Mobile Communications: Lower Costs with Cisco Instant Connect Push to Talk Solution

Challenge

Organizations have used numerous forms of communications in efforts to increase productivity. Simple push-to-talk (PTT) solutions were an early answer; advances in technology have also introduced instant messaging, text messaging, unified communications, and collaboration applications as ways to perform group communications.

Some reasons organizations have shifted away from PTT are to attempt to reduce costs by using their existing IT infrastructure for mobile communications or to improve collaboration with mobile personnel by giving them voice, instant messaging, and video capabilities in addition to PTT services.

Pushing a button to instantly connect to a group is making a comeback; many organizations are returning to push-to-talk (PTT) instant communications to drive operational productivity in their environments. But organizations need a better PTT solution. New alternatives from carriers require a monthly fee. In addition, they might not provide coverage in all areas, hampering communications when it really counts.

Business Benefits

The Cisco® Instant Connect solution provides an economical alternative to service provider solutions for mobile communications. Your organization deploys land mobile radio (LMR)-over-IP software in the data center. This software enables mobile personnel within your Wi-Fi coverage area to participate in PTT sessions using a Cisco Unified Wireless IP Phone or an Android device with a Wi-Fi connection. In addition, personnel who are out of the coverage area can use nearly any analog or digital radio or a smartphone or tablet with a 3G or 4G cellular connection or satellite connection.

Major benefits of Cisco Instant Connect include:

- **Low costs:** Instead of paying a monthly service provider fee for onsite personnel, you deploy an on-premises solution. The savings from eliminating monthly fees quickly pays back the one-time capital investment. The Cisco solution is based on open standards, eliminating the need to purchase, support, and manage proprietary solutions.

- **More control of the wireless coverage:** Cisco Instant Connect can be expanded for in-building coverage by adding Wi-Fi access points, integrating to carrier PTT service, bridging to LMR channels, and connecting to satellite radios.

- **High quality of experience:** Cisco Instant Connect integrates with your existing Cisco Unified Communications and Cisco Collaboration services. Quality of service (QoS) and advanced voice codecs help to provide clear voice quality, even when the network is busy. Cisco CleanAir® technology constantly identifies and works around sources of wireless interference that might otherwise affect the user experience.

- **Improved collaboration and situational awareness:** Mobile personnel can access PTT, voice, video, and instant messaging from multiple devices, including personal smartphones and tablets if your organization has a bring-your-own-device (BYOD) policy. Private/individual PTT sessions can be supported through

Cisco Wireless IP Phones in addition to group PTT sessions. Combining PTT with rich-media applications can improve decision making and situational awareness.

- **Scalability:** Cisco Instant Connect can support thousands of users. Managing a single system saves time and money compared to managing multiple service provider contracts, and the Android administrator privilege makes it easy to add and remove talk group users.

- **Security:** Cisco Instant Connect encrypts all PTT communications between the wireless access point and the Cisco Unified Wireless IP Phone using the Advanced Encryption Standard 256 (AES-256) and Wi-Fi Protected Access (WPA2) security standards. Users over carrier networks can use Cisco AnyConnect® to establish a VPN session between the mobile device and the system.

- **High availability:** If PTT is mission-critical in your organization, take advantage of high-availability options for the wireless network, server, applications, and Cisco Unified IP Phones. For example, if the signaling connection to the server drops, the Cisco Unified IP Phone can automatically reconnect to a secondary server, avoiding service interruptions. In addition, mobile personnel can swap out the Cisco Unified Wireless IP Phone battery in the field, an option not available with many service providers' PTT alternatives.

- **Increased integration through use of open standards:** Cisco Instant Connect is based on the Session Initiation Protocol (SIP) standard, avoiding the interoperability, integration, and performance problems associated with proprietary encoding schemes.

Solution

With the Cisco Instant Connect solution, mobile workers within your facility's Wi-Fi coverage area can press a button on a Cisco Unified Wireless IP Phone 7925G or 7926G to participate in PTT sessions with each other and with people outside the coverage area who are using radios, smartphones, or tablets (Figure 1).

Figure 1. Join PTT Conversations Anywhere Using Any Wireless or Wired Device
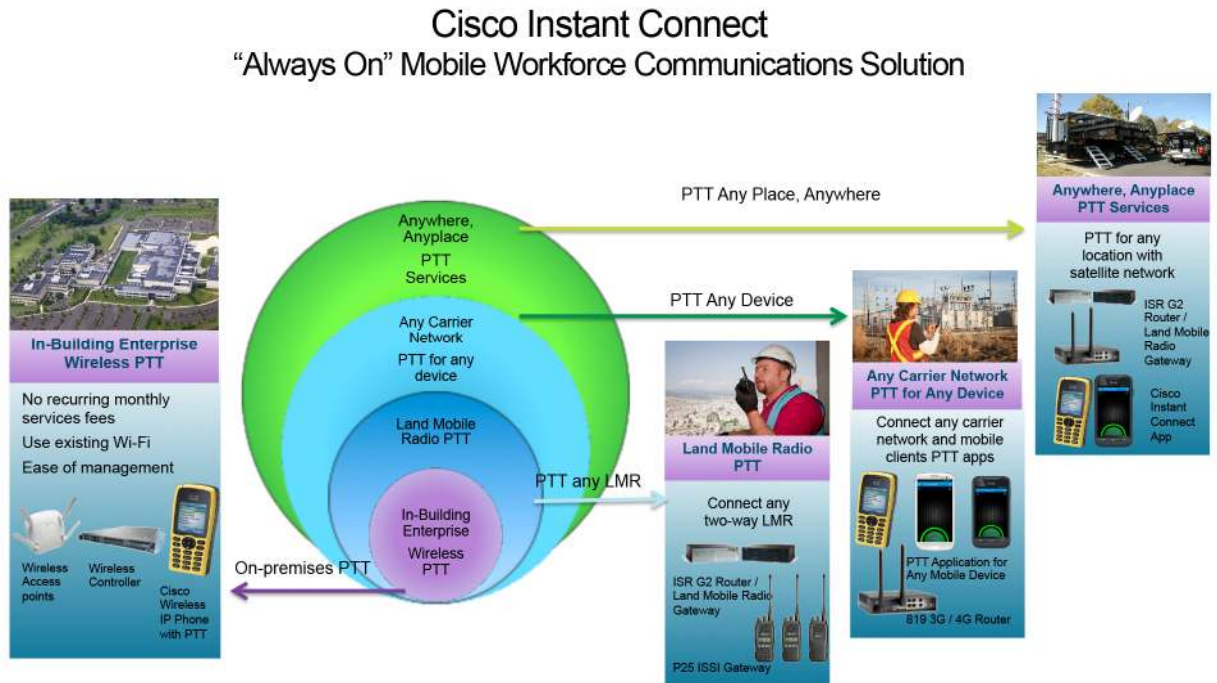
Cisco Unified Wireless Network

Since 2010, Wi-Fi networks have provided the high performance to support high-quality voice and video. Cisco wireless networks also deliver enterprise-quality manageability and scalability. You can connect new 802.11n devices as well as older devices based on 802.11a/b/g standards. To provide an excellent user experience, the included Cisco CleanAir technology continually identifies interference sources, such as microwave ovens and neighboring wireless networks, and automatically works around them. And Cisco Prime™ infrastructure solutions make it easier to monitor and manage the user experience by providing visibility into applications, users, and end devices.

Choice of PTT Endpoints

Employees can access PTT services using a variety of devices, shown in Table 1.

Table 1. Cisco Instant Connect Provides PTT Connectivity Using a Variety of Devices and Networks

User Location	On-Premises	In the Field
Connectivity	• Wi-Fi	• Radio network • 3G or 4G or LTE cellular network • Satellite link
Device	• Cisco Unified IP Wireless IP Phone 7925 or 7926; these models have a PTT button • Cisco Unified IP Phone 79xx, 89xx, and 99xx Series models • Smartphones using the Android operating system *	• Any analog or digital radio • Personal or corporate-owned iPhones, iPads, and Android devices (requires carrier plan) • Satellite radio with data service • Mobile Routers • Any wired phone or mobile phone (dial in users)

User Location	On-Premises	In the Field
Typical users	• Campus teachers, staff and security officers • Hospital staff • Shop-floor workers • Manufacturing work groups	• Non-Critical public safety personnel without PTT radios • Inspectors • Mobile healthcare workers • Plant Supervisors

*To view supported devices, refer to the Cisco IPICS Compatibility Matrix.

How does Cisco Instant Connect Work?

Figure 2.
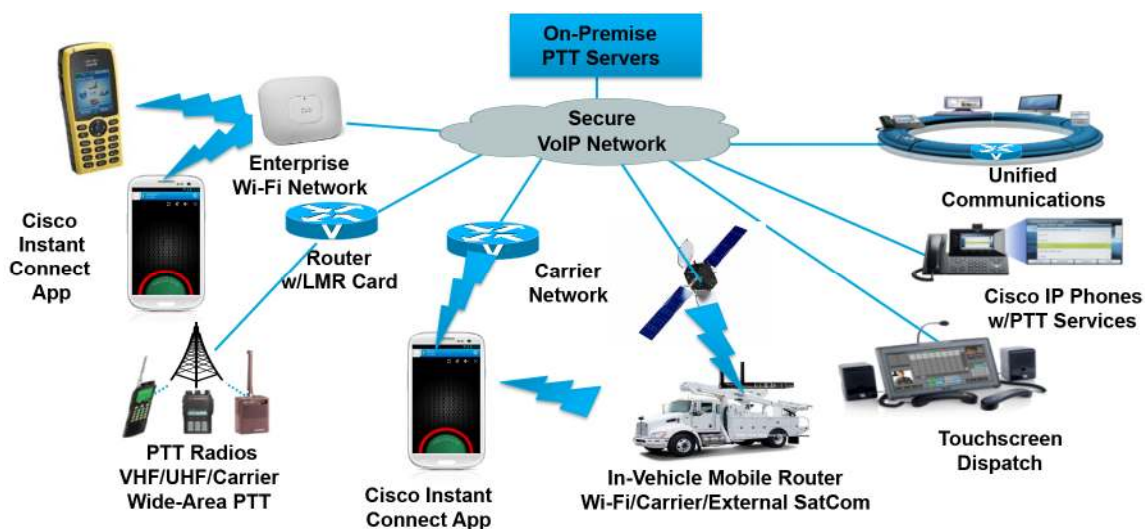
Cisco Certified Partners install virtualized PTT back-end software on servers in the corporate network. This software runs on the Cisco Unified Computing System™ in a virtual machine configuration. After the software is installed, an administrator will add people and radio channels, creating virtual talk groups based on business communication needs. Next, the smartphone users download the free Cisco Instant Connect software from the Google Play store. Once the PTT user logs in from their smartphone, they have instant access to their talk groups.

Cisco Instant Connect works with users on Cisco wired and wireless IP phones connected to the Cisco Unified Communications platform. These users can log in, join talk groups, and push a button to instantly communicate with the users on that talk group. Cisco Instant Connect can integrate to existing LMRs through the use of a donor radio connected to a Cisco router. Cisco Instant Connect can also integrate with a carrier-based PTT service by connecting a donor radio to a Cisco router with an LMR (E&M) card. Optionally, customers can add a full-featured touchscreen dispatch console that allows dispatchers to talk and listen on many channels at the same time.

Major solution components include the Wi-Fi network, PTT endpoints, and Cisco IP Interoperability and Communications Solution (IPICS).

Cisco IP Interoperability and Collaboration Solution

Used by public and private sectors since 2006, Cisco IPICS is an open-standards-based solution for communications interoperability. It enables people to join PTT talk groups from Cisco Unified IP Phones; any type of radio; iPhone, iPad, and Android devices; and laptops with client software. A new media engine provides go-ahead tones and busy tones to PTT users. Authorized personnel, such as supervisors, can use an intuitive

interface for incident administration, including adding users to groups, adding video cameras to incidents, and activating policies.

Deploy Cisco IPICS centrally to provide PTT services to multiple offices, reducing management overhead and the need for local IT support. Or, if you need PTT services in just a few locations, you can implement multiple Cisco IPICS servers.

Why Cisco?

As a replacement for the Sprint Nextel network, the Cisco Instant Connect solution is cost-effective and proven. Cisco has shipped more than one million wireless IP phones. The underlying Cisco IPICS platform is deployed in more than 450 public- and private-sector organizations around the world, including public safety organizations with stringent availability requirements (refer to sidebar).

In addition to meeting the immediate need for PTT services, the Cisco solution provides strategic advantages because it also supports wireless voice, video, and instant messaging (Table 2). Rich collaboration options help mobile personnel understand and respond to problems more rapidly, and increase situational awareness.

Cisco IPICS: Time-Tested Interoperability Solution in the Public and Private Sectors

Cisco IPICS provides communications interoperability in more than 450 organizations, including:

- National military and security agencies
- National, state, and local public safety agencies
- Federal, state, and local emergency management agencies
- National and state departments of transportation and airports
- Educational institutions
- Healthcare organizations
- Manufacturers

Table 2. Cisco Instant Connect Solution: More Flexibility than Service Provider Solutions

Capability	Cisco Instant Connect	Carrier PTT Alternatives	Other On-Premises Solutions
PTT over Wi-Fi	Yes	Some	Some
PTT from a dispatch point	Yes	No	Some
Support for Wi-Fi phones, dial-in users, dial-out users, and Android devices	Yes	No	Limited
Full-duplex voice-over-IP (VoIP) enterprise calling without monthly service fees	Yes, with Cisco Unified Communications	No	Some
Viewing of live video from surveillance cameras	Yes	No	No
Standards-based, with open APIs	Yes	No	Some
Field-swappable batteries (Cisco Unified Wireless IP Phones)	Yes	Some	Some
Automatically works around wireless interference	Yes, with Cisco Wireless LAN Controllers	No	No
Standards-based voice codecs (G.711) to provide clear voice quality	Yes	Some	Some
Group journaling with archiving	Yes	No	No

Table 3.

Part Number	Description
IPICS4.X-BDL4-K9	Cisco Instant Connect Bundle. This includes IPICS Server Software, new Cisco UMS software, 1 virtual talk group license, 1 policy engine license, 2 channel licenses, 20 Cisco Instant Connect concurrent mobile client/IP phone client licenses, and 1 dial port. Order the IPICS 4.X-BDL4-K9 as an option to the Virtualized IPICS Software (CIS-IPICS-VM) for physical delivery. For eDelivery, order the IPICS4.X-BDL4-K9 as an option to the L-CIS-IPICS-VM=.
L-IPT-START-BLD-P=	Optional IP Trade Starter Bundle. This includes the TPO server and TSS server software license and can mix up to 100 media streams at a time. The software runs in a virtual machine environment on the Cisco UCS B, C, and E Series. VMware software and hardware are not included and must be purchased separately.
L-IPT3203-SW-P=	Optional IP Command turret software. This allows dispatch of up to 3 concurrent channels. Touchscreen hardware is not included and must be purchased separately.
L-IPT3210-SW-P=	Optional IP Command turret software. This allows dispatch of up to 10 concurrent channels. Touchscreen hardware is not included and must be purchased separately.
L-IPT3230-SW-P=	Optional IP Command turret software. This allows dispatch of up to 30 concurrent channels. Touchscreen hardware is not included and must be purchased separately.

For More Information

To learn more about the Cisco Instant Connect solution, please visit: www.cisco.com/go/ipics.

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