DATA SHEET

CISCO AIRONET 350 SERIES CLIENT ADAPTERS

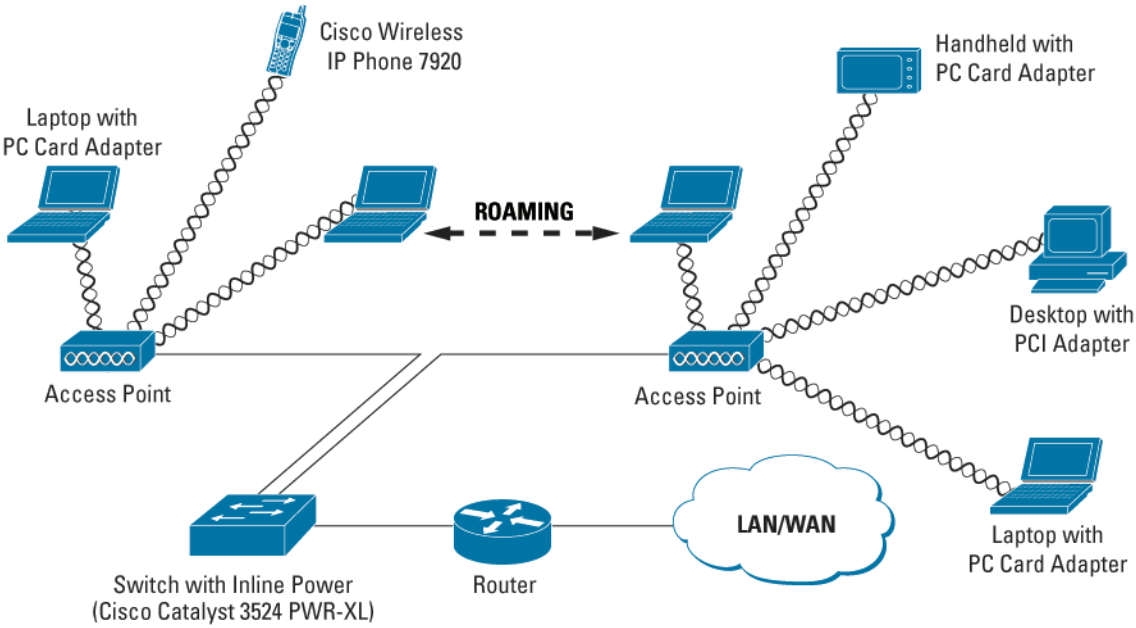
Wireless client adapters are the key to adding mobility and flexibility to an enterprise—increasing productivity by enabling users to have network and Internet access anywhere within a building without the limitation of wires. The Cisco Aironet® 350 Series Client Adapters are a complement to Aironet 350 Series infrastructure devices, providing an enterprise-ready solution that combines mobility with the performance, security, and manageability that people have come to expect from Cisco.

Wireless client adapters connect a variety of devices to a wireless network either in ad hoc peer-to-peer mode or in infrastructure mode with access points. Available in PC Card (PCMCIA) and Peripheral Component Interconnect (PCI) form factors, Cisco Aironet 350 Series Client Adapters quickly connect desktop and mobile computing devices wirelessly to all network resources. With this product, you can instantly add new employees to the network, support temporary workgroups, or enable Internet access in conference rooms or other meeting spaces (see Figure 1).

Features include:

- Superior range and throughput
- Secure network communications
- World mode for international roaming
- Full-featured utilities for easy configuration and management
- Compliance with the IEEE 802.11b high-rate standard
- Support for all popular operating systems

Figure 1. Client devices equipped with wireless client adapters can roam freely throughout a facility via communications with multiple access points.



ETHERNET SPEED AND IMPROVED RANGE

With a full 100 milliwatts (mW) of transmit power and the best receive sensitivity in the industry, the Cisco Aironet 350 Series Client Adapters provide the longest range and best reliability available for wireless clients. Advanced signal processing in the Cisco Aironet 350 Series helps manage the multipath propagation often found in office environments. Intelligent filtering addresses ambient noise and interference that can decrease network performance. Building upon Cisco leadership in wireless LAN (WLAN) performance, the Cisco Aironet 350 Series Client Adapters provide the greatest throughput available so users can enjoy virtually the same connectivity they gain from wire-line connections. Based on direct sequence spread spectrum (DSSS) technology and operating in the 2.4-GHz band, the Cisco Aironet 350 Series Client Adapters comply with the IEEE 802.11b standard—ensuring interoperability with all other compliant WLAN products.

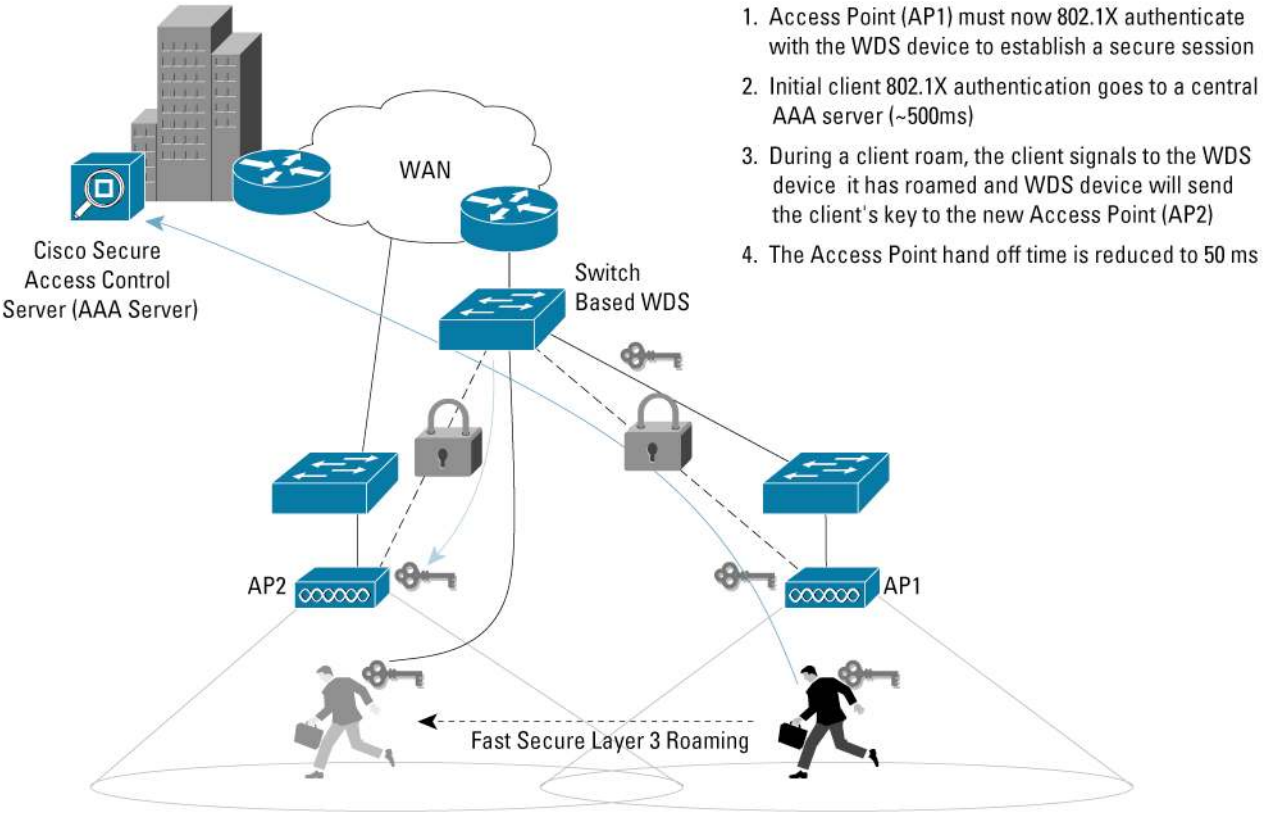
CISCO STRUCTURED WIRELESS-AWARE NETWORK

The Cisco Aironet 350 Series Client Adapter is a key component of the Cisco Structured Wireless-Aware Network (SWAN). Cisco SWAN is a framework to integrate and extend wired and wireless networks to deliver the lowest possible total cost of ownership for companies deploying WLANs. Cisco SWAN extends “wireless awareness” into important elements of the network infrastructure, providing the same level of security, scalability, reliability, ease of deployment, and management for wireless LANs that organizations have come to expect from their wired LANs.

Wireless domain services (WDS) is introduced with the Cisco Structured Wireless-Aware Network. WDS is a collection of Cisco IOS Software features that expand WLAN client mobility, simplify WLAN deployment and management and enhance WLAN security. These services—supported on access points, client devices, and the Cisco Catalyst® 6500 Series Wireless LAN Services Module (WLSM) today and other Cisco LAN switches and routers in 2005—include radio management aggregation, fast secure roaming, client tracking, and WAN link remote site survivability. WDS radio management aggregation supports radio frequency (RF) managed services such as rogue access point detection for WLAN Intrusion Detection System (IDS), interference detection, assisted site surveys and self-healing wireless LANs. For more information on Cisco SWAN, visit: http://www.cisco.com/go/swan.

Fast secure roaming is supported by Cisco and Cisco Compatible client devices in conjunction with Cisco Aironet, Cisco IOS Software-based access points. With fast secure roaming, authenticated client devices can roam securely from one access point to another, within or across subnets, without any perceptible delay during reassociation. Fast secure roaming supports latency-sensitive applications such as wireless voice over IP (VoIP), enterprise resource planning (ERP), or Citrix-based solutions (Figure 2).

Figure 2. Fast Secure Roaming



Note: Because the WDS handles roaming and reauthentication, the WAN link is not used

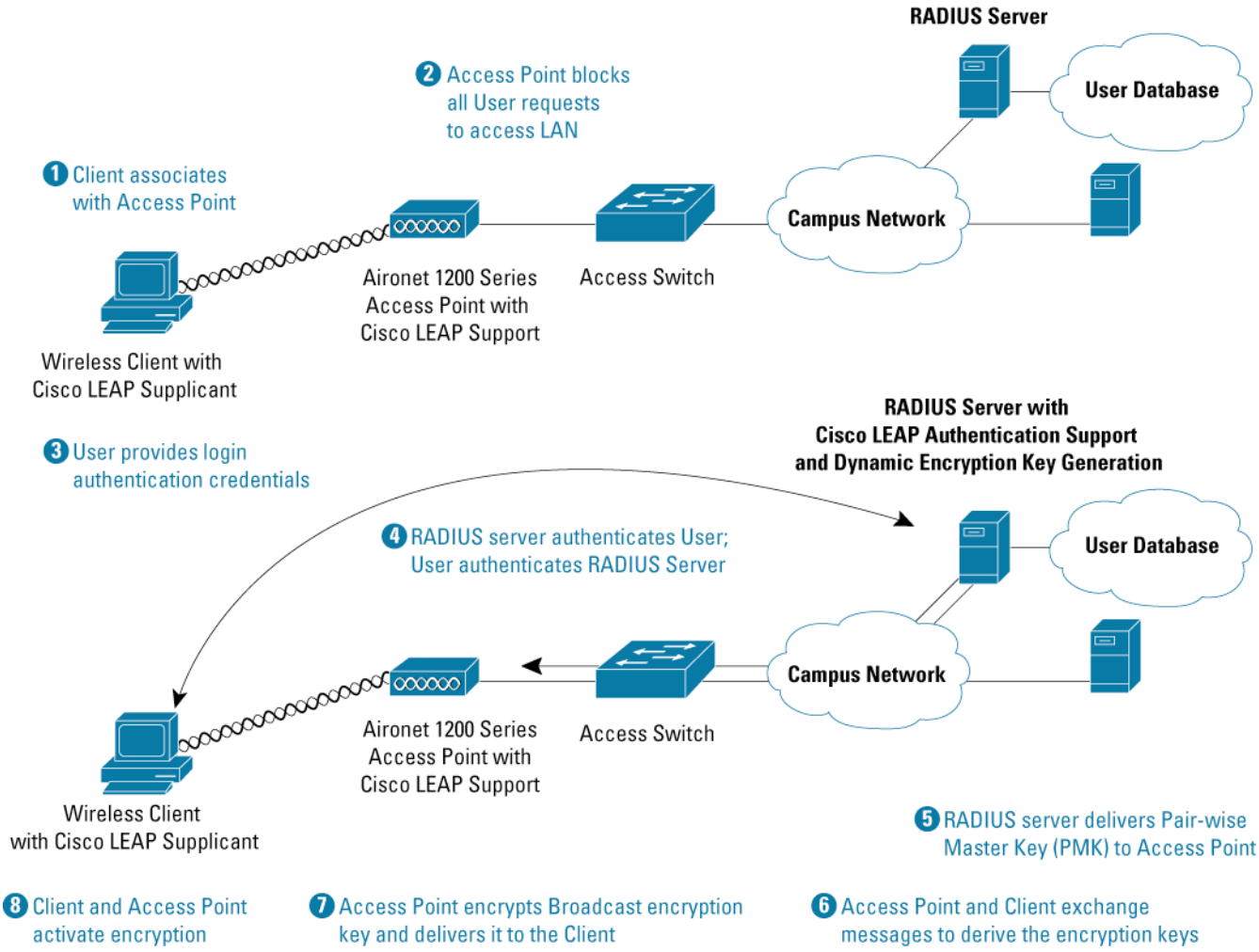
ENTERPRISE-CLASS WIRELESS LAN SECURITY

Wireless LAN security is a primary concern. Cisco Aironet products secure the enterprise network with a scalable and manageable system featuring the award-winning Cisco Wireless Security Suite. Based on the 802.1X standard for port-based network access, the Cisco Wireless Security Suite takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication (Figure 3). This solution supports Wi-Fi Protected Access (WPA), the Wi-Fi Alliance certification for interoperable, standards-based wireless LAN security. Cisco Aironet WPA Migration Mode, an access point setting that enables both WPA and non-WPA clients to associate to an access point using the same SSID, is supported by the Cisco Aironet 350 Series Client Adapter.

The Cisco Wireless Security Suite interoperates with a range of client devices. It supports all 802.1X authentication types, including Cisco LEAP, Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), EAP-Transport Layer Security (EAP-TLS), Protected Extensible Authentication Protocol-Generic Token Card (PEAP-GTC), Protected Extensible Authentication Protocol-Microsoft Challenge Handshake Authentication Protocol Version 2 (PEAP-MSCHAP V2), EAP-Tunneled TLS (EAP-TTLS) and EAP-Subscriber Identity

Module (EAP-SIM). A wide selection of Remote Access Dial-In User Service (RADIUS) servers, such as the Cisco Secure Access Control Server (ACS), can be used for enterprise-class centralized user management. Enhanced features such as Temporal Key Integrity Protocol (TKIP) per-packet key hashing, message integrity check (MIC) and broadcast key rotation are integral to the Cisco Wireless Security Suite.

Figure 3. The Cisco Wireless Security Suite is an Enterprise-Class Security System Based on the 802.1X Architecture



WORLD MODE FOR INTERNATIONAL ROAMING

Cisco simplifies deployment for international travelers and multinational corporations with a new client adapter setting called world mode. When placed in this mode, client adapters automatically inherit channel configuration properties directly from the Cisco Aironet access point to which they associate. This feature enables a user to use a client adapter around the world while still maintaining regulatory compliance.

ENHANCED CLIENT NETWORK MANAGEMENT FEATURES

The Cisco Aironet Client Utility, with an intuitive graphical user interface, provides an easy way to configure, monitor, and manage the Cisco Aironet 350 Series Client Adapter. Enhanced client network management features include:

- *Site-survey tools*—Easy-to-understand detailed graphical information to assist in the placement of access points (Figure 4)
- *Troubleshooting facility*—Step-by-step details on the process of connecting to an access point that highlights why a connection failed (Figure 5)
- *Profile Manager*—Create specific profile settings for various environments, such as the office or home, making it simple for telecommuters and business travelers to move from one environment to another
- *Customized Profile settings*—Individually select channel, service set identifier (SSID), WEP key, and the authentication method for different locations
- *Cisco LEAP authentication status screen*—Status updates regarding the Cisco LEAP authentication process
- *Autoselection of Cisco LEAP profile*—Automatic selection of a Cisco LEAP profile without having to store the Cisco LEAP username and password in the profile
- *System Tray icon*—Easy access to wireless LAN connection information and one-click access to common actions such as selecting the right profile for a wireless LAN (Figure 6)
- *Aironet Client Monitor*—Optional application that runs “behind” a System Tray icon and provides a subset of Aironet Client Utility features such as status information about the client adapter and access to basic tasks such as selecting a profile
- *Support of popular operating systems*—Windows 95, Windows 98/98SE, Windows 2000, Windows ME, Windows NT, Windows XP, Mac OS 9.X, MAC OS X, Windows CE, Linux and MS-DOS.

Figure 4. Site survey tools included with the Cisco Aironet Client Utility assist in the correct placement of access points.

Figure 5. Troubleshooting Facility gives step-by-step details on the process of connecting to an access point.

Figure 6. System Tray icon provides easy access to wireless LAN connection information and one-click access to common actions.

Client firmware, drivers, utilities and security modules are easily installed using the Cisco Aironet Wireless LAN Client Adapter Installation Wizard for Microsoft Windows operating systems. The wizard can run in an interactive mode or in an automated “silent mode” without user interaction, triggered by existing IT software distribution tools. The wizard image file is a self-extracting executable (.exe) file (Figure 7).

Figure 7. Cisco Aironet Wireless LAN Client Adapter Installation Wizard for Microsoft Windows operating systems.

THE PREFERRED CLIENT SOLUTION FOR MOBILE PROFESSIONALS

Cisco Aironet 350 Series Client Adapters deliver superior range, reliability, and performance for business users needing information access anytime, anywhere. Combined with Cisco Aironet unique security services, this product ensures that business-critical information is secure. Most importantly, the Cisco client solution is easy to use, making the benefits of wireless mobility completely transparent.

Table 1. Cisco Aironet 350 Series Client Adapter Specifications

Data Rates Supported	1, 2, 5.5, and 11 Mbps
Network Standard	IEEE 802.11b
System Interface	AIR-PCM35x: PC Card (PCMCIA) Type II AIR-PCI351x: peripheral component interconnect (PCI) Bus
Frequency Band	2.4 to 2.4897 GHz
Network Architecture Types	Infrastructure and ad hoc
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps DQPSK @ 2 Mbps CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11 ETSI: 13 Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: –94 dBm 2 Mbps: –91 dBm 5.5 Mbps: –89 dBm 11 Mbps: –85 dBm
Delay Spread	1 Mbps: 500 ns 2 Mbps: 400 ns 5.5 Mbps: 300 ns 11 Mbps: 140 ns

Available Transmit Power Settings	100 mW (20 dBm) 50 mW (17 dBm) 30 mW (15 dBm) 20 mW (13 dBm) 5 mW (7 dBm) 1 mW (0 dBm) Maximum power setting will vary according to individual country regulations
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards
Operating Systems Supported	Windows 95, 98, NT 4.0, 2000, ME, XP, CE 2.11, CE 3.0, CE .NET (CE 4.0, CE 4.1), Mac OS 9.x, Mac OS X, MS-DOS and Linux
Antenna	AIR-PCM35x: Integrated diversity dipoles AIR-LMC35x: Two MMCX connectors (antennas optional, none supplied with unit) AIR-PCI35x: External, removable 2.2 dBi Dipole with RP-TNC Connector
Encryption Key Length	128-bit
Security	Cisco Wireless Security Suite supporting Wi-Fi Protected Access (WPA) including: Authentication: • 802.1X support including LEAP, EAP-FAST, PEAP-GTC, PEAP-MSCHAP V2, EAP-TLS, EAP-TTLS and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session encryption keys • MAC address and by standard 802.11 authentication mechanisms Encryption: • Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits • TKIP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation via WPA TKIP and Cisco TKIP

Status Indicators	Link Status and Link Activity
Dimensions	AIR-PCM35x: 2.13 in. (5.4 cm) wide x 4.37 in. (11.1 cm) deep x 0.1 in. (0.3 cm) high AIR-LMC35x: 2.13 in. (5.4 cm) wide x 3.31 in. (8.4 cm) deep x 0.1 in. (0.3 cm) high AIR-PCI35x: 6.6 in. (16.8 cm) wide by 3.9 in. (9.8 cm) x .5 in. (1.3 cm) high
Weight	AIR-PCM35x: 1.6 oz (45g) AIR-LMC35x: 1.4 oz (40g) AIR-PCI35x: 4.4 oz (125g)
Environmental	AIR-PCM35x and AIR-LMC35x: –22° to 158°F (–30° to 70°C) AIR-PCI35x: 32° to 131°F (0° to 55°C) 10 to 90% (noncondensing)
Input Power Requirements	+5 VDC =/– 5%
Typical Power Consumption (at 100 mW transmit power setting)	Transmit: 450 mA Receive: 270 mA Sleep mode: 15 mA
Warranty	Limited lifetime
Wi-Fi Certification	

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on **the Cisco Web site at www.cisco.com/go/offices.**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Cyprus Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

204113_ETMG_SD_10.04

Printed in the USA