VLAN-Vortex-Odyssey
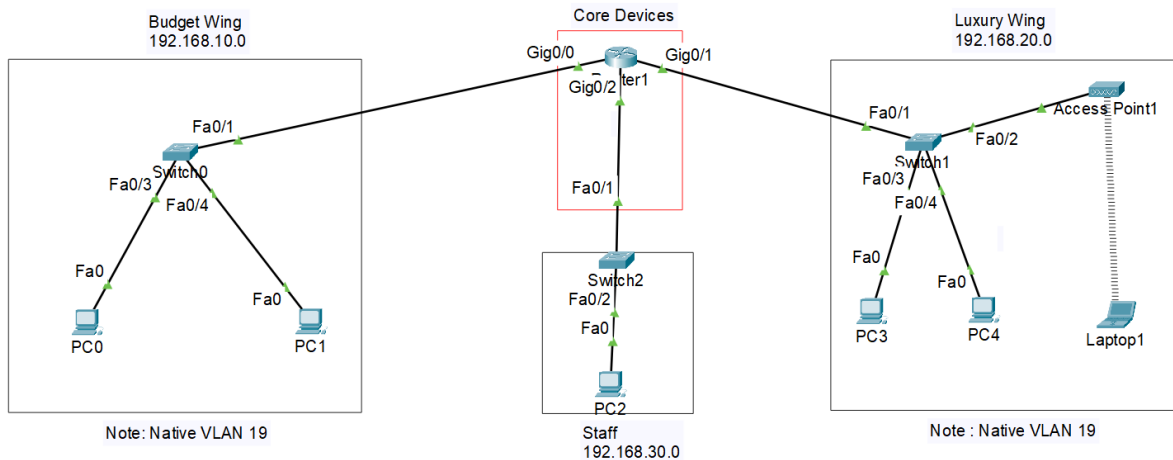
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Network Topology:

Topology Description:

1. **Budget Wing (192.168.10.0/24):**

   o Hosts basic accommodations with two PCs (PC0 and PC1) for guest use.
   o Connected via Switch0, which is linked to the core router using a FastEthernet interface.
   o Uses VLAN 19 as the native VLAN for secure communication.

2. **Luxury Wing (192.168.20.0/24):**

   o Caters to premium guests with two PCs (PC3 and PC4) and a laptop connected to an Access Point for wireless connectivity.
   o All devices connect through Switch1, which links back to the core router.
   o VLAN 19 is also designated as the native VLAN for consistency.

3. **Staff Section (192.168.30.0/24):**

   o Provides connectivity for staff operations with one PC (PC2).
   o Connected through Switch2, which communicates with the core router via FastEthernet.

4. **Core Devices:**

   o The central point of the network, featuring Router1 and interconnecting switches via Gigabit Ethernet for high-speed and reliable data transfer.
   o Ensures routing between the different VLANs and subnetworks for effective communication across all sections of the hotel.

Features of the Hotel Network Topology:

- **Efficient Segmentation:** The network is divided into three subnets: Budget Wing (192.168.10.0/24), Luxury Wing (192.168.20.0/24), and Staff (192.168.30.0/24), ensuring proper separation of traffic and optimized bandwidth utilization.

- **Native VLAN Utilization:** VLAN 19 is configured as the native VLAN, providing an additional layer of security by using an uncommon VLAN number to deter potential attackers.
- **Wireless Connectivity:** The Luxury Wing includes an Access Point for seamless wireless access, catering to premium guests who require mobility.

- **Centralized Management:** The core router acts as the central hub, enabling routing and communication between all subnets while maintaining high-speed connections using Gigabit Ethernet links.

- **Scalability:** The design supports future expansion, allowing additional devices or subnets to be integrated with minimal changes to the existing architecture.

- **Traffic Isolation:** Separate VLANs ensure that broadcast traffic is contained within its designated subnet, improving performance and network security.

- **Redundancy and Reliability:** By connecting all sections to the core through dedicated switches, the network ensures consistent and reliable connectivity across all wings.