Chapter 6

WAN Topologies
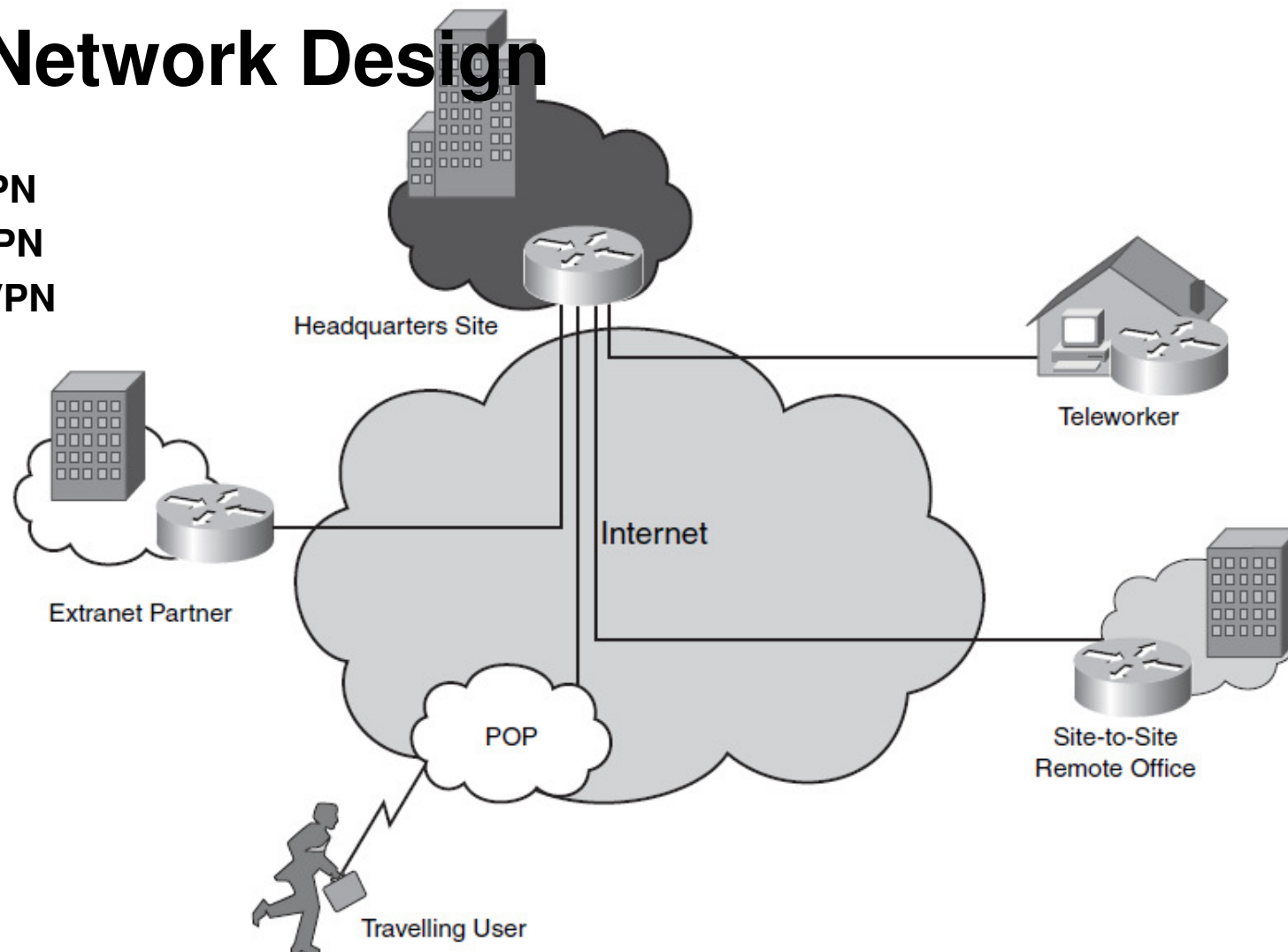
- **Hub-and-Spoke Topology**
- **Full-Mesh Topology**
- **Partial-Mesh Topology**

Partial Mesh
Topology

Full Mesh
Topology

Hub and Spoke
Topology
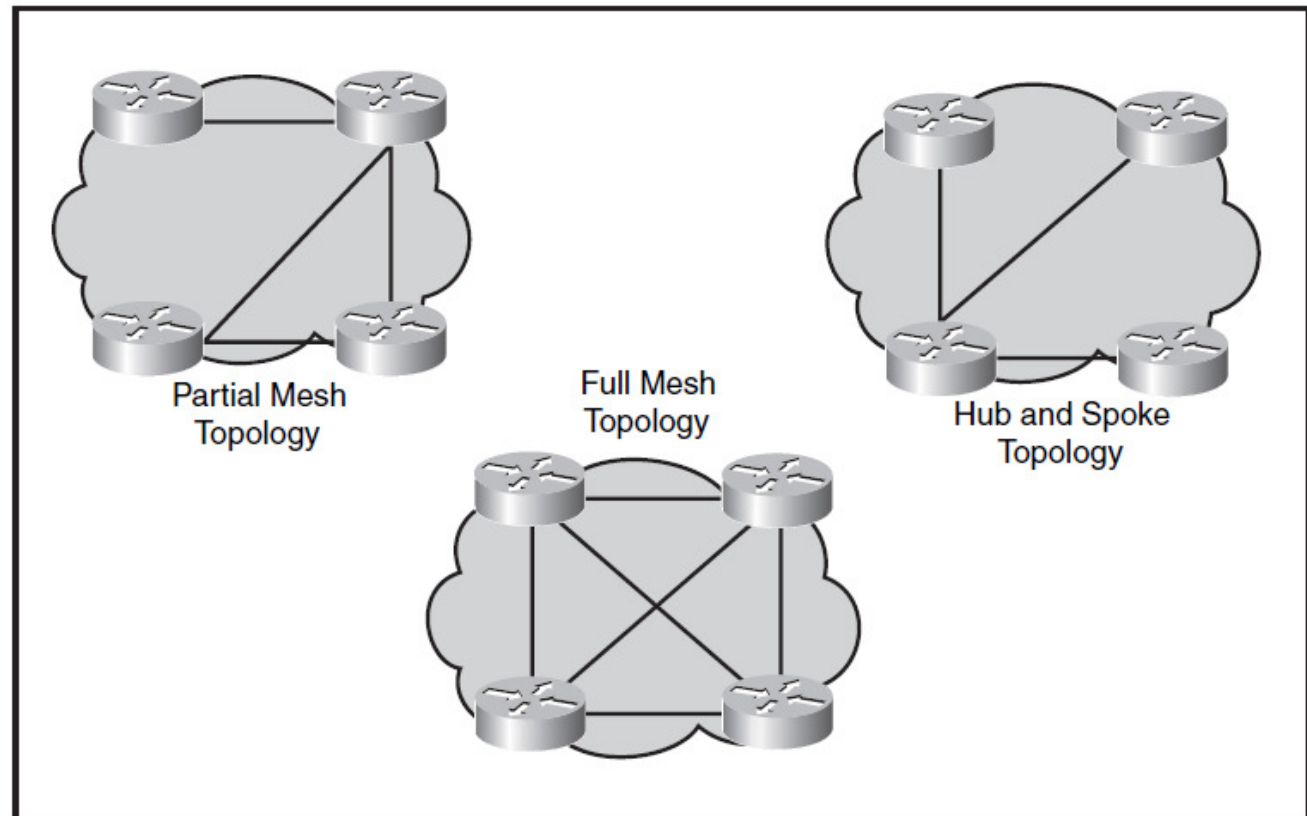
Chapter 6

VPN Network Design

- •Access VPN
- •Intranet VPN
- •Extranet VPN

Headquarters Site

Teleworker

Internet

Extranet Partner
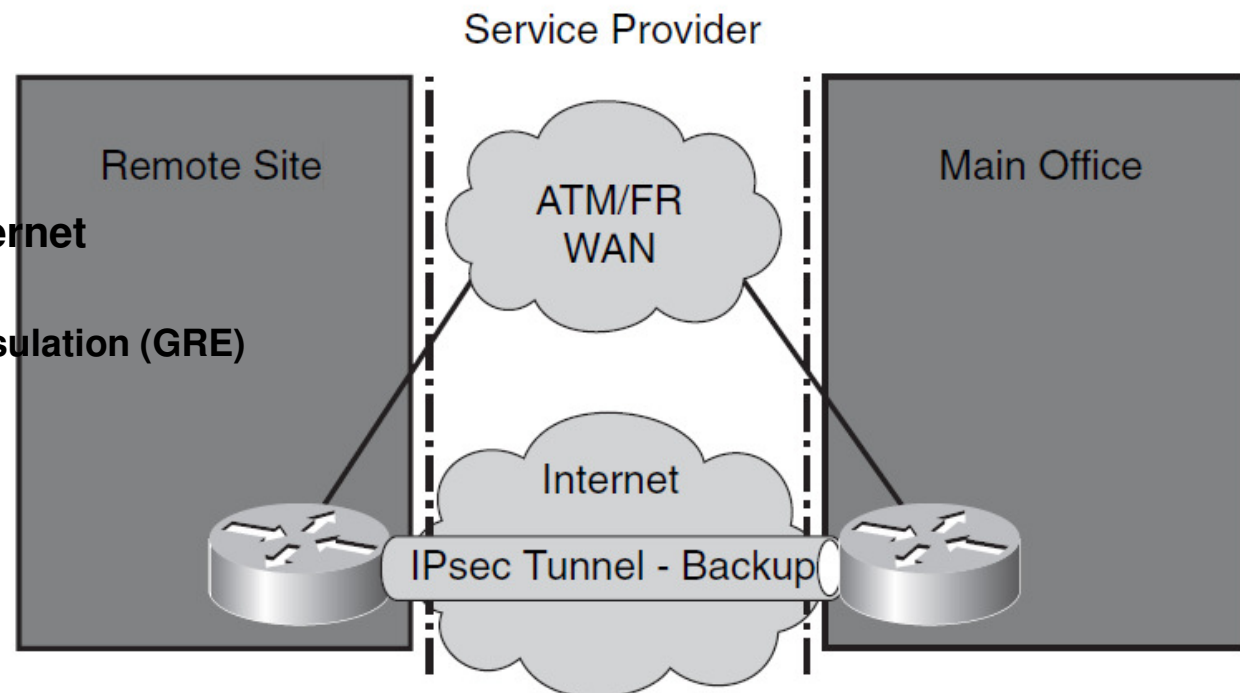
Site-to-Site
Remote Office

POP

Travelling User

WAN Backup Design
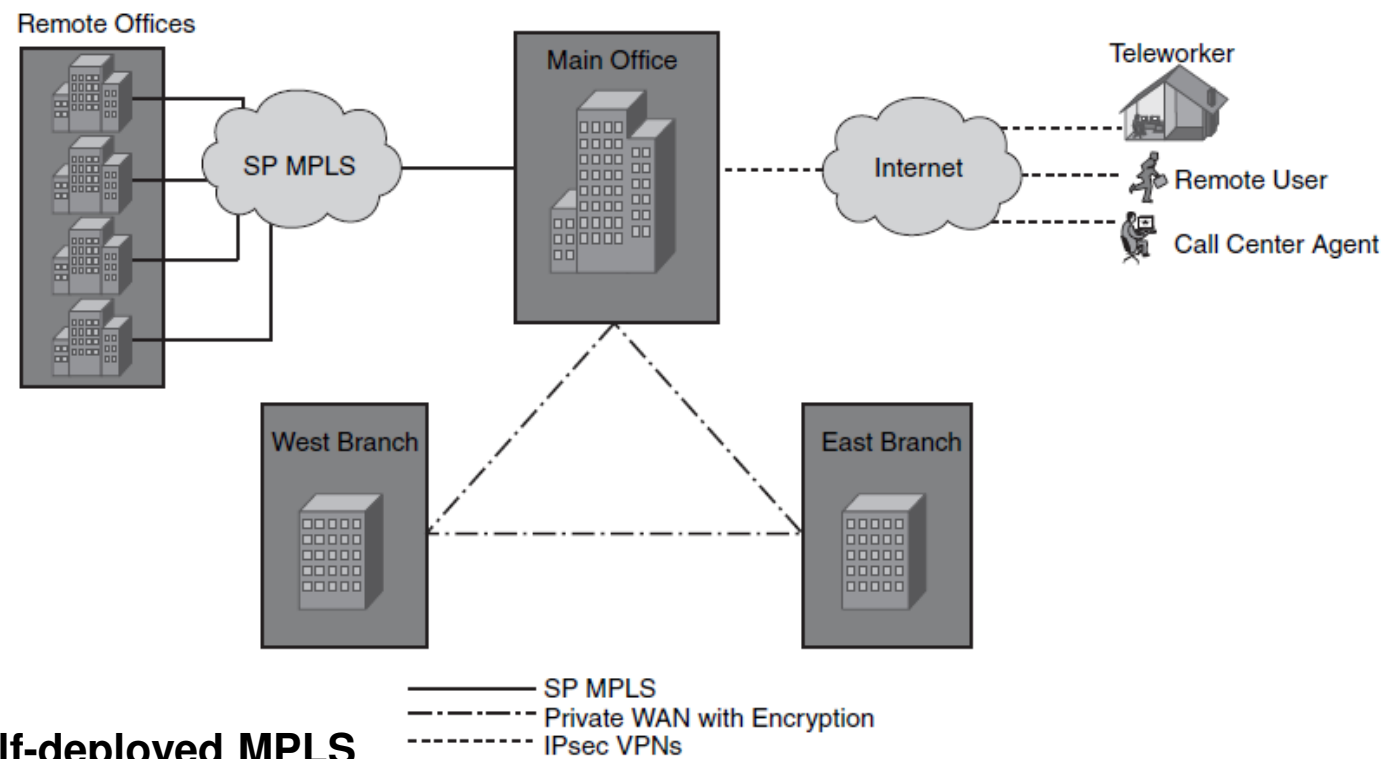
- **Dial backup**
- **Secondary WAN link**
  - **Backup link**
  - **Additional bandwidth**

- **WAN Backup over the Internet**
  - **Layer 3 Tunneling**
  - **Generic Routing Encapsulation (GRE)**
  - **IP Security (IPsec)**

Service Provider

Remote Site

ATM/FR WAN

Main Office

Internet

IPsec Tunnel - Backup

Chapter 6

Cisco Enterprise MAN/WAN

- **Private WAN**
- **ISP Service**
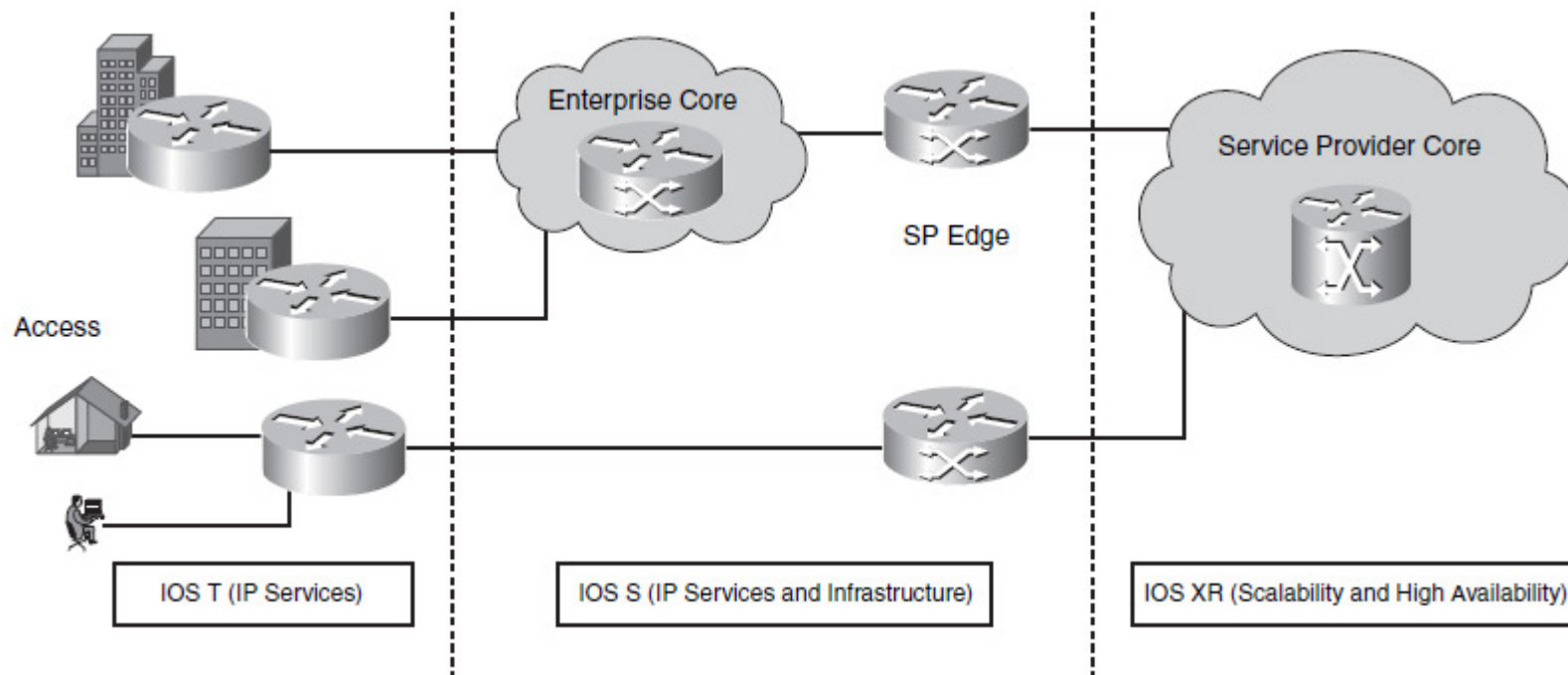- **SP MPLS/IP VPN**
- **Private WAN with self-deployed MPLS**

Chapter 6

Cisco Enterprise MAN/WAN

Characteristic	Private WAN	ISP Service	SP MPLS/ IP VPN	Private MPLS
High availability	Excellent	Good	Excellent	Excellent
Growth support	Moderate	Good	Excellent	Excellent
Security	IPsec (optional)	IPsec (mandatory)	IPsec (optional)	IPsec (optional)
Ongoing expenses	High	Low	Moderate to high	Moderate to high
Ease of management	High	Medium	Medium	High
Voice/video support	Excellent	Moderate	Excellent	Excellent
Effort to migrate from private WAN	Low	Moderate	Moderate	High

Chapter 6

Cisco IOS Software Families

Enterprise Core

Service Provider Core

SP Edge

Access

IOS T (IP Services)

IOS S (IP Services and Infrastructure)

IOS XR (Scalability and High Availability)
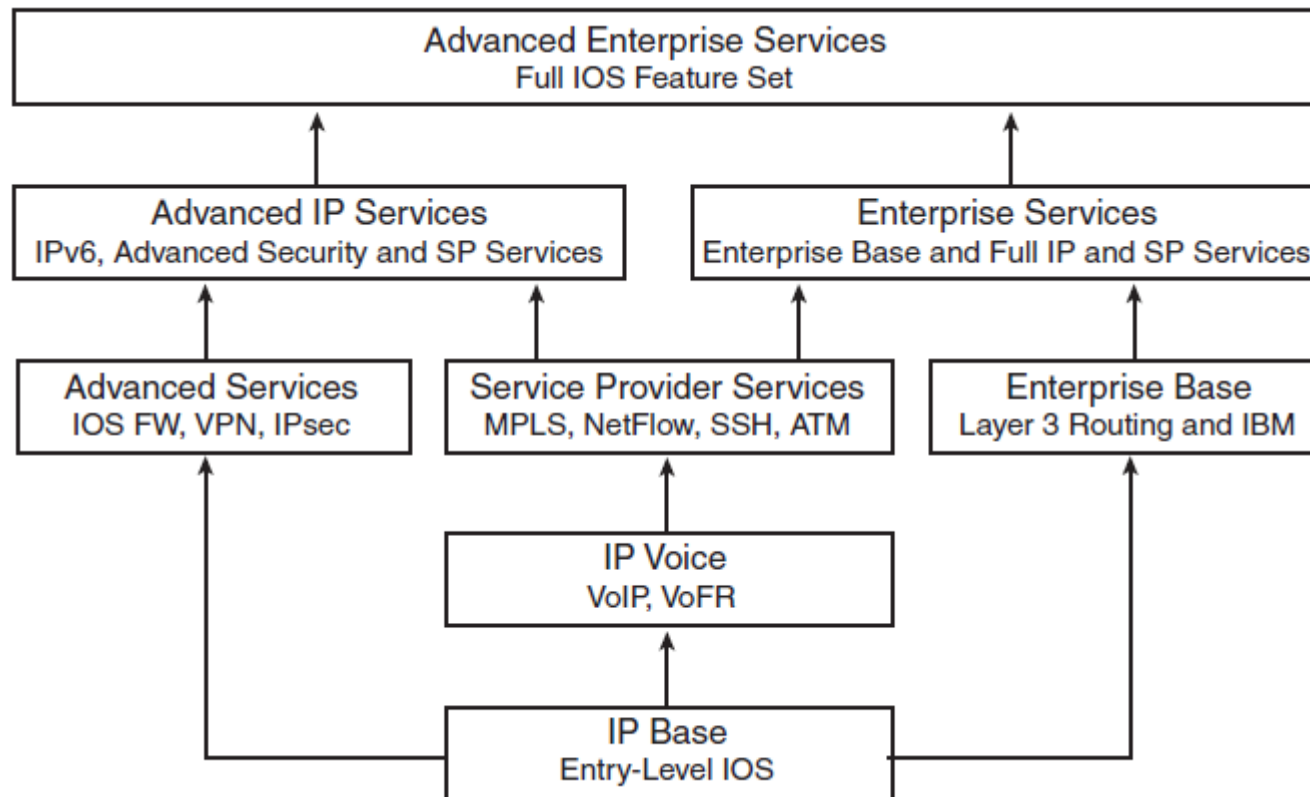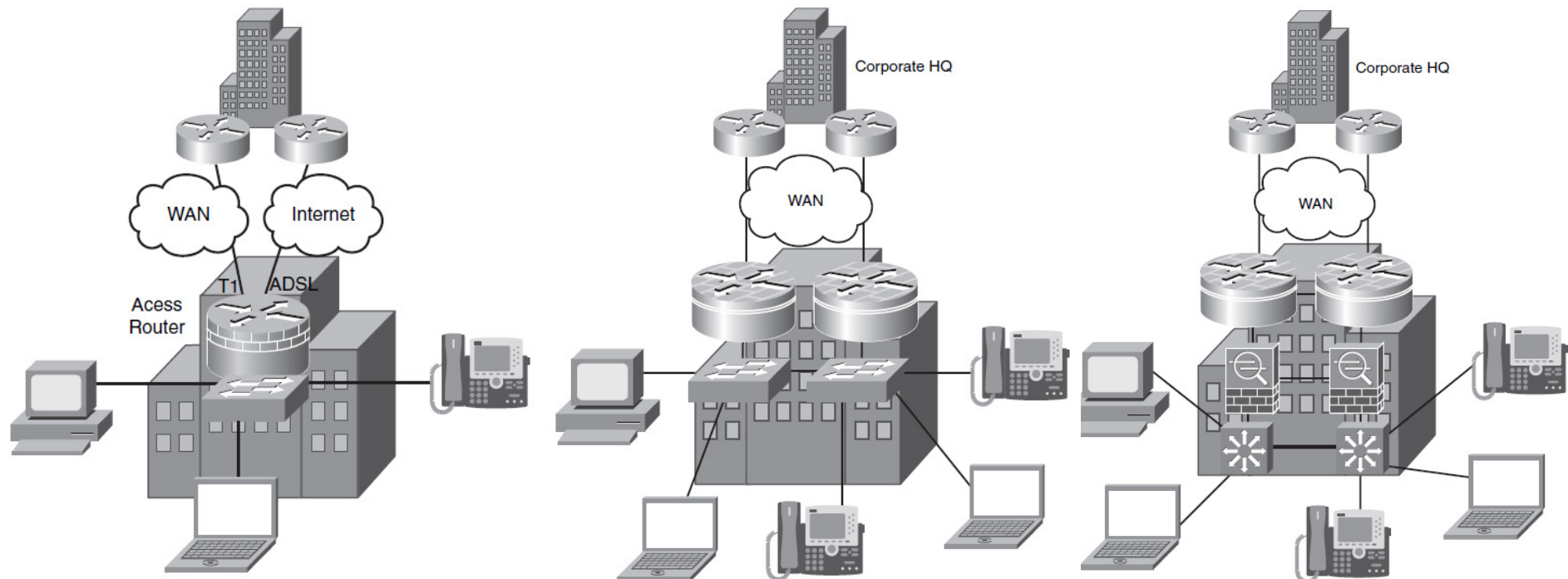
Chapter 6

Cisco IOS Packaging

Chapter 6

Enterprise Branch Architecture

- Single-tier design—Up to 50 users
- Dual-tier design—Between 50 and 100 users
- Multi-tier design—Between 100 and 1000 users

Chapter 6

CISCO

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