

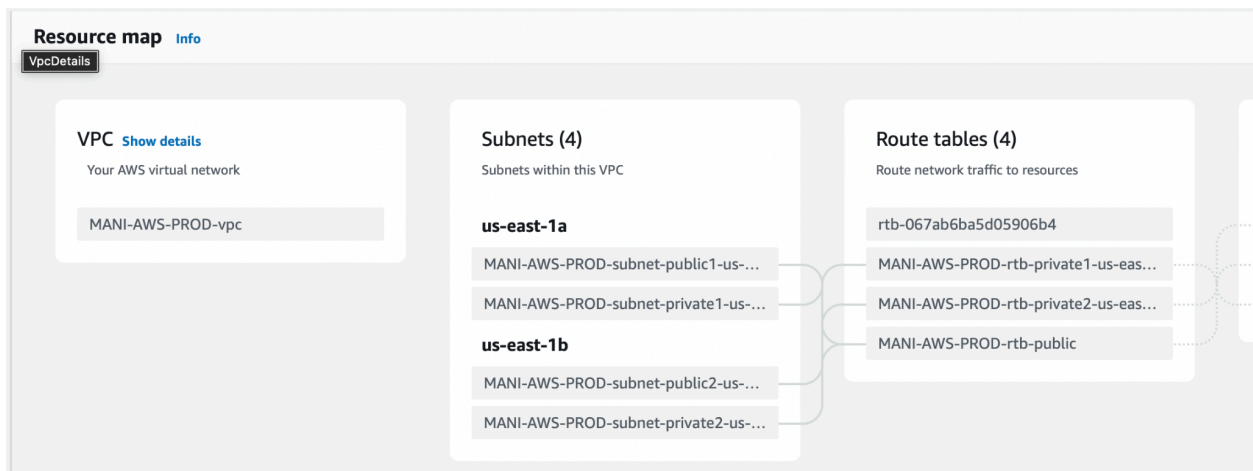
AWS Production-Ready VPC Deployment and High-Performance Application Hosting

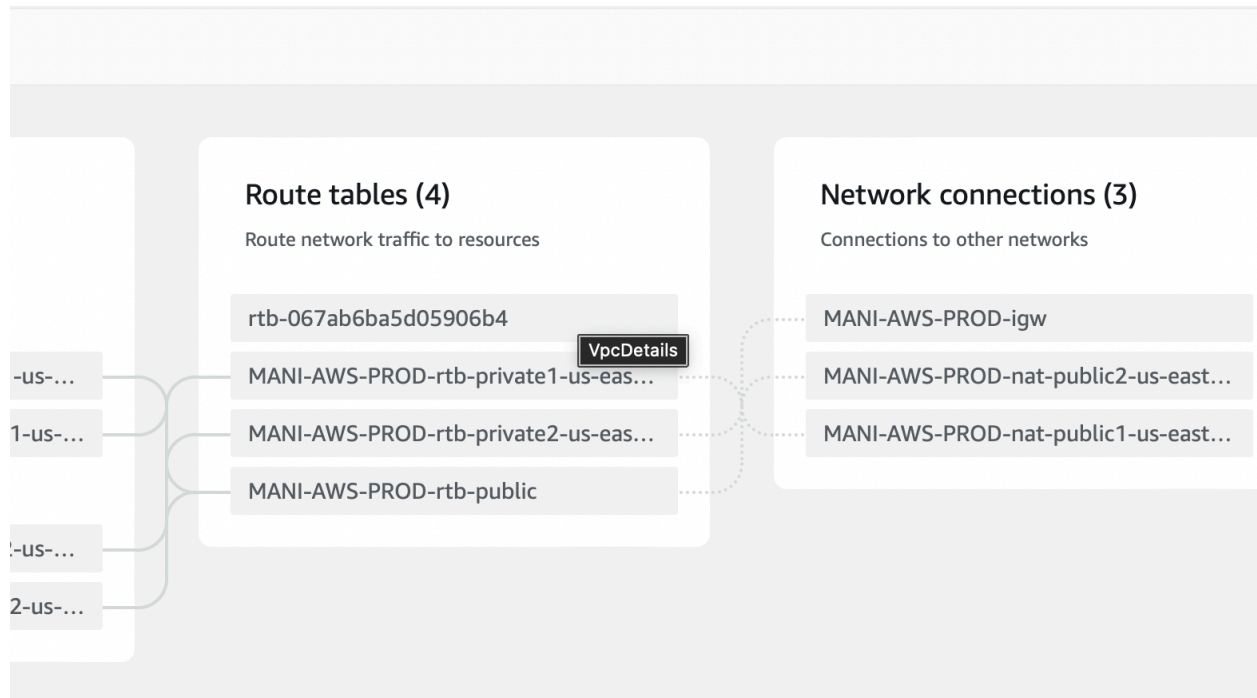
Manikandan Muthukumaran

Step 1: VPC Setup

VPC Creation:

- Created a Virtual Private Cloud (VPC) with two public subnets and two private subnets across two different availability zones.
- Configured route tables, associating one with public subnets and two with private subnets.
- Mapped public subnets with an Internet Gateway and set up two NAT Gateways per availability zone for private subnets.





Step 2: Auto Scaling and Instance Launch

Auto Scaling Group:

- Set up an Auto Scaling Group template with Ubuntu OS, associating it with the previously created VPC.
- Configured inbound traffic rules to allow access from any source.
- Created an Auto Scaling Group with a minimum of one instance, a desired capacity of two instances, and a maximum of three instances.
- Launched instances in private subnets across two availability zones.

EC2 > Auto Scaling groups

Auto Scaling groups (1) Info						Launch configurations	Launch templates	Actions	Create Auto Scaling group
<input type="text"/> Search your Auto Scaling groups									
<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity				
<input type="checkbox"/>	Mani_Prod_Proj_SG	Mani_AWS_Prod_Proj Version Default	2	-	2	1			

Step 3: Bastion Host Configuration

Bastion Host:

- Created a bastion host with auto-assigned IP addresses for secure access.
- Transferred the key pair file from the local machine to the bastion host.
- Used the bastion host to log into one of the private instances and create a new `index.html` file.
- Ran a Python HTTP application on port 8000

```
Downloads — ubuntu@ip-10-0-4-179: ~ — -zsh — 80x24
today0125.pem ubuntu@44.222.220.87
manikandanmuthukumaran@Manikandans-MacBook-Air downloads % scp -i /Users/manikan
danmuthukumaran/Downloads/today0125.pem /Users/manikandanmuthukumaran/Downloads/
today0125.pem ubuntu@44.222.220.87:/home/ubuntu
today0125.pem
100% 1678 5.4KB/s 00:00
manikandanmuthukumaran@Manikandans-MacBook-Air downloads %

[manikandanmuthukumaran@Manikandans-MacBook-Air downloads % ssh -i today0125.pem ubuntu@44.222.220.87
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1048-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage

System information as of Thu Jan 25 15:38:53 UTC 2024

System load:  0.0               Processes:    97
Usage of /:   21.4% of 7.57GB   Users logged in: 0
Memory usage: 21%              IPv4 address for eth0: 10.0.4.179
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Thu Jan 25 15:35:02 2024 from 49.204.139.196
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

[ubuntu@ip-10-0-4-179:~$ ls
today0125.pem
ubuntu@ip-10-0-4-179:~$
```

```

ubuntu@ip-10-0-4-179:~$ ls
today0125.pem
ubuntu@ip-10-0-4-179:~$ ssh -i today0125.pem ubuntu@10.0.153.15
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1048-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Jan 25 15:39:58 UTC 2024

System load:  0.0               Processes:    97
Usage of /:   21.4% of 7.57GB   Users logged in: 0
Memory usage: 28%              IPv4 address for eth0: 10.0.153.15
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

Last login: Thu Jan 25 14:37:03 2024 from 10.0.4.179
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-153-15:~$ ls
index.html
ubuntu@ip-10-0-153-15:~$

```

```

Downloads — ubuntu@ip-10-0-153-15: ~ — ssh -i today0125.pem ubuntu...
ubuntu@ip-10-0-153-15:~$ python3 -m http.server 8000
Serving HTTP on 0.0.0.0 port 8000 (http://0.0.0.0:8000/) ...

```

Step 4: Load Balancer Configuration

Load Balancer and Target Groups:

- Created target groups and associated them with instances launched by the Auto Scaling Group on port 8000.
- Configured an Application Load Balancer, associating it with the previously created target groups.

Target groups

Target groups (1/1) Info

↻

Actions ▾

Create target group

🔍

Filter target groups

<

1

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ARN	Port	Protocol	Target type	Load balancer	VPC ID
arn:aws:elasticloadbalanci...	8000	HTTP	Instance	None associated	vpc-07a2e67fdbb873641

EC2 > Load balancers

Load balancers (1/1)

↻

Actions ▾

Create load balancer ▾

🔍

Filter load balancers

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1

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⚙️

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type
<input checked="" type="checkbox"/>	Mani-Prod-Project	Mani-Prod-Project-167065...	Active	vpc-07a2e67fdbb873...	2 Availability Zones	applicatio

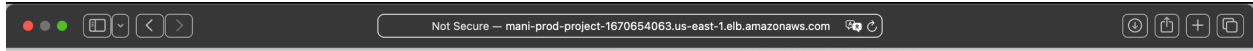
Load balancer: Mani-Prod-Project

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Load balancer type	Status	VPC	IP address type
Application	Active	vpc-07a2e67fdbb873641	IPv4
Scheme	Hosted zone	Availability Zones	Date created
Internet-facing	Z35SXDOTRQ7X7K	subnet-0128afa538cf344c2 us-east-1b (use1-az2)	January 25, 2024, 20:34 (UTC+05:30)
		subnet-0591d45695cc30193 us-east-1a (use1-az1)	
Load balancer ARN	DNS name Info		
arn:aws:elasticloadbalancing:us-east-1:975050102844:loadbalancer/app/Mani-Prod-Project/badcab511d4961c7	Mani-Prod-Project-1670654063.us-east-1.elb.amazonaws.com (A Record)		

Step 5: Application Deployment

- Application Deployment:
- Accessed the application using the DNS provided by the Load Balancer.
 - Verified the successful deployment of the HTML application.



Mani's first prod project

Hi there, thanks for viewing my work :).

Thank you!