**Topic 4B: Compare Networking Hardware Notes:**

**Networking Hardware Notes (Direct Points)**

* **Network Interface Cards (NICs):** Enables network connection; supports Ethernet standards like 1000BASE-T; includes MAC addresses for unique identification.
* **Patch Panels:** Centralized hub for organizing network cabling; uses IDC punchdown blocks; requires clear labeling for easy management.
* **Hubs:** Outdated device; connects multiple devices; broadcasts data to all ports; prone to collisions.
* **Switches:** Replaced hubs; creates separate collision domains; forwards data based on MAC addresses; supports full-duplex communication.
* **Unmanaged Switches:** Simple plug-and-play devices; used for small networks.
* **Managed Switches:** Configurable; used in larger networks; supports VLANs, traffic management, and security settings.
* **Power Over Ethernet (PoE):** Supplies power and data through one Ethernet cable; supports devices like cameras and access points.
* **PoE Standards:**
  + 802.3af: Up to 13W.
  + 802.3at (PoE+): Up to 25W.
  + 802.3bt (PoE++): Up to 73W.
* **PoE Injector:** Adds power to Ethernet cables when a switch doesn't support PoE.