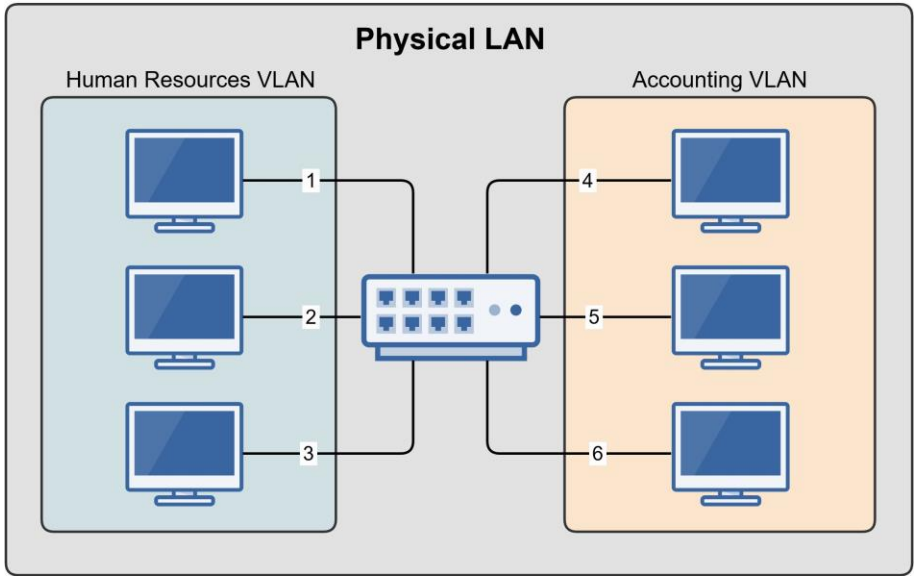
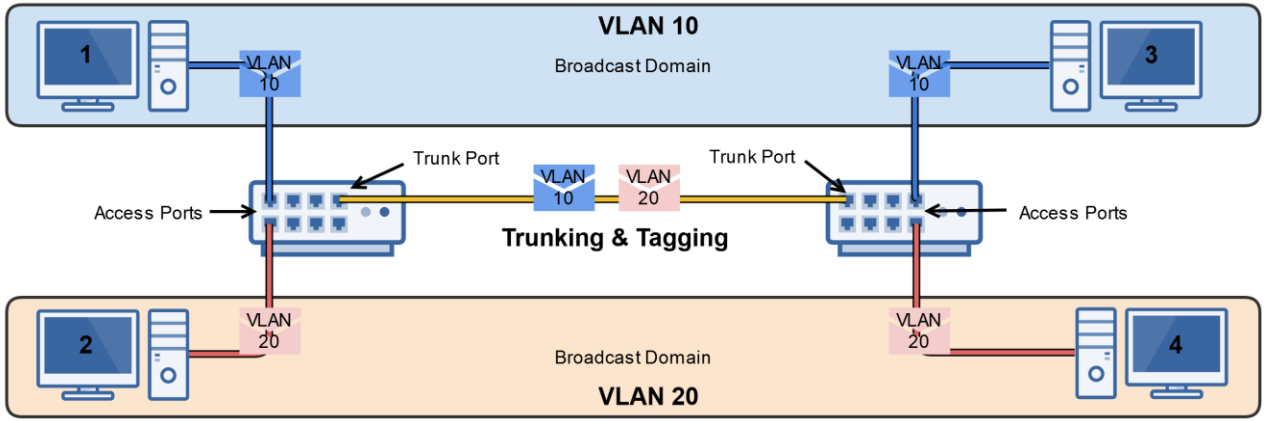
Virtual LANs (VLANs)

- Essentially LANs within a LAN
  - Physical Switch → Multiple Virtual Switches
- Break up a large “physical” LAN into several smaller “logical” LANs.
- Accomplished with managed switches.
- Assign specific switch interfaces (ports) to specific virtual LANs.
  - Human Resource VLAN (Interfaces 1, 2, 3)
  - Accounting VLAN (Interfaces 4, 5, 6)
- Benefits of VLANs
  - Reduces Broadcast Domains
  - Segments Network by Role
  - Increases Security
  - Devices Cannot Communicate with Other VLANs
  - Group Devices by Need, Not Physical Location



VLANs with Multiple Switches



- **Trunk Ports**: Creates a connection between two switches (trunk link) for VLAN traffic to traverse for multiple VLANs.
- **Access Ports**: Ports configured for use for a single VLAN.
- **Tagging (802.1Q)**: Ethernet frames are tagged with their respective VLAN ID when traversing trunk ports to ensure proper delivery.
- **Untagged Frames**: If a frame isn't tagged with a VLAN ID, switch trunk ports can be configured with a native VLAN, to which the untagged frame will be sent.