWS S3 console for a bucket named 'CO654CloudComputing'. A green header bar at the top indicates 'Upload succeeded' with a link to 'View details below'. Below the header, there are two tabs: 'Files and folders' (which is selected) and 'Configuration'. The main area displays a table titled 'Files and folders (7 Total, 1.1 MB)'. The table has columns for Name, Folder, Type, Size, Status, and Error. The data is as follows:

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

At the bottom of the page, there are links for 'Feedback', 'English (US)', '© 2021, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

- Provide full details of your uploaded file (Bucket, Folder, Name, Link, Size, Last Modified, Owner, ETag, Permissions)

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](#).

Amazon S3 > mycw-bucket

mycw-bucket Info

[Objects](#) [Properties](#) [Permissions](#) [Metrics](#) [Management](#) [Access Points](#)

Objects (3)

Objects are 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](#)

[Actions ▾](#) [Create folder](#)

Find objects by prefix

<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	-	-	-

< 1 >

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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](#).

Successfully edited Block Public Access settings for this bucket.

Permissions overview

Access
Objects can be public

Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

[Edit](#)

Block all public access

⚠ Off
[Individual Block Public Access settings for this bucket](#)

Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

[Edit](#) [Delete](#)

Feedback English (US) ▾ © 2021, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

mycw-bucket EU (London) eu-west-2 Objects can be public December 31, 2021, 00:49:38 (UTC+00:00)

Sharing s3 bucket – cross account – Roles

The screenshot shows the AWS Identity and Access Management (IAM) service interface. On the left, the navigation pane is visible with the 'Identity and Access Management (IAM)' section selected. Under 'Roles', the 'CrossAccountS3bucketsharingrole' is listed. The main panel displays details for this role, including its ARN, description, creation time, and maximum session duration. A link is provided for users to switch roles. Below this, the 'Permissions' tab is selected, showing a single policy named 'PolicyBucket'. This policy allows access to 314 services. At the bottom of the page, there are links for feedback, language selection (English (US)), and legal information.

Identity and Access Management (IAM)

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

Role description: Edit

Instance Profile ARNs: [Edit](#)

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) Show remaining 313			

AWS IAM - [Help and support](#) [Feedback](#) English (US) © 2022, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

Trusted entities:

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

student

Password1234

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Permissions:

The screenshot shows the AWS Identity and Access Management (IAM) service interface. The left sidebar navigation bar includes links for Dashboard, Access management (with 'Users' selected), User groups, Roles, Policies, Identity providers, Account settings, Access reports, Access analyzer, Archive rules, Analyzers, Settings, Credential report, Organization activity, and Service control policies (SCPs). A search bar at the bottom of the sidebar says "Search IAM". The main content area is titled "Summary" for the user "student". It displays the User ARN (arn:aws:iam::042220924373:user/student), Path (/), and Creation time (2022-01-01 15:52 UTC). Below this, there are tabs for Permissions, Groups (1), Tags, Security credentials, and Access Advisor. The "Groups (1)" tab is active, showing a table with one row. The table has columns for "Group name" (set to "bucket") and "Attached permissions" (set to "PolicyBucket"). There is also a "Delete user" button and a help icon (question mark) in the top right corner of the summary section.

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.

Users > student

Summary

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

Delete user ?

Search IAM

AIAW® Amazon Web Services

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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 shows a web browser window with multiple tabs open. The active tab is the 'S3 Management Console' at s3.console.aws.amazon.com/s3/home?region=eu-west-2. The browser's address bar also shows 'localhost / wber | p'. Other tabs include 'IAM Management Console' and 'Bucket Sharing Tutorial. How to...'. The browser interface includes standard controls like back, forward, and search, along with AWS-specific navigation buttons for Billing, VPC, EC2, S3, IAM, and RDS.

The main content area is titled 'Amazon S3' and displays an 'Account snapshot' section with a link to 'View Storage Lens dashboard'. Below this is a 'Buckets (1) Info' section. A table lists one bucket:

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

The left sidebar contains a navigation menu with the following items:

- 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

At the bottom of the page, there are links for Feedback, English (US), © 2022, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

localhost / wber | IAM Management Console Bucket Sharing Tutorial. How mycw-bucket Sat 1 Jan 16:01

s3.console.aws.amazon.com/s3/buckets/mycw-bucket?region=eu-west-2&tab=objects

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

Billing VPC EC2 S3 IAM RDS Global student @ 0422-2092-4373

Amazon S3 Amazon S3 > mycw-bucket

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

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](#)

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

Find objects by prefix Show versions

<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"/>	CWOne/	Folder	-	-	-
<input type="checkbox"/>	CWtwo/	Folder	-	-	-

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The screenshot shows the AWS S3 console interface. The left sidebar has 'Buckets' selected. The main area shows the 'CWOne' bucket under 'Amazon S3 > mycw-bucket > CWOne/'. The 'Objects' tab is active. There are three objects listed:

Name	Type	Last modified	Size	Storage class
download-1.jpg	jpg	December 31, 2021, 00:56:46 (UTC+00:00)	6.1 KB	Standard
download-2.jpg	jpg	December 31, 2021, 00:56:45 (UTC+00:00)	4.8 KB	Standard
download.jpg	jpg	December 31, 2021, 00:56:45 (UTC+00:00)	6.3 KB	Standard

At the bottom, there are links for Feedback, English (US), © 2022, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Finder File Edit View Go Window Help

localhost / localhost / wber | IAM Management Console Bucket Sharing Tutorial: How mycw-bucket - S3 bucket Sat 1 Jan 16:02

s3.console.aws.amazon.com/s3/buckets/mycw-bucket?region=eu-west-2&prefix=

Services Search for services, features, blogs, docs, and more Options

Billing VPC EC2 S3 IAM RDS

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

Feedback English (US)

Downloads

Folders

- unloader
- Applications
- FileZilla

Images

- 42cc63f2-f9...b9acf11dc.JPG
- 421eddc8-b5...afb6a938.JPG
- 4784440a-5..08204bae.JPG
- download-1.jpg
- myimage.jpg
- Task1b.jpg

Other

- db3_21430060.sql
- FileZilla_3.57....86.app.tar.bz2

download-1.jpg JPEG image - 6 KB

Information Show More

Created	Today, 16:02
Modified	Today, 16:02
Last opened	Today, 16:02
Dimensions	275x183

Tags Add Tags...

Rotate Left Markup More...

Amazon S3 > mycw-bucket > CWOne/

CWOne/

Objects Properties

Objects (3)

Objects are the fundamental entities stored in Amazon S3. You can explicitly grant them permissions. Learn more

Copy S3 URI Copy URL

Upload

Find objects by prefix

Name	Type
download-1.jpg	jpg
download-2.jpg	jpg
download.jpg	jpg

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Task 1e

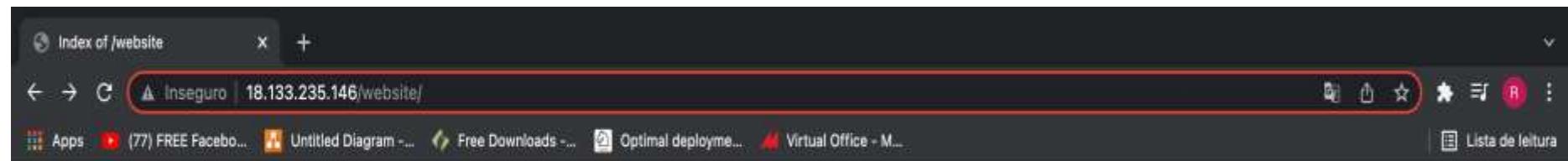
- Launch/deploy your application (as example your website, web based application ...etc.) into your cloud system.
Then try to access your cloud based application remotely.

Files for the website

The screenshot shows the FileZilla interface with two panes. The left pane displays the local file structure on a Mac OS X desktop, and the right pane shows the remote file structure on an AWS EC2 instance. Both panes show a directory tree under 'Univesidade' and 'website' respectively, containing 'assets', 'css', and 'html' files. Below the tree, detailed file lists are provided for each folder.

Nome	Tamanho	Tipo	Modificado	Nome	Tamanho	Tipo	Modificado	Permissões
..		Pasta		..		Pasta		drwxrwsr-x
website		Pasta	31.12.2021 01:39	phpMyAdmin		Pasta	31.12.2021 0...	drwxrwsr-x
.DS_Store	6 148	Ficheiro	31.12.2021 00:5...	website		Pasta	31.12.2021 0...	drwxrwsr-x
CO456_CW1_Reasse...	78 809	Microsoft Word...	18.08.2020 15:1...	phpinfo.php	1 453	PHP	31.12.2021 01...	-rw-rw-r--
RodrigoMarques2190...	3 972 444	Microsoft Word...	19.08.2020 11:11...					
RodrigoMarques2190...	4 672 727	pdf-ficheiro	19.08.2020 10:4...					
website.zip	8 671 129	Zip Archive	31.12.2021 00:4...					

Output on the browser



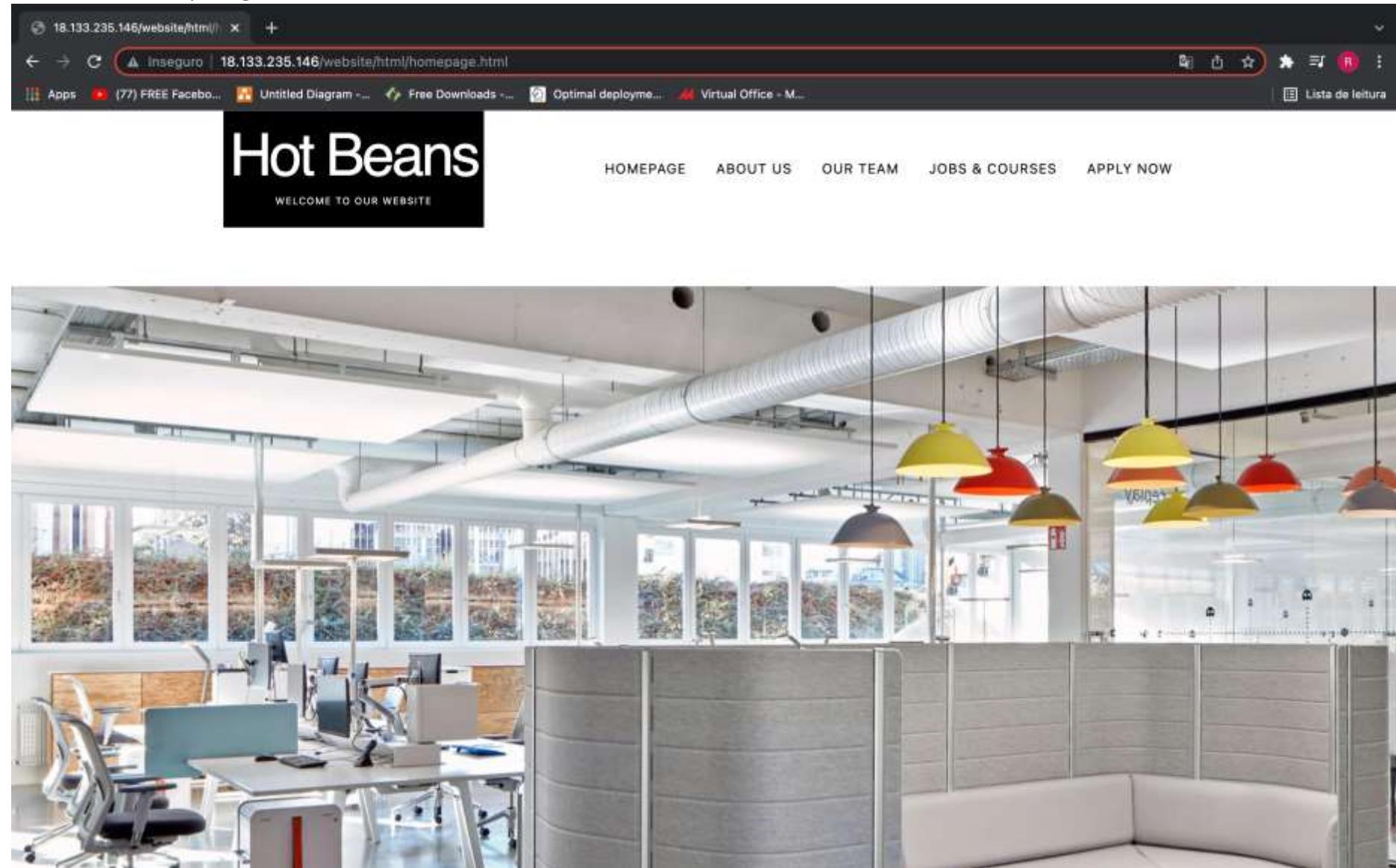
Index of /website

[Name](#) [Last modified](#) [Size](#) [Description](#)

Parent Directory		-	
assets/	2021-12-31 01:57	-	
css/	2021-12-31 01:57	-	
html/	2021-12-31 01:57	-	
js/	2021-12-31 01:57	-	
phpinfo.php	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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The screenshot shows a web browser window with a red border around the address bar. The address bar displays the URL `18.133.235.146/website/html/applynow.html`. Below the address bar, the title bar of the browser window says "Inseguro". The main content area of the browser shows a website for "Hot Beans". The website has a black header with the text "Hot Beans" in white. Below the header is a button labeled "APPLY TO JOIN THE TEAM". The main body of the page contains several input fields for a job application:

- First Name:** A text input field with placeholder text "Your first name..".
- Last Name:** A text input field with placeholder text "Your last name..".
- Birth Date:** A text input field with placeholder text "Your Date of birth..".
- Email address:** A text input field with placeholder text "Your Email address..".
- Phone Number:** A text input field with placeholder text "Your Phone Number..".
- Gender:** A text input field with placeholder text "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

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- 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 [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.