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**Welcome
To
Network for you
Two-Tier and Three-Tier
Architectures**



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Two-Tier and Three-Tier Architectures:

First, we will discuss about Core, Distribution and Access Layer.

Core Layer:

- Core Layer consists of biggest, fastest and most expensive routers with highest model.
- Core Layer roles is to forwards traffic, the fastest it can, here we do not apply any policy.
- Core Layer device consider as network backbone.
- Core Layer routers or switches are used to merge geographically separated networks.
- Core Layer Routers or L3 Switches Talk with Distribution Layer Routers or L3 Switches by using dynamic routing protocols like EIGRP or OSPF etc.
- Core Layer can provide the high-speed switching, reliability and fault tolerance.
- At Core Layer mostly advanced and expensive switches used.



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Distribution Layer:

- Distribution Layer is located **between the Access Layer and the Core Layers.**
- Distribution Layer is to provide boundary **definition by implementing access lists and other filters.**
- Distribution Layer ensures that packets are properly **routed between subnets and VLANs.**
- Distribution Layer defines **policy for network and include high end layer 3 switches.**
- Distribution Layer can provide, **Aggregation of Local Area Network or WAN Links.**
- Distribution Layer also provide, routing services between **LANs and VLANs and between routing domains.**
- Distribution Layer provide **redundancy, load balancing, aggregation and summarization.**
- Broadcast domain control, routers or multilayer switches do not forward broadcasts.



Access Layer:

- Access Layer is the one **closer to the users or End points.**
- Access Layer includes access switches which are connected to the **end devices.**
- Access Layer switches ensures that packets are delivered to the **end points.**
- The Main purpose of the access layer to physically **connect users to the network.**
- We can configure port level **security at Access layer switches.**
- Access Layer switches is directly connected to **user with cable.**
- Access Layer can provide Layer 2 switching, High availability, and port security etc.
- It also provides **QOS classification and ARP inspection, Power over Ethernet (POE).**
- Access Layer is also known as Desktop layer.

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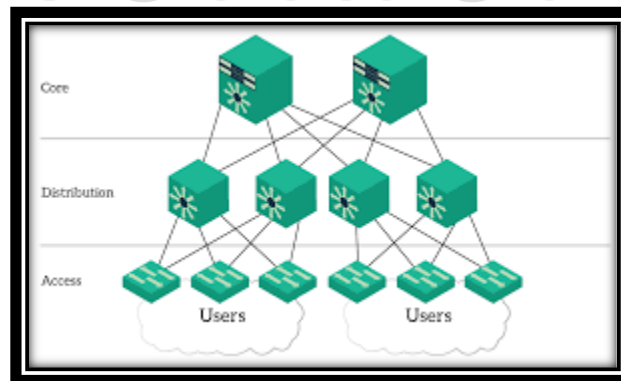
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Three Tier:

- The Three Tier (3 Tier) Architecture is a great solution for large enterprises.
- CISCO suggests 3 Tier hierarchical network model and it is consisting of three layers.
- The Three Tier are the core layer, The Distribution layer and the Access layers.
- Three Layer network model is the preferred approach to network design.
- Maximizes performance network availability and ability to scale network design.



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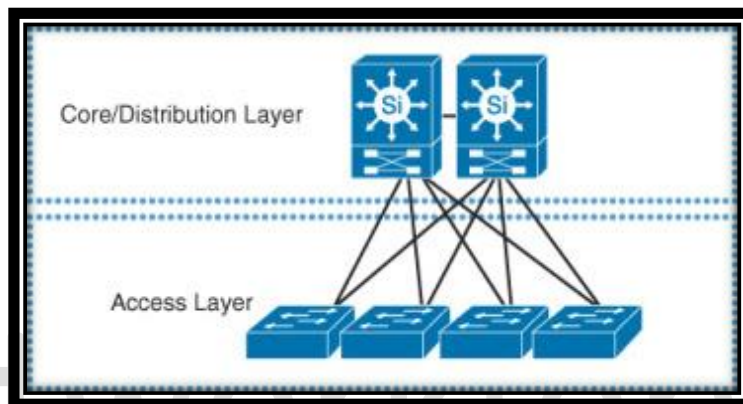
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Two Tier:

- Two Tier design model is more suitable for small to medium size campus networks.
- Core and distribution function can be combined into one, also known as collapsed core.
- Collapsed Core is when distribution and Core Layer functions are implemented by single device.
- The primary motivation for the collapsed core design is to reduce the network cost.
- In Two Tier still maintaining most of the benefits of the three-tier hierarchical mode.



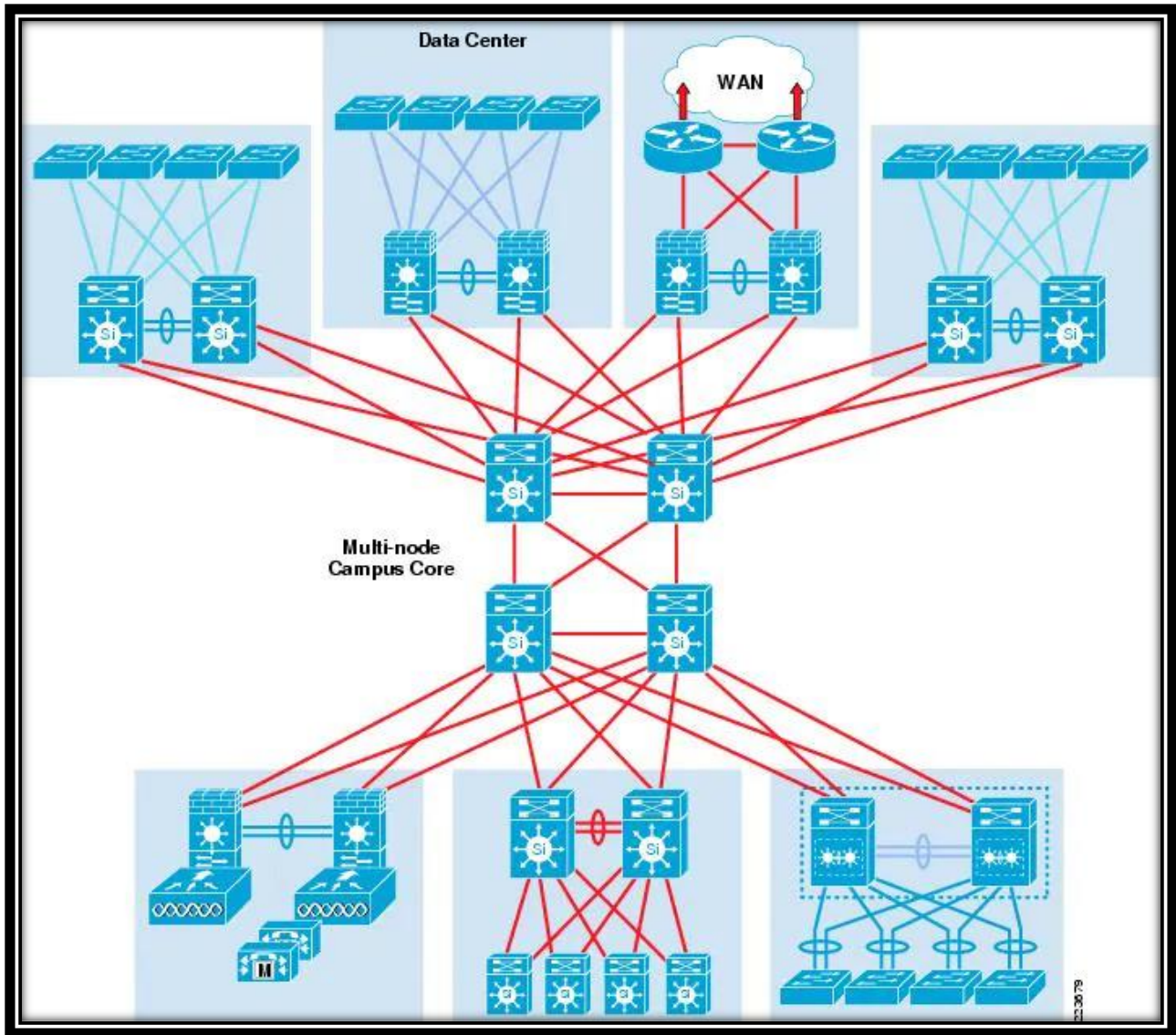
Benefits of Hierarchical Model:

- **The main benefits of Cisco Three-Layer hierarchical model** are that it helps to design, deploy and maintain a scalable, trustworthy, cost effective hierarchical internetwork.
- **Better Performance:** Cisco Three Layer Network Model allows in creating high performance networks
- **Better management & troubleshooting:** Cisco Three Layer Network Model allows better network management and isolate causes of network trouble.
- **Better Filter/Policy creation and application:** Cisco Three Layer Network Model allows better filter/policy creation application.
- **Better Scalability:** Cisco Three Layer Network Model allows us to efficiently accommodate future growth.
- **Better Redundancy:** Cisco Three Layer Network Model provides better redundancy. Multiple links across multiple devices provides better redundancy. If one switch is down, we have another alternate path to reach the destination.

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