**AWS Class Notes**

**VPC – Virtual Private Cloud**

1. VPC
2. Subnet
3. Internet Gateway
4. NAT (Network Address Translation) Gateway
5. Elastic IP
6. Virtual Private Network VPN
   1. Customer gateway
   2. Virtual Private gateway
   3. Site to site VPN connection
7. Networking in the cloud
   1. Two types of IP Address
      1. IPv4 (Internet Protocol Version 4)
         1. 5 Classes of IPv4
            1. A,B,C,D,E

Class A

First Octave ranges between 1-127

Class B

First Octave ranges between 128-191

Class C

First Octave ranges between 192-223

* + 1. IPv6 (Internet Protocol Version 6)

1. Security feature in AWS
2. Provides a network skeleton for some AWS resources
   1. Example – We need a VPC to create/provision for an EC2 instance
3. To understand Virtual Private Cloud, we need to know the basics of IP addressing
4. VPC CIDR (Network Range) = 10.0.0.0/8 (Thousands of IP addresses range/network) e.g Data center address
   1. Multiple Subnets
      1. 10.0.1.0/16
      2. 10.0.2.0/16
      3. 10.0.3.0/16

IP Addressing

1. 4 Octaves
2. 32bits
   * 1 octave = 8
   * 8.8.8.8=32
   * 3.86.84.185 (1 IP address)

**Solutions**

1. Build a network
   1. VPC
      1. Have a network for communication
   2. Subnets
      1. Separated chunks of VPC
      2. Multiple parts of a larger Network
         1. Public Subnet
         2. Private Subnet
   3. IGW
      1. Supplies internet to resources inside the VPC
   4. NAT – Network Address Translator/Translation
      1. Translate Communication between public and private resources
   5. Security Group
      1. Firewall behind ECS and Database
      2. By Default, will restrict/Deny all access unless allowed
      3. Allows users to connect to AWS resources
      4. Allows resources to communicate with each other
   6. Network ACL – Access Control List
      1. Firewall behind Subnets
      2. By Default, NACL will allow all access
   7. Route Tables
      1. Configuring traffic movement
2. We need at least 2 running EC2 instances