# Campus Design - Access, Distribution and Core Layers

- The campus LAN should be designed for scalability, performance and security

- To aid in a best practice design process, the network topology is split into access, distribution and core layers

- The layers have their own design principles and characteristics

Campus Design – Access Layer

Access Layer

Main Building

Building 1
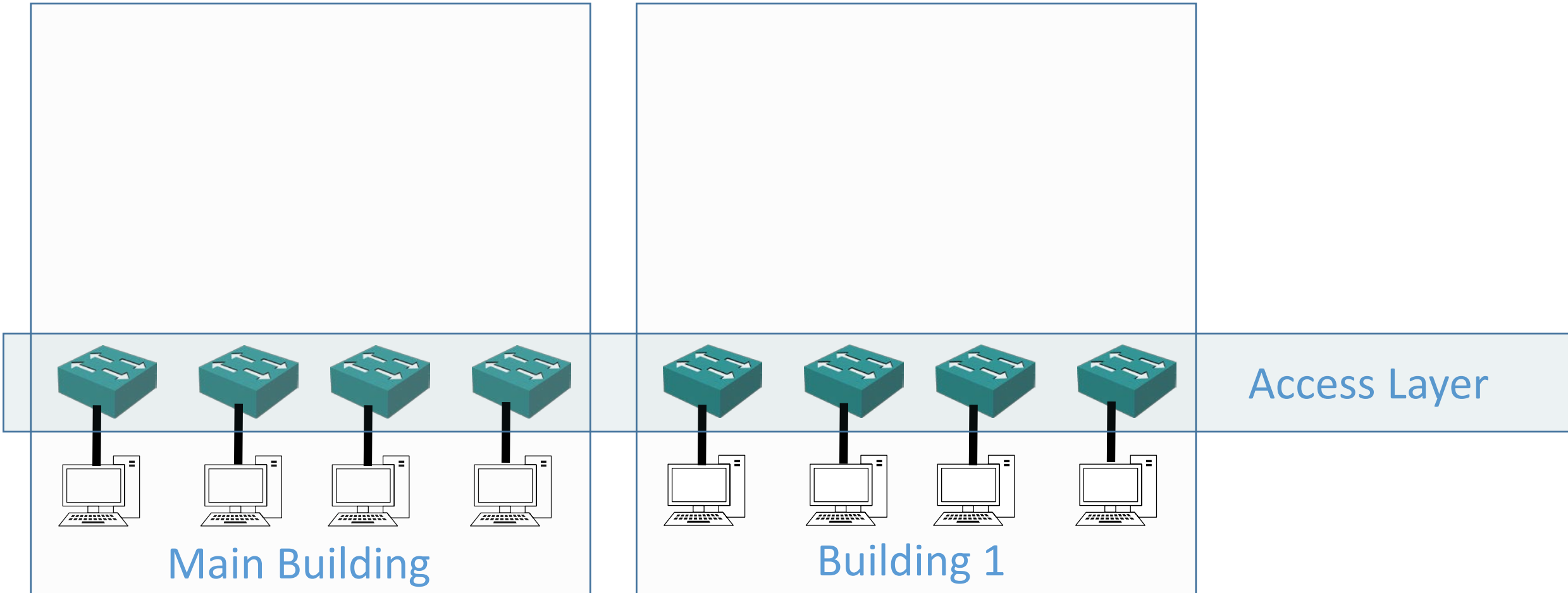
The Access Layer

- End hosts such as desktop computers, servers and IP phones connect into the network at the access layer

- It is designed to have a high port count at an affordable cost

- Desktops typically have only one Network Interface Card (NIC) so they connect into one switch or Wireless Access Point

- Servers will often have dual NICs and connect to a pair of redundant switches

- Client access security measures are enabled at the Access Layer

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Campus Design - Distribution Layer

Distribution Layer

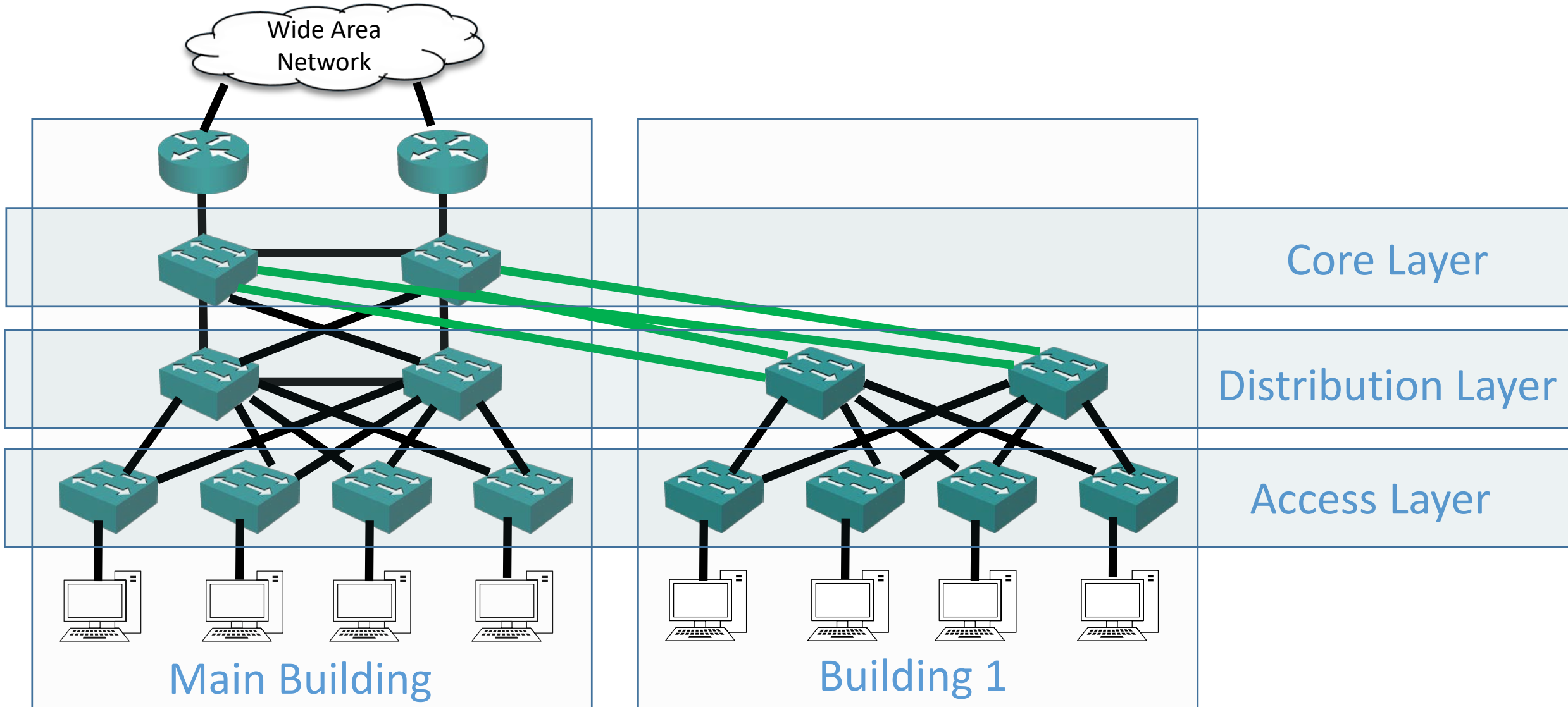Access Layer

Main Building

Building 1
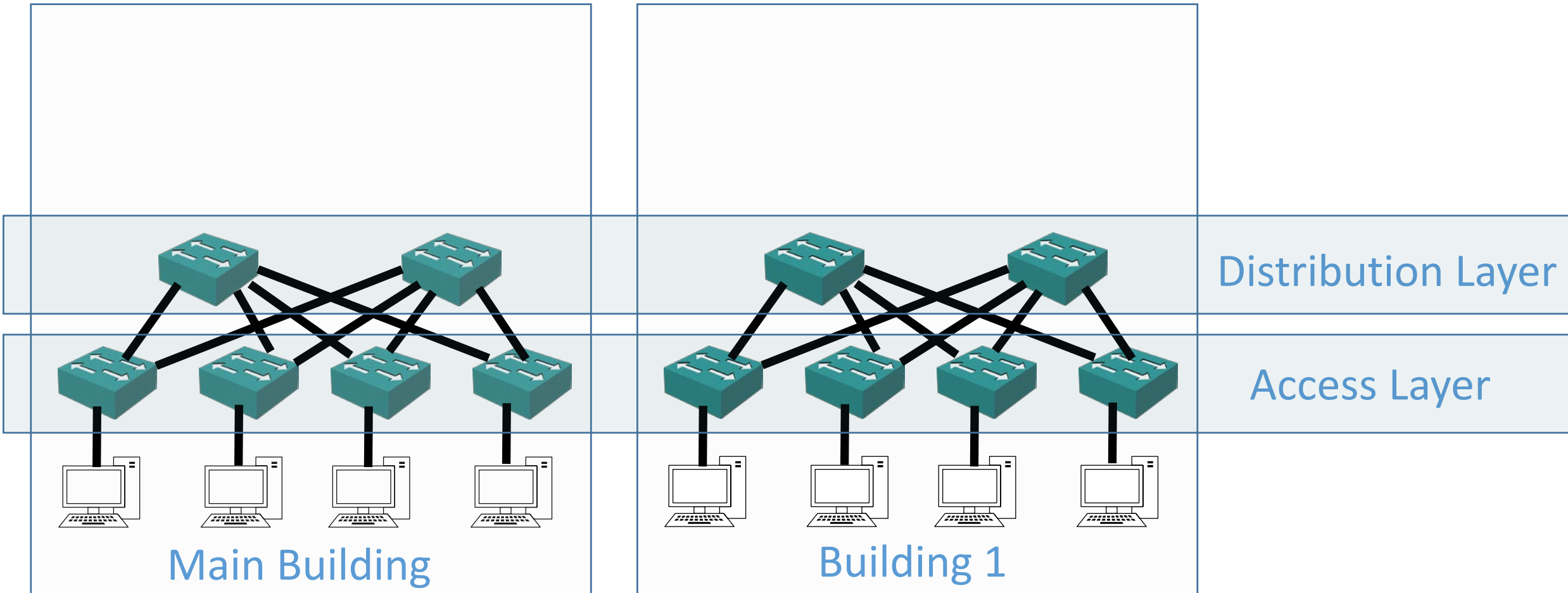
The Distribution Layer

- Access Layer switches uplink to Distribution Layer switches
- The Distribution Layer switches serve as an aggregation point for the Access Layer and provide scalability
- Distribution Layer switches are typically deployed in redundant pairs, with downstream Access Layer switches connected to both
- End hosts are not typically connected here
- Most software policy such as QoS is enabled at this layer

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Campus Design - Core Layer

Wide Area Network

Core Layer

Distribution Layer

Access Layer

Main Building

Building 1

The Core Layer

- Distribution Layer switches uplink to Core Layer switches
- Core Layer switches are typically deployed in redundant pairs, with downstream Distribution Layer switches connected to both
- Traffic between different parts of the campus travels through the core so it is designed for speed and resiliency
- Software policy slows the switch down so should be avoided in the Core Layer

Collapsed Distribution and Core

- Smaller campuses do not need the scalability of three separate layers
- In these cases a Collapsed Distribution and Core layer is used, where the Distribution and Core layer functions are performed on the same hardware device

Collapsed Distribution and Core