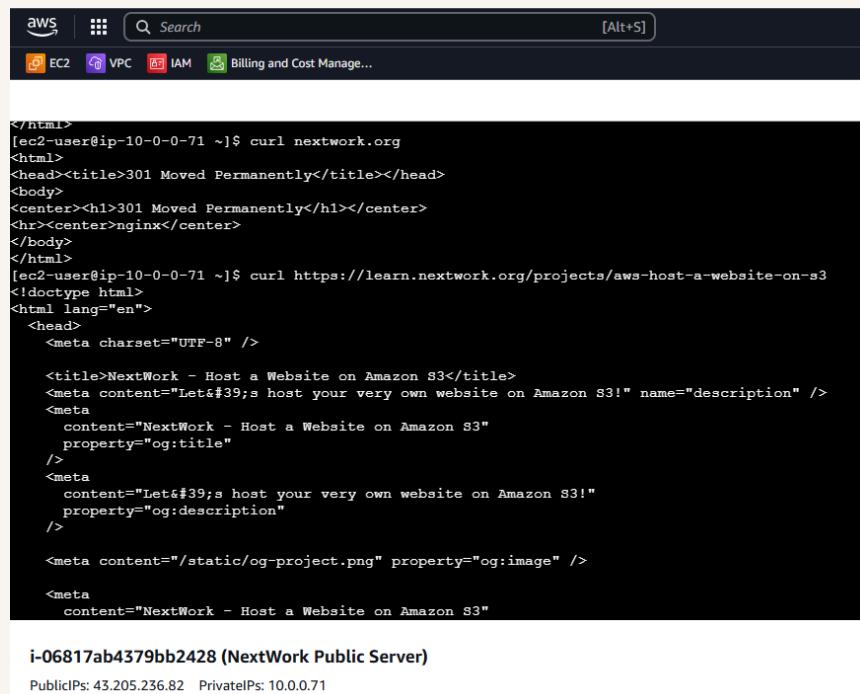


nextwork.org

Testing VPC Connectivity

RA

Ranjith D B



```
</html>
[ec2-user@ip-10-0-0-71 ~]$ curl nextwork.org
<html>
<head><title>301 Moved Permanently</title></head>
<body>
<center><h1>301 Moved Permanently</h1></center>
<hr><center>nginx</center>
</body>
</html>
[ec2-user@ip-10-0-0-71 ~]$ curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />

    <title>NextWork - Host a Website on Amazon S3</title>
    <meta content="Let's host your very own website on Amazon S3!" name="description" />
    <meta
      content="NextWork - Host a Website on Amazon S3"
      property="og:title"
    />
    <meta
      content="Let's host your very own website on Amazon S3!"
      property="og:description"
    />

    <meta content="/static/og-project.png" property="og:image" />
    <meta
      content="NextWork - Host a Website on Amazon S3"

```

i-06817ab4379bb2428 (NextWork Public Server)
Public IPs: 43.205.236.82 Private IPs: 10.0.0.71

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a virtual network that lets you create isolated cloud environments in AWS. It provides control over networking, security, and routing, making it useful for hosting secure applications and managing traffic.

How I used Amazon VPC in this project

I used Amazon VPC to create a private and public subnet, configure route tables, set up an internet gateway, and adjust security settings to test connectivity between my servers and the internet.

One thing I didn't expect in this project was...

I didn't expect that allowing ICMP in the security group was necessary for ping to work, even after modifying the network ACL.

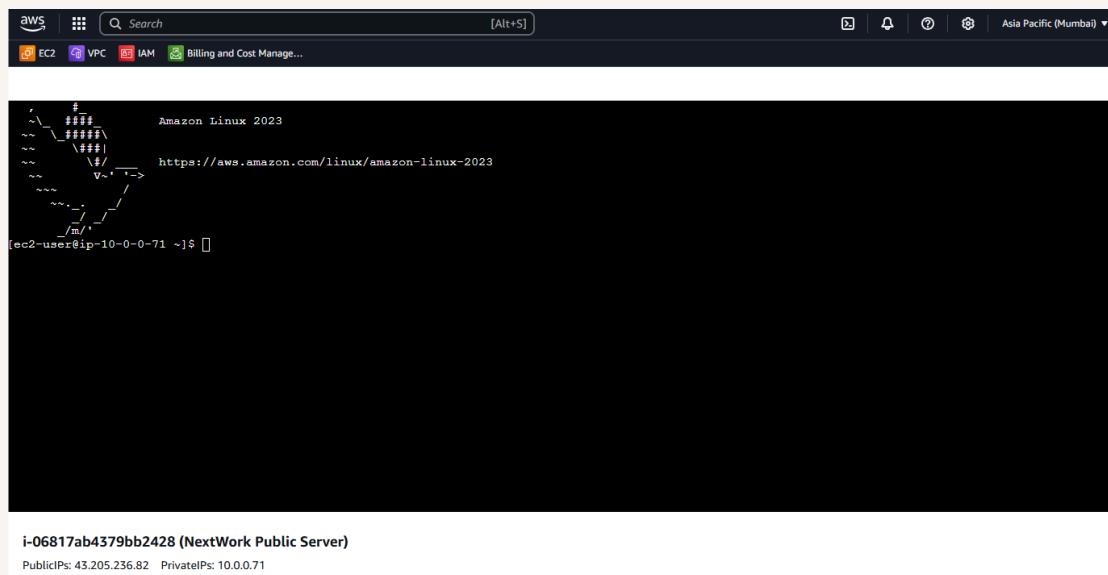
This project took me...

This project took me around an hour to complete, including troubleshooting connectivity issues and testing different configurations in the VPC setup.

Connecting to an EC2 Instance

Connectivity means the ability of devices, networks, and services to communicate with each other efficiently. It ensures smooth data flow, enabling access to resources, applications, and the internet for seamless operations.

My first connectivity test was whether I could connect to my NextWork Public Server using EC2 Instance Connect. This was to verify if my instance was properly configured with the right public IP, security group, and network settings.

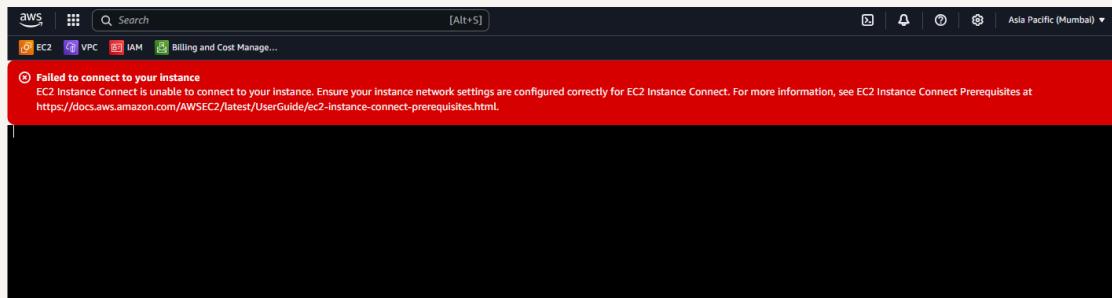


EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a browser-based SSH client that temporarily generates and manages SSH keys, allowing secure access to an instance without needing a pre-configured private key.

My first attempt at getting direct access to my public server resulted in an error because the security group lacked an inbound rule allowing SSH traffic, preventing EC2 Instance Connect from establishing a connection.

I fixed this error by updating the security group for my public server, adding an inbound rule for SSH (port 22) with the source set to Anywhere-IPv4, allowing EC2 Instance Connect to establish a connection.

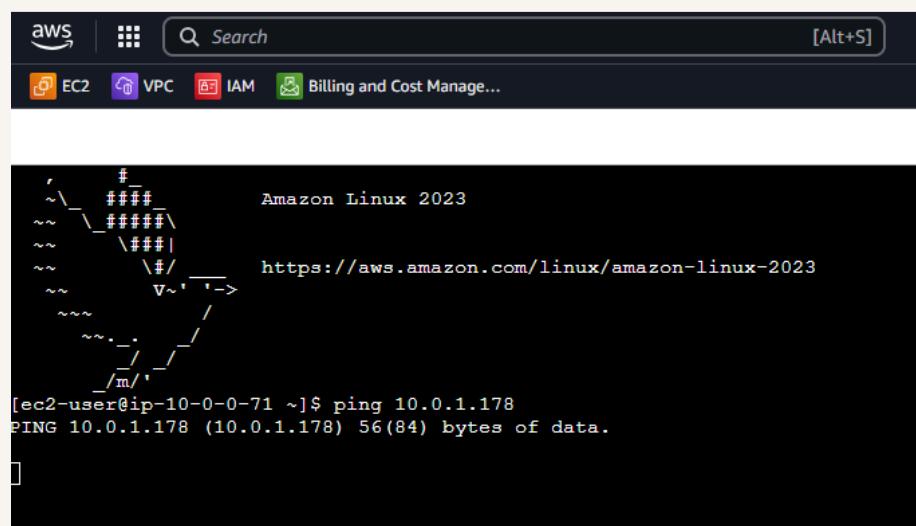


Connectivity Between Servers

Ping is a network diagnostic tool that sends ICMP echo requests to a target device and waits for a response. I used ping to test the connectivity between NextWork Public Server and NextWork Private Server.

The ping command I ran was ping <private-server-ip>. This command sent ICMP echo requests to the private server, checking if it was reachable from the public server.

The first ping returned a single line with no replies. This meant the request was sent, but the private server didn't respond, likely due to blocked ICMP traffic in the Network ACL or security group.



A screenshot of an AWS CloudShell terminal window. The terminal shows a welcome ASCII art logo for Amazon Linux 2023, followed by a command prompt and the output of a ping command. The ping command is run against the IP address 10.0.1.178. The output shows the command being entered and the results of the ping request.

```
aws | Search [Alt+S]
EC2 VPC IAM Billing and Cost Manage...
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
[ec2-user@ip-10-0-0-71 ~]$ ping 10.0.1.178
PING 10.0.1.178 (10.0.1.178) 56(84) bytes of data.
```

Troubleshooting Connectivity

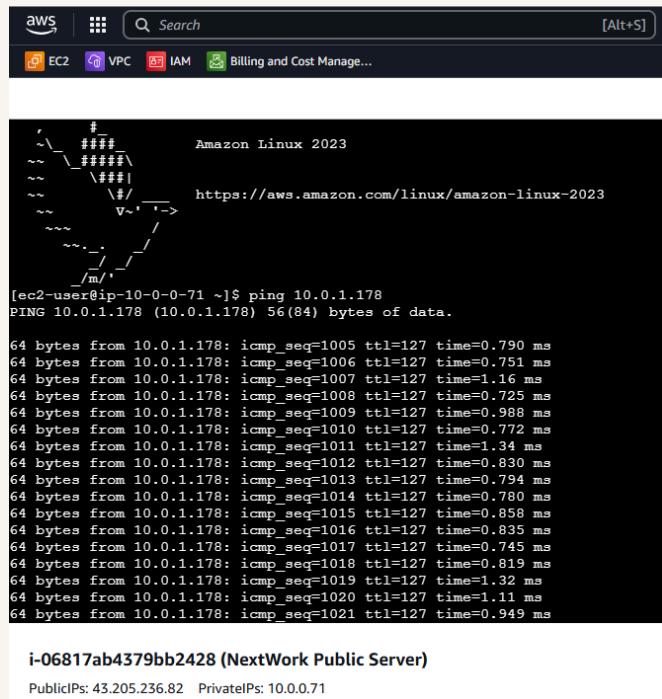
I troubleshooted this by updating the Network ACL and Security Group to allow inbound and outbound ICMP traffic, ensuring ping messages could reach the private server and receive replies.

RA

Ranjith D B

NextWork Student

NextWork.org



The screenshot shows a terminal window within the AWS Cloud9 interface. The terminal title is 'Amazon Linux 2023'. The user has run a 'ping' command to test connectivity to another host at IP 10.0.1.178. The output of the ping command is displayed, showing multiple ICMP echo requests being sent and their round-trip times.

```
'~\###'
~~ \###\
~~ \###|
~~ \#/ .-> https://aws.amazon.com/linux/amazon-linux-2023
~~ / .
~~ / /
~/m/.

[ec2-user@ip-10-0-0-71 ~]$ ping 10.0.1.178
PING 10.0.1.178 (10.0.1.178) 56(84) bytes of data.

64 bytes from 10.0.1.178: icmp_seq=1005 ttl=127 time=0.790 ms
64 bytes from 10.0.1.178: icmp_seq=1006 ttl=127 time=0.751 ms
64 bytes from 10.0.1.178: icmp_seq=1007 ttl=127 time=1.16 ms
64 bytes from 10.0.1.178: icmp_seq=1008 ttl=127 time=0.725 ms
64 bytes from 10.0.1.178: icmp_seq=1009 ttl=127 time=0.988 ms
64 bytes from 10.0.1.178: icmp_seq=1010 ttl=127 time=0.772 ms
64 bytes from 10.0.1.178: icmp_seq=1011 ttl=127 time=1.34 ms
64 bytes from 10.0.1.178: icmp_seq=1012 ttl=127 time=0.830 ms
64 bytes from 10.0.1.178: icmp_seq=1013 ttl=127 time=0.794 ms
64 bytes from 10.0.1.178: icmp_seq=1014 ttl=127 time=0.780 ms
64 bytes from 10.0.1.178: icmp_seq=1015 ttl=127 time=0.858 ms
64 bytes from 10.0.1.178: icmp_seq=1016 ttl=127 time=0.835 ms
64 bytes from 10.0.1.178: icmp_seq=1017 ttl=127 time=0.745 ms
64 bytes from 10.0.1.178: icmp_seq=1018 ttl=127 time=0.819 ms
64 bytes from 10.0.1.178: icmp_seq=1019 ttl=127 time=1.32 ms
64 bytes from 10.0.1.178: icmp_seq=1020 ttl=127 time=1.11 ms
64 bytes from 10.0.1.178: icmp_seq=1021 ttl=127 time=0.949 ms
```

i-06817ab4379bb2428 (NextWork Public Server)
PublicIPs: 43.205.236.82 PrivateIPs: 10.0.0.71

Connectivity to the Internet

Curl is a command-line tool used to transfer data between a client and a server. It supports various protocols like HTTP, HTTPS, FTP, and more, making it useful for testing connectivity and fetching web content.

I used curl to test the connectivity between NextWork Public Server and the internet by sending HTTP requests and verifying if responses were received from external web servers.

Ping vs Curl

Ping and curl are different because ping checks basic network connectivity using ICMP, while curl goes further by making HTTP requests and retrieving web content, allowing for more detailed connectivity testing.

Connectivity to the Internet

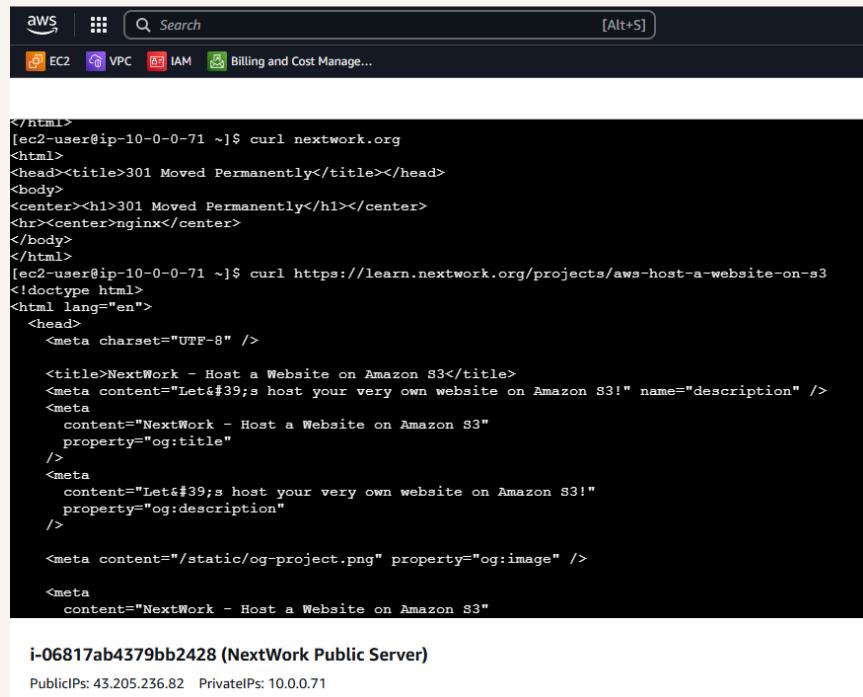
I ran the curl command `curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3`, which returned the complete HTML content of the webpage, confirming that NextWork Public Server could access the internet.

RA

Ranjith D B

NextWork Student

NextWork.org



The screenshot shows a terminal window within an AWS CloudShell interface. The terminal prompt is [ec2-user@ip-10-0-0-71 ~]\$ and the user has run the command curl nextwork.org. The output is a 301 Moved Permanently response from an Nginx server, indicating that the website is hosted on Amazon S3. The response includes standard HTML headers and meta tags for the NextWork project.

```
</html>
[ec2-user@ip-10-0-0-71 ~]$ curl nextwork.org
<html>
<head><title>301 Moved Permanently</title></head>
<body>
<center><h1>301 Moved Permanently</h1></center>
<hr><center>nginx</center>
</body>
</html>
[ec2-user@ip-10-0-0-71 ~]$ curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3
<!doctype html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />

    <title>NextWork - Host a Website on Amazon S3</title>
    <meta content="Let's host your very own website on Amazon S3!" name="description" />
    <meta
      content="NextWork - Host a Website on Amazon S3"
      property="og:title"
    />
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      property="og:description"
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```

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