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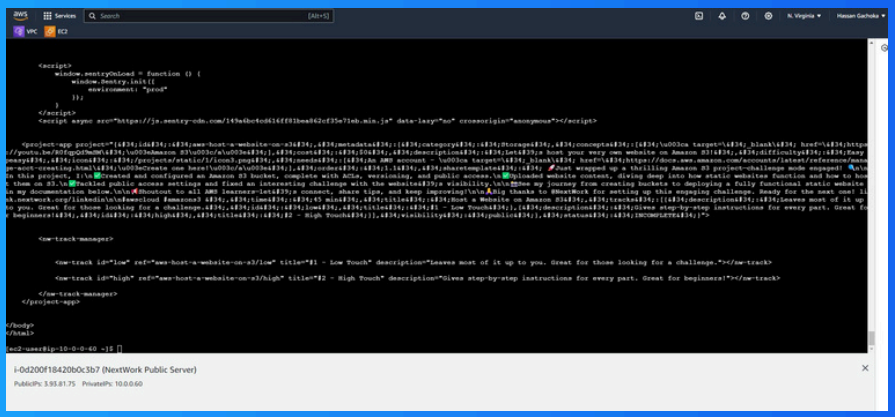
Testing VPC Connectivity

Hassan Gachoka



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Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a service that creates isolated virtual networks in the AWS cloud, offering customizable networking, robust security, and integration with other AWS services. It enables flexibility, cost efficiency, and enhanced control for scalability

How I used Amazon VPC in this project

I used Amazon VPC to create isolated subnets for public and private servers, configure security groups and network ACLs, and manage routing to control traffic between them, ensuring secure communication and a well-structured network for the project.

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

I didn't expect troubleshooting network issues between the public and private subnets to take so much time, especially with configuring security groups and NACLs for proper ICMP traffic.

This project took me...

This project took me about 1 hour, mainly due to troubleshooting network connectivity issues between the subnets.

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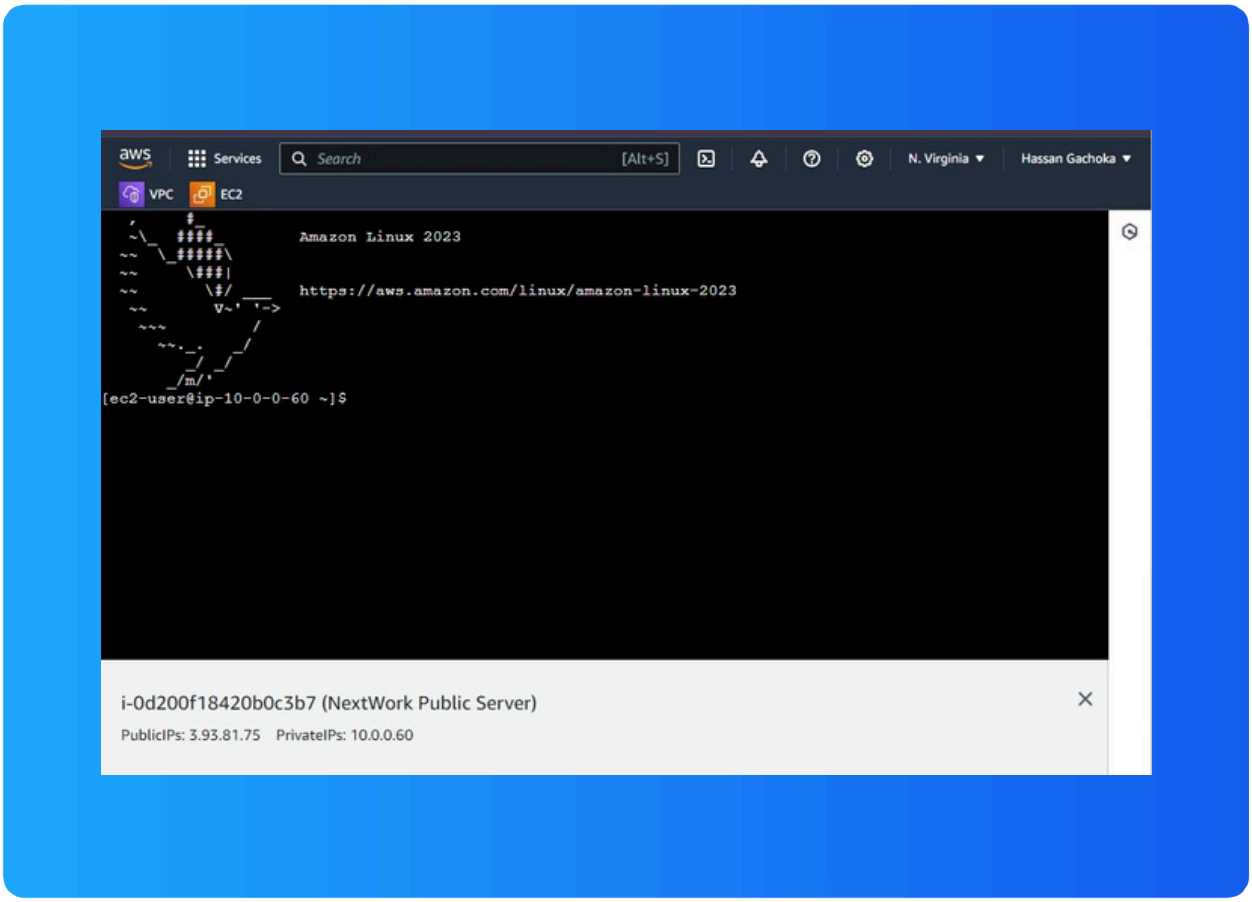
Connecting to an EC2 Instance

Connectivity means how effectively different parts of your network communicate with each other and with external networks.

My first connectivity test was whether I could connect to the NextWork public server in the NextWork public subnet using EC2 Instance Connect (SSH).



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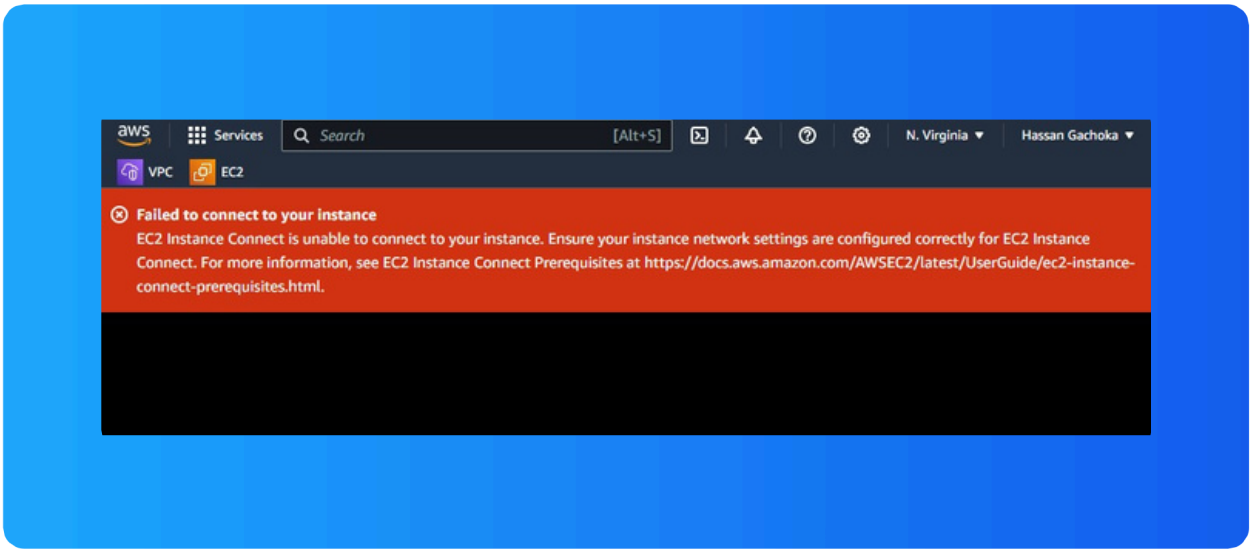
EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which allows secure SSH access without needing a key pair. Unlike earlier configurations, I first added an inbound rule to allow SSH traffic on the NextWork Public Security Group.

My first attempt at getting direct access to my public server resulted in an error because the necessary inbound SSH rule was not configured in the NextWork Public Security Group, preventing the connection.

I fixed this error by adding an inbound rule to the NextWork Public Security Group to allow SSH traffic on port 22, enabling secure access to my EC2 instance.



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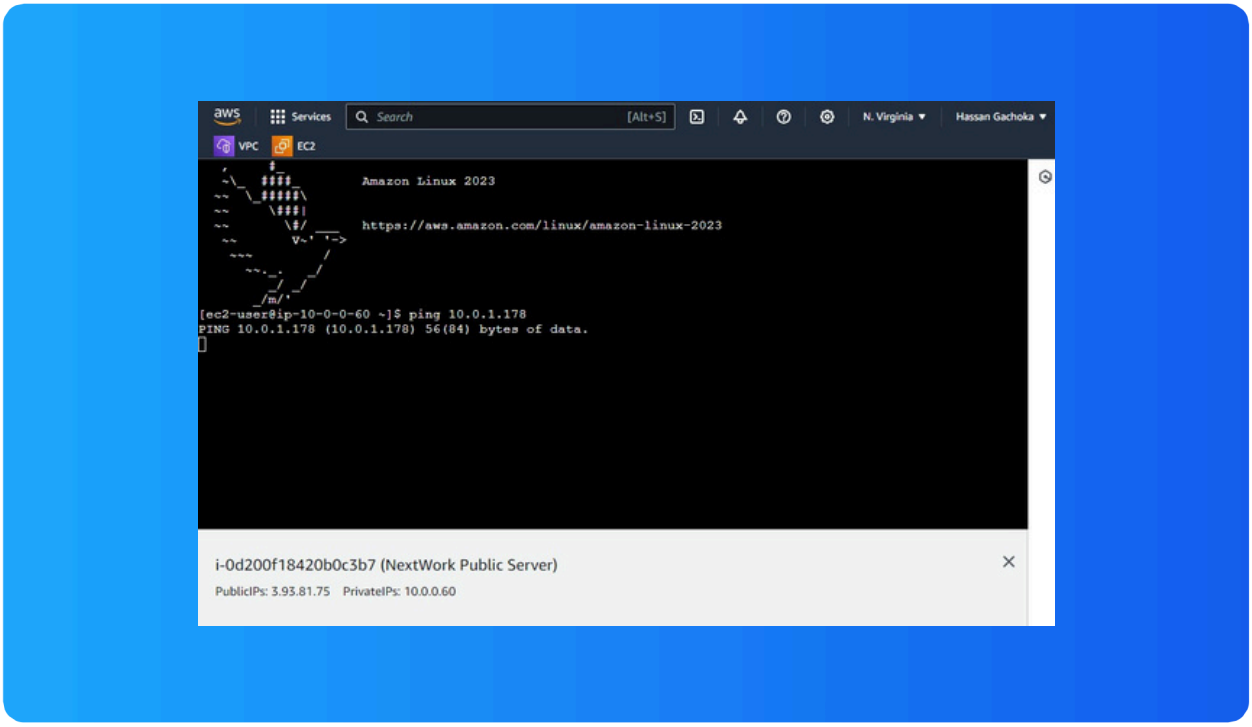
Connectivity Between Servers

Ping is a tool used to check network connectivity by sending a data packet to another device or server and measuring the response time; I used it to test the connectivity between the NextWork Public and Private Servers.

The ping command I ran was; ping 10.0.1.178, which sent packets to the private server to test connectivity between the two servers.

The first ping returned a single line. "PING 10.0.1.178 (10.0.1.178) 56(84) bytes of data." This meant that the Public Server successfully sent a ping request to the Private Server, but it doesn't confirm whether a response was received yet.



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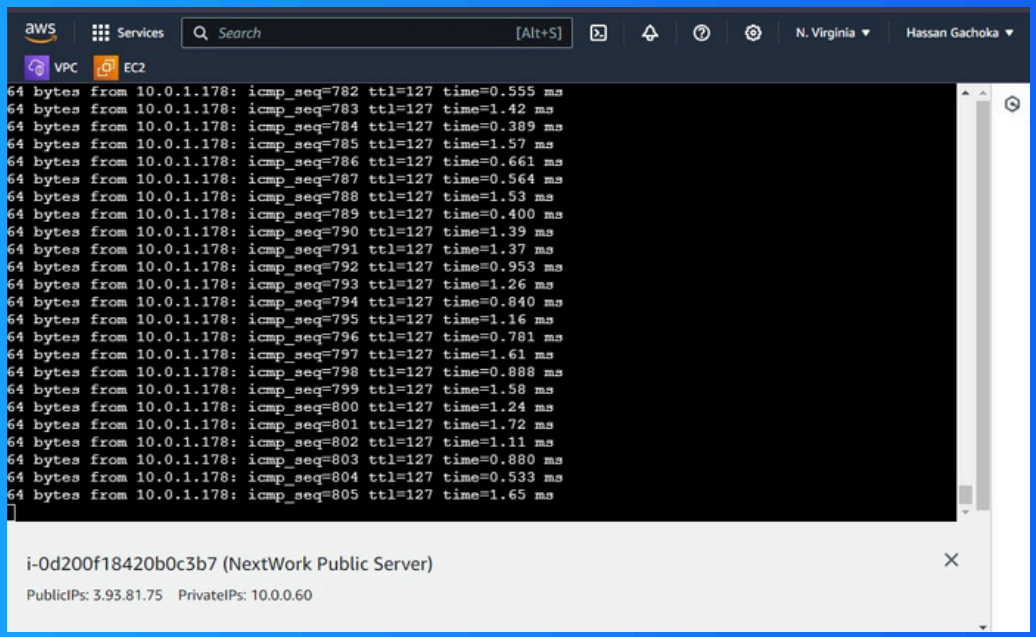
Troubleshooting Connectivity

I troubleshooted this by adding All ICMP - IPv4 rules to the NextWork NACL (in and out), allowing the Public Subnet as the source, and adding an ICMP - IPv4 inbound rule to the Private Security Group, allowing the Public Security Group as the source.



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Connectivity to the Internet

Curl is a command-line tool that facilitates data transfer to and from servers, enabling you to send HTTP requests and receive responses. It's commonly used to test connectivity, retrieve website content, and upload files.

I used curl to test the connectivity between the NextWork Public Server and the NextWork website, allowing me to retrieve the HTML content of the page and verify that the server was responding correctly.

Ping vs Curl

Ping and curl are different because ping checks connectivity by sending ICMP echo requests between devices, while curl transfers data to or from servers, allowing you to retrieve or upload content using various protocols.

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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 NextWork first project on the web app, confirming that the server was responding correctly.