Cloud Computing

2348548_LAB2

1. Describe Load Balancing and its significance in Cloud Environment.
    - Load balancing is a technique used to distribute network traffic across a pool of servers known as a server farm. It optimizes network performance, reliability and capacity, reducing latency as the demand is equally distributed among multiple servers and compute resources.

    1. Enhanced Performance and Scalability:
    - Distributes requests evenly to prevent server overload.
    - Allows for efficient scaling by adding more servers.

    2. High Availability and Reliability:
        - Minimizes downtime by redirecting traffic if a server fails.
        - Ensures continuous availability of applications and services.

    3. Efficient Resource Utilization:
        - Optimizes resource use by directing traffic to the best performing servers.
        - Prevents overloading some servers while others remain underutilized.

    4. Improved User Experience:
        - Reduces response time for faster access to applications.
        - Provides a smoother and more responsive user experience.

5. Security and Maintenance:
    - Offloads SSL/TLS encryption to enhance security.
    - Protects against DDoS attacks.
    - Allows for server maintenance without affecting service availability.

2. List the Load Balancing Service available in AWS, Azure and GCP.

AWS

1. Application Load Balancer (ALB)
2. Network Load Balancer (NLB)
3. Classic Load Balancer (CLB)

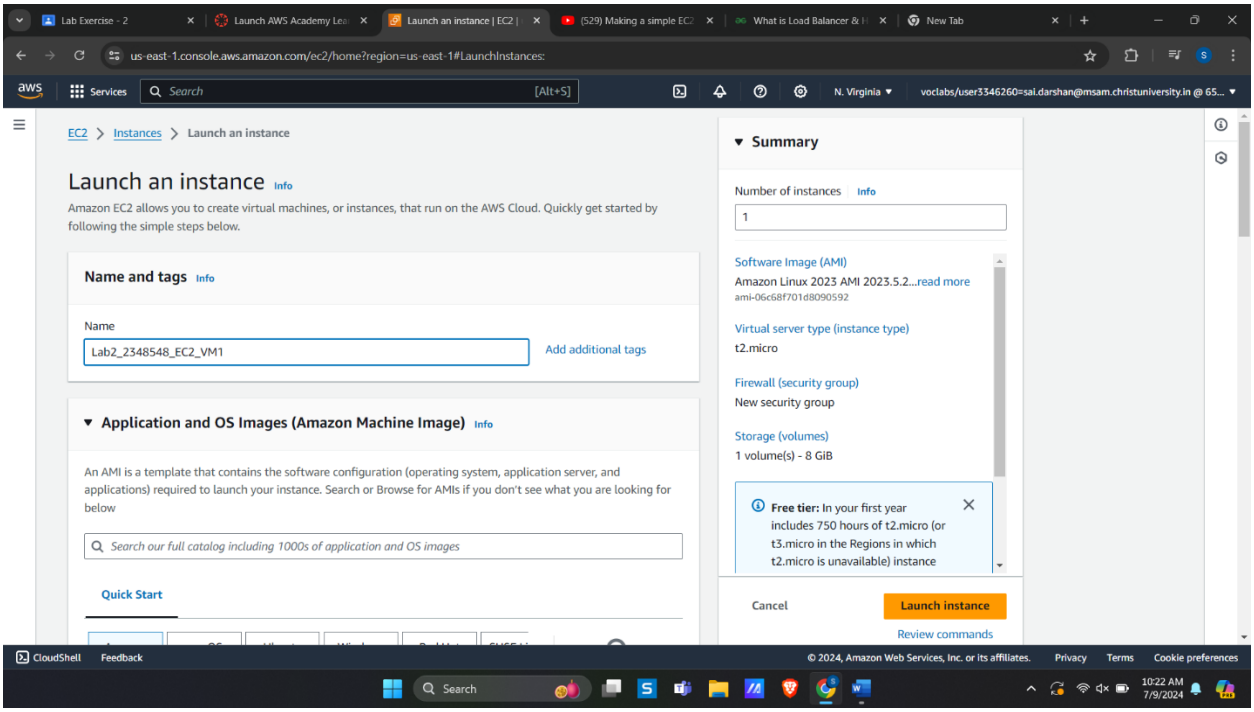
Azure

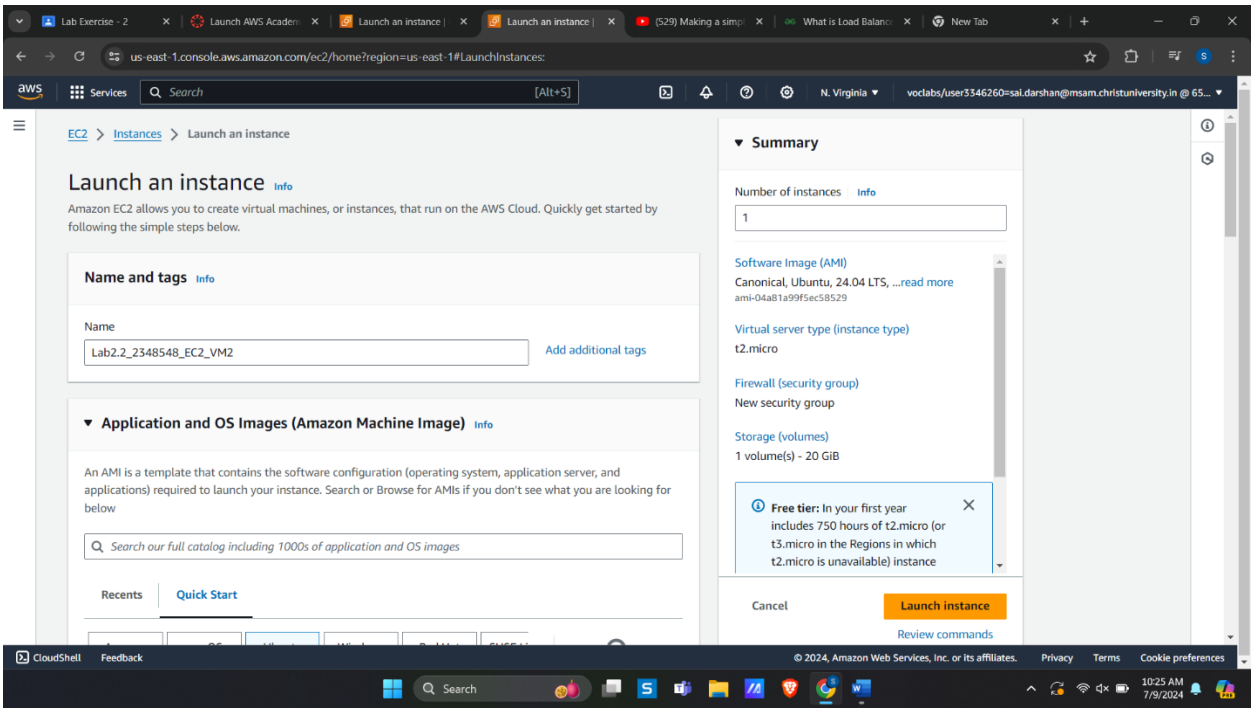
1. Azure Load Balancer (Basic and Standard)
2. Azure Application Gateway
3. Azure Traffic Manager
4. Azure Front Door

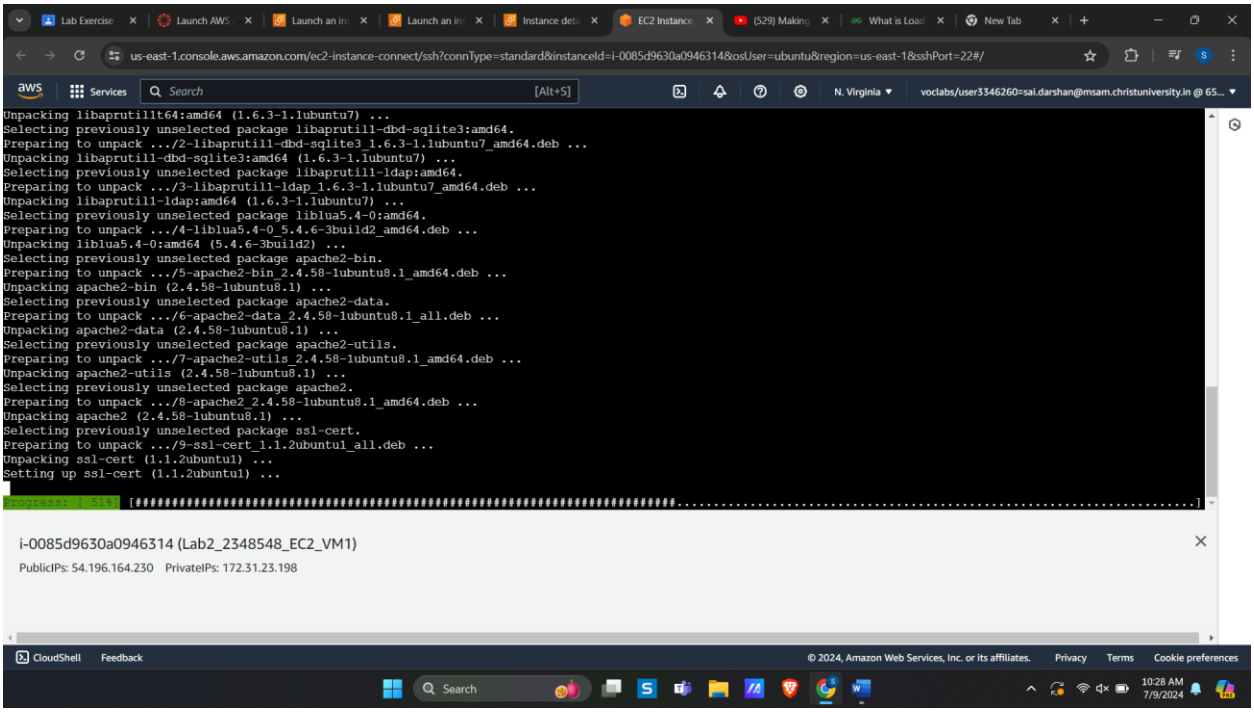
GCP

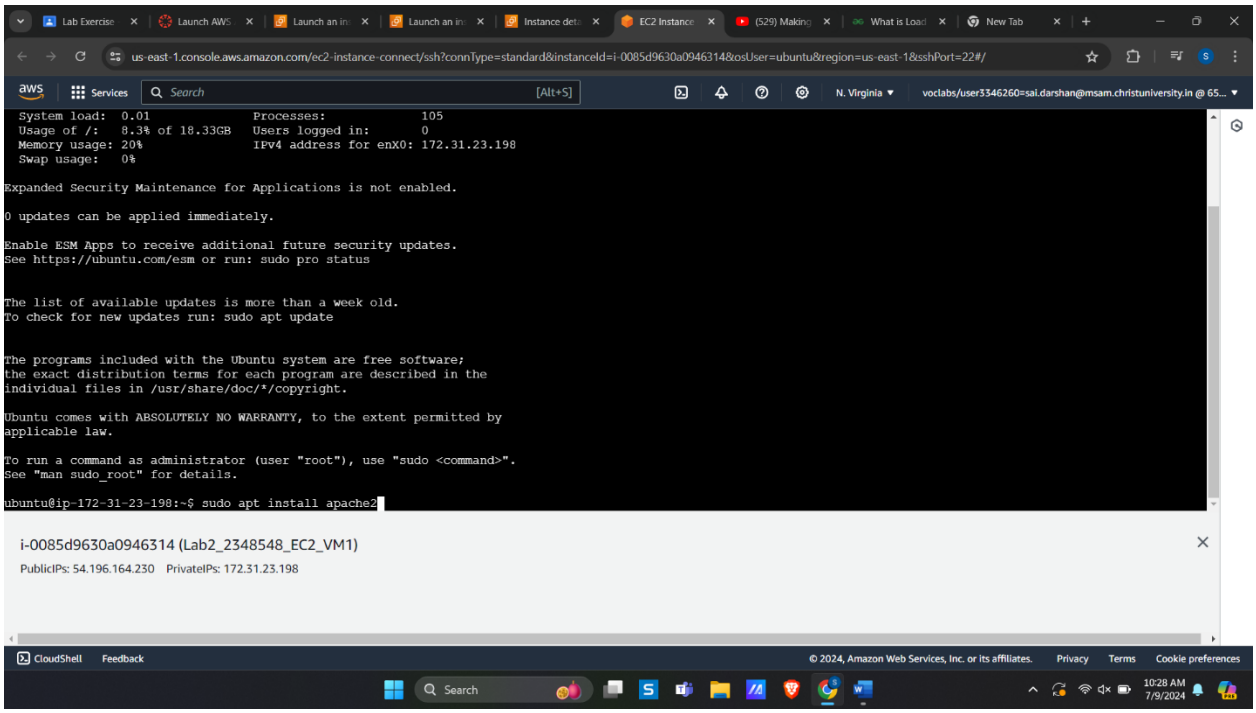
1. HTTP(S) Load Balancer
2. SSL Proxy Load Balancer
3. TCP Proxy Load Balancer
4. Internal TCP/UDP Load Balancer
5. Network Load Balancer

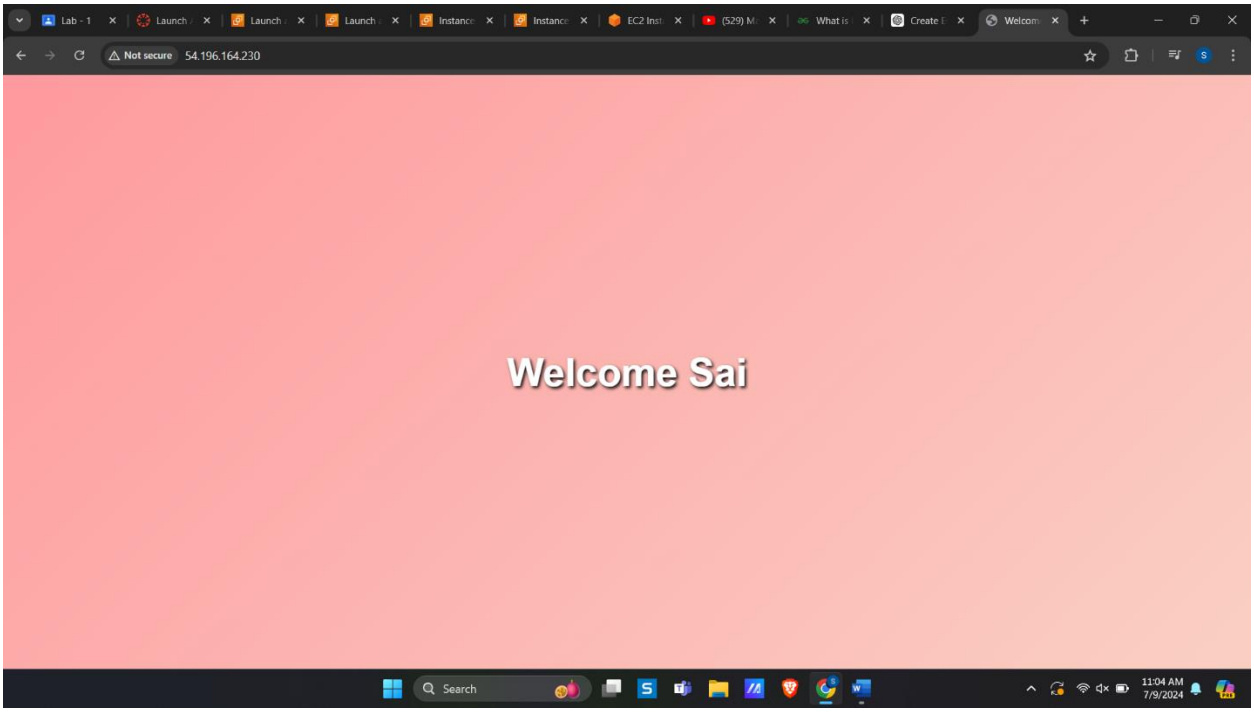
3. Create an AWS EC2 / GCP VM Instances (Instance Name: Regno_EC2_VM1, Regno_EC2_VM2) and install a webserver your choice in each of the instances to host web site of your organization globally.


Lab Exercise - 2
Launch AWS Academy Lea
Launch an instance | EC2 |
(529) Making a simple EC2
What is Load Balancer & H
New Tab
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
voclabs/user3346260=sai.darshan@msam.christuniversity.in @ 65...
EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
Lab2_2348548_EC2_VM1
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Quick Start
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.5.2...read more
ami-06c68f701d8090592
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Search
10:22 AM
7/9/2024

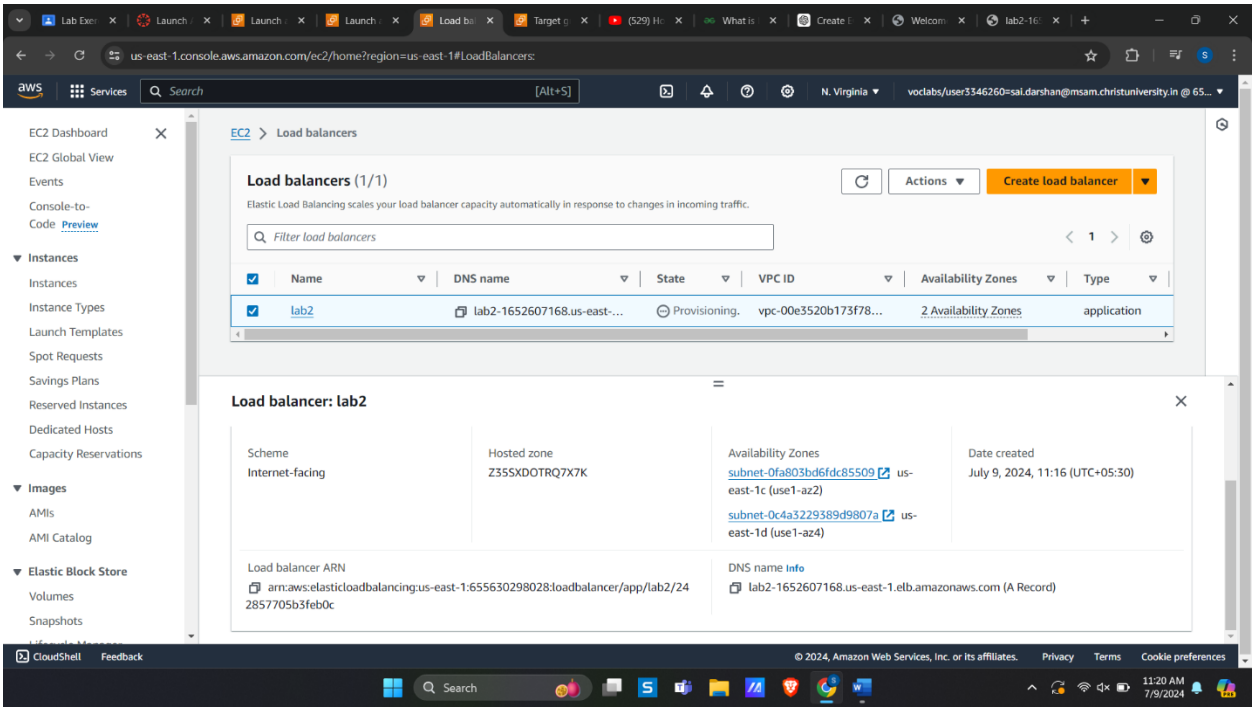

Lab Exercise - 2
Launch AWS Academ
Launch an instance |
Launch an instance |
(529) Making a simp
What is Load Balanc
New Tab
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
voclabs/user3346260=sai.darshan@msam.christuniversity.in @ 65...
EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
Lab2.2_2348548_EC2_VM2
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04 LTS, ...read more
ami-04a81a99f5ec58529
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 20 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Search
10:25 AM
7/9/2024

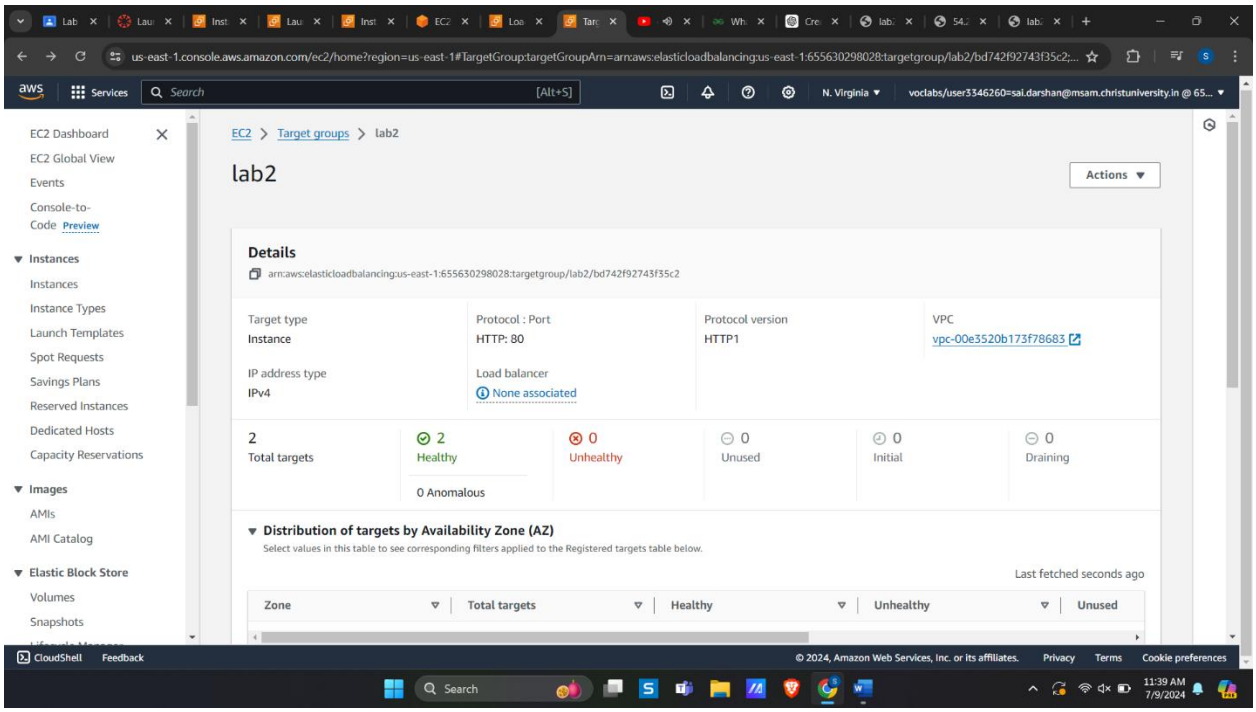

Unpacking libaprutil1t64:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
Preparing to unpack .../2-libaprutil1-dbd-sqlite3_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1-dbd-sqlite3:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-ldap:amd64.
Preparing to unpack .../3-libaprutil1-ldap_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1-ldap:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package liblua5.4-0:amd64.
Preparing to unpack .../4-liblua5.4-0_5.4.6-3build2_amd64.deb ...
Unpacking liblua5.4-0:amd64 (5.4.6-3build2) ...
Selecting previously unselected package apache2-bin.
Preparing to unpack .../5-apache2-bin_2.4.58-1ubuntu8.1_amd64.deb ...
Unpacking apache2-bin (2.4.58-1ubuntu8.1) ...
Selecting previously unselected package apache2-data.
Preparing to unpack .../6-apache2-data_2.4.58-1ubuntu8.1_all.deb ...
Unpacking apache2-data (2.4.58-1ubuntu8.1) ...
Selecting previously unselected package apache2-utils.
Preparing to unpack .../7-apache2-utils_2.4.58-1ubuntu8.1_amd64.deb ...
Unpacking apache2-utils (2.4.58-1ubuntu8.1) ...
Selecting previously unselected package apache2.
Preparing to unpack .../8-apache2_2.4.58-1ubuntu8.1_amd64.deb ...
Unpacking apache2 (2.4.58-1ubuntu8.1) ...
Selecting previously unselected package ssl-cert.
Preparing to unpack .../9-ssl-cert_1.1.2ubuntu1_all.deb ...
Unpacking ssl-cert (1.1.2ubuntu1) ...
Setting up ssl-cert (1.1.2ubuntu1) ...
Progress: [51%] [##.....]
i-0085d9630a0946314 (Lab2_2348548_EC2_VM1)
PublicIPs: 54.196.164.230 PrivateIPs: 172.31.23.198
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
10:28 AM
7/9/2024

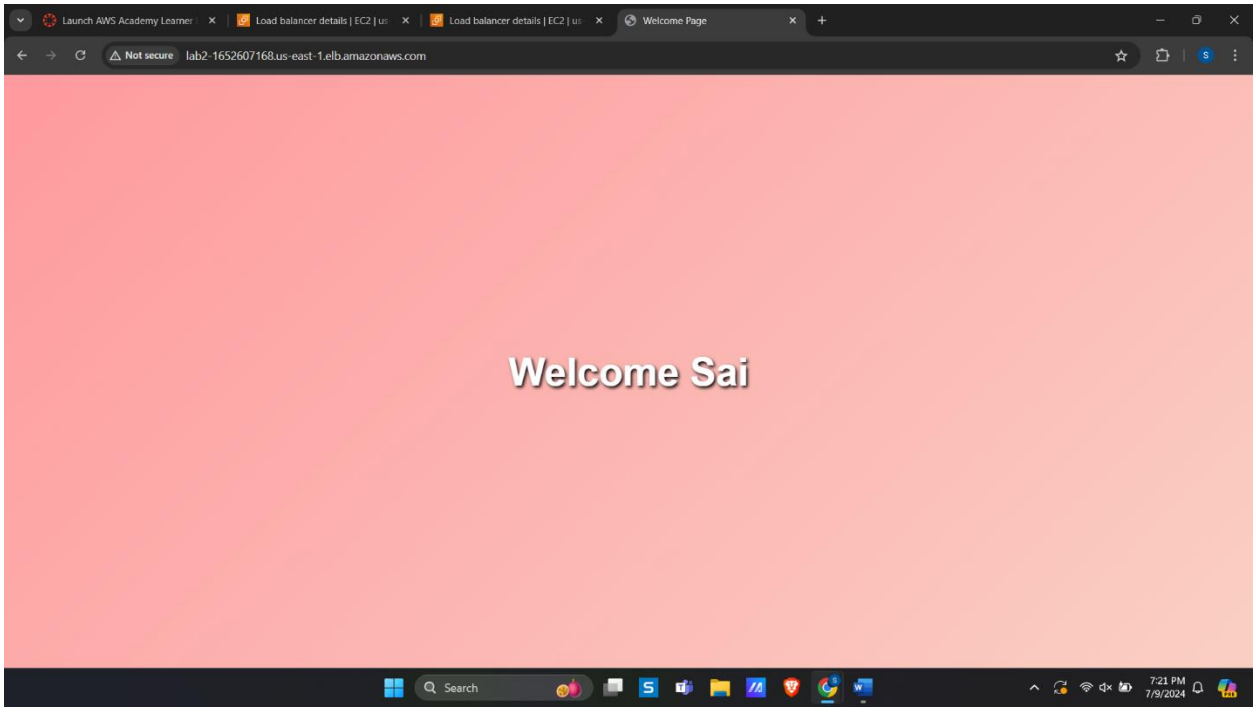

System load: 0.01
Usage of /: 8.3% of 18.33GB
Memory usage: 20%
Swap usage: 0%
Processes: 105
Users logged in: 0
IPv4 address for enX0: 172.31.23.198
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-23-198:~$ sudo apt install apache2
i-0085d9630a0946314 (Lab2_2348548_EC2_VM1)
PublicIPs: 54.196.164.230 PrivateIPs: 172.31.23.198
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
10:28 AM
7/9/2024



4. Create an Application Load Balancer to ensure the fare allocation of tasks among the web servers deployed on the Virtual machine instances.




us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroup:targetGroupArn=arn:aws:elasticloadbalancing:us-east-1:655630298028:targetgroup/lab2/bd742f92743f35c2;...
Services
Search
[Alt+S]
N. Virginia
voclabs/user3346260=sai.darshan@msam.christuniversity.in @ 65...
EC2 Dashboard
EC2 Global View
Events
Console-to-Code Preview
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
EC2 > Target groups > lab2
lab2
Actions
Details
arn:aws:elasticloadbalancing:us-east-1:655630298028:targetgroup/lab2/bd742f92743f35c2
Target type
Instance
Protocol : Port
HTTP: 80
Protocol version
HTTP1
VPC
vpc-00e3520b173f78683
IP address type
IPv4
Load balancer
None associated
2
Total targets
2
Healthy
0 Anomalous
0
Unhealthy
0
Unused
0
Initial
0
Draining
Distribution of targets by Availability Zone (AZ)
Select values in this table to see corresponding filters applied to the Registered targets table below.
Last fetched seconds ago
Zone
Total targets
Healthy
Unhealthy
Unused
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Search
11:39 AM
7/9/2024


Launch AWS Academy Learner
Load balancer details | EC2 | us
Load balancer details | EC2 | us
Welcome Page
Not secure
lab2-1652607168.us-east-1.elb.amazonaws.com
Welcome Sai
Search
7:21 PM
7/9/2024