



Implementing-Load-Balancing-with- ElasticLoad-Balancer

Dileep Yadlapalli

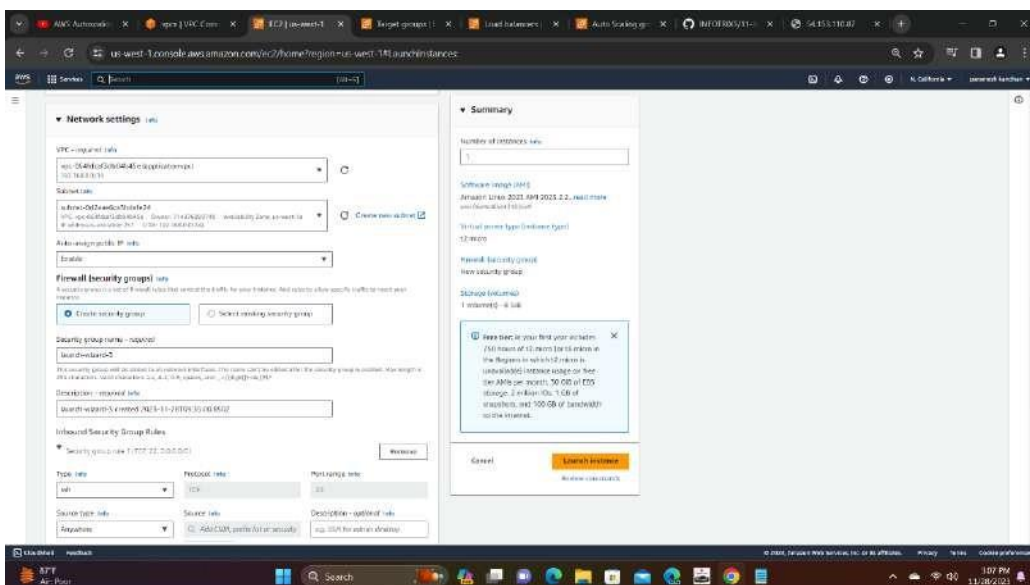
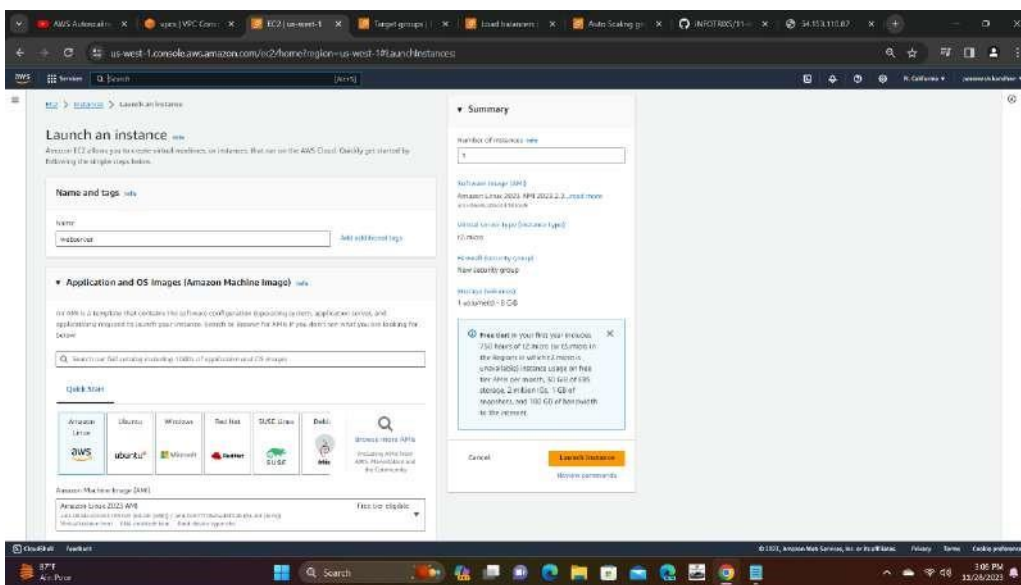


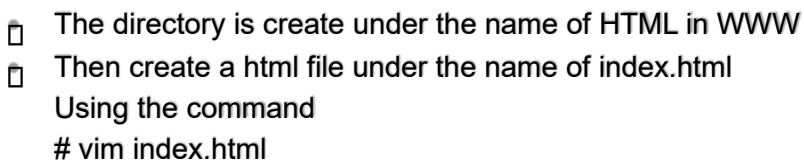
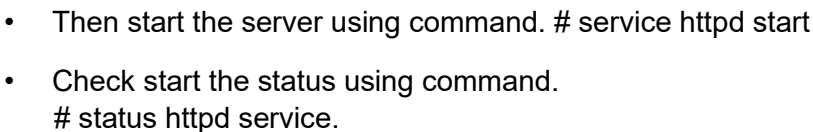
THE OBJECT:

The goal of this project is to set up a load balancer using Elastic Load Balancer (ELB) in order to distribute incoming application traffic across multiple EC2 instances. By implementing load balancing, we aim to improve the performance, scalability, and availability of the application.

PROCESS:

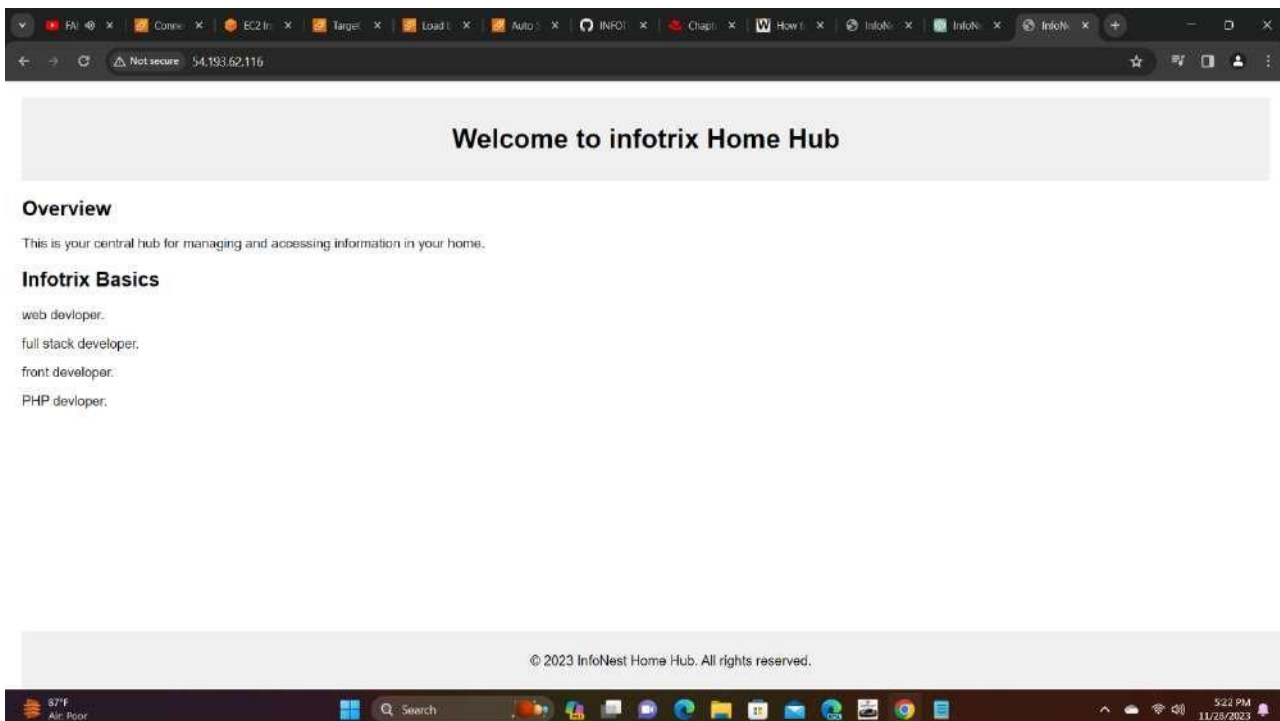
- ❏ To create a separate server (linux) using a EC2 instance.



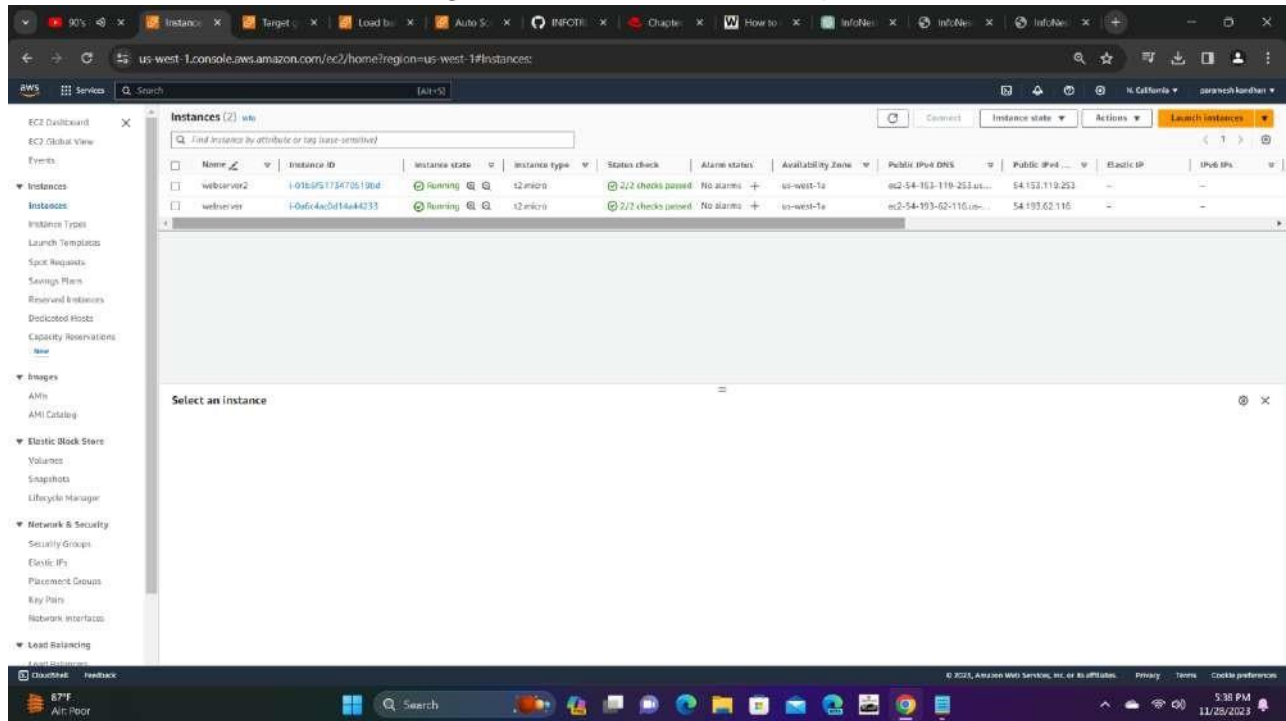




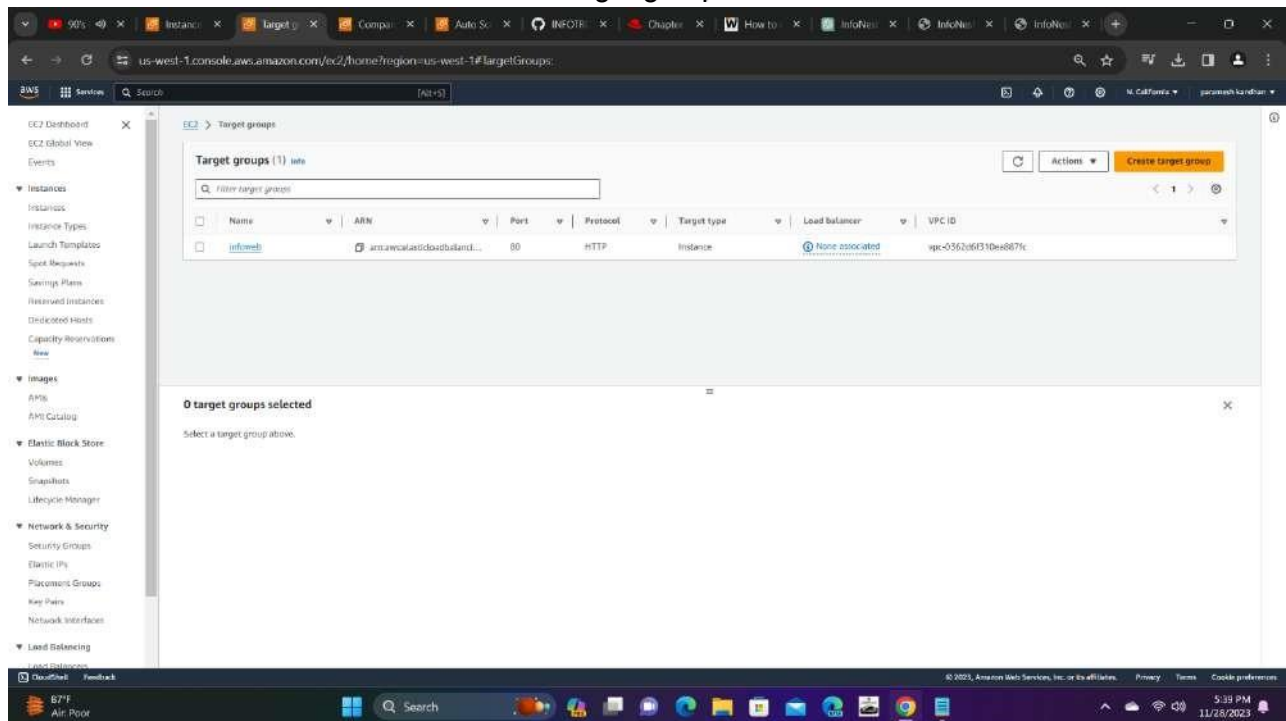
And the output is



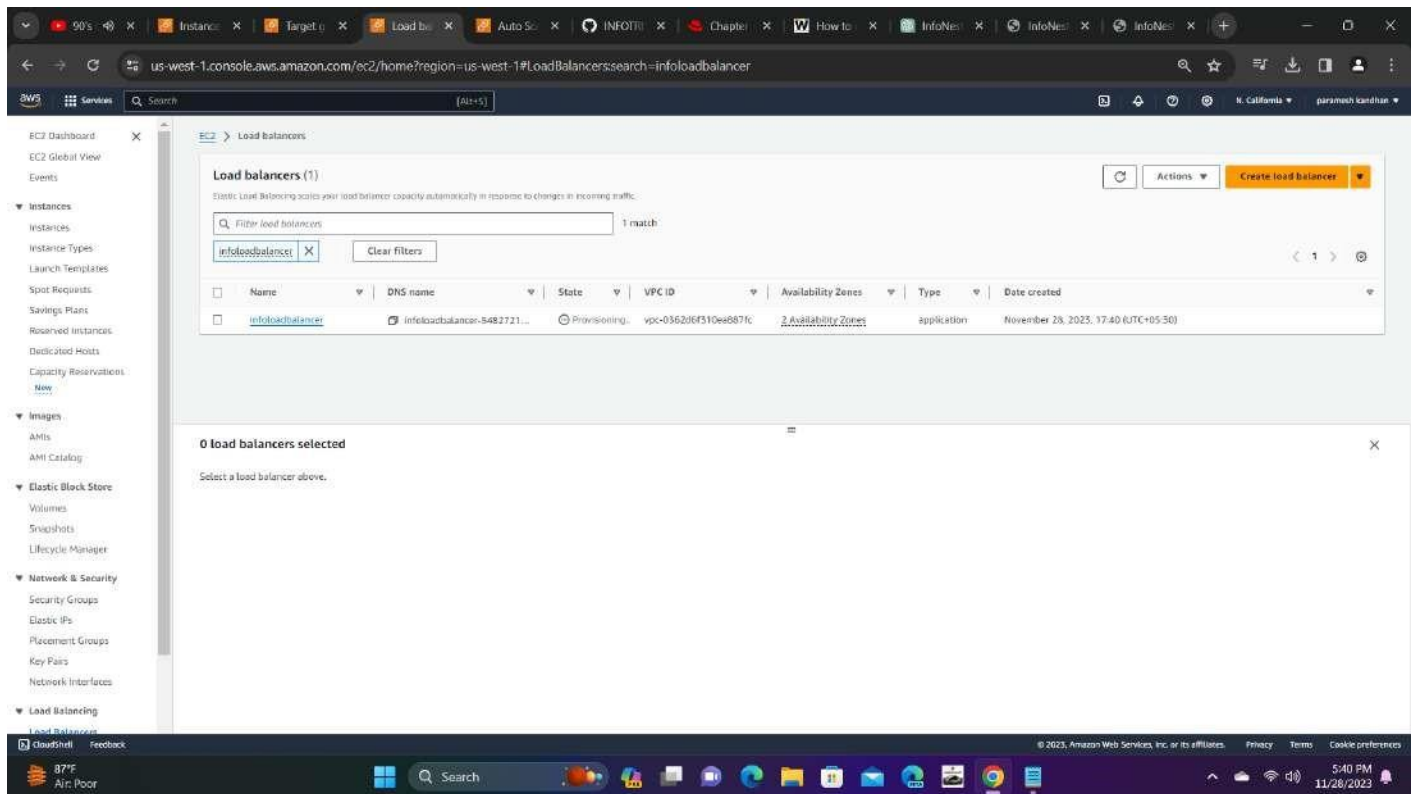
- Then create a second server using a EC2 instance as a same procedure.



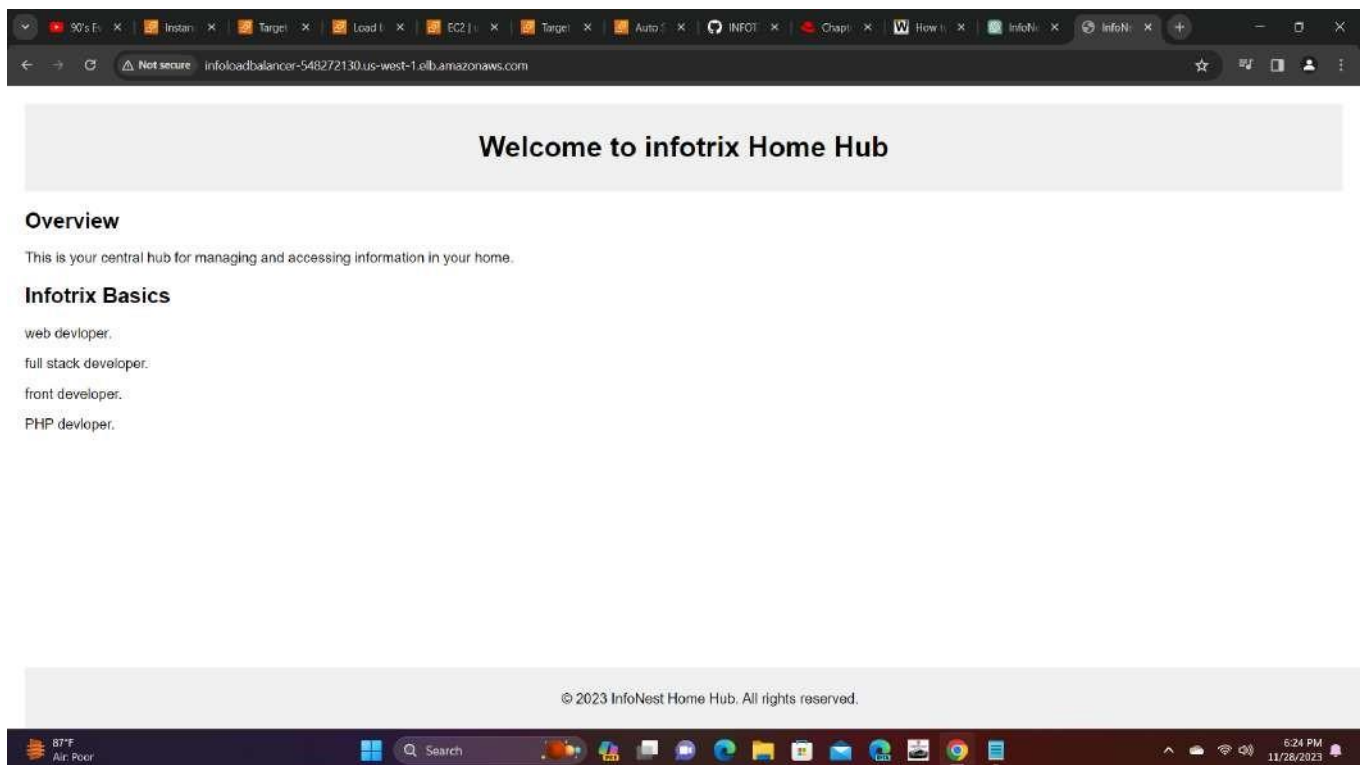
- For Elastic load balancer need to create a target groups.

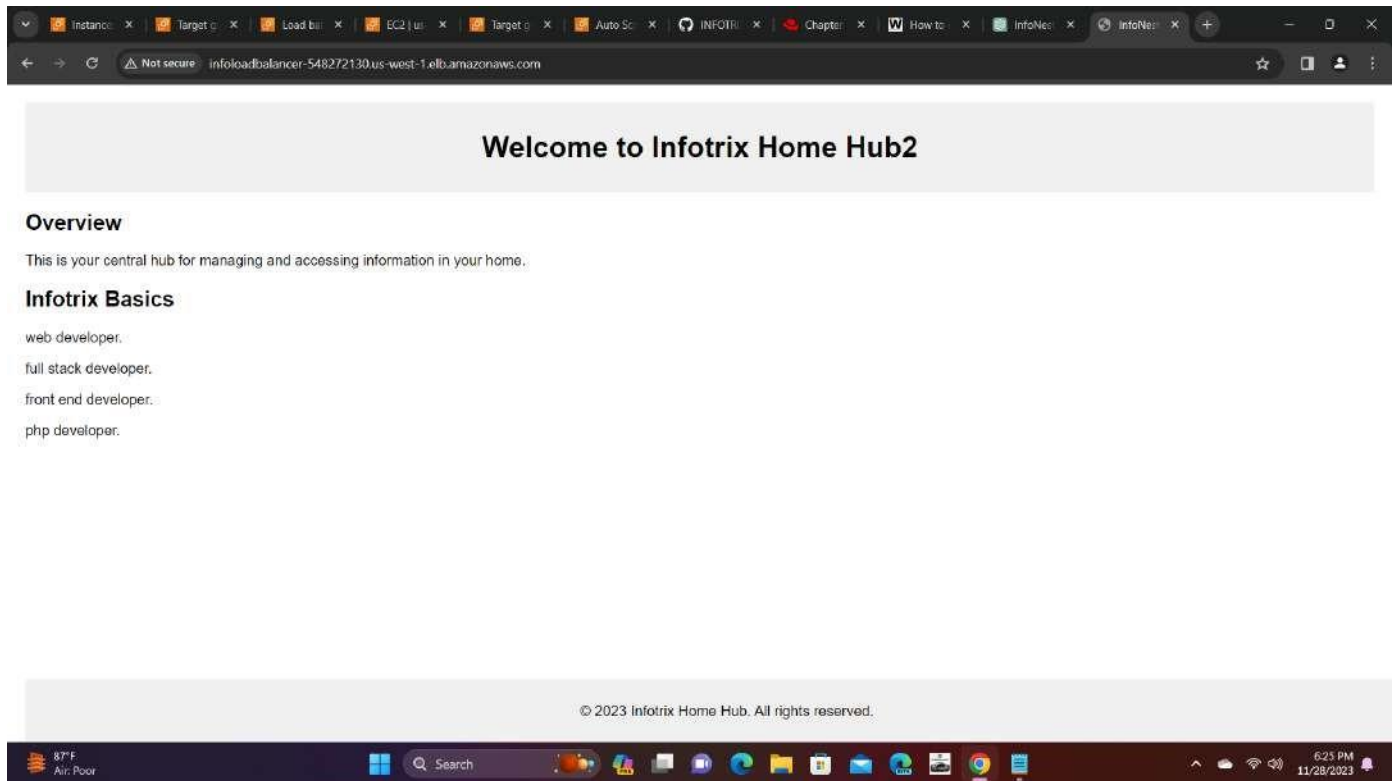


- After create a target groups need to create a elastic load balancer.

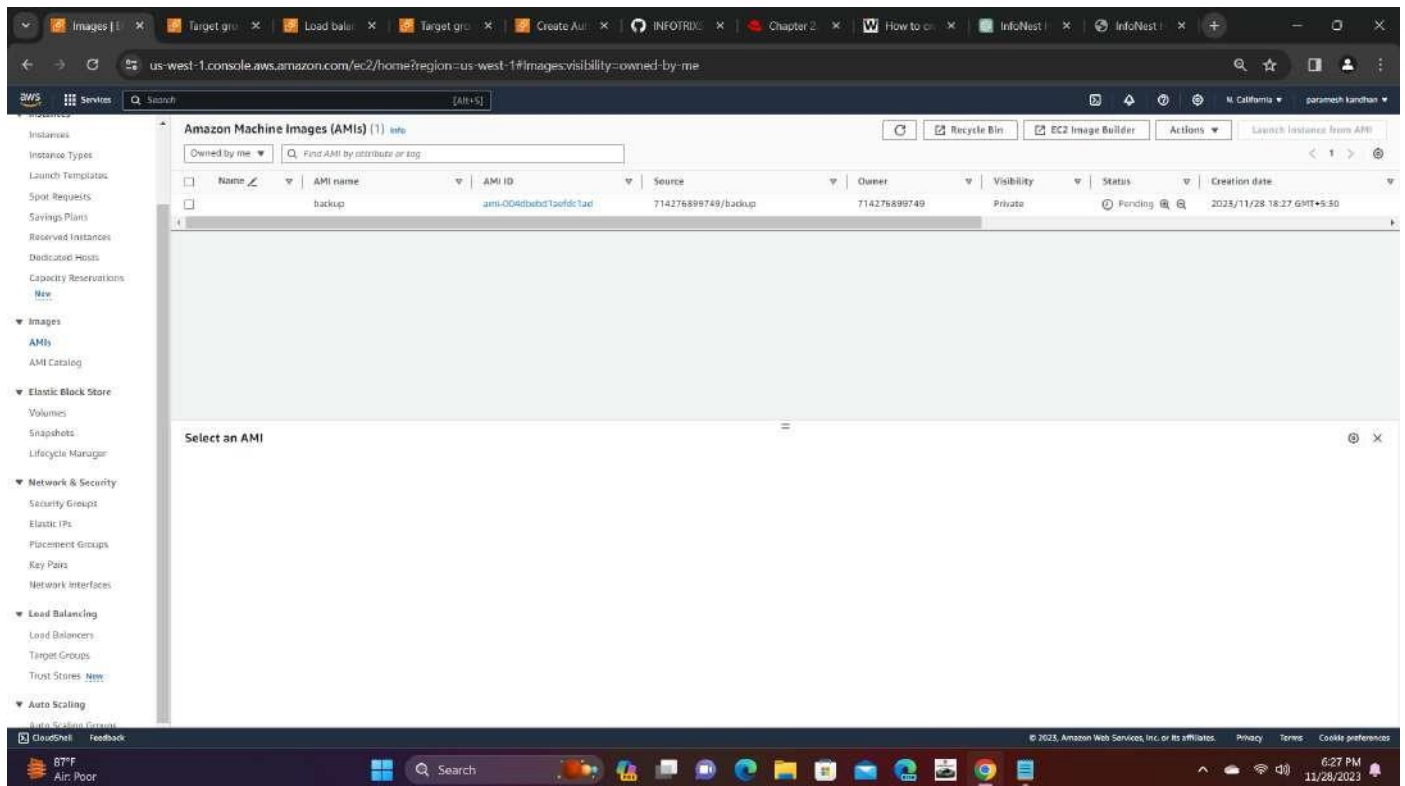


And the output of elastic load balancer :





Next to create Auto scaling before use to create a Ami.



□ To create a Auto scale ..

The screenshot shows the AWS Management Console interface for creating an Auto Scaling group. The browser address bar shows the URL: `us-west-1.console.aws.amazon.com/ec2/home?region=us-west-1#CreateAutoScalingGroup`. The console header includes the AWS logo, 'Services' menu, a search bar, and the user's name 'paramesh kashan'.

On the left, a sidebar lists the steps of the wizard:

- Step 1: Choose launch template or configuration (selected)
- Step 2: Choose instance launch options
- Step 3 - optional: Configure advanced options
- Step 4 - optional: Configure group size and scaling
- Step 5 - optional: Add notifications
- Step 6 - optional: Add tags
- Step 7: Review

The main content area is titled 'Choose launch template or configuration' with a subtitle: 'Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group. If you currently use launch configurations, you might consider migrating to launch templates.' Below this, there are two main sections:

- Name:** A text input field labeled 'Auto Scaling group name' with the value 'infautoscale' entered. A note below states: 'Must be unique to this account in the current Region and no more than 255 characters.'
- Launch template:** A section with a 'Switch to launch configuration' link. It contains a 'Launch template' description and a 'Select a launch template' dropdown menu. The dropdown shows 'infautoscale' as the selected option. Below the dropdown is a search bar labeled 'Search launch templates' and a list of results showing 'infautoscale'.

 At the bottom right of the main content area are 'Cancel' and 'Next' buttons.

The bottom of the screenshot shows the Windows taskbar with the date and time '6:28 PM 11/28/2023'.

The screenshot shows the AWS Management Console interface for creating an Auto Scaling group, specifically Step 4: 'Configure group size and scaling'. The browser address bar shows the URL: `us-west-1.console.aws.amazon.com/ec2/home?region=us-west-1#CreateAutoScalingGroup`. The console header is the same as the previous screenshot.

The sidebar on the left shows the steps:

- Step 4 - optional: Configure group size and scaling (selected)
- Step 5 - optional: Add notifications
- Step 6 - optional: Add tags
- Step 7: Review

The main content area is titled 'Attach to an existing load balancer' with a subtitle: 'Select the load balancers that you want to attach to your Auto Scaling group.' There are three radio button options at the top:

- ☐ No load balancer: Traffic to your Auto Scaling group will not be handled by a load balancer.
- ☒ Attach to an existing load balancer: Choose from your existing load balancers.
- ☐ Attach to a new load balancer: Quickly create a new load balancer to attach to your Auto Scaling group.

Under the 'Attach to an existing load balancer' section, there are two radio button options:

- ☒ Choose from your load balancer target groups: This option allows you to attach Application, Network, or Gateway Load Balancers.
- ☐ Choose from Classic Load Balancers

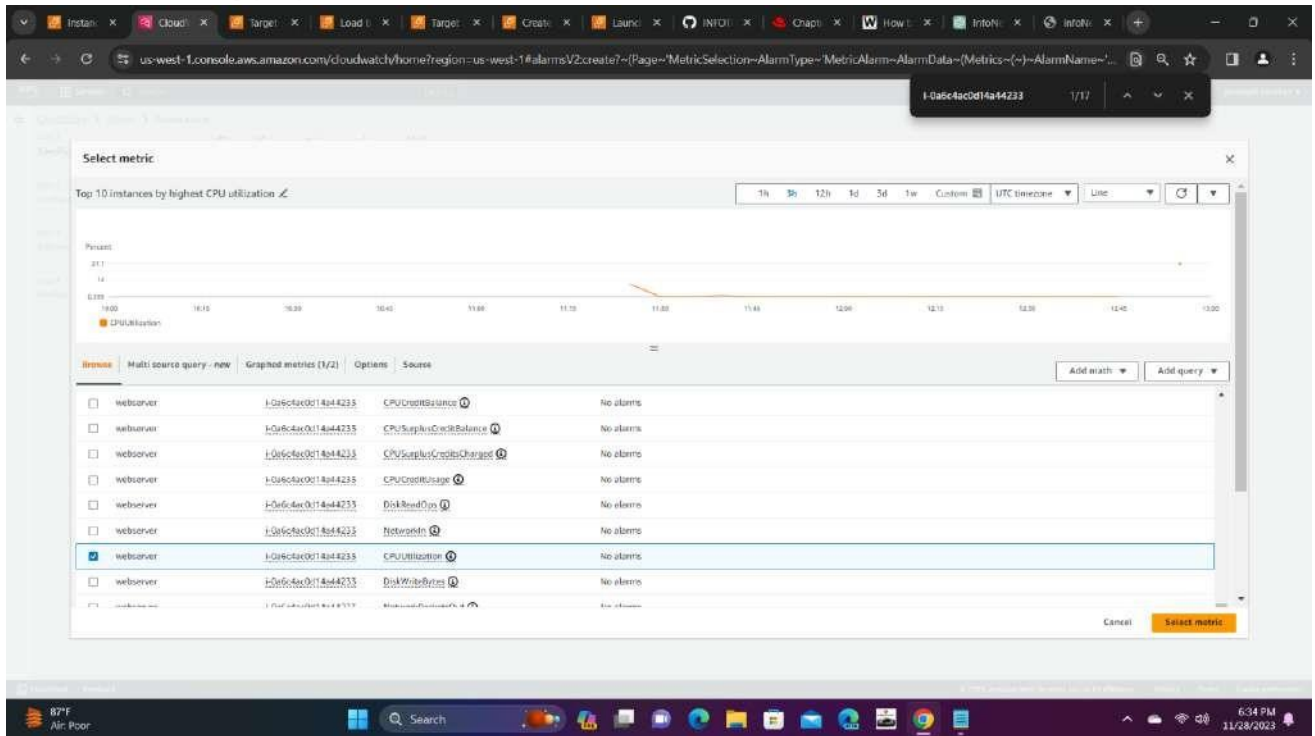
Below these options, there is a section for 'Existing load balancer target groups' with a note: 'Only resources target groups that belong to the same VPC as your Auto Scaling group are available for selection.' A dropdown menu labeled 'Select target groups' shows 'infawsel (HTTP Application Load Balancer: infautoscale)' as the selected option.

The 'Health checks' section includes:

- EC2 health checks:** A toggle switch labeled 'Always enabled' is turned on.
- Additional health check types - optional:** A checkbox labeled 'Turn on Elastic Load Balancing health checks' is turned on, with a 'Recommended' badge.
- Health check grace period:** A text input field showing '300' seconds.

At the bottom right of the main content area are 'Cancel' and 'Next' buttons. The Windows taskbar at the bottom shows the date and time '6:29 PM 11/28/2023'.

- For the monitoring purpose need to create a cloud watch.



The screenshot shows the AWS SNS console. A 'Topic infoalarm' is displayed. The console shows the topic details, including the name, ARN, and type. The 'Subscriptions' section is empty, and a 'Create subscription' button is visible.

Topic infoalarm

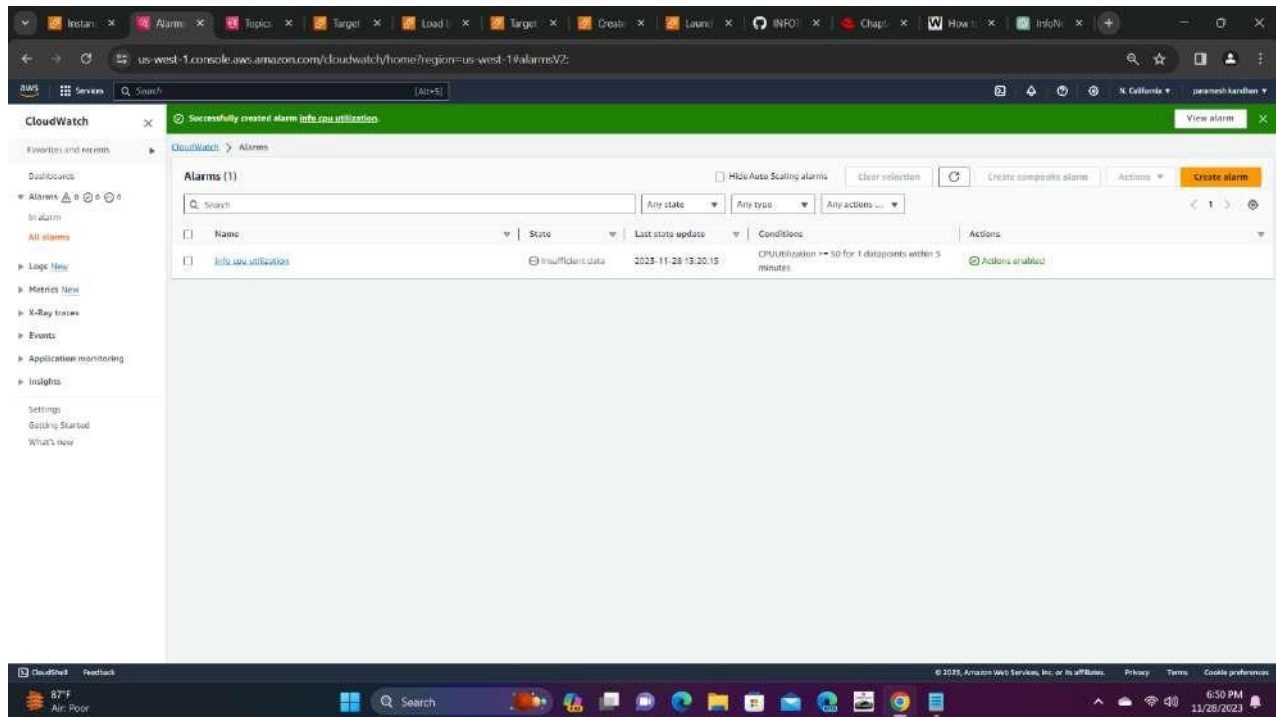
Details

Field	Value
Name	infoalarm
Display name	cpu utilization high
ARN	arn:aws:sns:us-east-1:714276899749:infoalarm
Topic owner	714276899749
Type	Standard

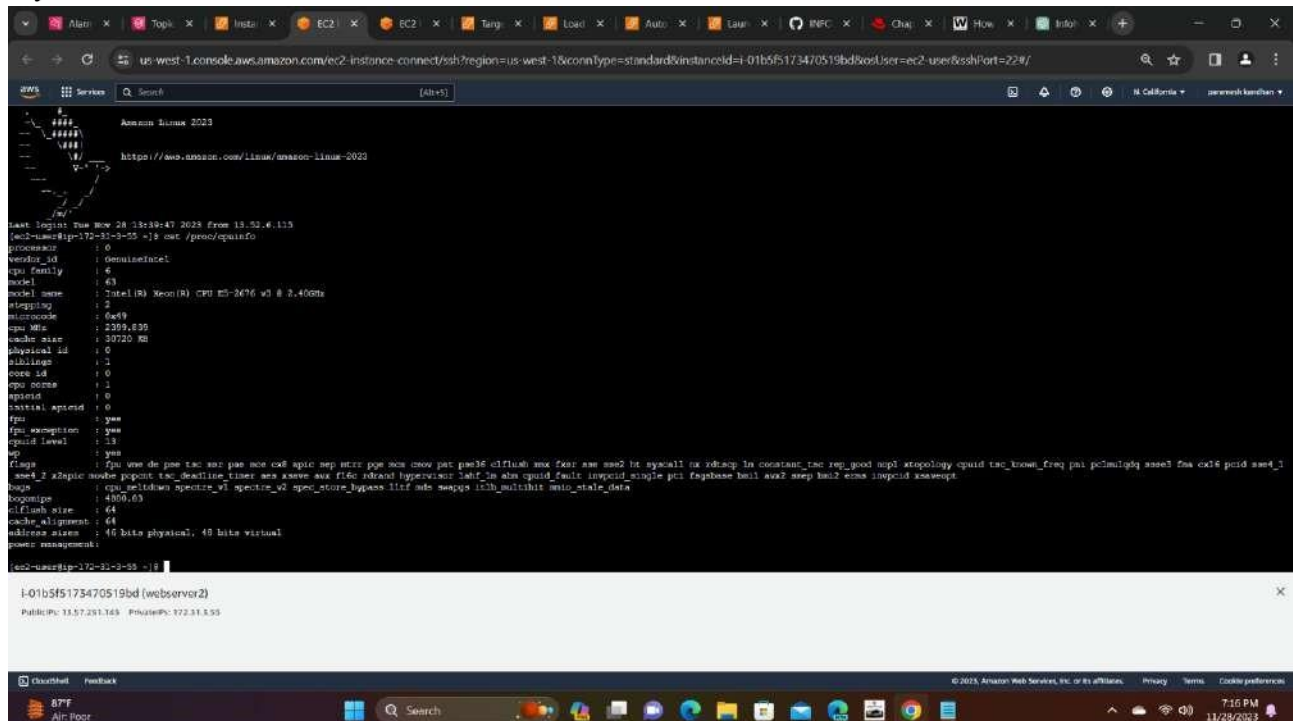
Subscriptions (0)

No subscriptions found. You don't have any subscriptions to this topic.

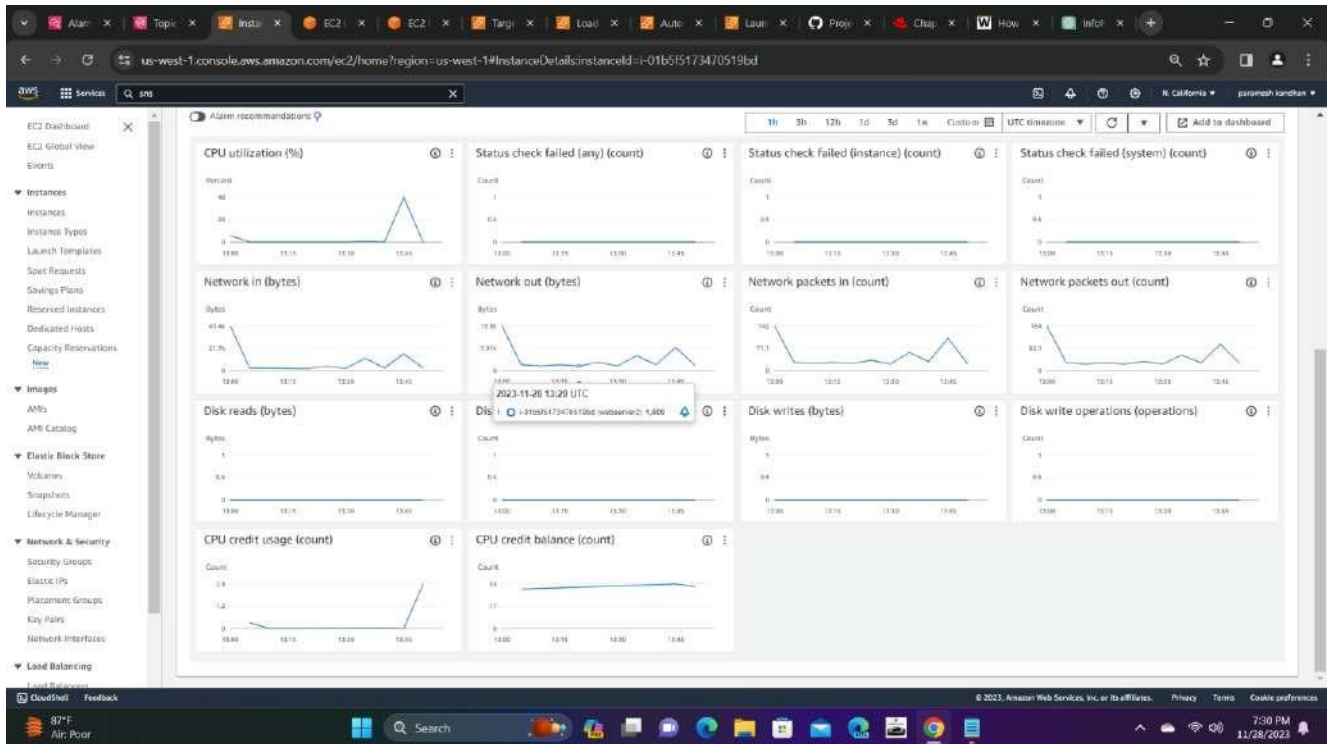
Create subscription



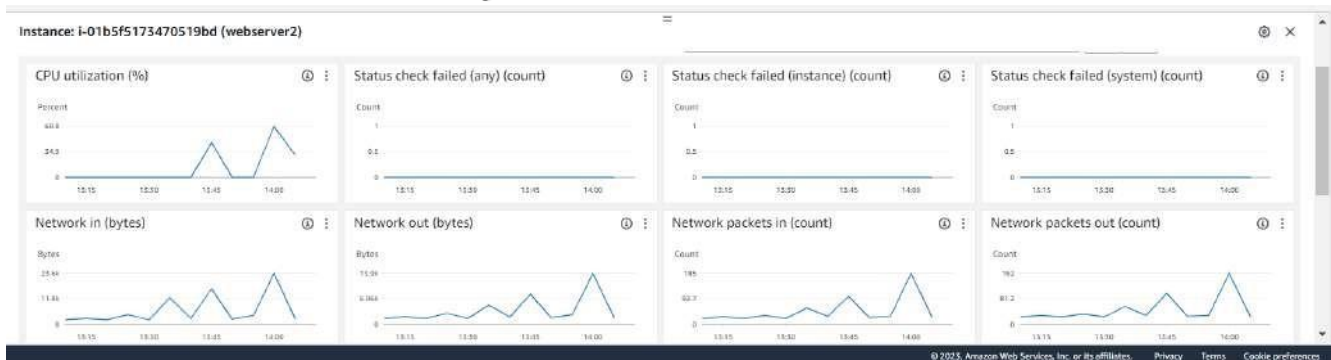
- For the monitor purpose to create an artificial load using the command
- ```
yes > /dev/null &
```



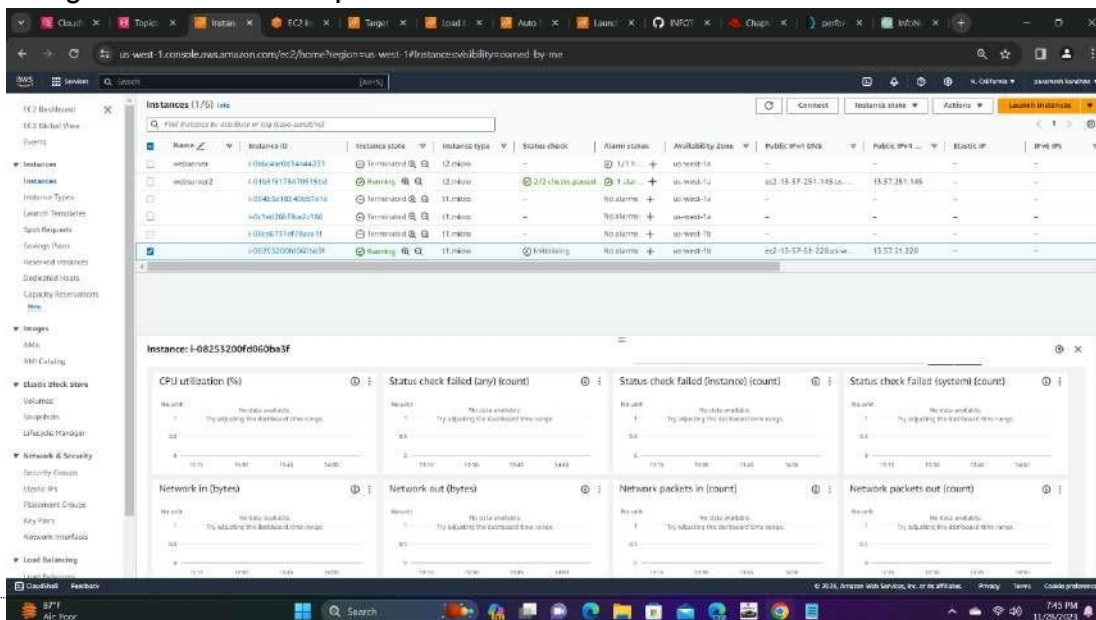
- So the ec2 monitor it will shown the cpu utilization is high.



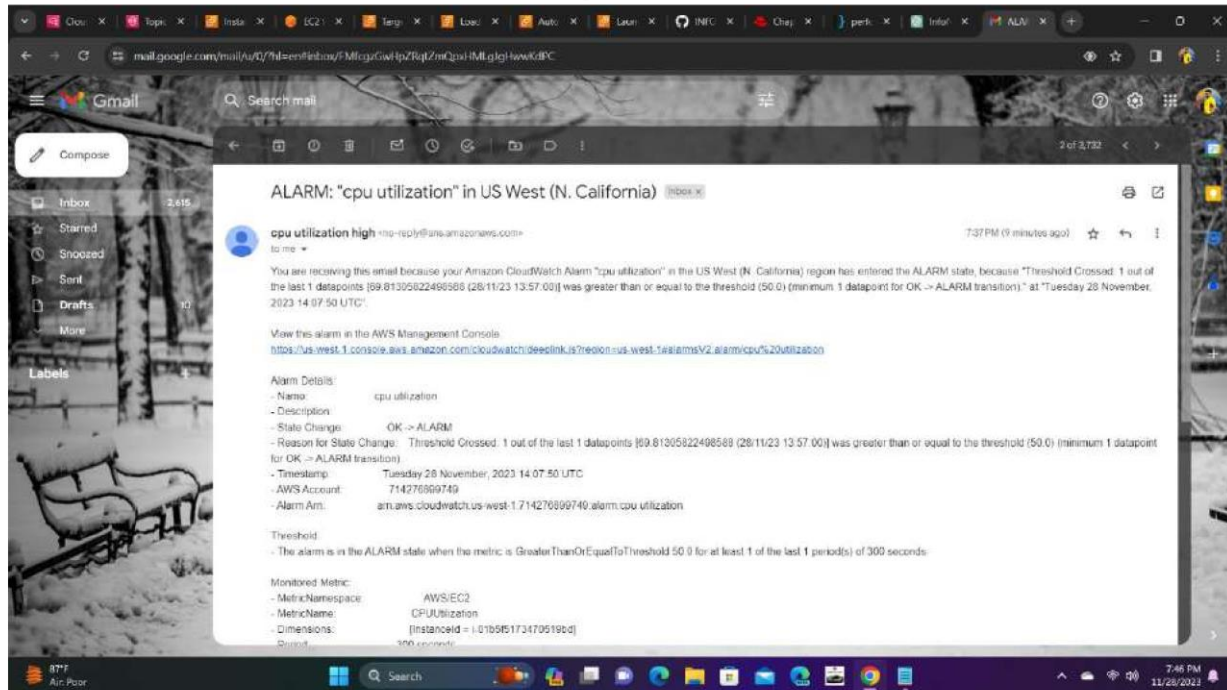
- The cloud watch also it will shown high.



- Using an auto scale concept the new instance it will be created .



- The cpu utilization alert it will be send through the mail



Html code:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
 <meta charset="UTF-8">
```

```
 <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
 <title>InfoNest Home Hub</title>
```

```
 <style>
```

```
 body {
```

```
 font-family: Arial, sans-serif;
```

```
 margin: 20px;
```

```
 }
```

```
 header {
```

```
 text-align: center;
```

```
 padding: 10px;
```

```
 background-color: #f0f0f0;
```

```
 }
```

```
 main {
```

```
 margin-top: 20px;
```

```
 }
```

```
 section {
```

```
 margin-bottom: 20px;
```

```
 }
```

```
 footer {
```

```
 text-align: center;
```

```
 padding: 10px;
```

```

 background-color: #f0f0f0;
 position: fixed;
 bottom: 0;
 width: 100%;
 }
</style>
</head>
<body>
 <header>
 <h1>Welcome to Infotrix Home Hub</h1>
 </header>
 <main>
 <section>
 <h2>Overview</h2>
 <p>This is your central hub for managing and accessing information in your home.</p>
 </section>
 <section>
 <h2>Infotrix Basics</h2>
 <p>To Build the technology environment.</p>
 <!-- Add more content as needed -->
 </section>
 </main>
 <footer>
 <p>web developer.</p>
 <p>front end developer.</p>
 <p>front end developer.</p>
 <p>php developer.</p>
 </footer>
</body>
</html>

```

### Challenges faced:

- No issues I faced but it's a nice experience to faced a challenge.

### Conclusion:

In conclusion, embarking on this new endeavor promises to be an enriching experience, marked by the simultaneous mastery of multitasking and the acquisition of advanced skills in managing multiple machines through Elastic Load Balancing (ELB). The journey involves delving into the intricacies of connecting numerous machines seamlessly, optimizing their performance, and ensuring high availability.

Furthermore, the exploration of auto scaling and CloudWatch represents a pivotal aspect of this professional odyssey. Auto scaling empowers us to dynamically adapt to varying workloads, ensuring optimal resource utilization and cost efficiency. CloudWatch, as a comprehensive monitoring solution, provides the insights necessary for informed decision-making, enhancing system reliability and performance.

As we traverse the landscape of SNS (Simple Notification Service), we unlock the potential for real-time communication and alerts, fostering a proactive approach to system management. The seamless integration of these components not only amplifies our technical prowess but also positions us at the forefront of efficient and scalable cloud architecture.

In essence, this journey encapsulates a commitment to continuous learning, adaptability, and a deepening understanding of cutting-edge technologies. It is an investment in professional growth that will undoubtedly yield dividends in the ever-evolving landscape of cloud computing.

Thank you