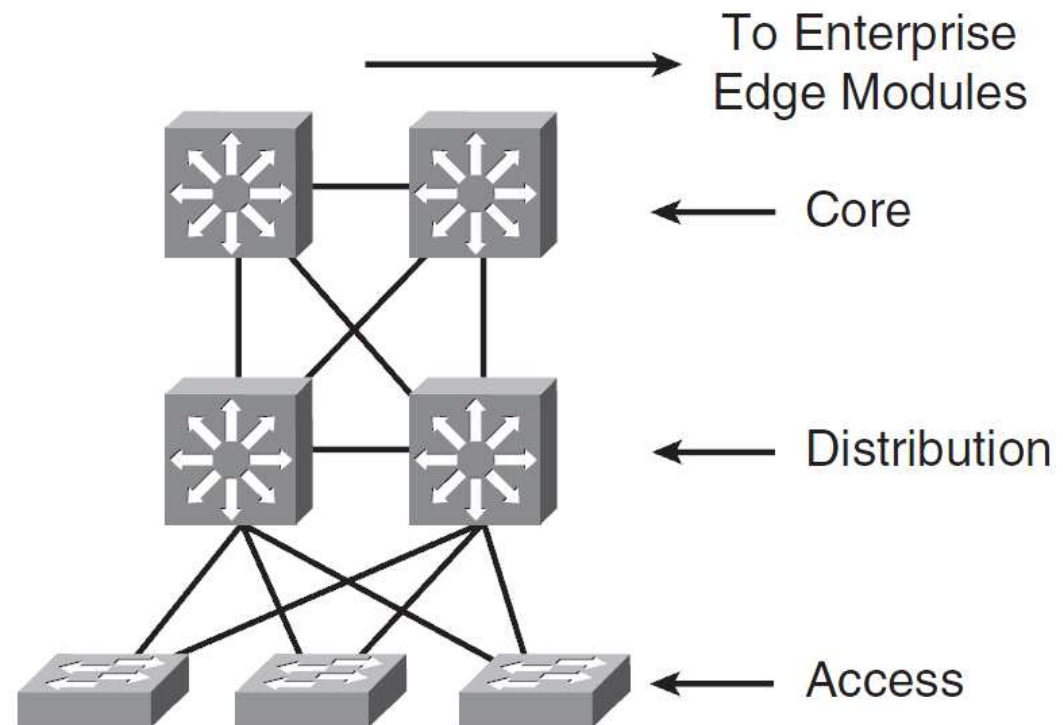


Chapter 2

Hierarchical Network Models

- Cost savings
- Ease of understanding
- Modular network growth
- Improved fault isolation



Chapter 2

Core Layer

The core layer is the network's high-speed switching backbone that is crucial to corporate communications. The core layer should have the following characteristics:

- Fast transport
- High reliability
- Redundancy
- Fault tolerance
- Low latency and good manageability
- Avoidance of slow packet manipulation caused by filters or other processes
- Limited and consistent diameter
- Quality of service (QoS)

Chapter 2

Distribution Layer

The network's distribution layer is the isolation point between the network's access and core layers. The distribution layer can have many roles, including implementing the following functions:

- Policy (for example, ensuring that traffic sent from a particular network is forwarded out one interface while all other traffic is forwarded out another interface)
- Redundancy and load balancing
- QoS
- Security filtering
- Address or area aggregation or summarization
- Departmental or workgroup access
- Broadcast or multicast domain definition
- Routing between virtual LANs (VLAN)
- Media translations (for example, between Ethernet and Token Ring)
- Redistribution between routing domains (for example, between two different routing protocols)
- Demarcation between static and dynamic routing protocols

Chapter 2

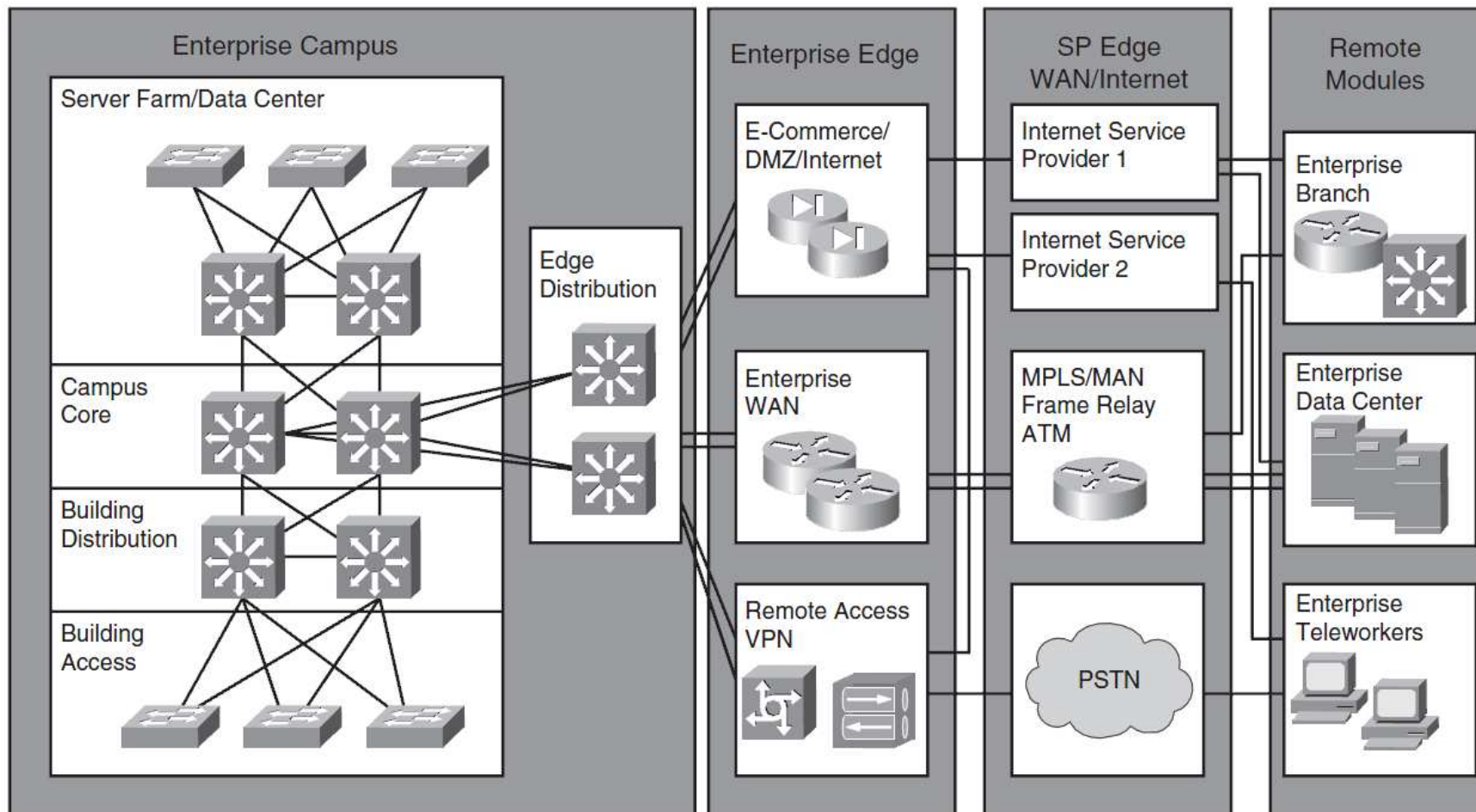
Access Layer

The access layer provides user access to local segments on the network. The access layer is characterized by switched and shared-bandwidth LAN segments in a campus environment. Microsegmentation using LAN switches provides high bandwidth to workgroups by reducing collision domains on Ethernet segments. Some functions of the access layer include the following:

- Port security
- Broadcast suppression
- QoS
- Address Resolution Protocol (ARP) inspection
- Virtual access control lists (VACL)
- Spanning tree
- Trust classification
- Power over Ethernet (PoE)

Chapter 2

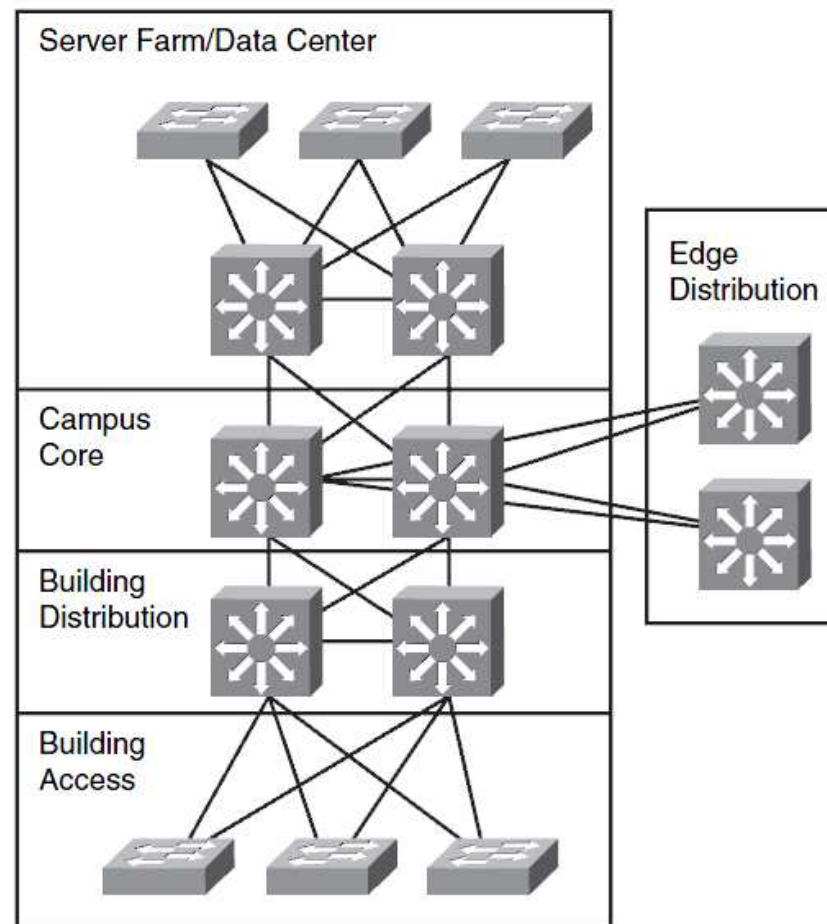
Cisco Enterprise Architecture Model



Chapter 2

Enterprise Campus Module

- Campus core
- Building distribution
- Building access
- Edge distribution
- Server farm/data center



Chapter 2

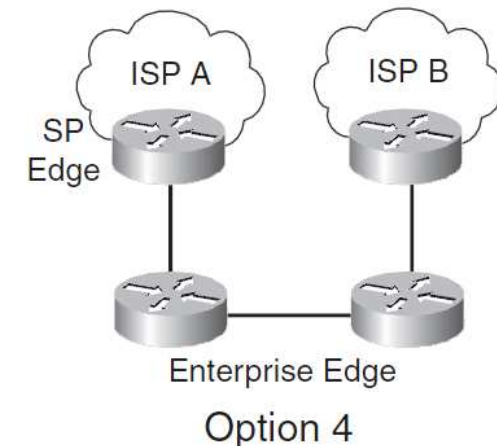
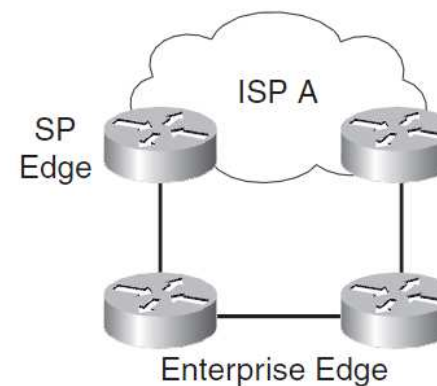
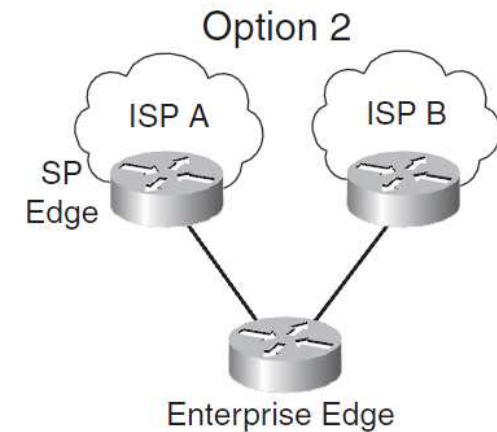
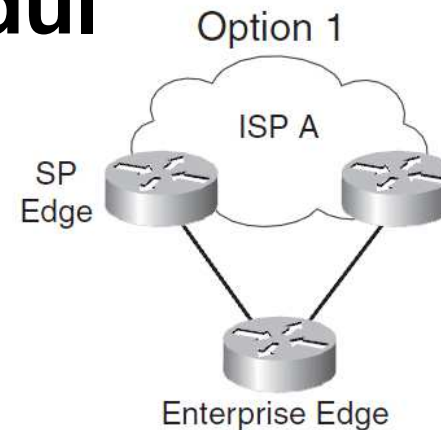
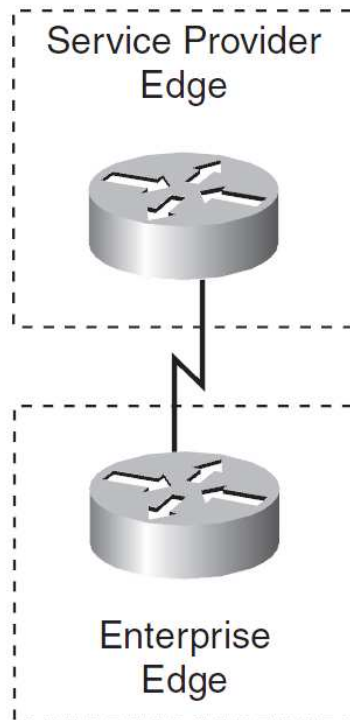
Enterprise Edge Module

- E-commerce networks and servers
- Internet connectivity and DMZ
- VPN and remote access
- Enterprise WAN



Chapter 2

Internet Edge Modul

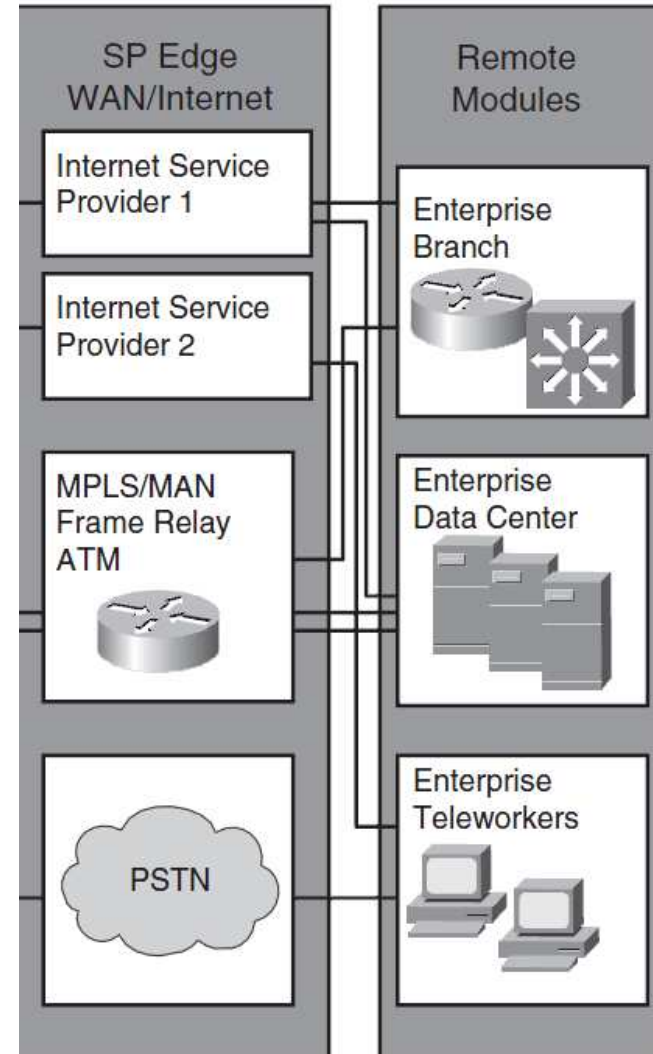


- Option 1—Single router, dual links to one ISP
- Option 2—Single router, dual links to two ISPs
- Option 3—Dual routers, dual links to one ISP
- Option 4—Dual routers, dual links to two ISPs

Chapter 2

Remote Modules

- Enterprise Branch Module
- Enterprise Data Center Module
- Enterprise Teleworker Module



Chapter 2

Network Availability

- **Workstation-to-router redundancy in the building-access layer**
- **Server redundancy in the server farm module**
- **Route redundancy within and between network components**
- **Media redundancy in the access layer**

Chapter 2

Workstation-to-Router Redundancy

- ARP
- Explicit configuration
- ICMP Router Discovery Protocol (RDP)
- RIP
- HSRP
- Global Load Balancing Protocol (GLBP)

Chapter 2

Server Redundancy

- Clusters
- Data replication
- CallManger Clusters
- EtherChannel

Chapter 2

Route Redundancy

- **Load Balancing**

- Route Protocol support
- EtherChannel

- **Increasing availability**

- Consistent bandwidth
- Faster convergence
- Equal-cost paths

Chapter 2

Media Redundancy

- Spanning-Tree
- Floating static routes
- Alternativ fremførte linier



Chapter 2



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