# AWS VPC Walkthrough

Hands-on Lab Session

Agenda

- Walkthrough Default VPC

- Create a VPC through Wizard

- Reinforce concepts covered in last sessions

  - Subnets, Route Table

  - Elastic IP

  - Internet Gateway, NAT Gateway

  - NACL & Security Groups

  - Setup EC2 Instance in Public/Private Subnets

- AWS Certification Overview - by Arumugam

Notes Before Starting the lab

- To be able to complete this Lab, you have to have an AWS Account
- WIll walk through step by step in this session
- Lab is structured such that it can be done at your own pace
- If you are planning to use free tier allowances, become familiar with AWS billing policies (How each and every service usage is metered/billed)
- Make sure to shut your services at once you are done using
-

What will be Built?

VPC

Internet

User
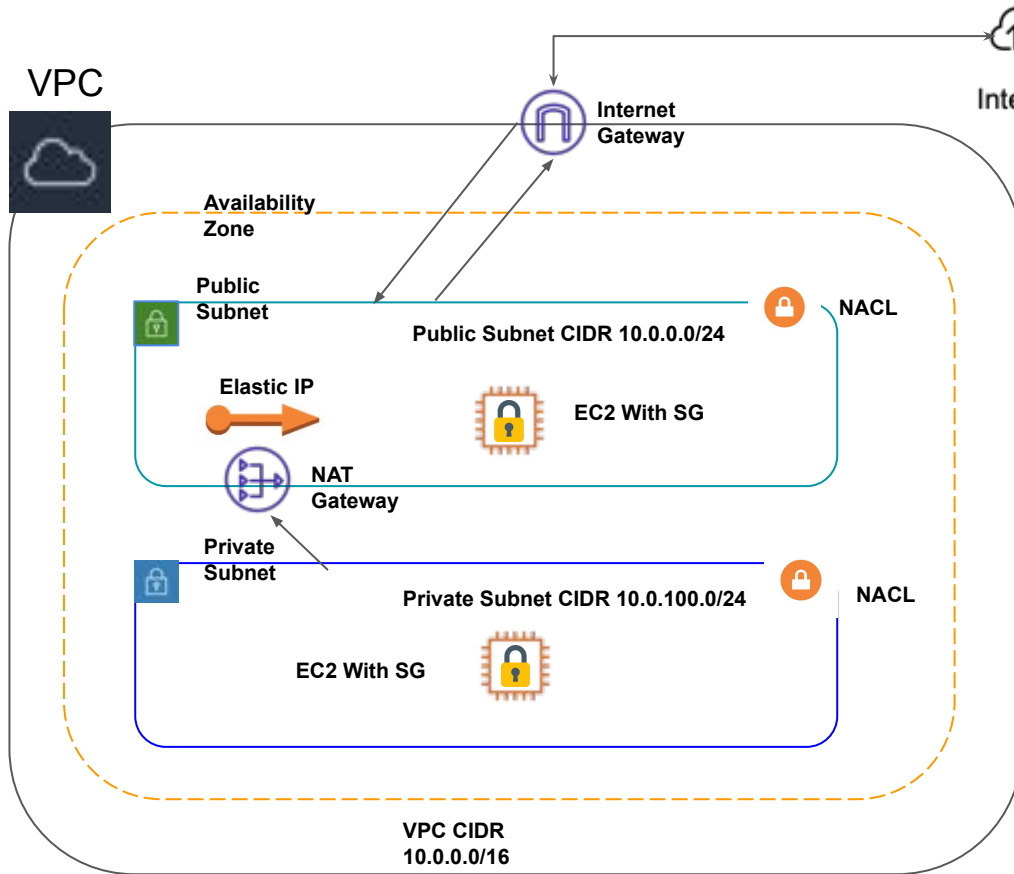
To design/build your own VPC, need following Information*

1. VPC CIDR (10.0.0.0/16)
2. Number of Availability Zone (1)
3. Number of Subnets (2)
4. Public vs Private (1 Each)
5. Elastic IP to be attached to NAT GW (1)
6. Plan NACL and Security Groups

- - Number given within parenthesis shows what's being built in this lab, but will be unique for each org based on their need/design of VPC

Internet Gateway

Availability Zone

Public Subnet

Public Subnet CIDR 10.0.0.0/24

NACL

Elastic IP

EC2 With SG

NAT Gateway

Private Subnet

Private Subnet CIDR 10.0.100.0/24

NACL

EC2 With SG

VPC CIDR 10.0.0.0/16

High Level Steps for this Lab

- Organize Information shown in the previous slide to be used with VPC Wizard
- Delete Default VPC (if one exists and make sure you are not using it*)
- High level tasks to be done in the below order
- Create an EIP - Elastic IP (AWS Console/VPC/Elastic IP)
- Launch VPC Create Wizard (AWS Console/VPC/Launch VPZ Wizard)
  - Select option #2 in step #1 of VPC Wizard (VPC with Public & Private Subnet)
  - Use EIP created in previous steps, select HW tenancy default
- Look at the VPC Dashboard to see various resources created by VPC Wizard
- Carefully examine all VPC resources such as Subnets, IG, NAT GW, NACL and SG
- Launch Instances in Public and Private Subnet and test connectivity

 * - Suggesting to delete default PVC for this lab purpose, donot do it in a production environment and at any Point in time Default VPC can be created again

Task #1 : Create Elastic IP

- From AWS Console, go to VPC Services
- From VPC Console, Select Elastic IP's on the left hand side navigation pane
- Click the "Orange" Allocate Elastic IP address
- Mindful of the fact that AWS gives only one free EIP, make sure to release EIP when not used (as a best practice)

Note: That there are no EIP when this screen shot was taken
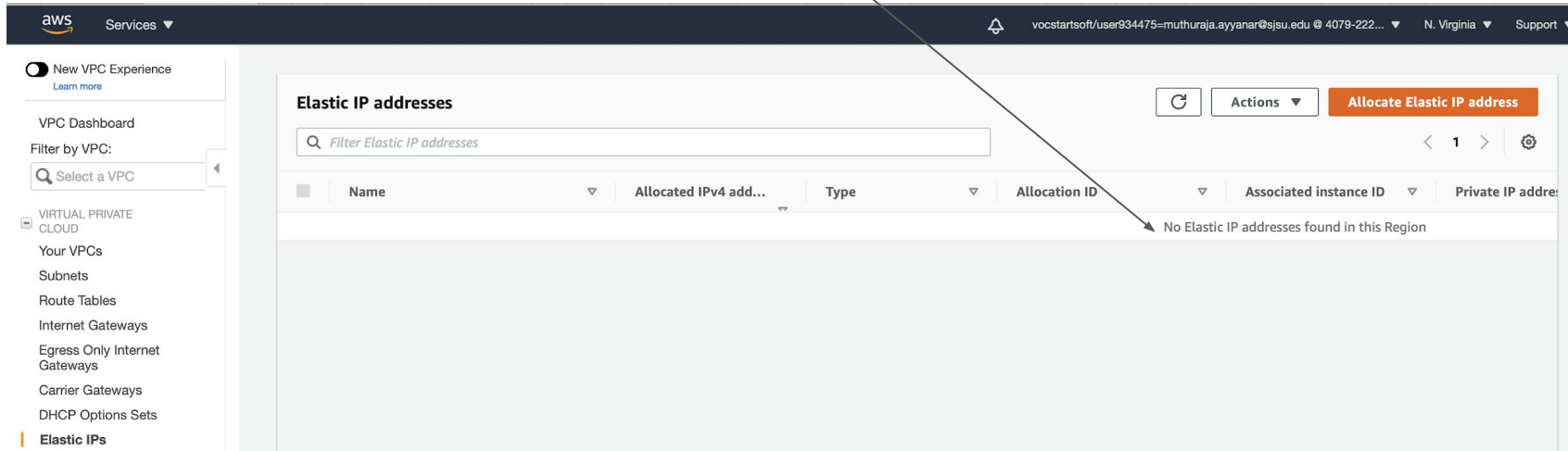
Task #1 : Create Elastic IP

VPC > **Elastic IP addresses** > Allocate Elastic IP address

Allocate Elastic IP address

Allocate an Elastic IP address from a public IPv4 address pool, or use global IP addresses from AWS Global Accelerator. You can have one Elastic IP associated with a running instance at no charge. You're charged for additional Elastic IPs that are associated with the instance, Elastic IPs that are associated with stopped instances or unattached network interfaces, and unassociated Elastic IPs. Learn more

Elastic IP address settings

Network Border Group
A Network Border Group is a logical group of Zones from where public IPv4 addresses are advertised. Set this parameter to limit the IPv4 address to the Zones in Network Border Group.

🔍 us-east-1 ✕

Public IPv4 address pool
Public IP addresses are allocated from Amazon's pool of public IP addresses, from a pool that you own and bring to your account, or from a pool that you own and continue to advertise.

● Amazon's pool of IPv4 addresses
○ Public IPv4 address that you bring to your AWS account(option disabled because no pools found) Learn more
○ Customer owned pool of IPv4 addresses(option disabled because no customer owned pools found) Learn more

Global static IP addresses

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. Learn more

Create accelerator

Cancel | **Allocate**

✅ Elastic IP address allocated successfully.
Elastic IP address 34.230.192.57

Associate this Elastic IP address

Elastic IP addresses (1/1)

🔍 Filter Elastic IP addresses

Public IPv4 address: 34.230.192.57 ✕ | Clear filters

	Name	Allocated IPv4 add...	Type	Allocation ID	Associated instance ID	Private IP addre
☑	–	34.230.192.57	Public IP	eipalloc-0fb2f6671d15188d6	–	–

Allocated EIP is not associated with any Instance
This EIP will be used by NAT Gateway in the next step
When we use VPC Wizard

Click Orange "Allocate" button with default settings
Tip: Always make it a practice to read fine prints as it
Is a good learning

This section clearly explains EIP billing policy

Task #2: Launch VPC Wizard

- From AWS Console, go to VPC Services
- From VPC Console, Launch VPC Wizard
- Follow the steps , provide the information gathered to complete all steps
- At the end of it, confirmation your VPC is created

Task #2: Launch VPC Wizard

- Use VPC CIDR, Subnet CIDR you have picked for this VPC
- Select EIP created in previous step for NAT Gateway
- Leave all other settings to default and click "Create VPC" Blue button
- It will take a min or so for the NAT GW to be created and wait for the successful VPC created message

Review VPC Resources created by Wizard

New VPC Experience
Learn more

VPC Dashboard

Filter by VPC:

🔍 Select a VPC

VIRTUAL PRIVATE CLOUD
Your VPCs
Subnets
Route Tables
Internet Gateways
Egress Only Internet Gateways
Carrier Gateways
DHCP Options Sets
Elastic IPs
Managed Prefix Lists
Endpoints
Endpoint Services
NAT Gateways
Peering Connections

SECURITY
Network ACLs
Security Groups

AWS NETWORK FIREWALL
Firewalls
Firewall policies
Network Firewall rule

Launch VPC Wizard   Launch EC2 Instances

Note: Your Instances will launch in the US East (N. Virginia) region.

Resources by Region ⟳ Refresh Resources

You are using the following Amazon VPC resources

VPCs See all regions ▼	N. Virginia 1	**NAT Gateways** See all regions ▼	N. Virginia 1
Subnets See all regions ▼	N. Virginia 2	**VPC Peering Connections** See all regions ▼	N. Virginia 0
Route Tables See all regions ▼	N. Virginia 2	**Network ACLs** See all regions ▼	N. Virginia 1
Internet Gateways See all regions ▼	N. Virginia 1	**Security Groups** See all regions ▼	N. Virginia 1
Egress-only Internet Gateways See all regions ▼	N. Virginia 0	**Customer Gateways** See all regions ▼	N. Virginia 0
DHCP options sets See all regions ▼	N. Virginia 1	**Virtual Private Gateways** See all regions ▼	N. Virginia 0
Elastic IPs See all regions ▼	N. Virginia 1	**Site-to-Site VPN Connections** See all regions ▼	N. Virginia 0
Endpoints See all regions ▼	N. Virginia 0	**Running Instances** See all regions ▼	N. Virginia 0