

VPC = Virtual Private Cloud

What is a VPC?

Simplified Definition:

A private sub-section of AWS that you control, in which you can place AWS resources (such as EC2 instances and databases). You have FULL control over who has access to the AWS resources that you place inside your VPC.

AWS Definition:

"Amazon Virtual Private Cloud (Amazon VPC) lets you provision a **logically isolated** section of the Amazon Web Services (AWS) cloud where you can launch AWS resources in a **virtual network** that you define. **You have complete control over your virtual networking environment**, including selection of your own IP address range, creation of **subnets** and configuration of **route tables** and **network gateways**."

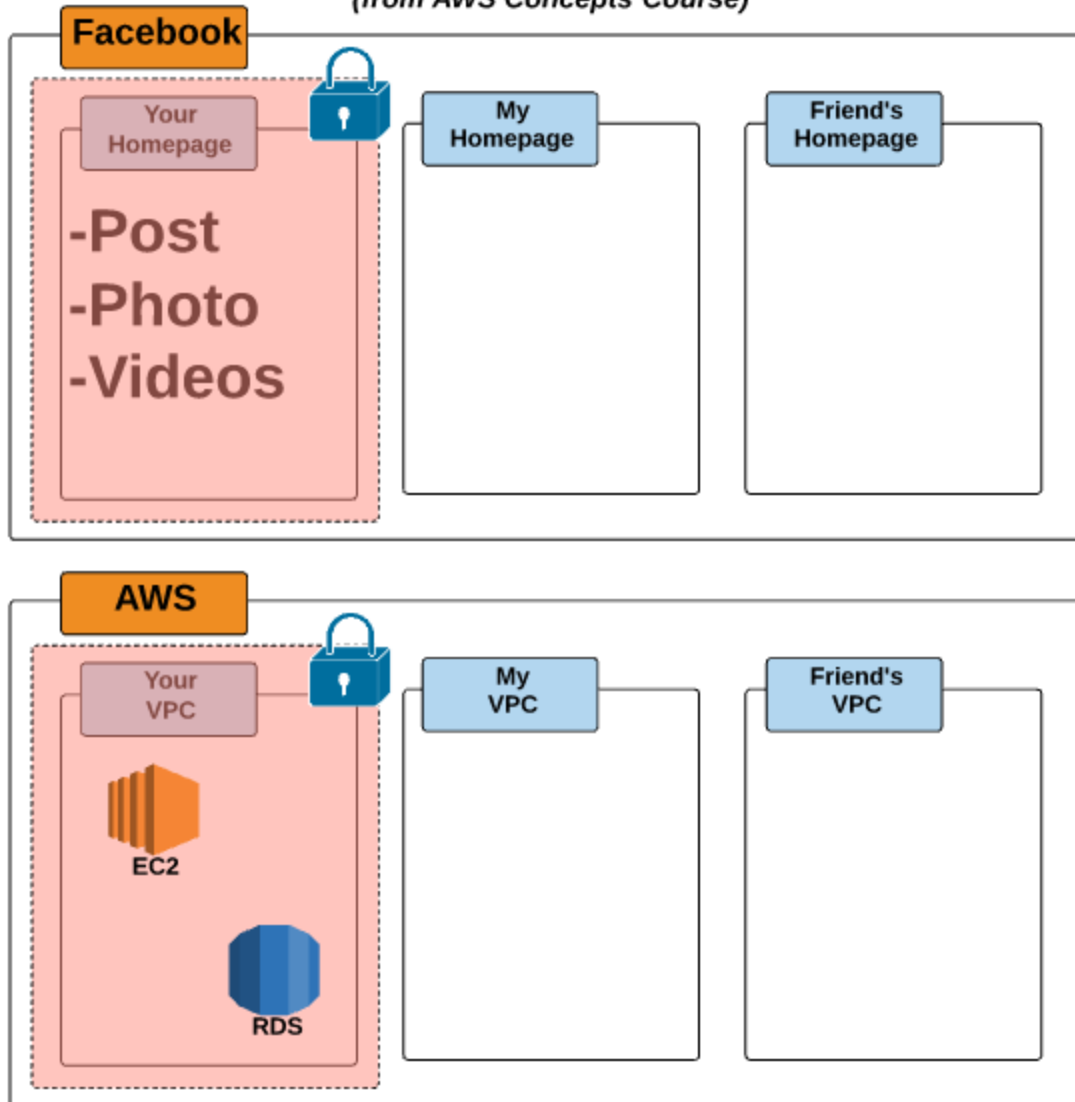
NOTE: When you create an AWS account, a "default" VPC is created for you.



VPC Basics:

Facebook/VPC Analogy

(from AWS Concepts Course)



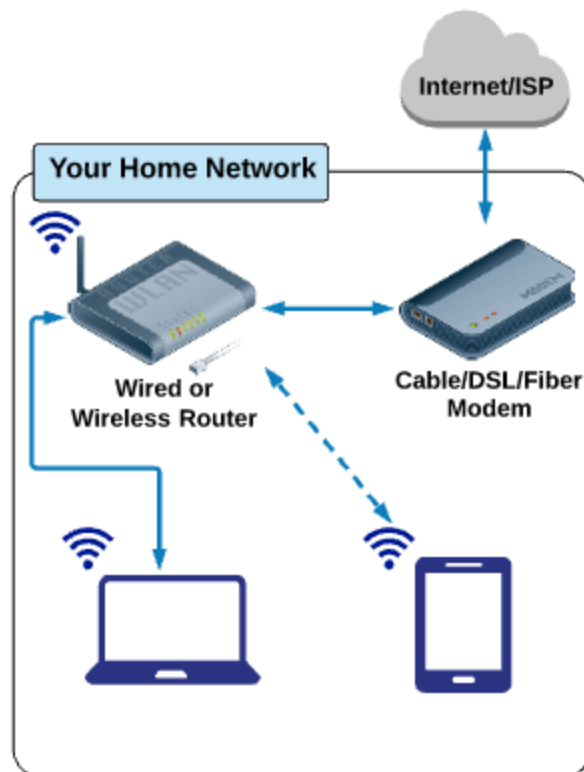
VPC Basics:

VPC - Conceptual Explanation:

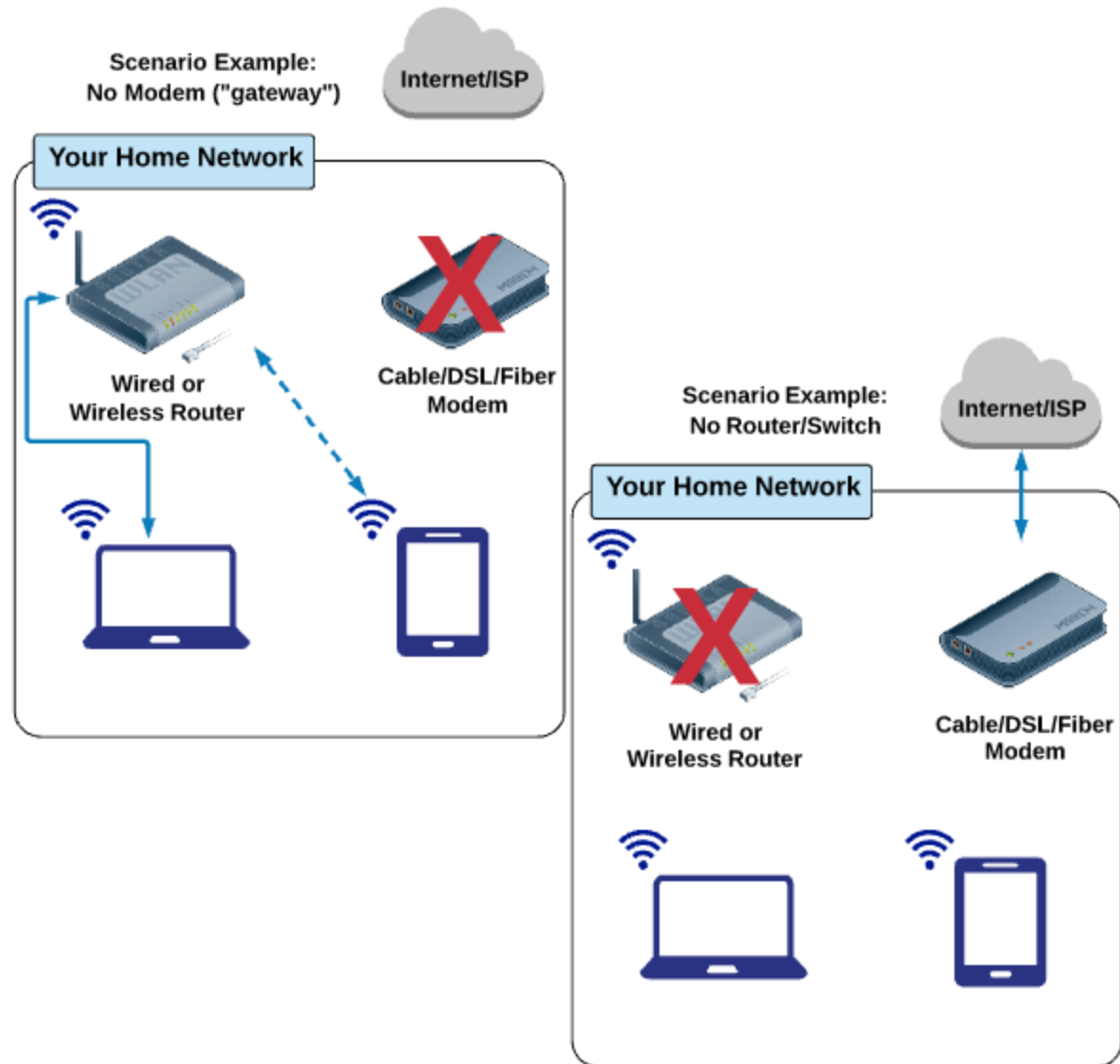
Think of your home network. Whether you have ever thought about it or not, if you have Internet access in your home, you have a **private network**.

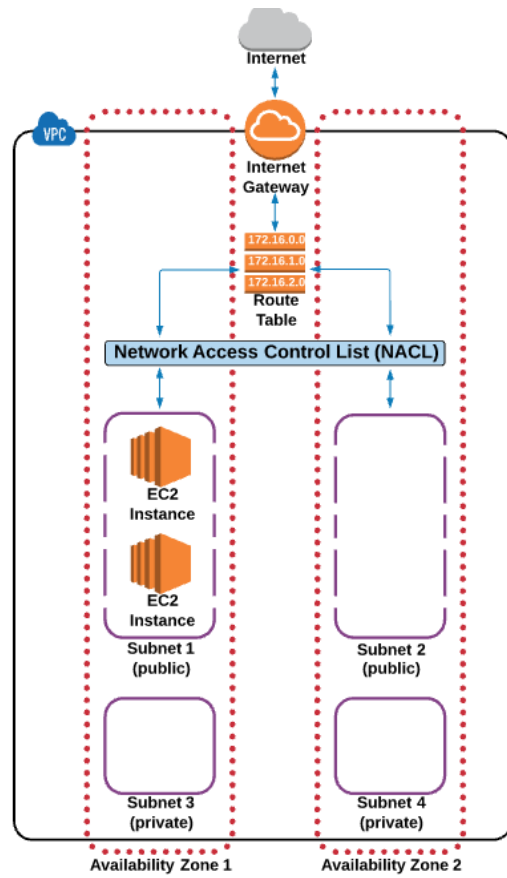
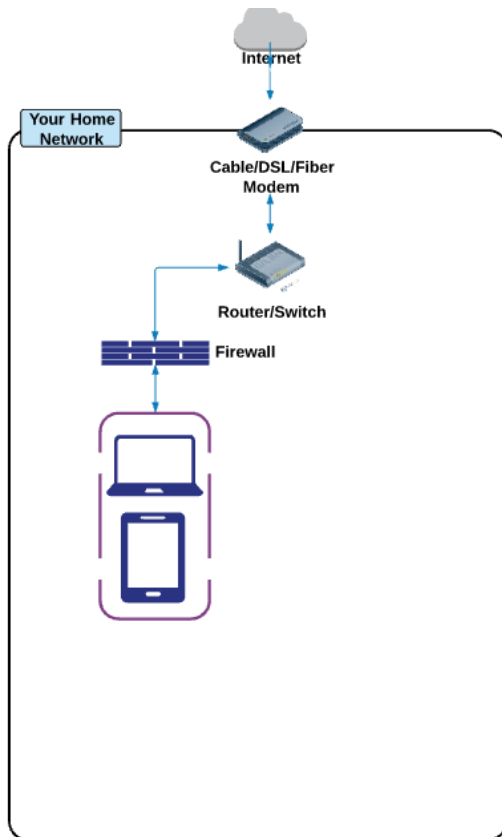
What are the common components of a home network?

- (1) **Wire** that comes into your house from the street (which connects to your ISP)
- (2) **Modem**: Your connection (or "gateway") to the internet.
- (3) **Wire** connecting your modem to the router.
- (4) **Router/Switch**: The device that allows you to connect devices to the network AND routes traffic to other devices on the network or through the modem and out to the Internet. The same is applied to traffic coming into the network.
- (5) **Computers, cell phones** and any other smart devices you may own.



VPC - Conceptual Explanation:





IGW = Internet Gateways

What is an IGW?

Simplified Definition:

A combination of hardware and software that provides your private network with a **route** to the world outside (meaning the Internet) of the VPC.

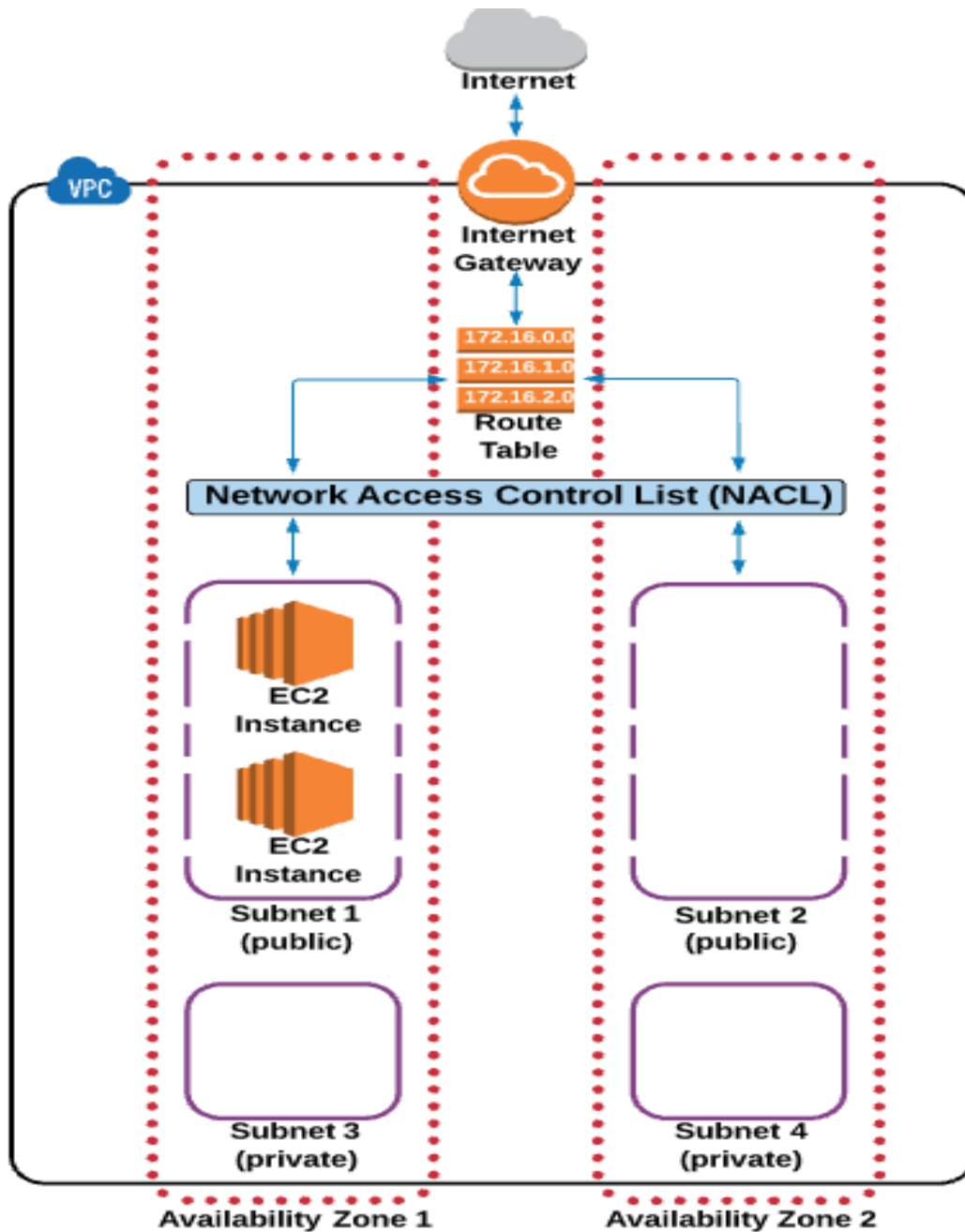
AWS Definition:

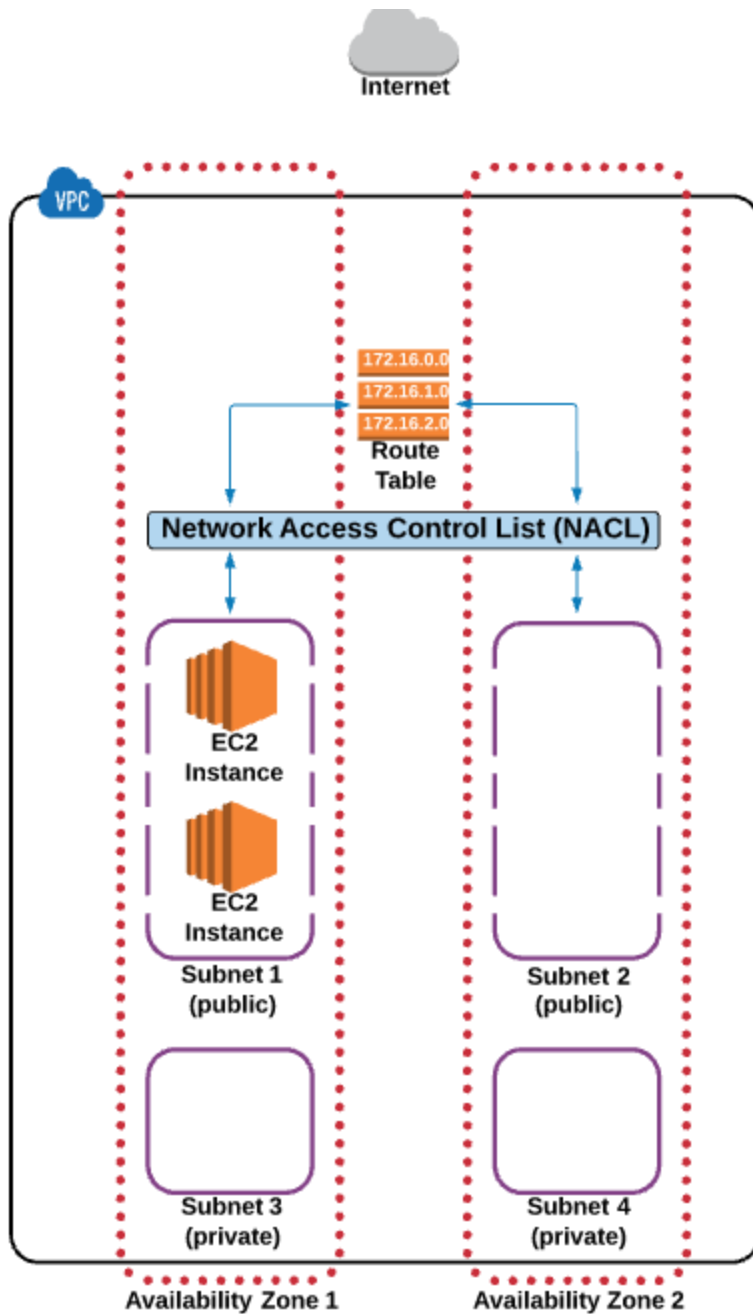
An Internet gateway is a horizontally scaled, **redundant and highly available** VPC component that **allows communication between instances in your VPC and the Internet**. It therefore imposes no availability risks or bandwidth constraints on your network traffic.

NOTE: Your "default" VPC already has an IGW **attached**.



**Internet
Gateway**





Route tables rules and details you need to know:

- (1) Only 1 IGW can be attached to a VPC at a time
- (2) An IGW cannot be detached from a VPC while there are active AWS resources in the VPC (such as an EC2 instance or RDS Database)