

Unified Communications over WLAN Solution Overview

Executive Summary

The Cisco® Unified Communications over Wireless LAN (WLAN) solution helps organizations meet the changing needs of an increasingly mobile, collaborative, and virtual workforce. By delivering the most secure, reliable solution possible, the Cisco Unified Communications over WLAN solution streamlines business processes by providing the right communications applications for devices that the user is using at the moment, while complying with security policies for environment. Giving users access to critical information and collaboration tools, while creating a consistent end-user experience across networks, is a powerful way for organizations to reach new levels of productivity and collaboration while reducing costs.

Today's Challenges

Businesses today are in a state of transition with important implications for the way people communicate and work together within an organization. Organizations are faced with the challenge of communication islands or silos caused by technology and user device preference within the mobile workspace.

Enterprises realize that in today's business environment real-time collaboration and communications are critical to maintaining a competing business in the global economy. Enterprise users need to be reachable at any given time, regardless of where they are furthermore when users are reached, they must have access to the right information regardless of the devices they have with them at the moment.

To meet these increased mobility requirements, businesses are looking at technologies such as voice over IP (VoIP) and voice over WLAN (VoWLAN) that enable them to extend existing investments in business communications systems and corporate networks. Mobilizing Unified Communications over WLAN, allows businesses to address challenges associated with delivering rich collaboration experience (i.e. using presence, video, messaging, conferencing) on campus— independent of mobile device choice. As today's enterprises take steps to use network as a platform to connect different workspaces, intelligent network services (such as security, QoS, policy management) deliver a seamless mobile collaboration experience across disparate networks, mobile devices, mobile operating systems.

An additional challenge is that a typical business will have several mobile workforce types, each with unique mobile workspace needs. An employee's workspace is a combination of the place, device, applications, and network that the employee uses in order to get the job done. And when it comes to each worker's mobile workspace needs, one size definitely does not fit all. In fact, the mobile workforce can be broadly categorized into five types depending on the nature of their jobs, their roles in the organization, and the information that they require to get their jobs done. The segmentation of users into five types—corridor cruisers, campus mobiles, road warriors, field force, and teleworkers—is based on industry analyst research and Cisco's experience with its employee base and customers. For details about how the Cisco Unified Communications over WLAN solution meets the divergent needs of these different workforce types, see the section "Unified Communications over WLAN as Part of the Mobile Workspace" later in this document.

Cisco Unified Communications over WLAN Solutions

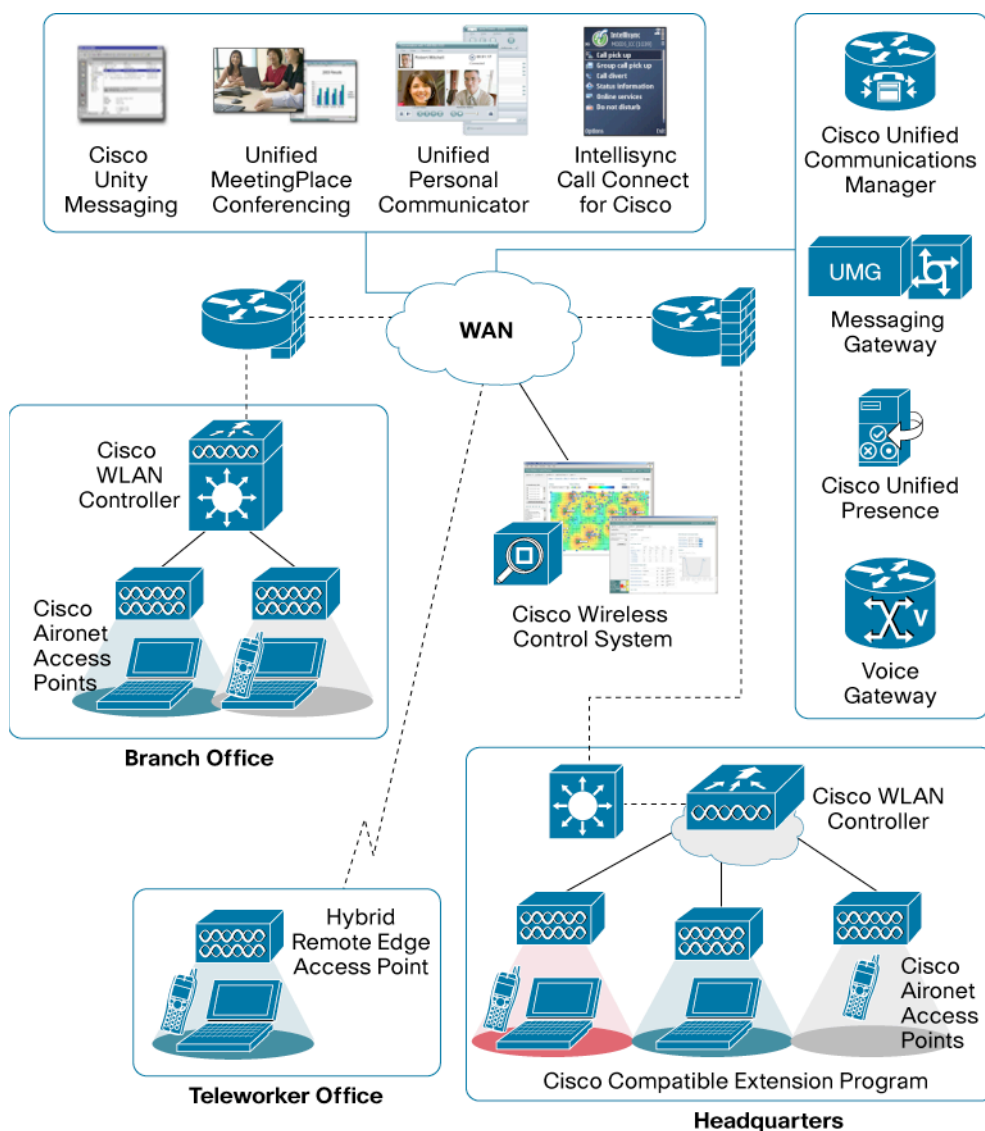
Cisco Unified Communication over WLAN takes a network-centric approach to unifying the workspace and delivering collaboration everywhere, every time. Unified workspace means having media-rich collaboration experience available on multiple devices across different networks, operating systems, and applications as defined by needs of the workforce type.

The combination of Cisco Unified Communications and the Cisco Unified Wireless Network streamlines business processes by providing anytime, anywhere access on any critical information or collaboration device, while creating a consistent end-user experience across applications, networks, and devices.

Unified Communications over WLAN Network Architecture

Figure 1 provides an overview of the Unified Communications over WLAN architecture, highlighting the different components of the solution.

Figure 1. Unified Communications over WLAN Architecture



The main components of the Cisco Unified Communications over WLAN solution include the following.

Network

Network provides the platform to connect different workspaces—an intelligent network services such as security, QoS, policy management deliver a seamless mobile collaboration experience. Cisco Unified Communications over WLAN requires both Cisco Unified Communications and Cisco Unified Wireless Network. The components of Unified Communications over WLAN take into consideration such things as quality of service (QoS) and end-to-end integrations for enhanced user experience. The combination of Cisco Unified Communications and the Cisco Unified Wireless Network provides enterprises assurance that all the devices are part of a system that is secure and managed while greatly enhancing employee effectiveness by:

- Reducing complexity
- Supporting the use of a single business-number reach and a single voice mailbox
- Allowing communications to transition more easily between voice calls, voicemail, e-mail, and instant messaging
- Improving an employee's ability to find the desired person or information the first time

[Cisco Unified Wireless Network](#)

The Cisco Unified Wireless Network combines the best elements of wireless and wired networking to deliver scalable, manageable, and secure WLANs with low total cost of ownership. It includes innovative RF capabilities that enable real-time access to core business applications and provides proven, enterprise-class, secure connectivity.

The Cisco Unified Wireless Network is composed of five interconnected elements that work together to deliver an enterprise-class wireless solution: client devices, access points, network unification, world-class network management, and mobility services. Beginning with a base of client devices, each element adds capabilities as network needs evolve and grow, interconnecting with the elements above and below it to create a comprehensive, secure WLAN solution.

Products for the five interconnected elements include:

- **Client devices:** The Cisco Compatible Extensions program provides compatibility testing between client devices and innovations in the Cisco Unified Wireless Network for optimal performance.
- **Access points:** Cisco Aironet® access points provide ubiquitous network access in all environments. IEEE 802.11 a/b/g and n access points offer wireless connectivity within the campus environment.
- **Network unification:** Network unification products provide integration into all major Cisco switching and routing platforms. These products include secure innovative WLAN controllers, Cisco 4400 and 2100 Series Wireless LAN Controllers, Cisco Catalyst® 6500 Series Wireless Services Module (WiSM), the Cisco Wireless LAN Controller Module (WLCM) for Integrated Services Routers, and the Cisco Catalyst 3750 Series Integrated Wireless LAN Controller.
- **Network management:** Network management products provide the same level of security, scalability, reliability, ease of deployment, and management for wireless LANs and wired LANs.

- **Mobility services:** Unified mobility services products deliver VoWLAN, advanced threat detection, location-based security, and guest access.

[Cisco Unified Communications](#)

Cisco Unified Communications enhances business productivity and facilitates agility by creating a unified workspace across multiple applications, devices, networks, and operating systems. Cisco Unified Communications helps integrate communications more closely with business processes, ensuring that information reaches recipients every time and everywhere, no matter what their working environment.

- **Mobility:** Provides single number reach and business voice mail for everyone—everywhere, every time
- **Collaboration:** Delivers a rich collaboration experience using presence, messaging, conferencing capabilities
- **Security:** Comprehensive security throughout the enterprise network, from infrastructure through call control devices and communications applications
- **Choice:** Open standards that facilitate integration with applications from other industry leaders
- **Customer service:** Integration with applications that maximizes call center performance and customer satisfaction

[Cisco Unified Communications Manager](#)

Cisco Unified Communications Manager is the software-based, call-processing component of Cisco Unified Communications for enterprises. This software extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, VoIP gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interoperate with Cisco Unified Communications through Cisco Unified Communications Manager open telephony APIs.

[Voice Gateway](#)

The Cisco digital signal processor (DSP) voice gateways support a variety of signaling and call control protocols for connectivity between conventional voicemail equipment from third-party vendors to the Cisco Wireless IP Telephony system.

[Cisco Unified Messaging Gateway](#)

The Cisco Unified Messaging Gateway provides an open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network. It acts as the central hub in a network of Cisco unified messaging solutions and third-party gateways that interface with older voicemail systems.

[Cisco Unified Presence](#)

Cisco Unified Presence helps realize the full value of a Cisco Unified Communications system. It collects information about a user's availability status and communications capabilities, including whether you are using a communications device such as a phone at a particular time or have Web collaboration or video conferencing enabled on your system. Based on the information captured, applications such as Cisco Unified Personal Communicator and Cisco Unified Communications Manager can improve productivity by helping users connect with colleagues more efficiently through determining the most effective avenue for collaborative communication.

Applications

With Cisco Unified Communications applications, you can streamline business processes by integrating effective communication and collaboration solutions, including messaging; voice, video and Web conferencing, and unified communications clients. These applications use the network as the platform to enhance comparative advantage by accelerating decision time and reducing transaction time. The transparency of the security, as well as the resilience, and scalability of the network, enables users in any workspace to easily connect anywhere, anytime using any media, device, or operating system.

Cisco Unified IP Communicator

Cisco Unified IP Communicator is a software-based application that delivers enhanced telephony support through the PC and is designed to meet diverse customer needs by serving as a supplemental telephone when traveling, as well as a telecommuting device or as a primary desktop telephone. With Cisco Unified IP Communicator, remote users don't just take their office extension with them; they also enjoy access to the same familiar phone services that they have in the office.

Cisco Unified Personal Communicator

Easily access voice, video, instant messaging, Web conferencing, voicemail and presence information from a single, multimedia interface on your PC or Mac. An integral component of the Cisco Unified Communications Family of products, Cisco Unified Personal Communicator is a powerful desktop computer application that uniquely integrates your most frequently used communications applications and services.

[Cisco Unified MeetingPlace Conferencing](#)

Cisco Unified MeetingPlace[®] is a complete multimedia conferencing solution that fully integrates voice, video, and Web conferencing capabilities to give remote meetings a natural and effective, face-to-face quality. The solution supports a range of applications and user roles for highly collaborative meetings, training sessions, and presentations.

[Cisco Unity Messaging](#)

The Cisco Unity[®] application amplifies your organization's productivity with an enterprise-ready voice and unified messaging platform as part of a unified communications solution. The Cisco Unity solution gives your organization a reliable, secure, scalable, feature-rich voice and unified messaging system. The Cisco Unity unified messaging system with Microsoft Exchange or Lotus Domino helps your organization access e-mail, voice, and fax messages from a single inbox anytime, anywhere, and on any device. In doing so, the solution lowers average response time to messages and improves employee productivity. Even more impressive, the solution is highly flexible, allowing your organization to benefit from unified communications with minimal interruption.

[Nokia Intellisync Call Connect for Cisco](#)

Nokia Intellisync Call Connect for Cisco enables Nokia E-series dual-mode handsets to work on cellular Global System for Mobile Communications (GSM) and Cisco Unified Wireless Networks with access to the advanced features provided by Cisco Unified Communications Manager and Cisco Unified Communications Manager Express.

Devices

The Cisco Unified Communications over WLAN solution is designed to support devices such as Wi-Fi phones, Wi-Fi laptops, or dual-mode phones. The Cisco Compatible Extensions program helps a wide variety of clients interoperate securely with the Cisco WLAN infrastructure and improves performance with power save mode, QoS, assisted roaming, and other features.

[Cisco Compatible Extensions Program](#)

This Cisco program helps ensure the widespread availability of client devices that are interoperable with a Cisco Unified Wireless Network infrastructure and that take advantage of Cisco innovations for enhanced security, mobility, QoS, and network management.

[Cisco Unified Wireless IP Phones](#)

An innovative product—new Cisco Unified Wireless IP Phone—helps to extend the power of the Cisco Unified Communications portfolio throughout the enterprise by delivering a powerful, converged wireless solution. The device delivers on-campus mobility to users using the VoWLAN and supports a host of calling features and voice-quality enhancements.

Wi-Fi Laptops

Wi-Fi laptops are widely available with 802.11 a/b/g and n support and can be used by employees to access IP voice and video calls through softphone applications.

[Dual-Mode Phones](#)

Cisco has partnered with leading dual-mode device vendors to address the communications requirements of the mobile workforce. Through the convergence of cellular and wireless LAN radios in a single device, dual-mode handsets or PDAs enable more reliable, robust connectivity both inside and outside the business. Having comprehensive wireless LAN coverage ensures that mobile workers can access data applications, and receive or make voice calls in places where cellular coverage may be less prevalent.

Unified Communications over WLAN as Part of the Mobile Workspace

The following sections briefly describe the different tools available for collaboration to provide true unified communications over WLAN. These sections also present examples of which Cisco solutions can be deployed to meet the needs of the different workforce types within an organization to increase productivity. The solutions outlined concentrate on three of the five workforce types—solutions relevant to campus mobiles, corridor cruisers, and road warriors—because these are the main workforce types who roam within the enterprise WLAN. Figure 2 provides a summary of the devices, applications, and networks used by these different workforce types.

Figure 2. Summary of Unified Communications over WLAN Solutions for Different Workforce Types

		Road Warrior	Corridor Cruiser	Campus Mobile
Devices	Wi-Fi Laptops	●	●	●
	Wireless IP Phone (e.g. Cisco 7921G)			●
	Dual Mode Devices	●	●	
Applications	Cisco Unified Mobility (Single Number Reach)	●	●	●
	Cisco Unified Personal Communicator (for Laptops)	●	●	
	SIP Client (Cell or Dual Mode)	●	●	
Network	UC Ready Cisco Unified Wireless Network	●	●	●
	Cisco Unified Communications Manager	●	●	●

● Recommended ● Possible

Corridor Cruisers

Corridor cruisers work primarily on campus, but are very mobile. Typical job functions for this group include office professionals, auditors, plant and facilities management, and clerical and administrative staff who work primarily in an office environment and have an office. While their job requires travel, corridor cruisers are typically away from their desks more than 20 percent of the time, attending meetings both onsite and offsite. In order to be effective at their jobs, corridor cruisers require constant connectivity to their applications, with heavy voice usage and moderate e-mail access. These employees tend to alternate devices between dual-mode phones and laptops.

While the corridor cruisers are roaming within corporate WLAN, they rely heavily on features of Cisco Unified Personal Communicator and Cisco Unified Mobility. Those trying to reach corridor cruisers can have improved call success rates through single-number reach. Corridor cruisers have the flexibility of being reached on a device of their choice and having a single voice mailbox. Visual voicemail, contacts, presence, conferencing and integrated call logs increase their own productivity and allow for effective communications.

Campus Mobiles

Campus mobiles spend the majority of their time mobile within the business campus. Typical campus mobile job functions include retail associates, IT support staff, nurses, distribution center managers, factory workers, and safety or security personnel whose in-building job duties require mobility within the campus more than 70 percent of the time.

In order to function efficiently, this type of worker typically needs continuous and seamless access to business applications and information while moving around on the campus. Despite being away from a fixed workspace most of the time, campus mobiles are expected to be responsive and make decisions in the same prompt manner as if they were sitting at their desks. For this group of workers to be successful, it is imperative to provide them with collaborative applications and the information they require at the place where business happens. This means continuous access to business applications and a phone. They tend to alternate devices between a specialized, ruggedized devices, dual-mode phones, and Wi-Fi phones.

Campus mobiles can benefit from a Cisco voice over Wireless LAN (VoWLAN) solution providing the QoS needed for good quality voice calls. Cisco VoWLAN solutions combine the Cisco Unified Wireless Network, Cisco Unified Communications, and Cisco Unified Wireless IP Phones such as 7921G, which can also be used for application access, becoming a single-purpose device for many job processes. In addition, Cisco's inclusive approach to mobility provides customers the flexibility to deploy phones that best address their business needs by including Cisco compatible wireless IP phones from a variety of partners for on-the-go communication. Using a pervasive wireless network keeps coverage and reachability high in indoor areas where cellular coverage might be unreliable, while making it possible to use job-specific or more ruggedized devices. An additional benefit for the enterprise may also be that these types of devices are of little value outside the enterprise, so loss or shrinkage will be minimal. By integrating with the Cisco Unified Communications Manager, Cisco Unified Wireless IP Phones deliver all the convenience of the desk set in a mobile form factor.

Road Warriors

Road warriors are users who spend more than 80 percent of their time outside the office and mobile. They include sales representatives, consultants, and business executives who work primarily offsite at the client or supplier's offices and from hotels, airports, and cafés when they travel. These employees are heavy users of productivity tools and applications such as e-mail and

voice services, and typically they don't require frequent access to back-end business applications. These employees interact directly with customers, partners and suppliers and thus are important contributors to the success of the business.

To ensure that road warriors who work from a variety of locations (on campus using corporate WLAN and on-the-go using either Wi-Fi hotspots or cellular) do not miss a business-critical call, Cisco Unified Mobility applications offering single-number reach and a single mailbox represent a baseline functionality that this group needs for improved call success rate and responsiveness. This baseline capability helps to ensure that opportunities are not lost through missed phone calls.

Businesses should also consider truly extending road warriors' unified communications experience to their dual-mode phone. Dual-mode devices can be deployed as mobile extensions of the business IP phones when inside the enterprise campus or branch, making it possible to receive or place calls controlled by Cisco Unified Communications Manager over the Cisco Unified Wireless Network. This provides the highest-quality coverage, and also has the potential to reduce telephony costs by taking phone calls off the cellular network.

Cisco has partnered with multiple companies to provide mobility solutions that enable access to call control services of Cisco Unified Communications Manager over the Cisco Unified Wireless Network. Devices that are part of the Cisco Compatible Extensions program help ensure the best possible end-user and IT experience through enhancements for voice quality and call control.

Business Benefits

As mobility is increasingly woven into the fabric of enterprise activities, companies need to be proactive and make mobile communications more intelligent and seamless. By doing so, enterprises allow employees to more easily place calls, use presence to determine whether a fellow employee is available, send text messages as well as voice messages, and consolidate voicemail and messages into one visual interface.

Intuitive interfaces and integrated features will let employees more easily reach other people and respond to time-sensitive tasks rather than waste time struggling with poorly integrated information or disconnected devices. At the same time, a proactive approach to seamless collaboration solutions will allow enterprise IT departments to better manage the security and costs associated with the use of these solutions.

The combination of Cisco Unified Communications and the Cisco Unified Wireless Network provides enterprises the assurance that all the devices belong to system that is secure and managed, while at the same time greatly enhancing employee effectiveness. Cisco Unified Communications helps workers increase productivity and collaborate in real time using applications on their choice of devices across multiple networks. Some of the productivity increases are highlighted in the [How Enterprises Can Reduce Costs and Boost ROI with Cisco's Unified Communications over WLAN white paper](#).

Summary

Businesses make massive investments in technologies and devices and need ways of simplifying communications for their mobile and distributed workforce to improve communication flows, access primary decision makers quickly, enhance collaboration, and improve productivity to positively affect their business.

Cisco Unified Communications over WLAN solutions provide the means to flexibly and productively manage communications in a variety of devices and mobile environments. They speed up access

and improve communication, integrate different device modes and communication applications, and dramatically improve collaboration, allowing organizations to streamline the business process, reach the right resources the first time, and enhance profitability.

What differentiates Cisco from most other vendors is the our solutions and technology breadth, market leadership, willingness to partner, effective service delivery, established global presence, and recognized leadership and success in implementations. Cisco continues to combine a highly customer-driven approach to product development with emphasis on innovation and a strong focus on complete customer solutions.

For More Information

For more information about the Cisco Unified Communication over WLAN, visit:

http://www.cisco.com/en/US/solutions/collateral/ns340/ns394/ns348/uc_wlan_wp_c11-460470_032708.pdf

To learn more about Cisco customers who have deployed the Cisco Unified Communication over WLAN, visit: http://www.cisco.com/web/about/ciscoitnetwork/unified_comm/index.html



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