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Introducing Today's Project!

What is Amazon VPC?

A VPC enables users to launch AWS resources, such as EC2 instances, RDS databases, and other services, in a virtual network that they define.

How I used Amazon VPC in this project

I use Amazon VPC to test the connectivity between how to communication between public and private server and how to make it secure.

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

I didn't expect this project to be so good. I learned a lot and it was difficult. Which makes me feel like I leveled up with confidence, knowledge, and practical experience.

This project took me...

This project took me about 2 hours and 30 mins to complete.



Connecting to an EC2 Instance

Connectivity means getting resources in our network to communicate with each other, and how well they can communicate/deliver data to each other. Without connectivity, resources in our network cannot communicate e.g. users can't access our app.

My first connectivity test was whether I could connect to my network's Public Server (an EC2 instance).

```
~\ #
~\ ##### Amazon Linux 2023
~\ #####\
~\ #####|
~\ \#/ https://aws.amazon.com/linux/amazon-linux-2023
~\ V~' '->
~\ .
~\ /m/ '->
[ec2-user@ip-10-0-0-240 ~]$ who
ec2-user pts/0      2024-08-02 22:34 (13.52.6.115)
[ec2-user@ip-10-0-0-240 ~]$
```

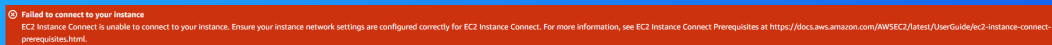


EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a tool that allows us to directly access an EC2 instance using the AWS Management Console. We no longer need to manage key pairs or use SSH client to connect to our EC2 instance.

My first attempt at getting direct access to my public server resulted in an error, because my Private Server had a security group that did not allow SSH traffic - it only allow HTTP traffic i.e. a different protocol.

I fixed this error by adding a new inbound rule in my Private Server's security group that allows SSH traffic from anywhere.



Failed to connect to your Instance
EC2 Instance Connect is unable to connect to your instance. Ensure your instance network settings are configured correctly for EC2 Instance Connect. For more information, see EC2 Instance Connect Prerequisites at <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-instance-connect-prerequisites.html>.



Troubleshooting Connectivity

I troubleshooted this by enabling ICMP traffic in my private server's network ACLs and security groups!

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

[ec2-user@ip-10-0-0-240 ~]$ who
ec2-user pts/0    2024-08-02 22:34 (13.52.6.115)
[ec2-user@ip-10-0-0-240 ~]$ ping 10.0.1.25
PING 10.0.1.25 (10.0.1.25) 56(84) bytes of data:
64 bytes from 10.0.1.25: icmp_seq=730 ttl=127 time=0.538 ms
64 bytes from 10.0.1.25: icmp_seq=731 ttl=127 time=0.488 ms
64 bytes from 10.0.1.25: icmp_seq=732 ttl=127 time=0.550 ms
64 bytes from 10.0.1.25: icmp_seq=733 ttl=127 time=0.523 ms
64 bytes from 10.0.1.25: icmp_seq=734 ttl=127 time=0.556 ms
64 bytes from 10.0.1.25: icmp_seq=735 ttl=127 time=0.494 ms
64 bytes from 10.0.1.25: icmp_seq=736 ttl=127 time=0.498 ms
64 bytes from 10.0.1.25: icmp_seq=737 ttl=127 time=0.561 ms
64 bytes from 10.0.1.25: icmp_seq=738 ttl=127 time=0.488 ms
64 bytes from 10.0.1.25: icmp_seq=739 ttl=127 time=0.546 ms
64 bytes from 10.0.1.25: icmp_seq=740 ttl=127 time=0.548 ms
64 bytes from 10.0.1.25: icmp_seq=741 ttl=127 time=0.506 ms
64 bytes from 10.0.1.25: icmp_seq=742 ttl=127 time=0.489 ms
64 bytes from 10.0.1.25: icmp_seq=743 ttl=127 time=0.555 ms
64 bytes from 10.0.1.25: icmp_seq=744 ttl=127 time=0.592 ms
64 bytes from 10.0.1.25: icmp_seq=745 ttl=127 time=0.591 ms
64 bytes from 10.0.1.25: icmp_seq=746 ttl=127 time=7.19 ms
64 bytes from 10.0.1.25: icmp_seq=747 ttl=127 time=1.08 ms
64 bytes from 10.0.1.25: icmp_seq=748 ttl=127 time=0.750 ms
64 bytes from 10.0.1.25: icmp_seq=749 ttl=127 time=0.596 ms
64 bytes from 10.0.1.25: icmp_seq=750 ttl=127 time=0.511 ms
64 bytes from 10.0.1.25: icmp_seq=751 ttl=127 time=0.509 ms
64 bytes from 10.0.1.25: icmp_seq=752 ttl=127 time=0.496 ms
64 bytes from 10.0.1.25: icmp_seq=753 ttl=127 time=0.606 ms
64 bytes from 10.0.1.25: icmp_seq=754 ttl=127 time=0.545 ms
64 bytes from 10.0.1.25: icmp_seq=755 ttl=127 time=0.573 ms
```



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Connectivity to the Internet

Curl is a tool to test connectivity in a network. Curl is used to transfer data to or from a server. That means on top of checking connectivity, you can use curl to grab data from, or upload data into other servers on the internet!

I used curl to test the connectivity between my Public Server and the internet.

Ping vs Curl

Ping and curl are different because they return different responses to my Public Server's terminal. Ping responds with a report on the performance of connectivity with my Private Server, and Curl responded with Html data from another public server!



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