Cloud Computing

Homework 4

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You and 2 friends start a financial company, which is located in Northern Virginia. Each of you will run an organization: Research, Sales, and IT. All three organizations need computer systems. You are responsible for the IT systems for the company, so you must decide the strategy. You finally remember what you learn in Cloud Computing class at school and after completing a business case, you decide to go with Cloud Computing instead of On-Premise computing. Here is what you decide and will implement:

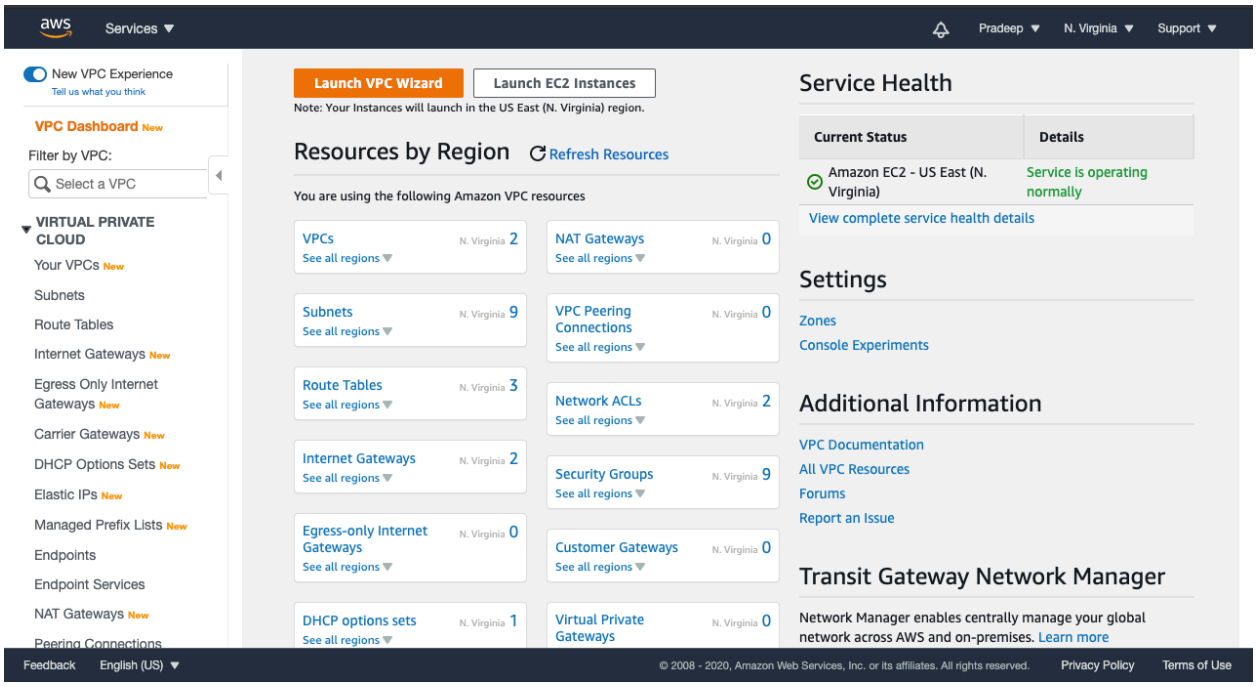
a. Use AWS
b. Create a customized VPC with a subnet for each department.
    - Region: you decide to use the region closest to your office to minimize latency.
    - Define the VPC CIDR block.
    - VPC Name: yourlastname-VPC-HW4
    - Create 3 subnets, one for each of the organization. You expect the company to grow so **each of the subnet** must be able to have **10 hosts** (EC2s). Here are the configurations of the 3 subnets:
        i. For IT department (yours)
            1. Subnet Name: yourlastname-IT
            2. CIDR: define the CIDR block just enough (the minimum block size) to handle the hosts (10).
            3. You want every EC2 you created:
                a. Has a public IP
                b. AMI:ubuntu server 18.04 LTS
                c. Instance type: t2.micro
                d. To protect from PoD attack, allow ping from your laptop only
                e. for security reasons you only allow ssh from your laptop only
            4. You just started the company so you only need to spin up 1 EC2.
                a. EC2 Name: yourlastname-IT-host1
        ii. For Sales department
            1. Subnet Name: yourlastname-Sales
            2. CIDR: define the CIDR block just enough (the minimum block size) to handle the hosts (10).
            3. You want every EC2 you created:
                a. Has a public IP
                b. AMI:ubuntu server 18.04 LTS
                c. Instance type: t2.micro
                d. allow ping and ssh from everywhere
            4. You just started up the company so you only need to spin up 1 EC2.
                a. EC2 Name: yourlastname-Sales-host1
        iii. For Research department
            1. Subnet Name: yourlastname-RND

2. CIDR: define the CIDR block just enough (the minimum block size) to handle the hosts (10).
3. You want every EC2 you created:
    a. has public IP
    b. AMI:ubuntu server 18.04 LTS
    c. Instance type: t2.micro
    d. RND is very critical and you want to protect it so you only allow ssh from your laptop
    e. To avoid PoD (Ping Of Death) attack, you only allow ping **internally** from **all of your IT hosts**.
4. You just started the company so you only need to spin up 1 EC2.
    a. EC2 Name: yourlastname-RND-host1

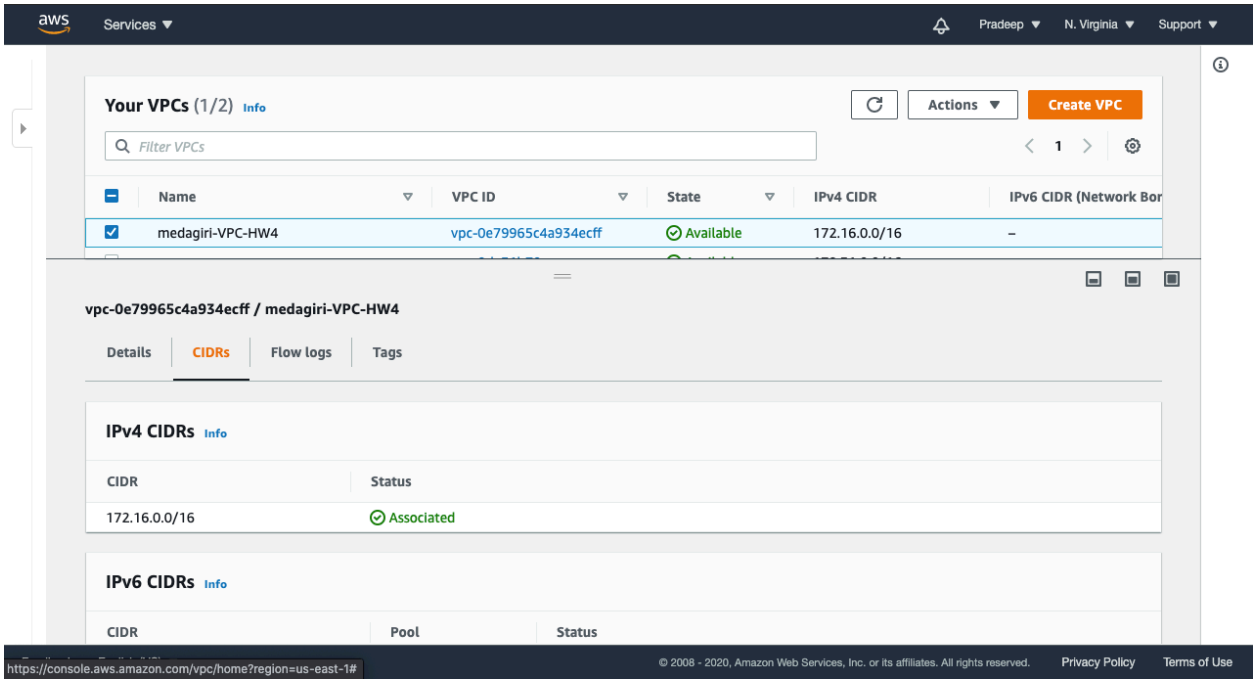
- Note: 1 subnet route table can be associated with multiple subnets

What to submit:

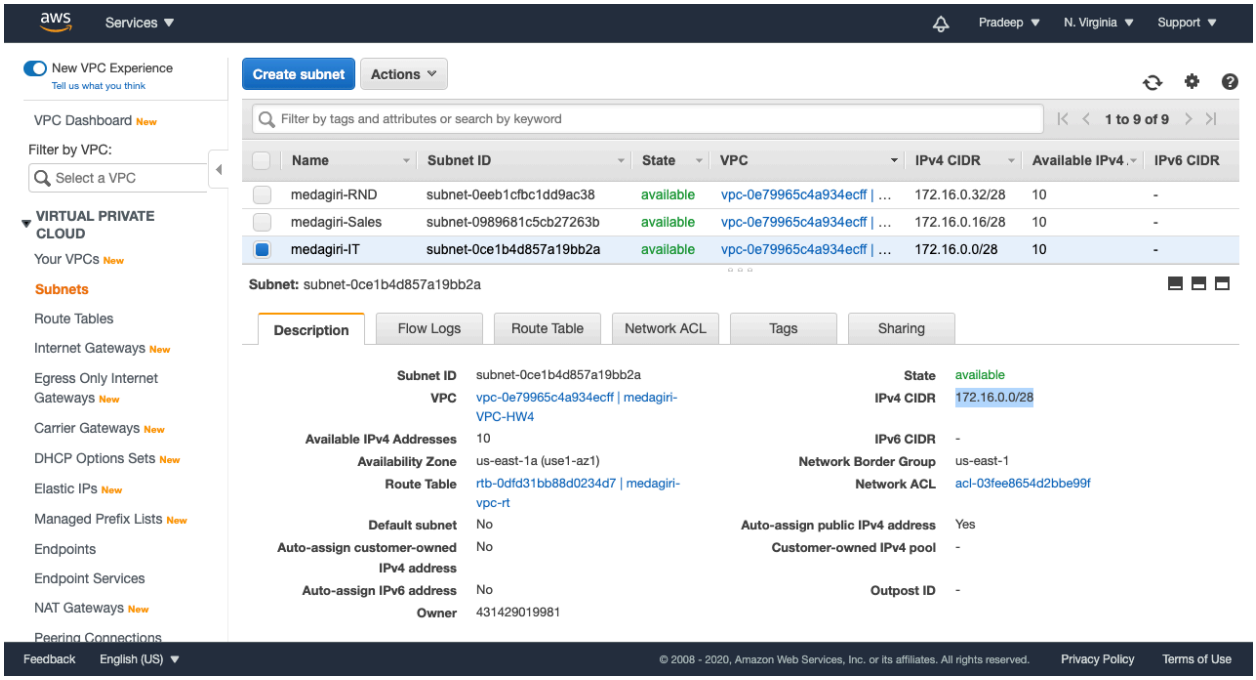
1. AWS Region (1): _____ **N.Virginia**



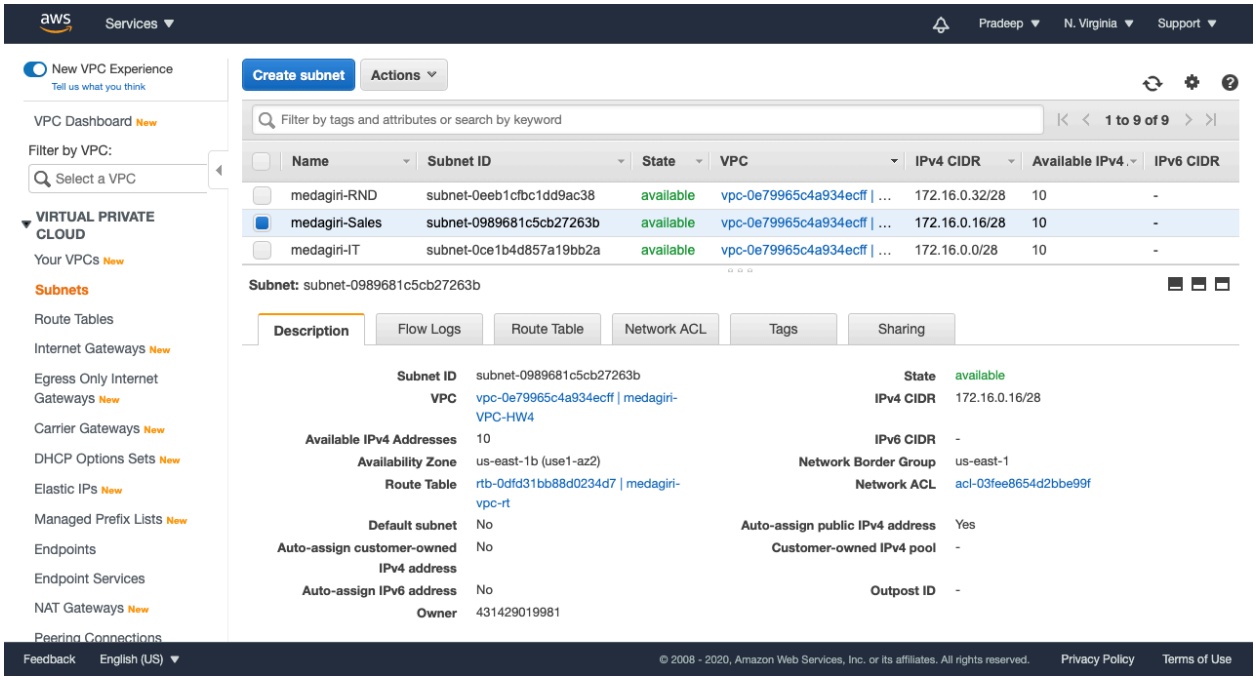
2. Your VPC CIDR block (2): _____ **172.16.0.0/16**



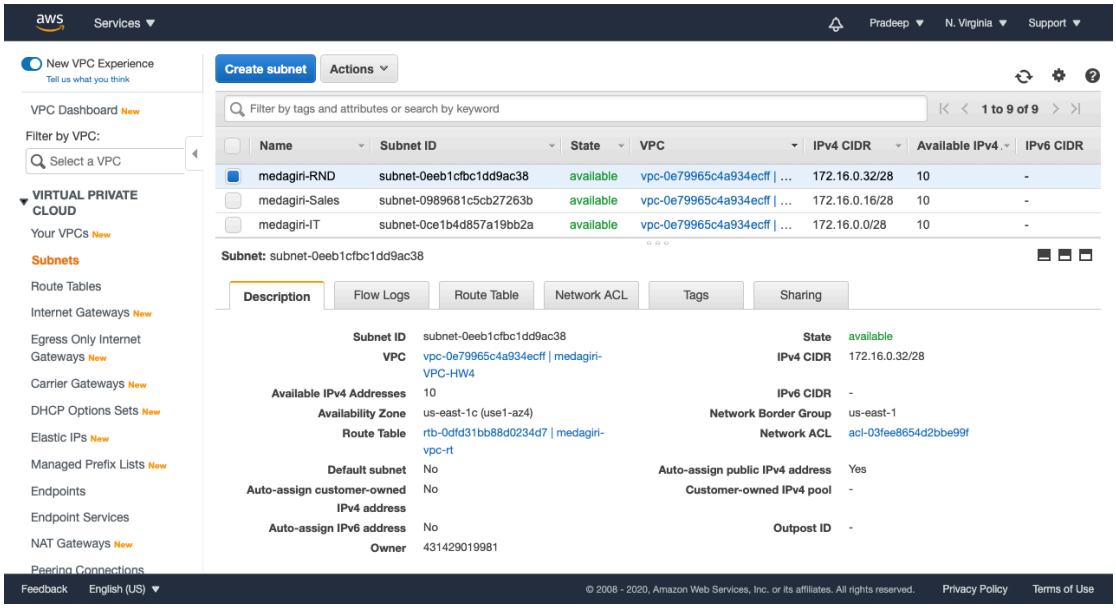
3. Your yourlastname-IT subnet CIDR block (2): _____ **172.16.0.0/28**



4. Your yourlastname-Sales subnet CIDR block (2):_____ **172.16.0.16/28**

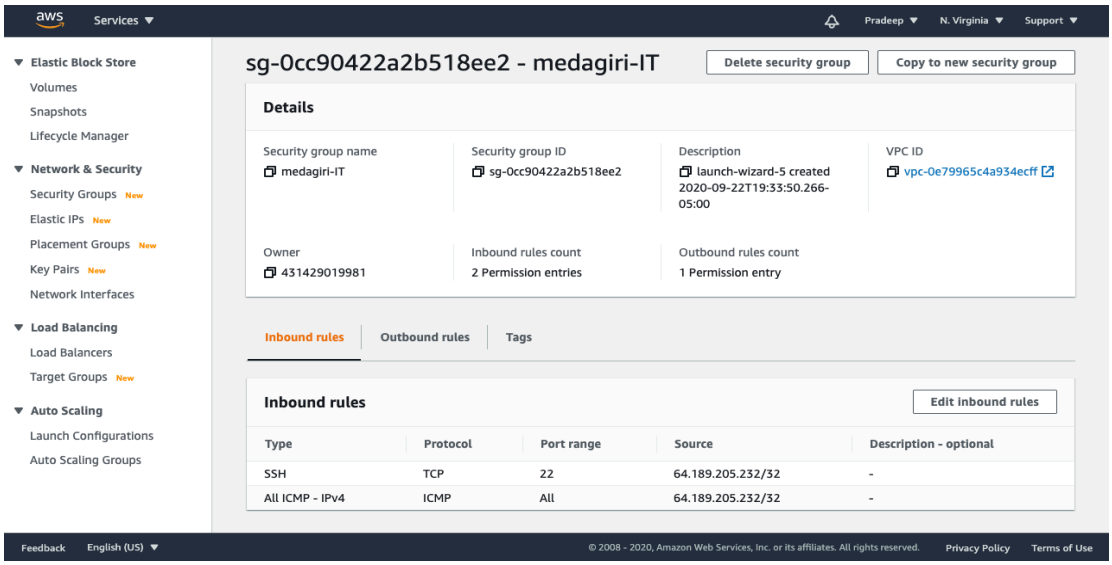


5. Your yourlastname-RND subnet CIDR block (2):_____**172.16.0.32/28**

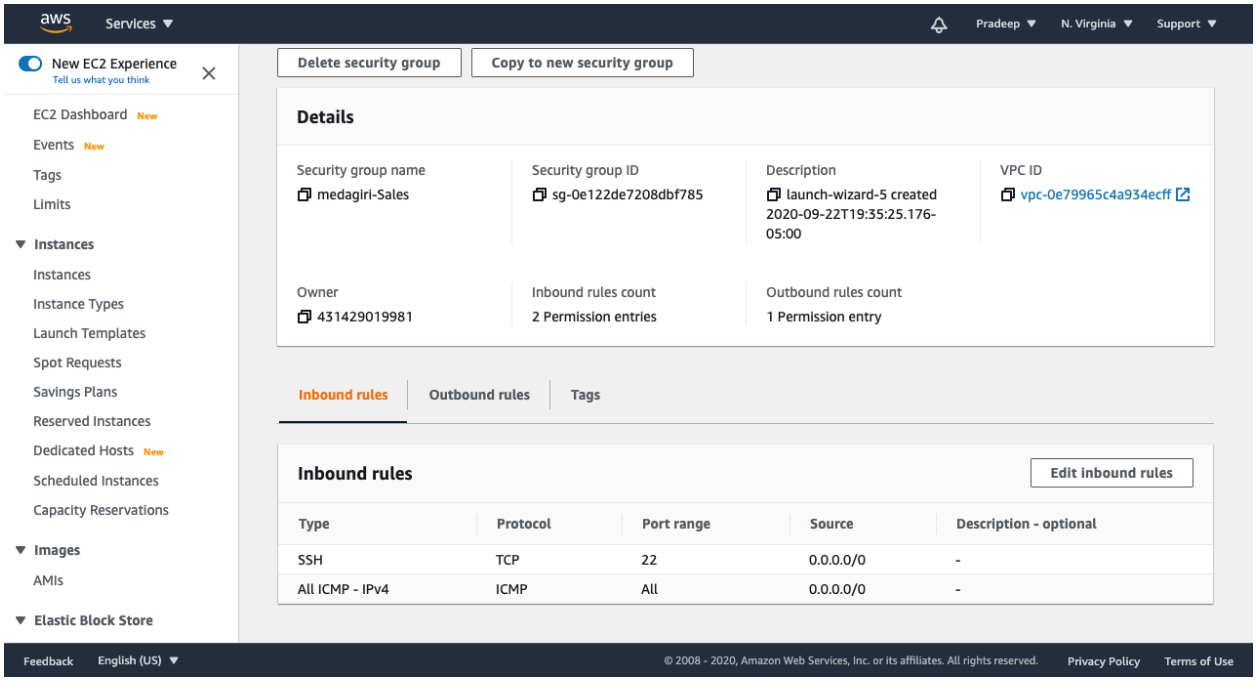


6. Submit the screenshot of the EC2s together (1).

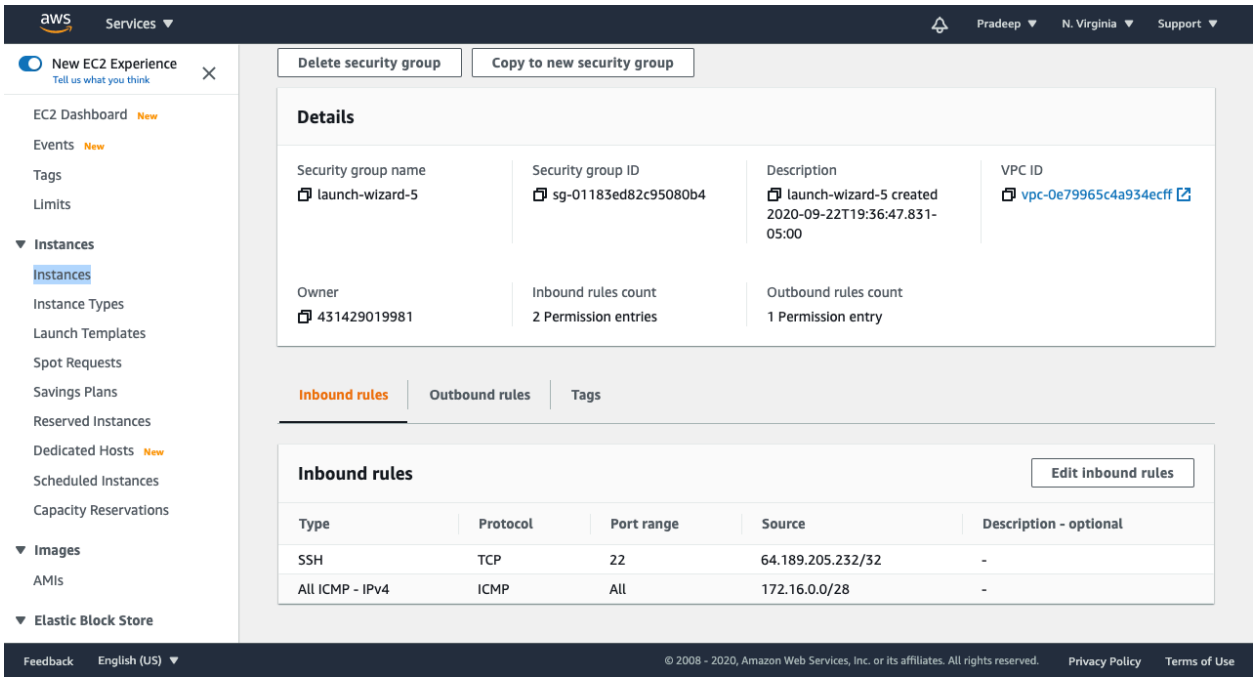
7. Submit the screenshot of (3):
    a. Security Group of yourlastname-IT-host1 (inbound rules)



b. Security Group of yourlastname-Sales-host1 (inbound rules)



c. Security Group of yourlastname-RND-host1 (inbound rules)



8. Do the ping command to check connections (6)

Internal IP address	yourlastname-IT-host1	yourlastname-Sales-host1	yourlastname-RND-host1
yourlastname-IT-host1	Y	Y	Y
yourlastname-Sales-host1	N	Y	N
yourlastname-RND-host1	N	Y	Y
Your laptop	N	N	N

9. Do ping command to check connections (6):

Public IP address	yourlastname-IT-host1	yourlastname-Sales-host1	yourlastname-RND-host1
yourlastname-IT-host1	N	Y	N
yourlastname-Sales-host1	N	Y	N
yourlastname-RND-host1	N	Y	N
Your laptop	Y	Y	N