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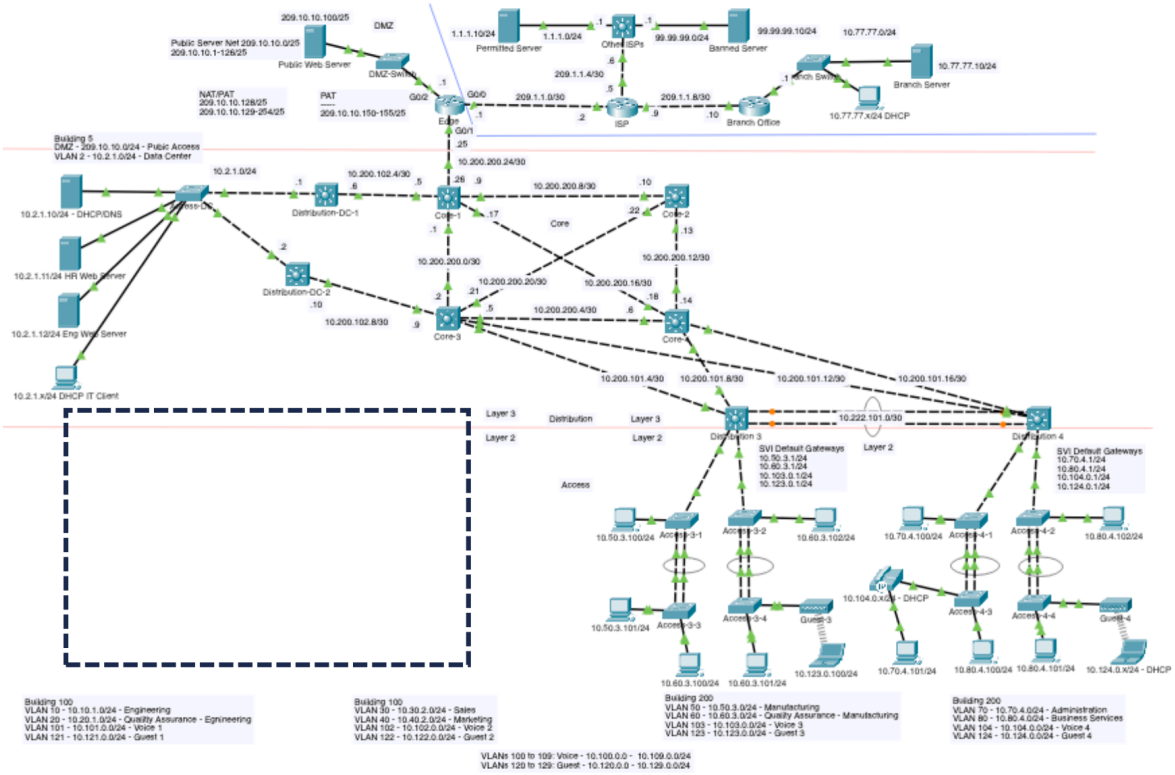
Enterprise Network - Lab 1: Basic Ethernet and IP Networking
CSE 153 Network Architecture
Guideline/Notes

The Starting Topology



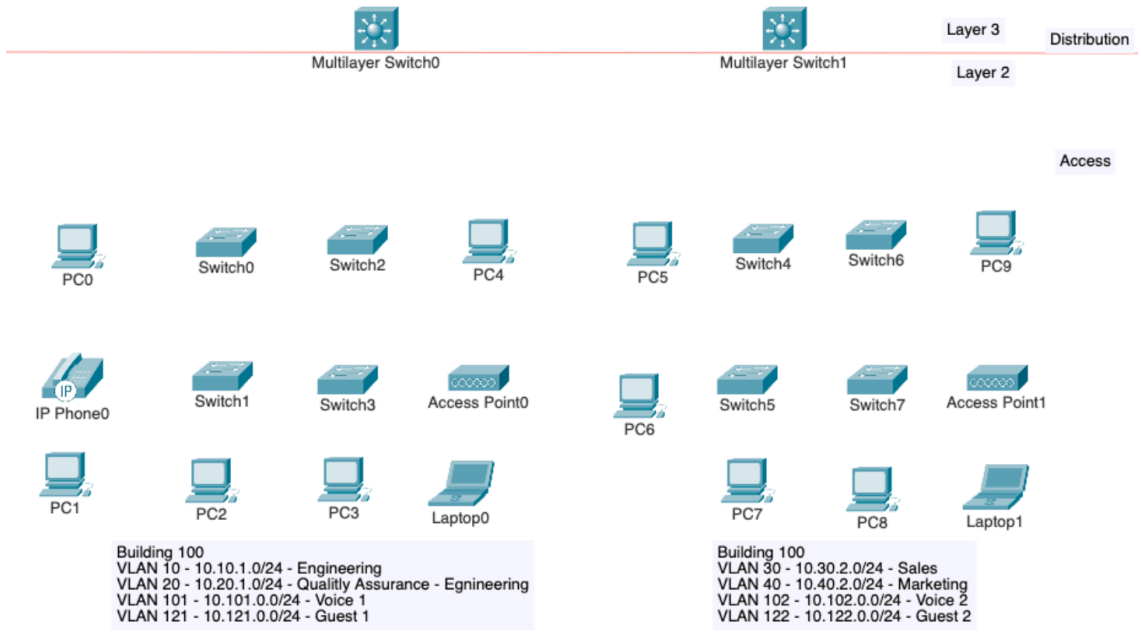
In the real world, network engineers and administrators rarely build networks from scratch. Instead they usually work within brownfield environments–existing networks that are already in operation.

Brownfield environments: existing networks that are already in operation. These networks often include legacy configurations, live traffic, and operational constraints that must be carefully considered when making changes.

Greenfield network: A brand-new deployment where you can design everything from the ground up without needing to account for existing infrastructure.

New Switch Block: A switch block is a group of switches that provides connectivity for a new set of end devices

In this lab, we'll be dealing within a brownfield environment by adding a new switch block into an existing enterprise network.



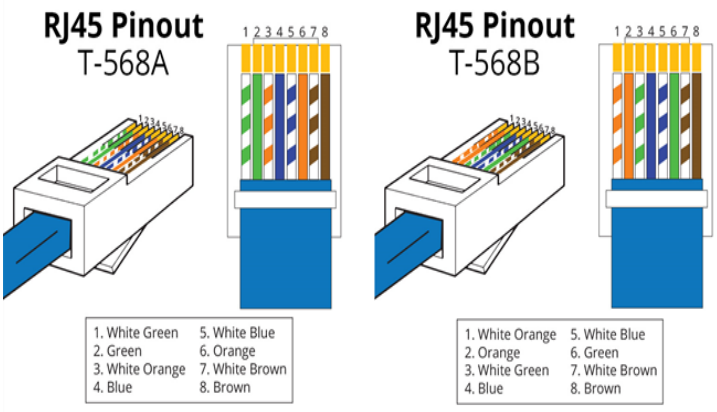
Cabling

When connecting devices, we have to ensure we use the right specific cable types and ensure they're connected in the correct ports assigned

Two options we have for this lab are:

1. ***Copper Straight-Through Cable:***
    a. Used to connect devices that operate at different layers of the network model (such as a computer and a switch or a switch and a router)
    b. The reason for this is the wires are arranged in the same order at both ends of the cable
    c. The wiring scheme is T568A

2. ***Copper Cross-Over Cable:***
    a. For devices that operate at the same layer of the network model such as two computers, switches, or routers.
    b. The wires are placed in a different order at each end of the cable.
    c. The standard wiring scheme for crossover cables is a combination of T568A and T568B



Wireless LAN (WLAN) Access Points and Laptops:

Access Points SSIDs
Configuring SSIDs (Service Set Identifiers) on access points is essential to define and identify specific wireless networks for devices to connect. Each SSID represents a unique network, allowing users to distinguish between different wireless environments, such in this topology, we have “Guest-1” and “Guest-2”

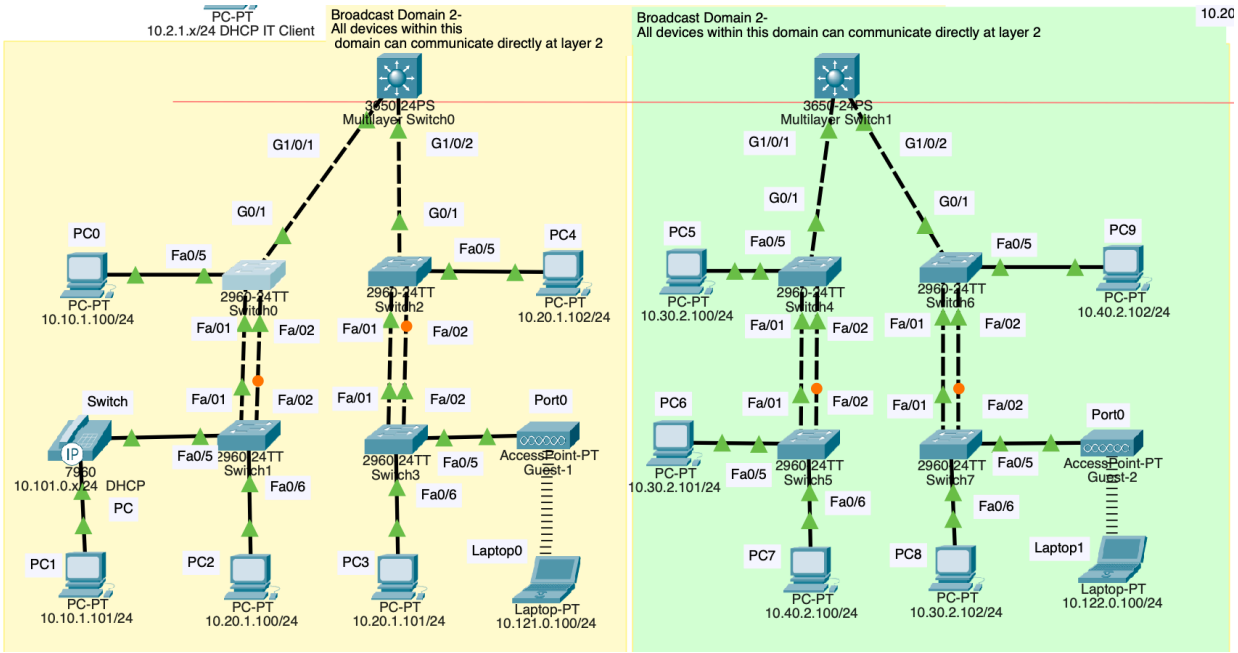
Laptops
Most real-world laptops have both a wired and wireless Nics. Packet tracer only supports one LAN NIC at a time so we have to install a WLAN NICs.

In this case, we’ll be installing PT-LAPTOP-NM-1-W-AC where

- NM = Network Module (I think)
- W = Wireless
- AC = Wifi 5

Post Completion of Lab:

How many broadcast domains did we create? 2 since all devices within their down can communicate at layer 2 with all other devices



Mac Address Table of switch 4: