Cloud based enterprise systems lab (15B28CI581)

Assignment week 4

Patil Amit Gurusidhappa

19104004

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Q1. Create AWS free tier account and perform the following tasks:

a. Select the appropriate region and zone to minimize the network latency

Mumbai

Configure Amazon EC2 Info

Description

Enter a description for your estimate

Region Info

It is a physical location around the world where AWS clusters data centers.

Asia Pacific (Mumbai) ▼

○ **Quick estimate**
Choose this option for fast and easy route to a ballpark estimate based on minimum requirements or a specific instance search. You can configure utilization for the On-Demand instances.

○ **Advanced estimate**
Choose this option for a more detailed estimate that accounts for workload, data transfer costs, additional storage options, and other, less common instance requirements. For example, you know that you get a lot of traffic on Mondays but not much traffic throughout the rest of the week, and you want an estimate that takes this workload into account.

b. Mention the cost for S3 and EC2.

Cost for S3 machine

S3 Standard - General purpose storage for any type of data, typically used for frequently accessed data	
First 50 TB / Month	$0.023 per GB
Next 450 TB / Month	$0.022 per GB
Over 500 TB / Month	$0.021 per GB
S3 Intelligent - Tiering* - Automatic cost savings for data with unknown or changing access patterns	
Monitoring and Automation, All Storage / Month (Objects > 128 KB)	$0.0025 per 1,000 objects
Frequent Access Tier, First 50 TB / Month	$0.023 per GB
Frequent Access Tier, Next 450 TB / Month	$0.022 per GB
Frequent Access Tier, Over 500 TB / Month	$0.021 per GB
Infrequent Access Tier, All Storage / Month	$0.0125 per GB
Archive Instant Access Tier, All Storage / Month	$0.004 per GB
S3 Intelligent - Tiering* - Optional asynchronous Archive Access tiers	

Cost for ec2 machine

Based on your inputs, this is the lowest-cost EC2 instance:

t4g.xlarge

On-Demand hourly cost	vCPUs	GPUs
0.0896	4	NA
1YR Std reserved hourly cost	Memory (GiB)	Network performance
0.0567	16 GiB	Up to 5 Gigabit

Quantity
Enter the number of Amazon EC2 instances that you need.

```
1
```

Utilization
Enter the expected usage of Amazon EC2 instances. Only applicable when On-Demand pricing strategy is selected.

```
100
```
% Utilization/Month ▼

▼ Show calculations

30 GB x 0.114 USD x 1 instances = 3.42 USD (EBS Storage Cost)
EBS Storage Cost: 3.42 USD

Amazon Elastic Block Storage (EBS) pricing (monthly): 3.42 USD

Amazon EC2 estimate

Amazon Elastic Block Storage (EBS) pricing (monthly)	3.42 USD
Amazon EC2 Instance Savings Plans instances (monthly)	41.39 USD
Total monthly cost:	**44.81 USD**

Cancel   **Add to my estimate**

c. Find the different features available for a free tier account.

Amazon Linux
Free tier eligible

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-0b614a5d911900a9b (64-bit x86) / ami-0a1c7c7935530ecbf (64-bit Arm)
Amazon Linux 2 comes with five years support. It provides Linux kernel 5.10 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is now under maintenance only mode and has been removed from this wizard.

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Select
● 64-bit (x86)
○ 64-bit (Arm)

Amazon Linux
Free tier eligible

Amazon Linux 2 AMI (HVM) - Kernel 4.14, SSD Volume Type - ami-07b1d7739c91ed3fc (64-bit x86) / ami-01b3c7a5370b29329 (64-bit Arm)
Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is now under maintenance only mode and has been removed from this wizard.

Root device type: ebs   Virtualization type: hvm   ENA Enabled: Yes

Select
● 64-bit (x86)
○ 64-bit (Arm)

Step 2: Choose an Instance Type

you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Filter by: [All instance families ▾] [Current generation ▾] Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family ⌄	Type ⌄	vCPUs ⓘ ⌄	Memory (GiB) ⌄	Instance Storage (GB) ⓘ ⌄	EBS-Optimized Available ⓘ ⌄	Network Performance ⓘ ⌄	IPv6 Support ⓘ ⌄
☐	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
☑	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
☐	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
☐	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
☐	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
☐	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
☐	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
☐	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes

Cancel [Previous] [Review and Launch] [Next: Configure Instance Details]

d. Select an appropriate AWS instance and then launch an EC2 Ubuntu Linux server Instance.

Launch Status

✓ **Your instances are now launching**

The following instance launches have been initiated: i-0cb9c9b02b453264b   Hide launch log

Creating security groups	Successful (sg-092301ae67419c5a8)
Authorizing inbound rules	Successful
Initiating launches	Successful
Launch initiation complete	

ⓘ **Get notified of estimated charges**

Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

f. Use SSH to connect with your instance.

```
PS C:\WINDOWS\system32> ssh -i E:/Work/JIIT/sem_6/JIIT-SEM-6/CloudBasedEnterpriseSystem/Week3/cloud_lab.pem i-0cb9c9b02b
453264b@ec2-18-224-29-86.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-18-224-29-86.us-east-2.compute.amazonaws.com (18.224.29.86)' can't be established.
ECDSA key fingerprint is SHA256:C2J+prAaQveK4Gr4ItnLo8G9oZXCGGUrUwfjKm+ngUE.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-18-224-29-86.us-east-2.compute.amazonaws.com,18.224.29.86' (ECDSA) to the list of known
hosts.
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@         WARNING: UNPROTECTED PRIVATE KEY FILE!          @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions for 'E:/Work/JIIT/sem_6/JIIT-SEM-6/CloudBasedEnterpriseSystem/Week3/cloud_lab.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "E:/Work/JIIT/sem_6/JIIT-SEM-6/CloudBasedEnterpriseSystem/Week3/cloud_lab.pem": bad permissions
i-0cb9c9b02b453264b@ec2-18-224-29-86.us-east-2.compute.amazonaws.com: Permission denied (publickey,gssapi-keyex,gssapi-w
ith-mic).
PS C:\WINDOWS\system32>
```

g. Use the Ubuntu package manager to install the software packages it will need to run as a
web server.

```
---> Package generic-logos-httpd.noarch 0:18.0.0-4.amzn2 will be installed
---> Package httpd-filesystem.noarch 0:2.4.52-1.amzn2 will be installed
---> Package httpd-tools.x86_64 0:2.4.52-1.amzn2 will be installed
---> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
---> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.1 will be installed
--> Running transaction check
---> Package apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================================ Package                    Ar
ch               Version                     Repository              Size
================================================================================================Installing:
 httpd                        x86_64         2.4.52-1.amzn2             amzn2-core         1.3 M
Installing for dependencies:
 apr                          x86_64         1.7.0-9.amzn2              amzn2-core         122 k
 apr-util                     x86_64         1.6.1-5.amzn2.0.2          amzn2-core          99 k
 apr-util-bdb                 x86_64         1.6.1-5.amzn2.0.2          amzn2-core          19 k
 generic-logos-httpd          noarch         18.0.0-4.amzn2             amzn2-core          19 k
 httpd-filesystem             noarch         2.4.52-1.amzn2             amzn2-core          24 k
 httpd-tools                  x86_64         2.4.52-1.amzn2             amzn2-core          88 k
 mailcap                      noarch         2.1.41-2.amzn2             amzn2-core          31 k
 mod_http2                    x86_64         1.15.19-1.amzn2.0.1        amzn2-core         149 k

Transaction Summary
================================================================================================Install  1 Package (+8 Dependent pac
kages)

Total download size: 1.9 M
Installed size: 5.2 M
Downloading packages:
(1/9): apr-1.7.0-9.amzn2.x86_64.rpm                                        | 122 kB  00:00:00
```

h. Create a simple Welcome page for your site.
Created html file in /var/www/html/index.html

```
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /

[root@ip-172-31-35-185 ec2-user]# cd /var/www/html
[root@ip-172-31-35-185 html]# nano index.html
[root@ip-172-31-35-185 html]# cat index.html
<html>
        <body>
                Welcome to Ec2 instance website by Amit
        </body>
</html>
[root@ip-172-31-35-185 html]# client_loop: send disconnect: Connection reset
PS C:\Users\Amit>
```
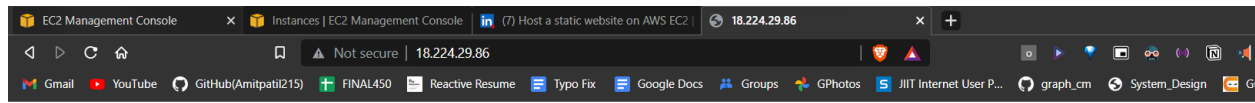
Welcome Page

Welcome to Ec2 instance website by Amit

Website URL: http://ec2-18-224-29-86.us-east-2.compute.amazonaws.com/