

## Cisco OfficeExtend

Wireless teleworking empowers employees, regardless of location

### Challenge

The concept of teleworking has existed for a long time. Traditionally, one of the main concerns associated with widespread adoption has been workforce productivity. Specifically, how can employees stay connected and productive in a remote environment? Will they have access to the tools and resources that they need to do their job?

Today, we can use the wireless network to extend the enterprise by delivering secure, rich, and manageable network services to teleworkers and employees working outside of a traditional office environment. By properly securing, maintaining, and managing this environment, employees can truly be productive anywhere outside of the traditional office.

### Solution

Cisco offers a host of teleworker services so that employees can enjoy work schedule flexibility and an environmentally friendly alternative to commuting, while being productive from any location. The Cisco Virtual Office offers a comprehensive teleworker solution that supports both wired and wireless access to network resources using an Integrated Services Router and a VPN. This solution overview focuses on the Cisco OfficeExtend Solution which is a component of the Cisco Virtual Office. Cisco OfficeExtend is a wireless solution that extends the corporate network to teleworkers, full and part time home office workers and mobile contractors using a wireless access point and controller.

The Cisco OfficeExtend is a secure, simple, and cost-effective solution that extends the corporate wireless network to remote sites. It provides mobile connectivity to workers at temporary work spaces or locations outside of the traditional corporate office, including teleworkers, full- and part-time home-office workers, and mobile contractors. The OfficeExtend access point plugs into a router that provides an Internet connection and establishes a secure tunnel to the corporate network so that remote employees can access data, voice, video, and applications for a mobility experience consistent with that at the corporate office.

The OfficeExtend consists of remote site and corporate office components. The components at the remote site are:

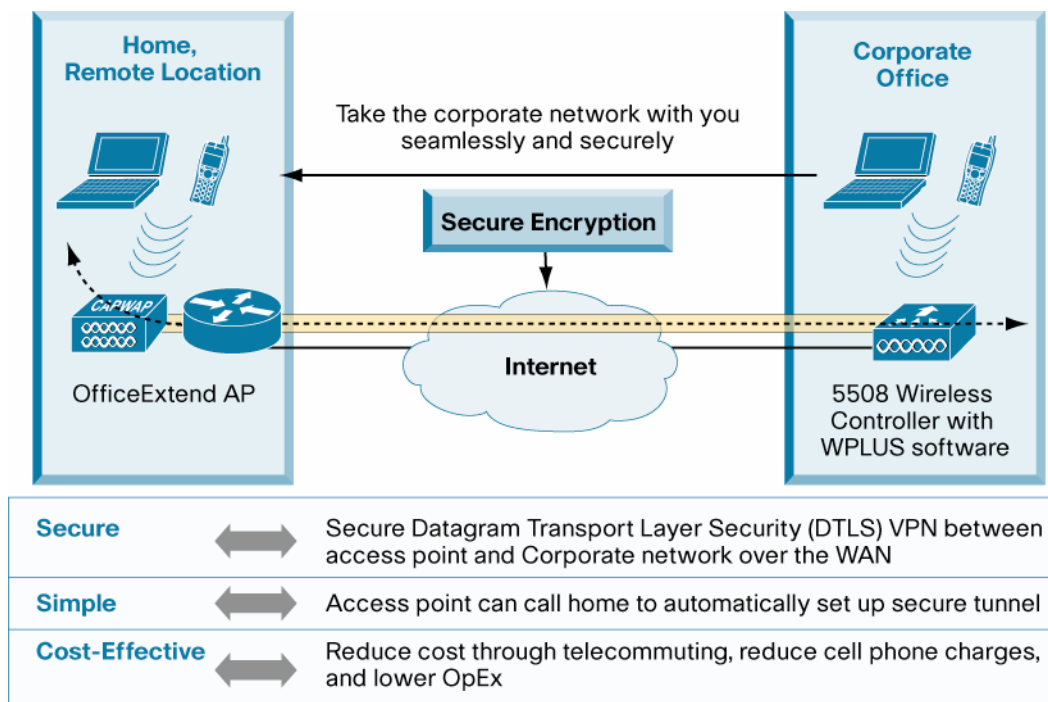
- A router with an Internet connection
- [Cisco Aironet® 1140 Series](#) or Cisco [Aironet 1130AG Series](#) Access Point
- [Cisco Unified Wireless IP Phone](#) (optional)

The corporate office components are:

- Cisco 5500 Series Wireless LAN Controller
- [Cisco Wireless Control System](#)
- Cisco Secure Access Control Server

Figure 1 shows how these components fit together.

Figure 1. Components of OfficeExtend



## How It Works

The same services that are available on the wireless network at the corporate office may be securely accessed on the OfficeExtend solution at a remote location. Data, voice, and video as well as applications such as Cisco Unified MeetingPlace® conferencing, Cisco WebEx™ technology, and dual-mode phones are all supported by the OfficeExtend solution. For the initial setup at a home office, the remote worker plugs the access point into the router. The OfficeExtend access point is provisioned in advance by a network administrator using the Cisco Wireless Control System (WCS) and will automatically set up a secure tunnel to the corporate headquarters with the Cisco 5500 Series Wireless Controller. A preregistered corporate IP phone will also automatically connect with the Cisco Unified Communications Manager to access the corporate phone number, voicemail, and user settings.

## Features

The OfficeExtend establishes a secure Datagram Transport Layer Security (DTLS) connection between the access point and the controller to offer:

- Remote WLAN connectivity using the same profile as at the corporate office.
- Voice service using a Cisco Unified Wireless IP Phone and any voice-over-Wi-Fi phone. The voice services also support Call Aware functionality (the ability to track call statistics).
- A personal service set identifier (SSID), in addition to the corporate SSID, to allow noncorporate devices to access the Internet.
- Support for M-Drive technology to help ensure wireless quality of service (QoS) and reliable connections.

## How the Remote Workforce Benefits

The OfficeExtend solution improves workforce productivity, business resiliency, and work schedule flexibility while reducing travel costs and carbon emissions. It is targeted toward commercial, enterprise, and service provider networks across all industries. The solution is appropriate for employees who need consistent access to content at home or at work, as well as full-time telecommuters who require the same wireless connectivity as at the corporate site. Voice costs are reduced since users can use Wi-Fi instead of cellular coverage for voice calls. The OfficeExtend solution provides benefits across three distinct organizational groups:

- **For end users:** It improves work-life balance by providing the ability to work at home or on the road; it also improves collaboration capabilities when users are working from a remote location. In addition, the solution allows spouses and children to access the Internet without introducing additional security risks to corporate policy.
- **For IT groups:** By using the same management, operations, and infrastructure as the corporate WLAN, the OfficeExtend solution simplifies the process of extending real-time, high-performance network services to remote locations.
- **For businesses and organizations:** The solution improves the productivity of the workforce while saving costs associated with energy, facilities, and real estate. The solution also enables better business resiliency, allowing the workforce to stay secure and connected in the event of factors that prohibit employees from getting to the office or when employees are traveling.

## Products

The following products are part of the OfficeExtend solution.

### Cisco 5500 Series Wireless Controller



A highly scalable, resilient, and flexible platform that enables systemwide functions for mission-critical wireless in medium-sized to large enterprises and campus environments. It supports up to 250 OfficeExtend Access Points per controller, and Control and Provisioning Wireless Access Points (CAPWAP) data encryption for added security across remote WAN/LAN links.

### [Cisco Wireless Control System](#)

Platform for centralized wireless LAN planning, configuration, and management that allows IT managers to design, control, and monitor enterprise wireless networks consisting of Cisco Aironet Lightweight Access Points and controllers.

### [Cisco Aironet 1140 Series](#)



802.11n indoor access point that delivers six times the throughput of existing 802.11a/g networks for maximum performance and reliable connections.

### [Cisco Aironet 1130AG Series](#)



802.11a/g indoor access point for robust and predictable WLAN coverage at a low total cost of ownership.

### [Cisco Unified Wireless IP Phones](#)



Voice-over-wireless LAN (VoWLAN) extends advanced unified communications capabilities for mobile workers.

The OfficeExtend solution provides secure, rich wireless network services to workers at locations outside the traditional corporate office, including teleworkers, full- and part-time home-office workers, mobile contractors, and executives. The OfficeExtend solution creates a wireless office environment for employees regardless of their location.

**Teleworking and remote workers are trends that are gaining popularity. Here is a quick glance at how important and valuable this work model has become:**

- Number of teleworkers by the year 2011: 112 million \*
- Percentage of employees who work outside the corporate headquarters: 90 percent \*\*
- Average amount saved by employees per year on fuel who work one day per week from home: \$500
- Average commercial real estate savings per year for a full-time teleworker: \$22,000
- Amount of carbon dioxide produced per 1000 miles driven: .45 tons \*\*\*

\* Gartner Dataquest Insight: Teleworking, The Quiet Revolution (2007 Update)

\*\* Nemertes Research—Building the Successful Virtual Workplace: Branch Office Challenges and Innovation

\*\*\* <http://www.epa.gov>

## A Scalable and Secure Teleworking Solution

The OfficeExtend is a scalable solution that can support thousands of sites in one domain. Each Cisco 5500 Series Wireless LAN Controller can support up to 250 OfficeExtend Access Points. Additional controllers can be added to the network as the need for additional access point support increases. The solution offers enterprise-class security without requiring a VPN. Instead, 802.1x authentication helps ensure that only valid clients are allowed to associate with the network and the access points are protected with authentication, authorization, and accounting (AAA) authentication and Locally Significant Certificates (LSC). The OfficeExtend supports voice-over-Wi-Fi clients such as dual-mode phones, soft phones, and voice-over-Wi-Fi phones. Cisco Unified Wireless IP Phones may be preconfigured for the OfficeExtend or added in the future.

## Deployment and Ongoing Services

Service offerings from Cisco and approved partners support successful OfficeExtend deployment and integration, provide consultative guidance for automating the deployment and management of remote sites, and deliver ongoing operational support and optimization. For details about the OfficeExtend service offerings, visit <http://www.cisco.com/go/wlanservices>.

## For More Information

For details about the OfficeExtend solution, visit <http://www.cisco.com/go/wireless/>.

For details about Cisco teleworking solutions, visit <http://www.cisco.com/go/teleworker>.



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