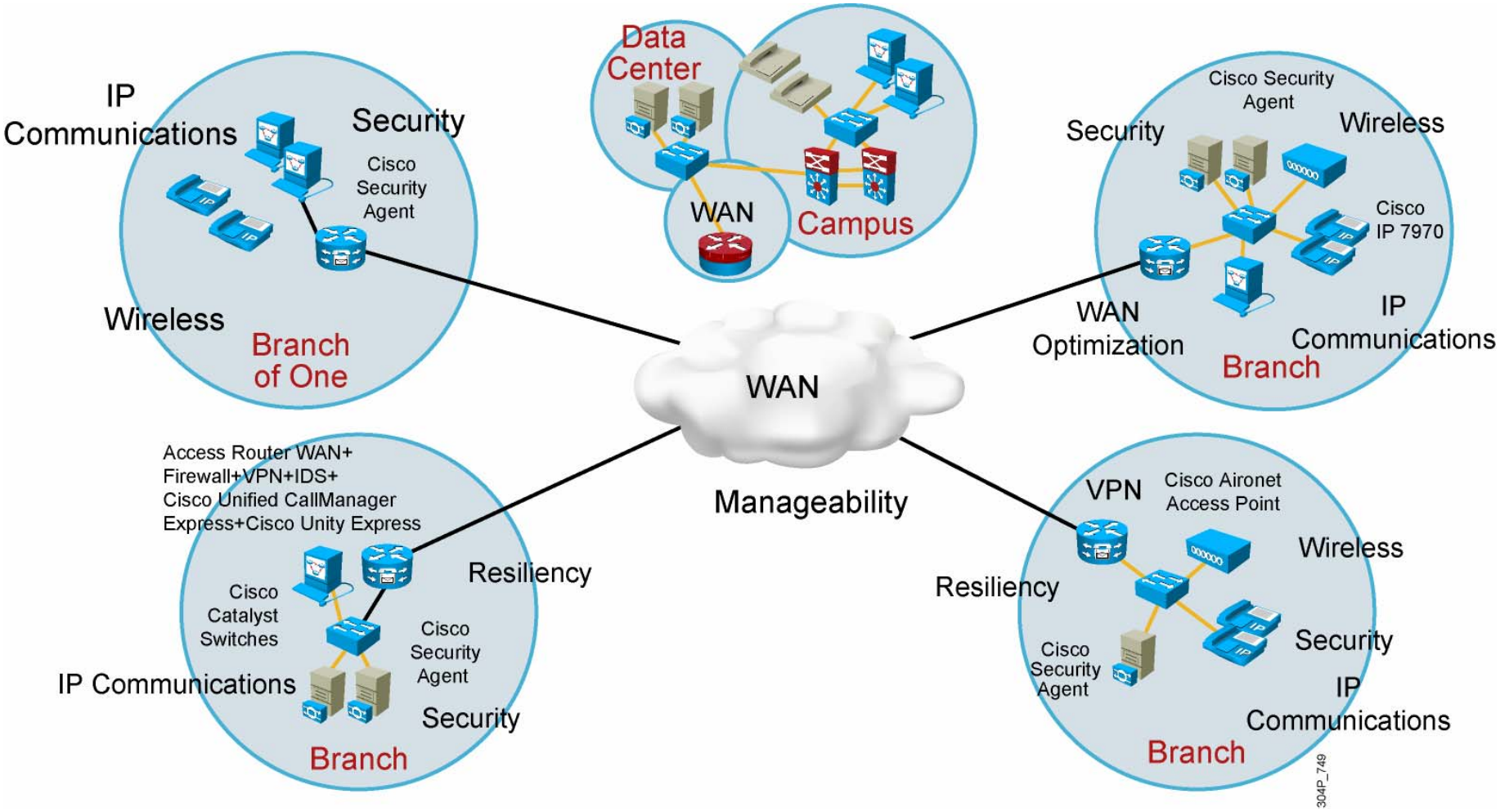
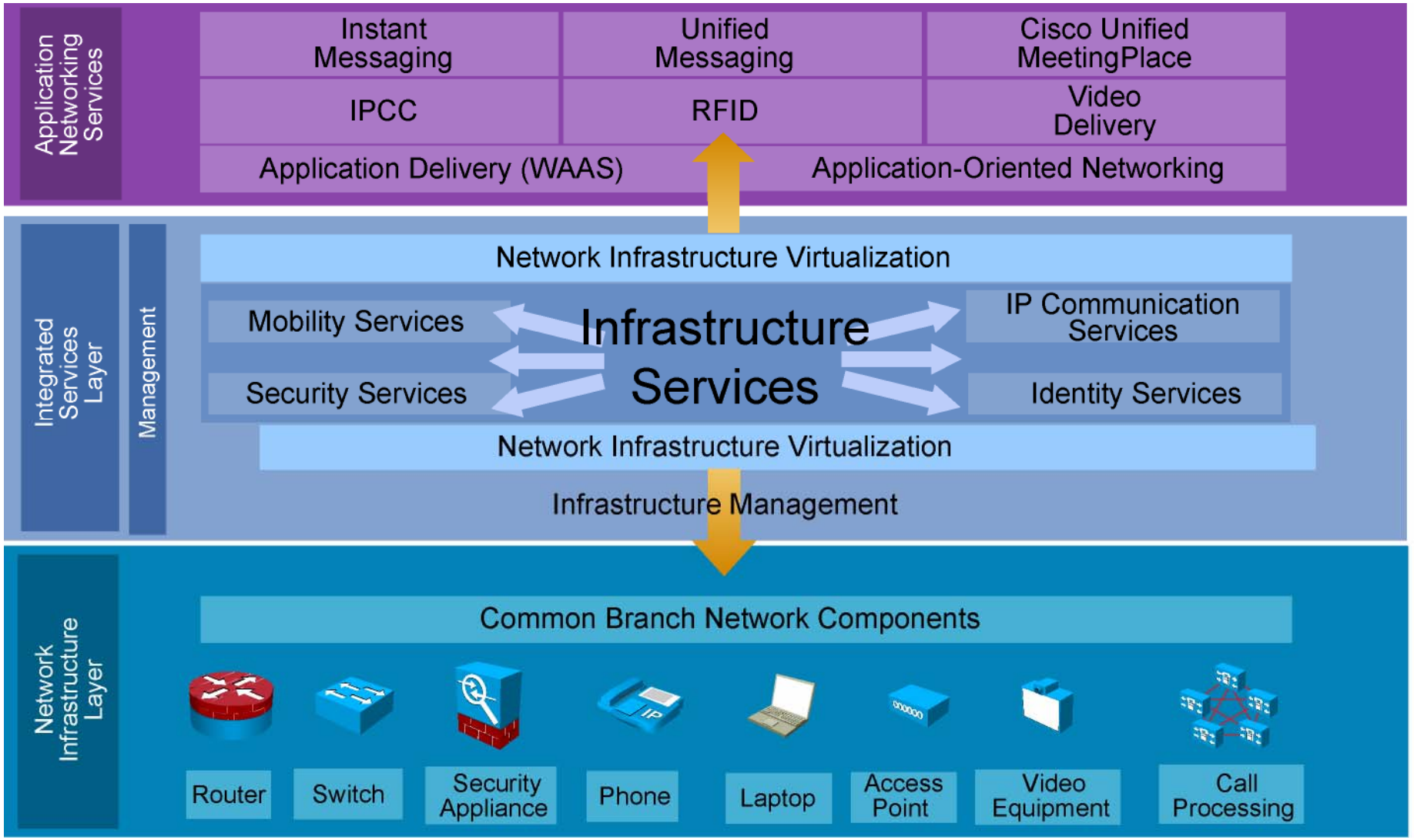
Designing the Enterprise Branch

Designing Remote Connectivity

Enterprise Branch Services



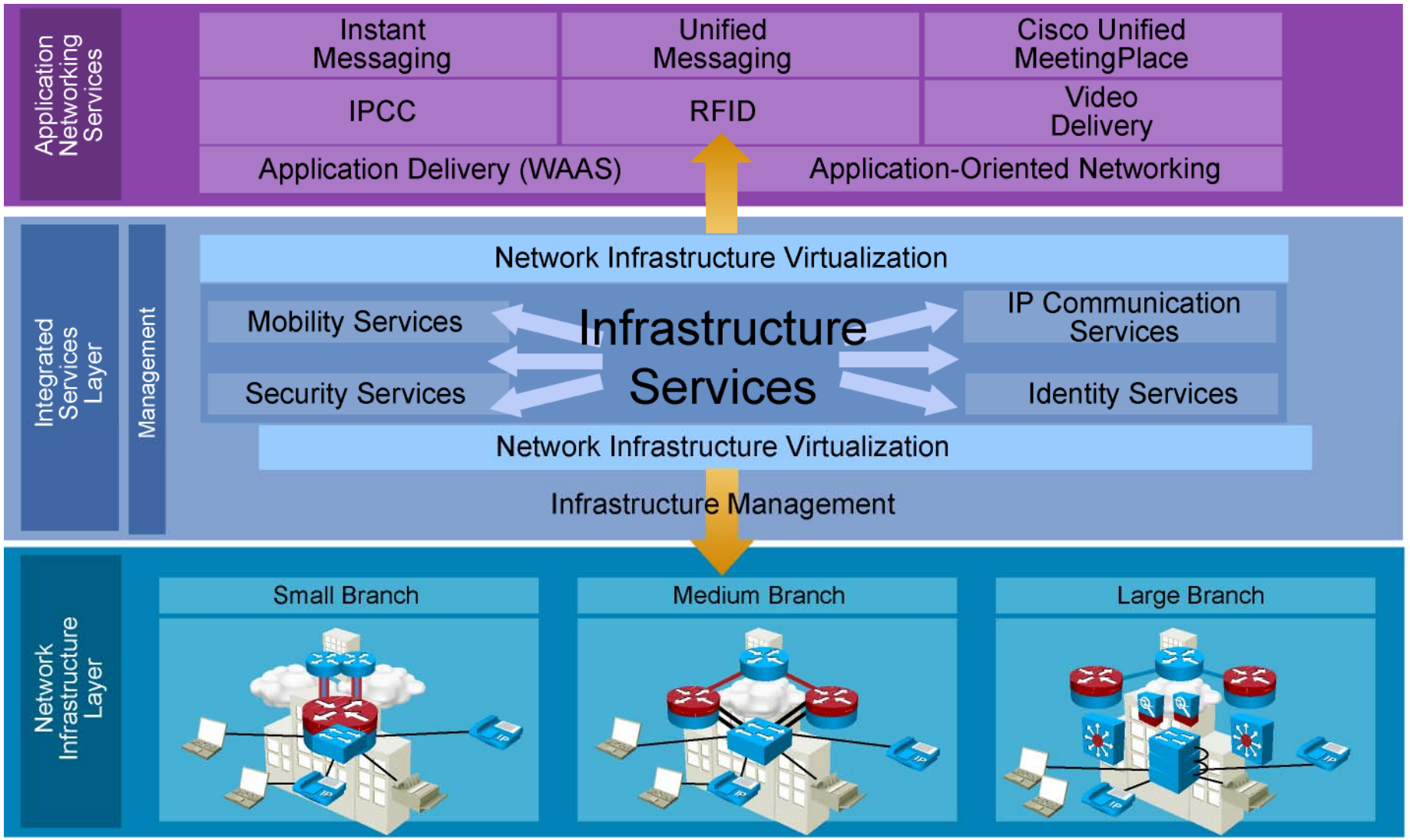
Enterprise Branch Architecture



Characterizing the Branch

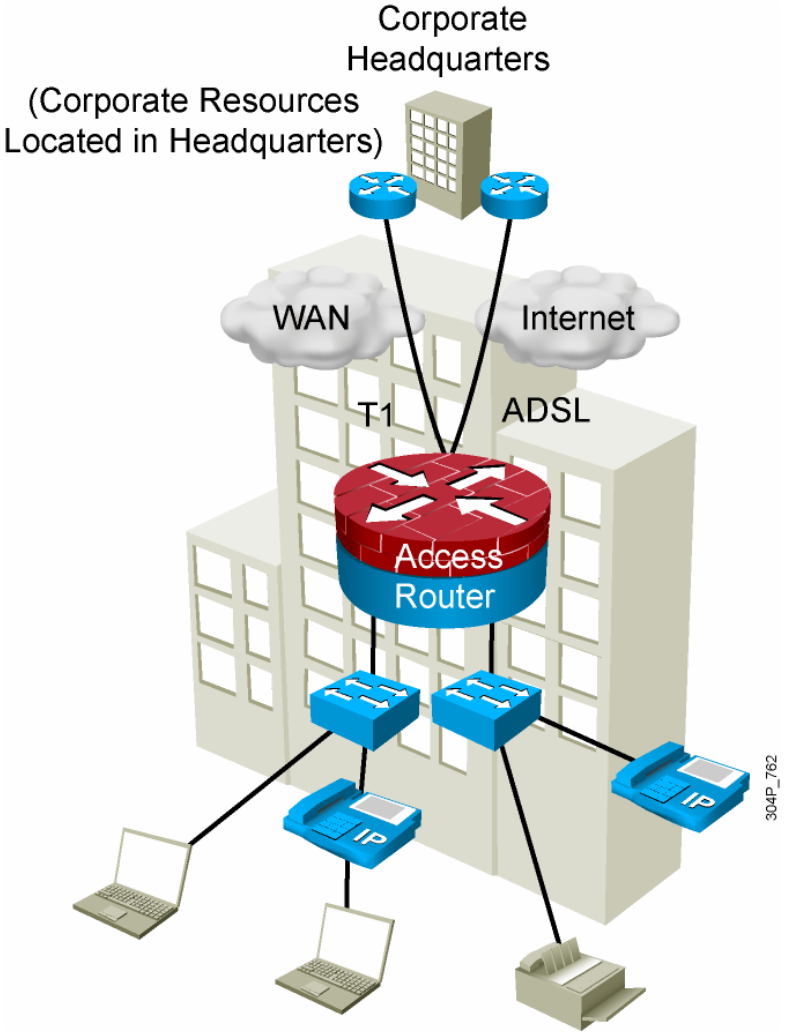
- Number of locations
- Number of existing devices
- Scalability needed
- High-availability requirements
- Security concerns
- Management concerns
- Wireless services needed
- Approximate budget

Enterprise Branch Profiles



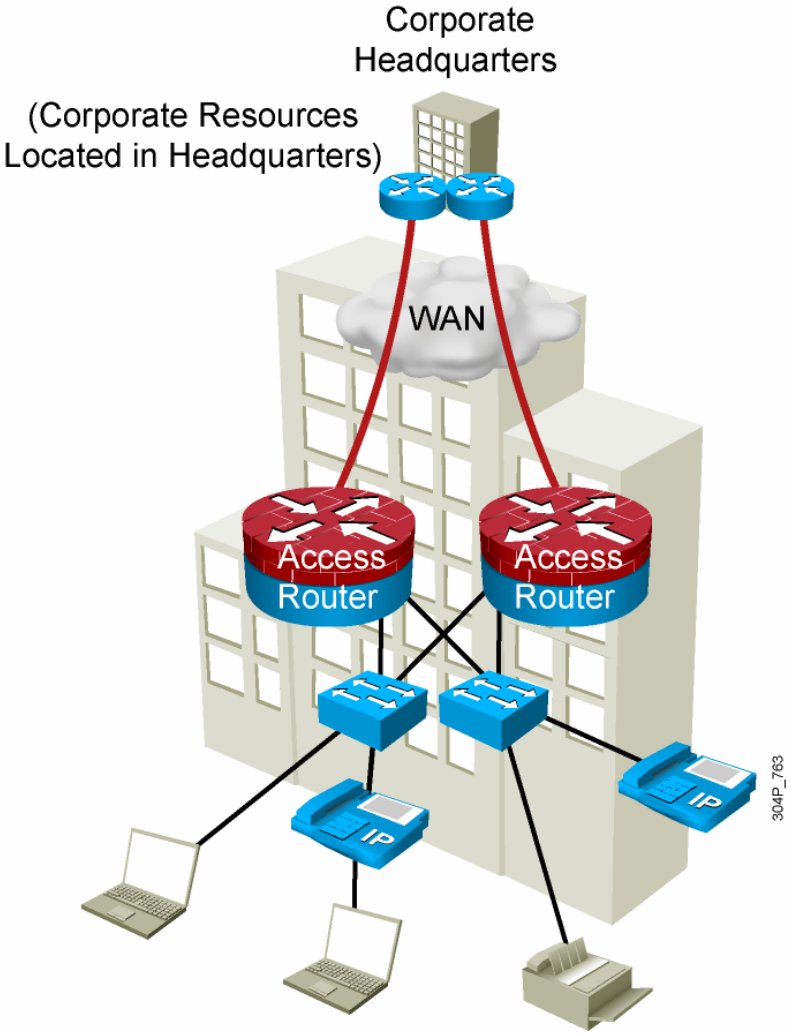
Small Branch Office Design

- Infrastructure components
  - Access router
  - Layer 2 Switching (integrated or external stackable)
  - Laptops, phones, printers
- WAN services and backup
  - Internet deployment model
  - T1 primary link
  - ADSL secondary link
- Network fundamentals
  - EIGRP
  - High availability—floating statics, T1 with aDSL
  - QoS—shaping, policing, scavenger class (applied to both switch and router)



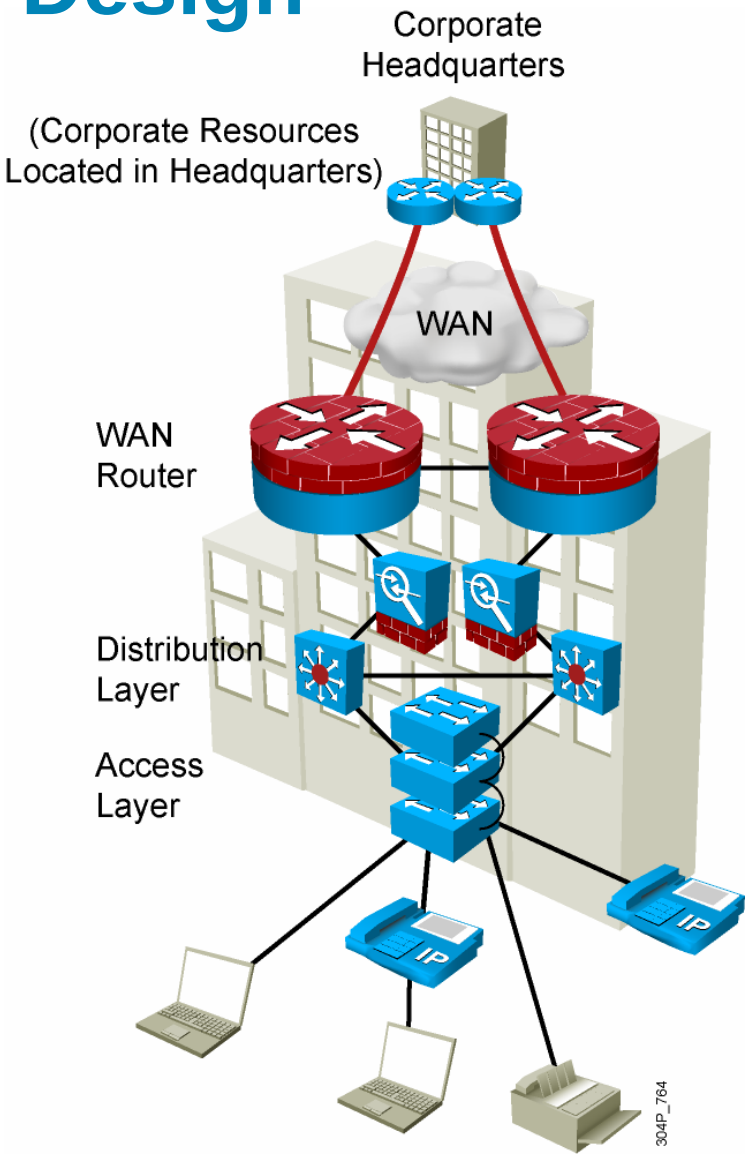
Medium Branch Office Design

- Infrastructure components
  - Dual access routers
  - External stackable switch (Layer 2 or Layer 3)
  - Laptops, phones, printers
- WAN services
  - Private WAN deployment
  - Dual Frame Relay links
- Network fundamentals
  - EIGRP
  - High availability—dual routers, HSRP
  - QoS—shaping, policing, scavenger class (applied to both switch and router)



Large Branch Office Design

- Infrastructure components
  - Dual access routers for WAN edge
  - Dual ASAs for firewalls
  - Dual multilayer switching (stackable or modular)
  - Laptops, phones, printers
- WAN services
  - MPLS deployment model
  - Dual links to WAN cloud
- Network fundamentals
  - EIGRP
  - High availability—dual routers at every layer, HSRP
  - Object tracking, ASA failover
  - QoS—shaping, policing, scavenger class (applied to all routers and switches)

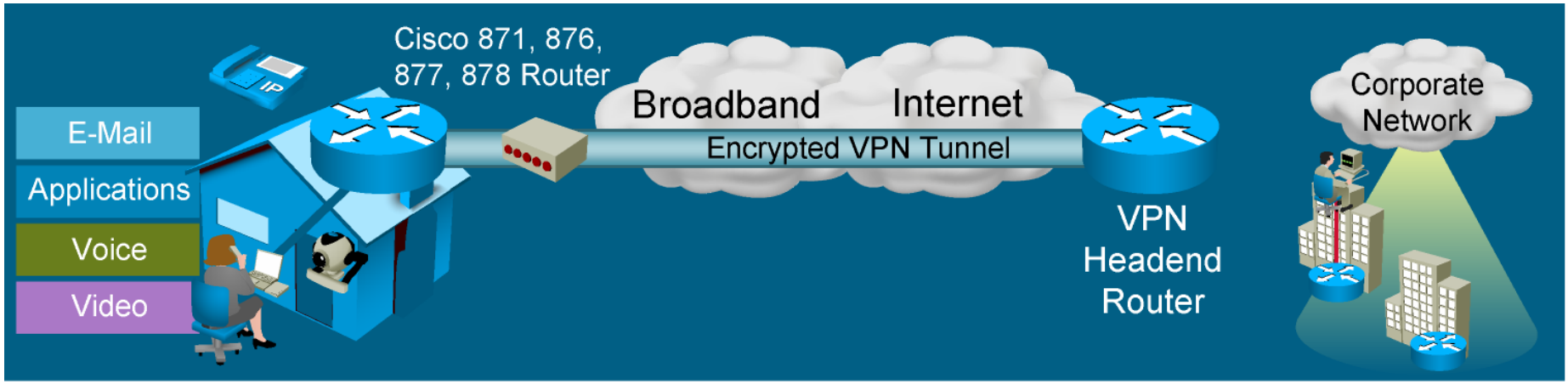


Comparison of Teleworking Options

	Occasional Users	Part-Time or Full-Time and Day Extenders
	Occasional Remote Worker	Branch of One
E-mail	Yes	Yes
Web-based applications	Yes	Yes
Mission-critical applications	Best effort	Prioritized
Real-time collaboration	Best effort	Prioritized
Voice over IP	Best effort	High quality
Video on demand, Cisco IP/TV	Unlikely	High quality
Video conferencing	Unlikely	High quality
Remote configuration and management	No	Yes
Integrated security	Basic	Full
Resiliency and availability	No	Yes

Branch of One Architecture

- Advanced applications support (voice, video)
- Centralized management
  IT managed security policies



- Corporate-Pushed Security Policies (Not User-Managed)
- Corporate Phone, Toll Bypass, Centralized Voice Mail
- Integrated Security and Identity Services

Summary

- The Cisco Enterprise Branch Architecture provides enterprise services to remote users.
- You should characterize each branch location to develop a suitable design:
  - Small branch office design typically uses a single WAN access router with one or two access switches to support up to 50 users.
  - Medium branch office design typically uses two WAN access routers with multiple access switches to support up to 100 users.
  - Large branch office design typically uses two WAN access routers, one or more multilayer distribution switches, and multiple access switches to support up to 100 to 1000 users.
- An enterprise teleworker design can use a small ISR with integrated switch ports and an always on VPN to support one teleworker.

Remote Connectivity Design Review

- Analyze network requirements:
  - Type of applications, the traffic volume and traffic pattern
  - Redundancy and backup needed
- Characterize the existing network and sites:
  - Technology used, and location of hosts, servers, terminals and other end nodes
- Develop WAN and branch network design:
  - Select WAN and branch technology to support requirements.
  - Select hardware and software components to support requirements.

Module Summary

- Network application and connectivity requirements influence the WAN design.
- The Cisco Enterprise MAN and WAN architecture provides integrated QoS, network security, reliability, and manageability on:
  - Private WANs
  - ISP service through site-to-site and remote-access VPNs
  - Service Provider-managed IP or MPLS VPNs
- The Cisco Enterprise Branch Architecture supports small, medium, large, and teleworker locations.