



Testing VPC Connectivity



Emmanuel Enalpe III

```
<meta name="description" content="Let's build a Website on Amazon S3!">
<meta lang="en">
<meta charset="UTF-8" />
<title>NextWork - Host a Website on Amazon S3!</title>
<meta content="Let's build a Website on Amazon S3!" name="description" />
<meta content="NextWork - Host a Website on Amazon S3!" name="keywords" />
<meta content="http://www.nextwork-project.com" property="og:title" />
</meta>
<meta content="Let's build a Website on Amazon S3!" property="og:description" />
<meta content="https://www.nextwork-project.com" property="og:image" />
<meta content="NextWork - Host a Website on Amazon S3" property="twitter:title" />
<meta content="Let's build a Website on Amazon S3!" property="twitter:description" />
<meta content="https://www.nextwork-project.com" property="twitter:image" />
<meta property="og:type" content="website" />
<meta property="og:locale" content="en_US" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
```



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Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a service that lets you create a private, isolated network within AWS. It's useful for securely hosting resources, controlling traffic, and defining network configurations like subnets, route tables, and firewalls.

How I used Amazon VPC in this project

In today's project, I used Amazon VPC to test connectivity between EC2 instances in public and private subnets, ensuring proper routing and security group configurations for secure communication within the VPC.

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

One thing I didn't expect in this project was the complexity of testing VPC connectivity, as it required configuring route tables, security groups, and ensuring proper subnet communication to verify proper networking.

This project took me...

It took me less than an hour to complete this project.



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Connecting to an EC2 Instance

Connectivity means the ability of systems, networks, or devices to link and communicate with each other, enabling the transfer of data and interaction.

My first connectivity test was whether I could connect to the NextWork public EC2 instance I had launched in my VPC setup.

```
Amazon Linux 2023  
https://aws.amazon.com/linux/amazon-linux-2023  
[ec2-user@ip-10-0-1-130 ~]$
```

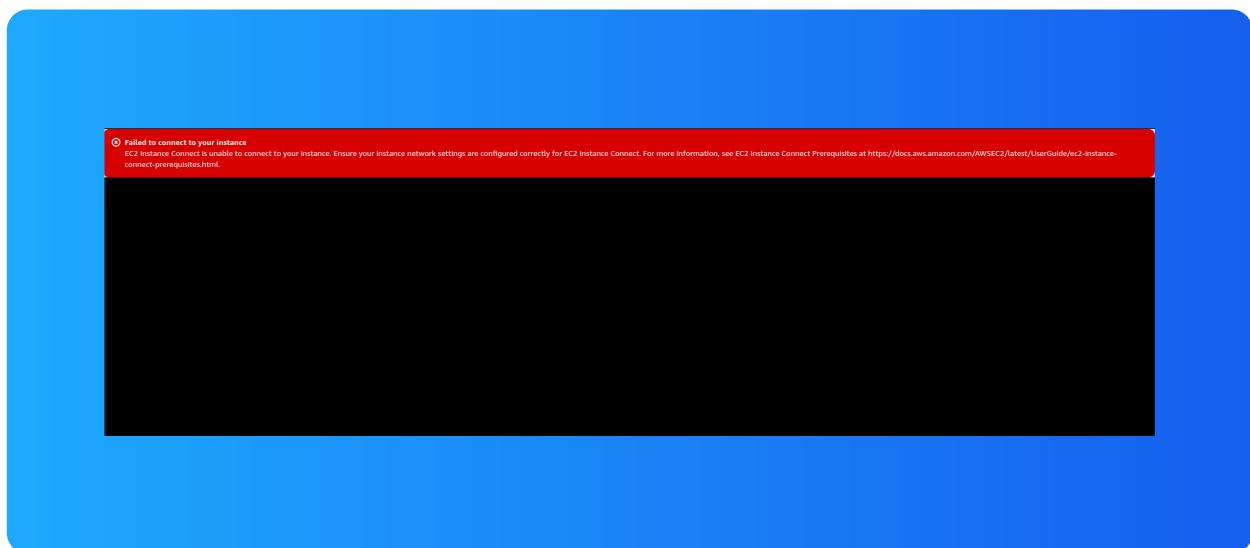


EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a browser-based SSH client provided by AWS. It allows secure and quick access to EC2 instances without needing a local SSH setup.

My first attempt at getting direct access to my public server resulted in an error because I missed configuring the security group to allow inbound SSH traffic.

I fixed this error by correcting the inbound rules on the security group of the public VPC, ensuring proper access to the EC2 instance.





Connectivity Between Servers

Ping is a network utility used to test the reachability of a device on a network. I used ping to test the connectivity between my local machine and the EC2 instance, ensuring that the instance is accessible and responding properly.

The ping command I ran was `ping <IP_address>`, where I replaced `<IP_address>` with the public IP of the EC2 instance to test connectivity and ensure proper network configuration between instances.

The first ping returned an unsuccessful connection. This meant that the target host was unreachable, possibly due to incorrect configurations, network issues, or firewall rules blocking the ping request.

```
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-10-0-1-130 ~]$ ping 192.0.2.206
PING 192.0.2.206 (192.0.2.206) 56(84) bytes of data.
```



Troubleshooting Connectivity

I troubleshooted this by configuring the Network NACL, adjusting both inbound and outbound rules to ensure proper network traffic flow and resolve the connectivity issue.

```
root@ip-10-0-5-36:~# ping 10.0.0.206
PING 10.0.0.206 (10.0.0.206) 56(84) bytes of data.
64 bytes from 10.0.0.206: icmp_seq=1 ttl=127 time=1.31 ms
64 bytes from 10.0.0.206: icmp_seq=2 ttl=127 time=1.15 ms
64 bytes from 10.0.0.206: icmp_seq=3 ttl=127 time=1.99 ms
64 bytes from 10.0.0.206: icmp_seq=4 ttl=127 time=1.00 ms
64 bytes from 10.0.0.206: icmp_seq=5 ttl=127 time=1.84 ms
64 bytes from 10.0.0.206: icmp_seq=6 ttl=127 time=1.41 ms
64 bytes from 10.0.0.206: icmp_seq=7 ttl=127 time=1.00 ms
64 bytes from 10.0.0.206: icmp_seq=8 ttl=127 time=1.58 ms
64 bytes from 10.0.0.206: icmp_seq=9 ttl=127 time=1.40 ms
64 bytes from 10.0.0.206: icmp_seq=10 ttl=127 time=1.00 ms
64 bytes from 10.0.0.206: icmp_seq=11 ttl=127 time=1.87 ms
64 bytes from 10.0.0.206: icmp_seq=12 ttl=127 time=1.08 ms
64 bytes from 10.0.0.206: icmp_seq=13 ttl=127 time=1.77 ms
64 bytes from 10.0.0.206: icmp_seq=14 ttl=127 time=1.67 ms
64 bytes from 10.0.0.206: icmp_seq=15 ttl=127 time=1.40 ms
64 bytes from 10.0.0.206: icmp_seq=16 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=17 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=18 ttl=127 time=1.40 ms
64 bytes from 10.0.0.206: icmp_seq=19 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=20 ttl=127 time=1.23 ms
64 bytes from 10.0.0.206: icmp_seq=21 ttl=127 time=1.86 ms
64 bytes from 10.0.0.206: icmp_seq=22 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=23 ttl=127 time=1.42 ms
64 bytes from 10.0.0.206: icmp_seq=24 ttl=127 time=1.58 ms
64 bytes from 10.0.0.206: icmp_seq=25 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=26 ttl=127 time=1.30 ms
64 bytes from 10.0.0.206: icmp_seq=27 ttl=127 time=1.10 ms
64 bytes from 10.0.0.206: icmp_seq=28 ttl=127 time=1.65 ms
```



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Connectivity to the Internet

Curl is a command-line tool and library used for transferring data with URLs. It supports various protocols like HTTP, FTP, and more, allowing users to interact with web services, download files, or make API requests.

I used curl to test the connectivity between my EC2 instances and other network components. It allowed me to verify if the required services were accessible and ensure the setup was properly configured.

Ping vs Curl

Ping and curl are different because ping checks network connectivity by sending ICMP packets to a target, while curl retrieves data from a server using various protocols like HTTP, FTP, or SMTP. Ping focuses on reachability, curl on data transfer.



Connectivity to the Internet

I ran the curl command `curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3`, which returned the HTML content of the page, confirming successful retrieval of the website hosted on S3.

```
(curl -s https://learn.nextwork.org/projects/aws-host-a-website-on-s3 | grep -v <!--|grep -v >-->)
<!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" name="og:title" property="og:title" />
    <meta content="Let's host your very own website on Amazon S3!" property="og:description" />
    <meta content="https://cdn.prod.website-files.com/647460114a0547694b4af16/650b837078ace7d663904eee_nextwork-opengraph-image.png" property="og:image" />
    <meta content="NextWork - Host a Website on Amazon S3" property="twitter:title" />
    <meta content="Let's host your very own website on Amazon S3!" property="twitter:description" />
    <meta content="https://cdn.prod.website-files.com/647460114a0547694b4af16/650b837078ace7d663904eee_nextwork-opengraph-image.png" property="twitter:image" />
    <meta property="og:type" content="website" />
    <meta content="summary_large_image" name="twitter:card" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
```



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