

System Administration & Security



COMP 175 | Fall 2021 | University of the Pacific | Jeff Shafer

Lab 7 Discussion Virtual Private Network (VPN)

Lab 7 - VPN

Objectives

- VPN allowing for remote access into the VPC subnet

Discussion

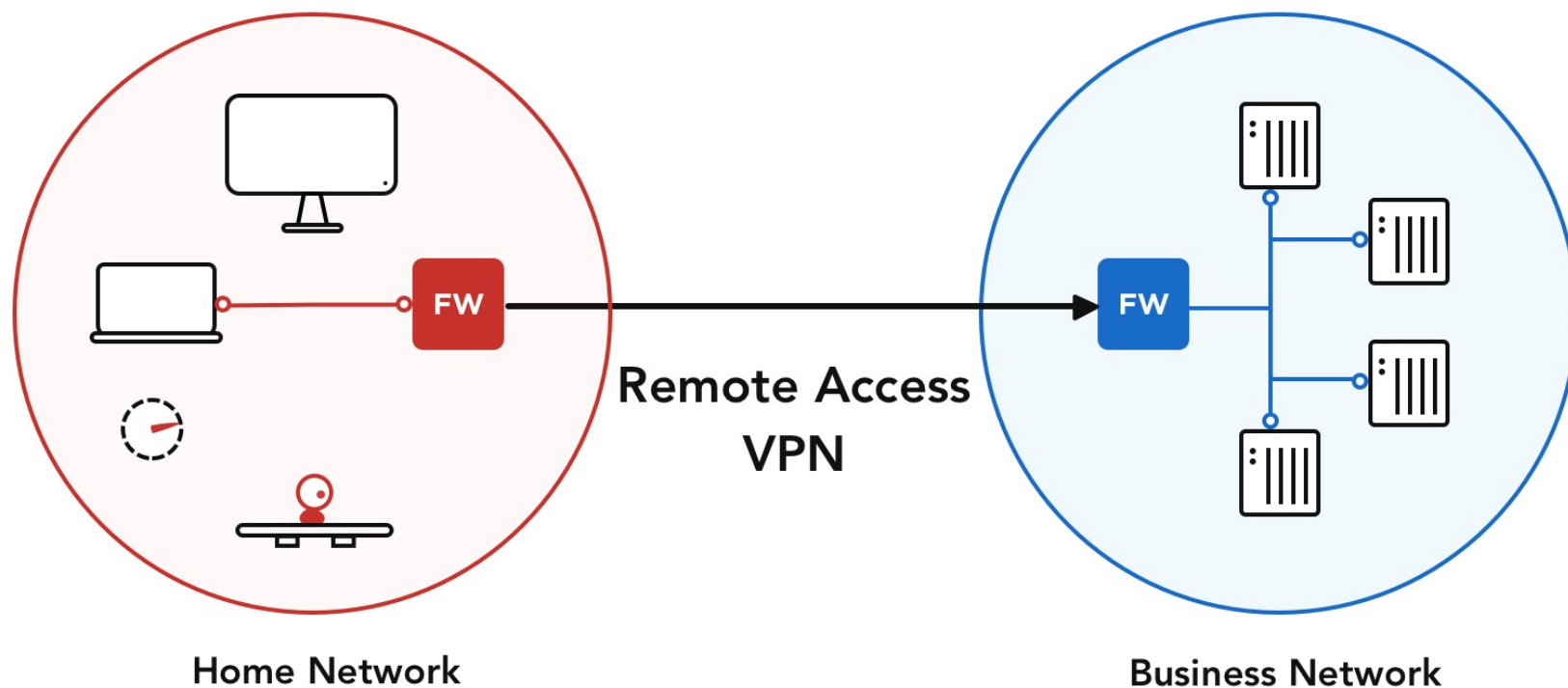
- VPN basics

Virtual Private Network (VPN)

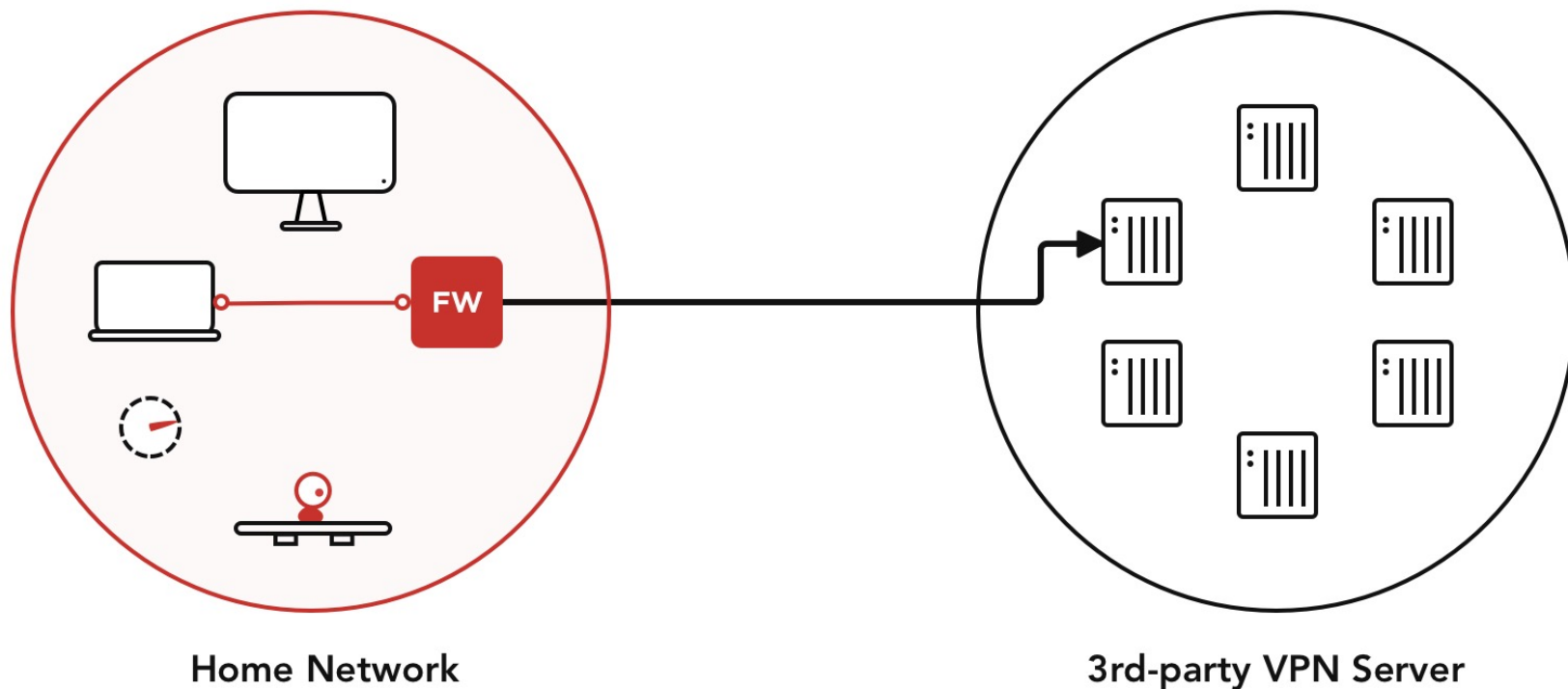
- Encrypted link between (your device / your network) and (another device / another network)
- Extends a private network across a public network
 - Enables users to send and receive data across public networks as if their computing devices were directly connected to the private network
- Motivations for home users
 - Access corporate systems when working at home
 - Security(?)
 - Is your ISP monetizing your behavior?
(Or is the VPN vendor?)
 - Bypass region locks on streaming content

Example Use 1

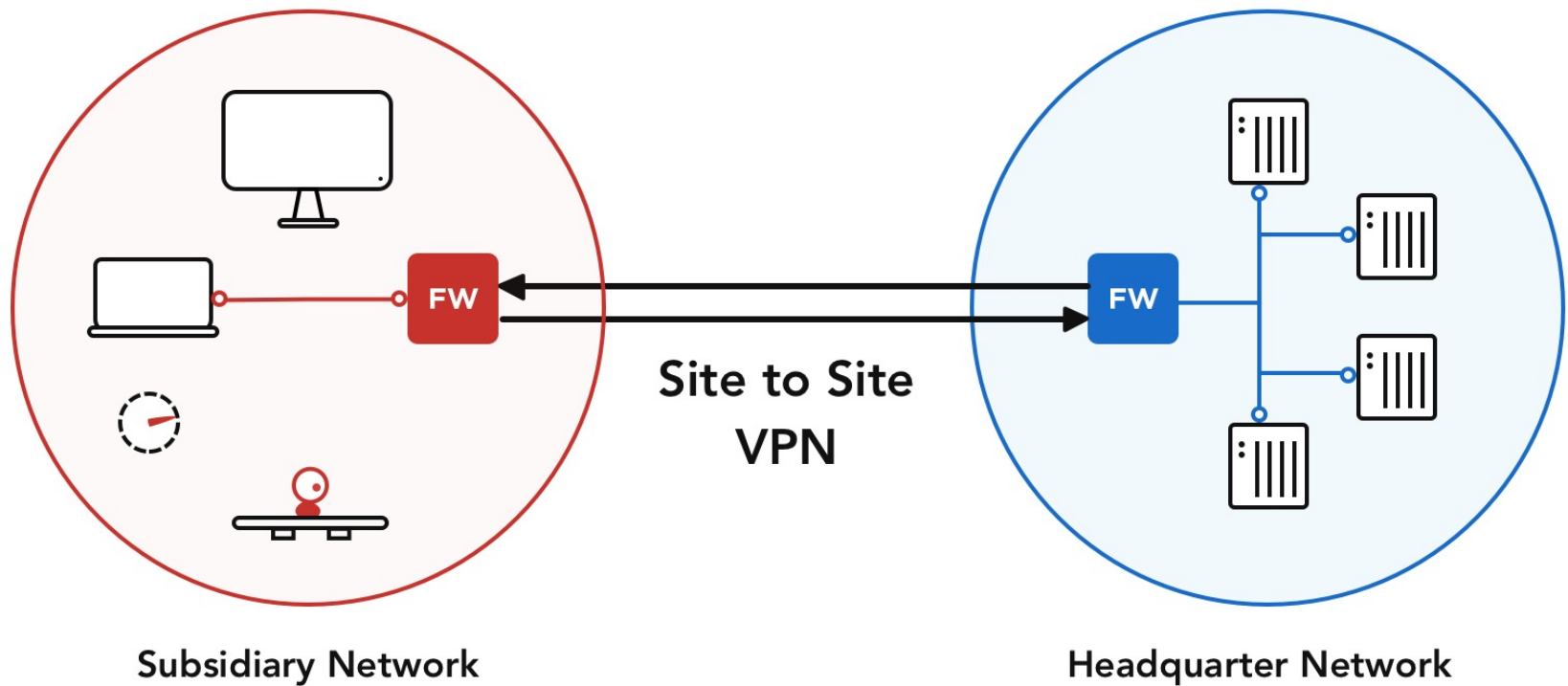
Remote Access to Corporate Network



Example Use 2- Third Party VPN Server

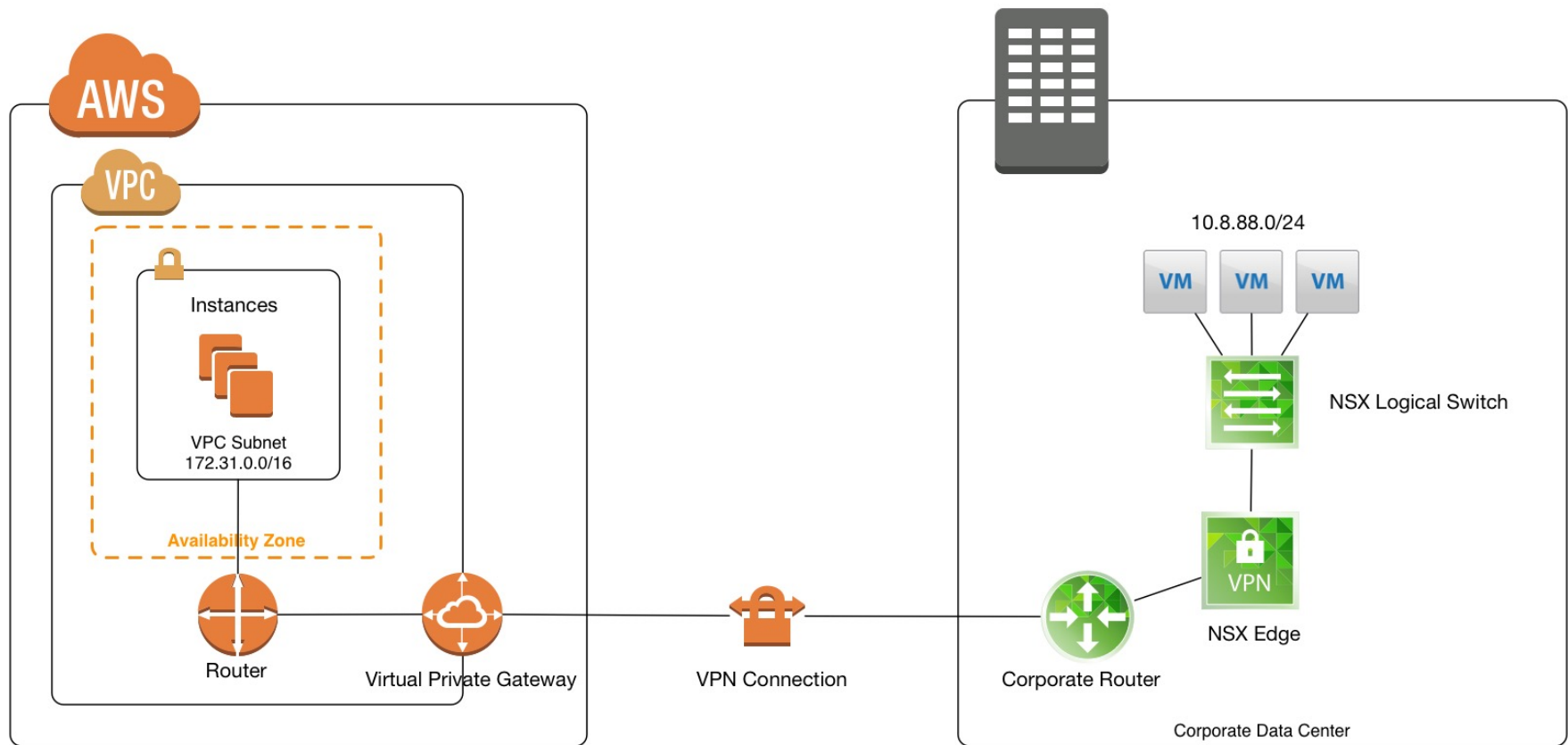


Example Use 3 - Site-to-Site VPN



Example Use Case 4

Corporate Data Center <-> Cloud Provider





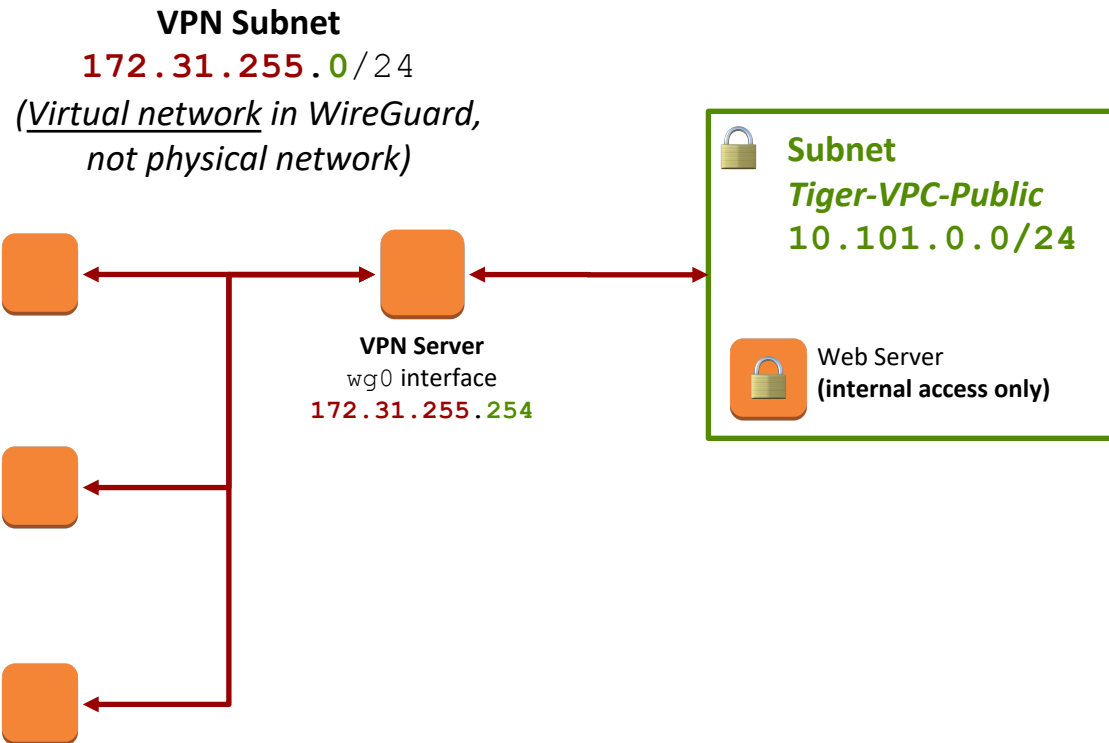
WireGuard VPN



WireGuard VPN - Design Goals

- Simple Setup
 - Public & Private Keys for authentication (Similar to SSH)
- Strong cryptography
- Minimal attack surface
 - Codebase is small compared to IPsec (600k lines of code) or OpenVPN (400k lines of code)
 - 4000 lines of kernel code - Easier to audit
- High performance
 - Integrated into Linux kernel (v5.6, March 2020)
 - Windows kernel driver (August 2021)

WireGuard VPN



Wrap-Up

➤ Questions?

➤ Concerns?

➤ **Today**

➤ **Lab 6** – Web Server (Part 3)

➤ **Lab 7** – VPN