



What Do Customers Care About in Terms of a Unified Communications Solution?

- Controlling costs, protecting investment in existing equipment, and lowering total cost of ownership (TCO)
- Reliability and redundancy of branch or small office
- Enabling more effective, efficient communication and collaboration
- Security
- Ease of administration, effective use of limited staff resources
- Scalability and growth

What Are the Strengths of Cisco Unified Communications?

Cisco® Unified Communications offers a new way to communicate. This comprehensive IP communications system of voice, video, data, and mobility products and applications enables more effective, more secure, and more personal communications that directly affect both sales and profitability. It is part of an integrated solution that includes network infrastructure, security, mobility, network management products, lifecycle services, flexible deployment and outsourced management options, end-user and partner financing packages, and third-party communications applications.

Cisco Unified Communications helps businesses improve efficiency, strengthen security, enhance customer relationships, control costs, maintain profitability, and respond to a rapidly changing business environment. Cisco Unified Communications is a critical component of the Cisco Smart Business Roadmap, which is specifically designed to provide small and medium-sized businesses (SMBs) with a structured, planned evolution path to help them take advantage of today's business opportunities and maximize the long-term potential of their technology investments.

Cisco Unified Communications can scale to support up to 240 Cisco Unified IP, SIP, or Wireless IP Phones. It allows migration from a distributed call-processing model to centralized call processing with Cisco Unified Communications Manager at the headquarters and Cisco Unified Survivable Remote Site Telephony (SRST) at the branch office. Businesses can convert Cisco Unified Communications Manager Express licenses to SRST licenses at no extra charge. IP phones, branch office routers, and switches can be reused in a centralized deployment.

Because Cisco Unified Communications Manager Express builds on Cisco IOS® Software, a wide range of Cisco IOS Software features can be used, including security services, quality of service (QoS), and robust routing protocols.

Cisco Unified IP, SIP, and Wireless IP Phones obtain voice VLAN information directly from Cisco Catalyst® Express 500 Series switches or switching modules integrated into Cisco integrated services routers. Administrative overhead is reduced, and moves, adds, and changes become less cumbersome.

Avaya Claims and Cisco Positioning

Cisco position: What is the benefit of running the Cisco Unified Communications Solution on top of a Cisco data infrastructure?

Response: By running Cisco Unified Communications Manager Express and Cisco Unity® solutions on top of a world-class data networking platform, customers can use all the routing, QoS, security features, and applications available on the platforms and in Cisco IOS Software, including security applications such as IP Security (IPsec) VPNs; Cisco IOS Software security services and intrusion detection; integrated services such as content engine and switching; a wide range of QoS features, including automated QoS and management features; and a wide range of trunk connectivity features.

Cisco position: Cisco customers can migrate from a distributed Cisco Unified Communications Manager Express call-processing model to a centralized Cisco Unified Communications Manager and Cisco Unified SRST call-processing model with investment protection for all IP phones and for data networking equipment. Can Avaya offer something equivalent with its solution?

Response: No. Avaya requires a complete upgrade to migrate from an Avaya IP Office to Avaya Communication Manager platform. Endpoints such as the 54xx series digital phones and the 56xx series IP phones are not reusable—they are meant exclusively for the IP Office product.

Cisco position: Cisco Unified Communications Express solutions support inline power for IP phones with the Cisco EtherSwitch® module. Can Avaya offer something equivalent with its solution?

Response: Avaya does not support in-chassis inline power for IP phones on any of its IP Office products. Likewise, the G700 and G250 media gateways do not have any Power over Ethernet (PoE) modules. In all of these cases, you need an external power source such as an Ethernet switch or midspan distribution unit. The G350 gateway has a PoE module, but it supports only 40 extensions (and needs the S8300 server for remote survivability).

Avaya claim: Avaya's IP communications solution protects the customer's existing investment, while the Cisco solution does not.

Response: Not necessarily true. A complete upgrade of IP Office Unit is required if you need to scale beyond 360 extensions to the next higher capacity server (S8300). Cisco data networking equipment provides investment protection because these platforms and modules can be reused to deliver voice.



Top Technical Weaknesses in Avaya's IP Communications Solution for Branch and Small Offices

Weak Investment Protection Story

Currently, Avaya IP Office supports a maximum of 360 extensions. A complete upgrade of the IP Office unit is required to scale beyond this number, to the S8300 media server (running Communication Manager) with the G700 gateway. If the customer has also purchased the 54xx series digital phones or the 56xx series IP phones, the customer will not be able to retain these phones with the S8300—they are exclusive to the IP Office.

Lack of Tight Integration with Data Infrastructure

A truly converged unified communications solution should be able to use the benefits of the existing data infrastructure. When Cisco Unified IP Phones are connected to Cisco switches, they are automatically able to take advantage of QoS, trunking, and security provisioning features with the use of Cisco Discovery Protocol. In comparison, the Avaya IP phones require manual configuration of the 802.1Q trunks and voice VLAN information on the Dynamic Host Control Protocol (DHCP) server (custom option 176).

Please see:

support.avaya.com/elmodocs2/4600/233507_2_2.pdf

Scalability Issues with the IP Office Solution

The Avaya IP Office product makes use of a voice compression module (VCM) that allows IP extensions to make calls to TDM phones or to the public switched telephone network (PSTN). This digital signal processor (DSP) module comes in four variants supporting 5, 10, 20, or 30 channels of compression. Even though the maximum number of extensions supported on the IP Office family is 360, only two VCM-30 modules can be used on the high-end IP Office 412, which means a maximum of 60 channels. Other IP Office products support only a single VCM module.

Please see:

support.avaya.com/elmodocs2/ip_office/R3.0/IP_Office_Product_Description.pdf

In comparison, Cisco Unified Communications Express applications run on several Cisco router platforms and do not have similar DSP limitations. The maximum number of IP phones supported is 240. Depending on the platform support, the customer can also scale to as many trunks as needed.

For more information, please refer to the Cisco Integrated Services Router data sheet:

www.cisco.com/en/US/partner/products/ps5855/products_data_sheet0900aecd80169812.html

Limited Data Networking Features

Avaya IP Office has firewall capabilities but it is used primarily for blocking standard protocols. Also, IP Office supports static routing and Routing Information Protocol (RIP).

In comparison, Cisco Unified Communications Express products support the complete range of Cisco IOS Software networking protocols and firewall capabilities. As a primary component of the Cisco Self-Defending Network, Cisco integrated services routers allow customers to synchronize routing and security policies and reduce their operational costs while raising the level of security throughout the network. In addition, Cisco Unified Communications Express applications can run gateway and gatekeeper features concurrently on the same router.

Limited In-Chassis PoE Support

Avaya does not support in-chassis inline power for IP phones on its IP Office products. Likewise, the G700 and G250 media gateways do not have any PoE modules. In all of these cases, you need an external power source such as an Ethernet switch or midspan distribution unit. The G350 gateway has a PoE module, but it supports

only 40 extensions (and needs the S8300 server for remote survivability).

No Redundancy

Neither Avaya IP Office nor the S8300 media server with the G350 media gateway is redundant. In comparison, configuring a standby Cisco Communications Manager Express gateway with the same dial plan and feature configurations as an active gateway will allow for Hot Standby Router Protocol (HSRP) redundancy.

Please see:

www.cisco.com/en/US/partner/products/sw/netmgtsw/ps2025/products_user_guide_chapter09186a00801de695.html#1604885

What Will Avaya Pitch for IP Communications Branch-Office or Small-Office Deployments?

Avaya provides the IP Office products—S8300/G250, S8300/G350, and S8300/G700—in the small-office and branch-office market segments. Avaya IP Office Small Office Edition 403, 406, and 412 make up the IP Office product family.

Please see:

www.avaya.com/gcm/master-usa/en-us/products/offers/ip_office.htm&View=ProdOverview

IP Office Small Office Edition scales to 28 extensions. Six different hardware configurations are included in IP Office Small Office Edition.

2T+4A 3 VoIP Option

Figure 1 shows the 2T+4A 3 VoIP option. This configuration supports:

- Two analog loop start trunks (caller ID-enabled).
- Four analog extension (basic telephone service) ports. During power failures, analog trunk port 2 is connected to analog extension port 1.
- Three VoIP codecs (G.723.1, G.711, and G.729a).

- Four switched Ethernet ports (Layer 2).
- A dedicated switched Ethernet WAN port (Layer 3).
- Two PCMCIA slots for wireless and memory card support.
- A WAN slot for an optional WAN card (V35, X.21, Basic Rate Interface [BRI], T1 Primary Rate Interface [PRI]).
- An audio port for an external music-on-hold source.
- Two relay switch ports for door entry systems (external O/P socket).

Figure 1. 2T+4A 3 VoIP (Small Office Edition)



4T+8A 3 VoIP Option

Figure 2 shows the 4T+8A 3 VoIP option. This configuration supports:

- Four analog loop start trunks (caller ID-enabled)
- Eight analog extension ports
- Three VoIP codecs (G.723.1, G.711, and G.729a)
- Four switched Ethernet ports (Layer 2)
- A dedicated switched Ethernet WAN port (Layer 3)
- Two PCMCIA slots for wireless and memory card support
- A WAN slot for an optional WAN card (V35, X.21, BRI, T1 PRI)
- An audio port for an external music-on-hold source
- Two relay switch ports for door entry systems (external O/P socket)

Figure 2. 4T+8A 3 VoIP (Small Office Edition)



4T+4A+8DS 3 VoIP Option

Figure 3 shows the 4T+4A+8DS 3 VoIP option. This configuration supports:

- Four analog loop start trunks (caller ID-enabled).
- Four analog extension ports. During power failures, analog trunk port 2 is connected to analog extension port 1.
- Eight digital terminal ports for 24xx, 44xx, 54xx, and 64xx series phones, plus 3810 and 9040 devices.
- Three VoIP codecs (G.723.1, G.711, and G.729a).
- Four switched Ethernet ports (Layer 2).
- A dedicated switched Ethernet WAN port (Layer 3).
- Two PCMCIA slots for wireless and memory card support.
- A WAN slot for an optional WAN card (V35, X.21, BRI, T1 PRI).
- An audio port for an external music-on-hold source.
- Two relay switch ports for door entry systems (external O/P socket).

Figure 3. 4T+4A+8DS 3 VoIP (Small Office Edition)



Note: Avaya also offers another variant (4T+4A+8DT 3 VoIP), which offers features identical to those in the 4T+4A+8DS model, except that digital trunks in this model support the Avaya 20 series phones.

4T+4A+8DS 16 VoIP Option

Figure 4 shows the 4T+4A+8DS 16 VoIP option. This configuration supports:

- Four analog trunks and four analog extensions
- Eight digital stations and 16 VoIP channels
- One 4-port switch and one WAN
- Dual PCMCIA with embedded voicemail and Wi-Fi
- T1 PRI and V.35 expansion modules

- An audio port for an external music-on-hold source
- Two relay switch ports for door entry systems (external O/P socket)

Figure 4. 4T+4A+8DS 16 VoIP (Small Office Edition)



Note: Avaya also offers another variant (4T+4A+8DT 16 VoIP), which offers identical features, except that this model supports the Avaya 20 series phones.

IP Office 403 and 406 Version 1

Figure 5 shows IP Office 403, which supports:

- Eight digital station ports for 24xx, 44xx, 54xx, and 64xx series phones, plus 3810 and 9040 devices
- Two analog telephone ports
- Eight 10/100-Mbps LAN hub ports
- A data terminal equipment (DTE) port and one voice compression module
- An X.21/V.35 WAN interface
- Support for three expansion modules
- Two relay switch ports for door entry systems (external O/P socket)
- An audio port for an external music-on-hold source
- 18 data channels (maximum of 10 usable for VoiceMail Pro)

The availability of this option varies depending on the territory.

Figure 5. IP Office 403



Figure 6 shows IP Office 406 version 1, which supports features similar to those on the IP Office 403, except

that it has six expansion modules and supports 24 data channels (maximum 20 usable for VoiceMail Pro).

Figure 6. IP Office 406 version 1



IP Office 406 v2

Figure 7 shows IP Office 406 version 2, which is a new model that offers:

- Eight digital station ports for 24xx, 44xx, 54xx, and 64xx series phones, plus 3810 and 9040 devices
- Two analog telephone ports
- Eight 10/100-Mbps LAN switched ports (Layer 2)
- Support for an optional embedded voicemail/automated attendant (compact flash card)
- An X.21/V.35 WAN interface
- Support for six expansion modules
- Two relay switch ports for door entry systems (external O/P socket)
- An audio port for an external music-on-hold source
- 40 data channels (maximum 20 usable for VoiceMail Pro)

Figure 7. IP Office 406 v2



IP Office 412

Figure 8 shows IP Office 412, which supports up to 360 combined analog/digital/IP extensions and up to 12 expansion modules and offers capacity for 208 analog trunks and 96 digital trunks. Features include 60 voice compression channels, 2 independent LAN switch ports, and 60 data channels.

Figure 8. IP Office 412



Greenfield Deployments

For greenfield customer deployments that require enterprise features offered by Avaya Communication Manager, Avaya may pitch the S8300 media server with the G250, G350, or G700 media gateways, depending on the number of extensions required. For up to 12 extensions, Avaya might pitch the S8300 with the G250 gateway and a 4-port Intuity voicemail system, which would support up to 100 users. Figure 9 shows the G250 gateway.

Figure 9. S8300 Server with G250 Media Gateway



For more information, please see:
www.avaya.com/gcm/master-usa/en-us/products/offers/g250_media_gateway.htm&View=ProdDescComp

For up to 40 extensions, Avaya might pitch the S8300 server with the G350 gateway and a 4-port Intuity

voicemail system, which would support up to 100 users. The S8300/G350 (Figure 10) has a 24-port PoE switch module and T1 or V.35 serial WAN interfaces, and supports IP routing.

Figure 10. S8300 Server with G350 Media Gateway



For more information, please see:
www.avaya.com/gcm/master-usa/en-us/products/offers/g350_media_gateway.htm&View=ProdDescComp

For a larger deployment (300 extensions, for example), Avaya might pitch the S8300 server with the G700 gateway (Figure 11) and a 12-port Intuity voicemail system, which can support up to 500 users. Note: The S8300/G700 can support up to 450 extensions. Unlike the Avaya S8300/G350, the S8300/G700 does not support a PoE switch module. Also, serial WAN interfaces are supported only on an external device on the S8300/G700.

Figure 11. S8300 Server with G700 Media Gateway



For more information, please see:
www.avaya.com/gcm/master-usa/en-us/products/offers/g700_media_gateway.htm