Semester: **V**   Subject: **Computer Network**   Academic Year: **2023-24**

Three –Tier hierarchical network model

Core, Access and Distribution Layers

➢ Cisco has developed a layered hierarchical model for designing a reliable network infrastructure.

➢ This three-layer model helps you design, implement, and maintain a scalable, reliable, and cost-effective network.

➢ Each of layers has its own features and functionality, which reduces network complexity.
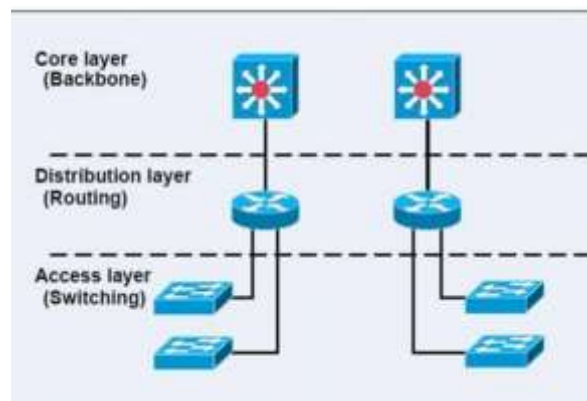
Access

➢ controls user and workgroup access to the resources on the network.

➢ This layer usually incorporates Layer 2 switches and access points that provide connectivity between workstations and servers.

➢ You can manage access control and policy, create separate collision domains, and implement port security at this layer.

Distribution

➢ Serves as the communication point between the access layer and the core.

➢ Its primary functions are to provide routing, filtering, and WAN access and to determine how packets can access the core.

➢ This layer determines the fastest way that network service requests are accessed – for example, how a file request is forwarded to a server – and, if necessary, forwards the request to the core layer.

➢ This layer usually consists of routers and multilayer switches.

Core

➢ Also referred to as the network backbone, this layer is responsible for transporting large amounts of traffic quickly.

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➢ The core layer provides interconnectivity between distribution layer devices it usually consists of high-speed devices, like high end routers and switches with redundant links.

Benefits of Cisco Three-Layer hierarchical model

➢ **The main benefits** of Cisco Three-Layer hierarchical model is 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.