



Alcatel Wireless LAN Solutions



Alcatel OmniAccess Wireless LANs

Wireless LANs (WLANs) in enterprise networks have become a “must have” on every CIO’s wish list of technology. No longer is it a matter of *if*, but one of *when* will the technology be integrated into a company’s business operations. Alcatel now offers those CIOs a wireless solution that is as robust as a wired Ethernet network supporting everyday business functions. Alcatel’s wireless offering is voice ready, secure, and offers quality of service (QoS) capabilities to seamlessly support converged, voice/data networks.

The Alcatel OmniAccess product line offers next-generation wireless LAN solutions that are built upon proven technology and provides the industry’s most comprehensive, secure, standards-based wired and wireless converged mobility solutions. OmniAccess solutions complement Alcatel’s existing data and voice mobility offerings, which include wired dynamic and authenticated user mobility, as well as mobile IP Touch phones. This comprehensive range of mobile solutions allows Alcatel to meet the diverse needs of enterprises that need to enable access to business applications and resources for mobile employees from anywhere and at any time.

Wireless LANs

WLAN/WiFi has matured to mass-market status with access in airports and retail outlets such as Starbucks and McDonalds, and with low-cost access points in the home. This popularity drives adoption in the enterprise, but many enterprise requirements – such as strong security features, seamless roaming, and support for voice over WLAN – are generally not well addressed by products on the market today. Alcatel’s OmniAccess solution is a business-class solution that meets enterprise requirements.

Wi-Fi today and in the future

Wi-Fi is everywhere. Alcatel is providing robust, reliable wireless networks to enterprises around the globe. Corporations, hospitals, universities, military sites, arenas, malls, and many other types of enterprises have chosen OmniAccess for their business critical wireless networks resulting in thousands of product users.

Alcatel’s OmniVista (Alcatel’s network management system) will provide integrated OneTouch WLAN QoS, and wired LAN QoS in the near future. Through OmniVista SecureView, security and VLAN policy management will also be integrated into the solution. Plus, all of this is ready to support standards-based QoS for voice and the mobility and defacto standards for voice over WiFi deployments.

OmniAccess and OmniVista are under constant enhancement to meet the increasingly diverse needs of the user. Their system architecture and control software will support industry standards-based protocols as they emerge, ensuring a robust and painless path for OmniAccess and OmniVista users.

Alcatel delivers a wireless system that integrates seamlessly into the existing enterprise network and provides mission critical applications, including voice over IP, in a highly reliable, predictable, and secure fashion.

Alcatel WLAN Solutions



Alcatel's OmniAccess WLAN solution delivers the capabilities an organization needs and wants in a WLAN – capabilities such as intelligent RF management, air-tight security, and seamless mobility.

Intelligent RF management

Intelligent RF management means high availability, easy deployment, and low operations cost. With traditional WLAN solutions, you either have to buy a third party product to monitor and adjust the RF environment or face significant helpdesk and network operations support cost to tune the RF configuration in response to routine, non-network, changes. RF environment changes, such as the number of people in the room, open versus closed doors, the use of microwaves, neighboring company WLAN installations, and other WIFI devices all affect WLAN operation.

Alcatel addresses the environment changes with Alcatel AirView software, which is embedded in all OmniAccess hardware. Alcatel AirView software uses patent-pending algorithms to detect and adapt to changes in the wireless domain in real-time creating the optimal topology for wireless networking. This enables best in class capabilities such as dynamic channel assignment, interference detection and avoidance, load balancing across multiple access points, coverage hole detection and correction, and dynamic power control.

Air-tight Security

With Alcatel's air-tight security, your wireless LAN stays private. Alcatel understands that security and operational issues are critical to every company considering integrating WLAN technology into their communication networks. To address these issues, Alcatel's OmniAccess WLAN appliances and software are secure out of the box, providing best-of-breed wireless capabilities such as integrated wireless protection features, VPNs, mobility, and location tracking.

OmniAccess devices adhere to the strictest level of security standards including HIPAA and FIPS. They support industry standard encryption including IPSec with DES, 3DES, and AES CBC. The system also supports 802.1x (EAP), WEP, WPA with TKIP-MIC, and AES.

For better visibility and control of the air space, world class, dynamic RF management is combined with the WLAN management platform, helping to make a wireless network secure against dictionary and denial of service (DoS) attacks as well as wireless intrusion protection. Other highlights include rogue AP detection, location and suppression, VPN termination, identity-based security policies, and wire-speed firewalls.

OmniAccess Features / Benefits

Ease of deployment and use

OmniAccess allows IT staff to rapidly deploy enterprise-wide WLAN services with minimal incremental staff, RF training or changes to the existing wired network.

Robust WLAN capabilities

OmniAccess provides a complete system for service, security, mobility, and real-time applications such as detection of rogue access points.

Cost-efficiency

OmniAccess reduces the capital requirements for WLAN deployment and tackles the key financial challenges of operating a wireless LAN.

Support for real-time applications

OmniAccess allows IT staff to control key WLAN attributes to support voice, video, and data business applications - attributes such as quality of service (QoS), location, and user identity.

Flexibility

OmniAccess capabilities are available across a wide range of products, from 12- and 24-port WLAN switches with power over Ethernet (POE) to high capacity WLAN appliances. The Alcatel system can be deployed in the wiring closet, the distribution layer, or the data center across layer 2 and 3 connections making it an ideal fit for any enterprise environment.

Seamless mobility

Seamless mobility means that true voice over wireless LAN is possible. The OmniAccess family allows users to seamlessly roam between access points, across switches, and even across routed subnets. Security and QoS context information follows users wherever they roam, ensuring that mobility does not compromise performance, reliability, or privacy. The OmniAccess switches and appliances don't require any modifications to existing infrastructures or client devices to enable mobility (e.g., mobile IP). As a result, the Alcatel system is easy to deploy and cost-effective to own and operate.

OmniAccess devices

The Alcatel OmniAccess WLAN hardware consists of:

- **OmniAccess 4000 WLAN switch**
- **OmniAccess 4100 WLAN appliance**
- **OmniAccess 1200 Access Point**
- **OmniAccess 1200R Remote Access Point**



OmniAccess 4000 WLAN switch

OmniAccess 4000 WLAN switches provide a secure and reliable platform for building business critical wireless networks. By combining exceptional wireless functionality with power over Ethernet (PoE) and other necessary wire-line functions, the OmniAccess 4000 has set the standard for cost-effective enterprise wireless networking.

The OmniAccess 4000 WLAN switches (OA-4012 and OA-4024) work in conjunction with Alcatel OmniVista Air Control System (ACS) software. The OA-4012 provides 12 while the OA-4024 provides 24 auto-sensing 10/100 Ethernet interfaces. Each 10/100 interface delivers wire-speed switching and industry-standard PoE functionality that can be used to power any 802.3af-compliant access point.

The OmniAccess 4000 WLAN switches are ideal for:

- **Direct connect access points** – Alcatel OmniAccess 1200s and third-party APs can be directly connected to the 10/100 Ethernet interfaces for seamless intra- and inter-subnet roaming. The Fast Ethernet ports or optional Gigabit Ethernet interfaces on the OA-4000s can connect the OmniAccess wireless system to wire-line infrastructure for seamless network integration.
- **Appliance mode deployment** – These access points automatically connect to an OA-4000 using the Lightweight Access Point Protocol (LWAPP) through a layer 2 or 3 connection to the existing LAN infrastructure. Subsequently, all AP traffic is tunneled to the appropriate OA-4000.
- **Hybrid connectivity** – OA-4000 switches work simultaneously in both appliance and direct connect mode enabling IT managers to leverage the PoE benefits of the OmniAccess equipment where necessary while providing the same mobility, security and RF manageability functionality to the access points.

Alcatel WLAN Solutions



OmniAccess 4100 WLAN appliance

OmniAccess 4100 WLAN appliances enable enterprises to seamlessly leverage existing LAN switches to cost effectively introduce intelligent RF capabilities into the network environment. OmniAccess 1200 APs are directly connected to the existing LAN infrastructure (such as a layer-3 switch) and are automatically connected to an OmniAccess 4000 switch using the Lightweight Access Point Protocol (LWAPP). All traffic from the OmniAccess 1200s is tunneled to an appropriate OmniAccess 4100 providing mobility, security, and RF management across the entire enterprise.

OmniAccess 1200 Access Points

The OmniAccess 1200 and 1200R Access Points (OA-1200 or OA-1200R APs) are standards-based and support the emerging IETF Lightweight Access Point Protocol. They're shipped secure with a built-in X.509 certificate to prevent unauthorized access to a network, they support 802.1x authentication / encryption, and they are hardware-enabled for the emerging 802.11i standard. OA-1200 APs also have integrated real-time air monitoring services that detect and contain rogue APs and prevent RF-layer attacks.



OA-1200 offers **zero-touch** configuration and management requiring no user configuration – just plug them into any device running standard Ethernet and they'll automatically locate OmniAccess WLAN switches and appliances over the network infrastructure and program all appropriate security, QoS, and other policy information. This effective, real-time resource management of the wireless domain makes the Alcatel solution ideal for real-time applications such as voice.

All OmniAccess 1200 models are plenum rated, ensuring they are deployable in different physical scenarios and meet all local building code requirements. Their various radio capabilities and deployment options make them ideally suited for any enterprise environment.

The OS-1200 AP delivers optimal security, performance, and coverage for 802.11 wireless networks. It's equipped with internal radios and sectored antennae, with optional connectors available for external antennae. Enterprises have a choice between multi-mode 802.11 a/b/g and 802.11 b/g versions. The OmniAccess 1200 is the only access point solution that combines simultaneous data forwarding and air monitoring functions. This eliminates the need for additional monitoring nodes, which reduces the cost of deploying a wireless network.

The OA-1200R remote edge AP extends security, performance, and RF management capabilities to branch offices. It has sectored internal radios and antennas as well as external antenna connectors* allowing it to be deployed in a variety of applications. The OA-1200R communicates with WLAN switches and appliances via a WAN link enabling:

- Deployment without a locally connected switch or appliance
- Easy RF management of remote facilities
- Distribution of WLAN capabilities to remote locations with minimal hardware investment

* External antenna connectors may not be available in some countries, depending on local regulations

Alcatel WLAN Management Software

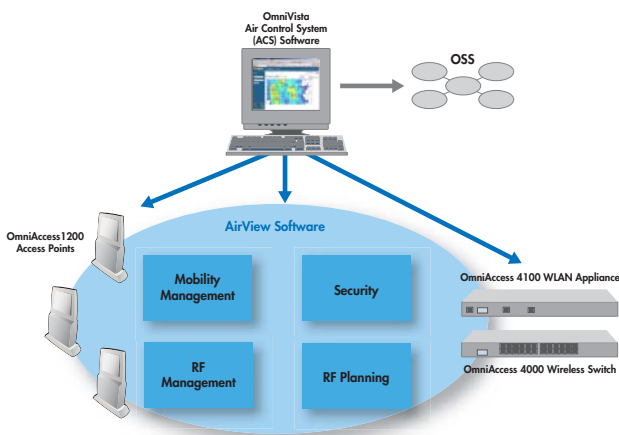
The Alcatel OmniAccess WLAN software consists of:

- **OmniAccess Wireless Protection System (WPS)**
- **OmniVista Air Control System (ACS)**
- **OmniVista Air Control System - Location Tracking**
- **OmniVista network management offers:**
 - Locator capabilities
 - Traps
 - Trap responder
 - Topology view
- **Element manager launch (telnet, SSH, web, user defined)**

OmniVista Air Control System

Alcatel OmniVista Air Control System (ACS) software is the industry's leading platform for WLAN planning, configuration, and management. It provides a powerful foundation for designing, controlling, and monitoring enterprise WLANs from a centralized location, simplifying operations and reducing total cost of ownership.

OmniVista ACS provides RF prediction, policy provisioning, network optimization, troubleshooting, user tracking, security monitoring, and WLAN systems management. Its robust graphical interfaces and detailed analysis reports make WLAN deployment and operation simple and cost-effective.



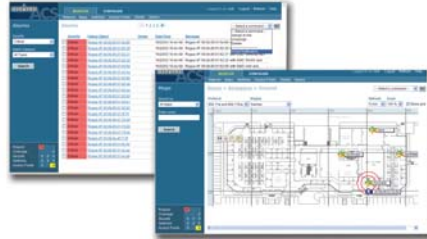
OmniVista ACS software runs on a server platform with an embedded database providing the scalability needed to manage hundreds of OmniAccess WLAN switches and/or appliances, which in turn manage thousands of OmniAccess APs and third-party devices. WLAN switches or appliances can be located on the same LAN as OmniVista ACS, or across a wide area link making it the ideal WLAN management platform for even the largest enterprise environments.

Alcatel WLAN Solutions



Alcatel Wireless Protection System

Alcatel offers the most advanced and cost-effective wireless protection system (WPS) that delivers real-time monitoring functionality, advanced analysis capabilities, and the ability to prevent unauthorized activity.



Alcatel's WPS can be deployed with the Alcatel Wireless Enterprise Platform, which includes OmniAccess WLAN switches/appliances and OmniVista Air Control System. Alcatel APs act as air monitors, communicating real-time information about the wireless domain to Alcatel WLAN switches and appliances via the LWAPP. All security threats are rapidly identified and presented to network administrators via ACS, where accurate analysis and corrective action can be taken.

Alcatel offers the only WLAN system that delivers simultaneous wireless protection and WLAN service delivery that is cost-effective and complete.

OmniVista Air Control System – Location Tracking

Alcatel provides integrated location tracking capabilities within the OmniVista Air Control System (ACS) software to increase network managers' visibility into their wireless domain without having to add separate location appliances and air monitor APs. ACS allows IT staff to select specific 802.11 clients (authorized or unauthorized) and accurately track them as they roam throughout a network. This improves WLAN security, enables real-time capacity management, and provides unique system management capabilities for more efficient wireless operations.

OmniVista ACS uses advanced RF fingerprinting technology to provide detailed location information to within 10 meters or better. This information is stored in a database and compared to real-world RF signal strength measurements gathered by the APs to determine the precise location of 802.11 devices. By reconciling live information with known building characteristics, the Alcatel wireless solution takes into account unique RF characteristics such as reflection, attenuation, and multi-path propagation.



Rogue access points and WPS

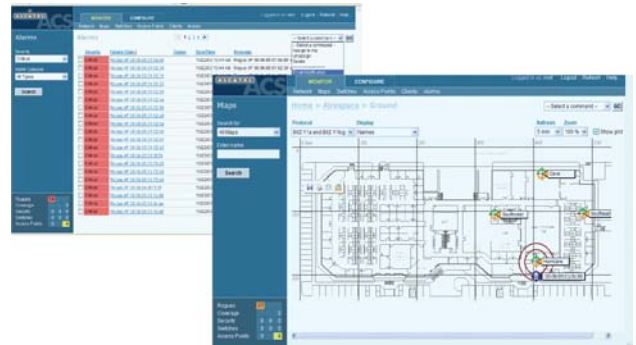
A rogue AP is an AP that hasn't been authorized by the company and frequently doesn't conform to the WLAN security policies. It provides a non-secured interface to the corporate network from outside an IT manager's physical control making the rogue AP potentially more damaging than a rogue user. With authentication, it's highly unlikely that an unauthorized user will successfully reach valuable corporate assets. However, if a rogue AP is plugged in, anyone with an 802.11 equipped device will be able to access the network.

How is this possible? An employee may simply be looking to access the network from a remote meeting room and installs a wireless access point in it. Or, a software programmer working on wireless apps may connect an AP for testing purposes. To eliminate rogue APs may be difficult so processes and mechanism need to be in place to monitor for such rogue APs.

Alcatel addresses this problem through real-time monitoring, automatically detecting unauthorized devices the minute they enter the wireless network. Alcatel WPS generates alarms to alert to the unauthorized activity allowing IT staff to assess the threat.

With OmniVista ACS location tracking capabilities, network managers can:

- Rapidly identify where rogue APs or ad-hoc networks are physically located for positive identification and containment
- Identify sources of unusual WLAN behavior, such as excessive traffic generation that could be attributed to a DoS attack
- Create and enforce location-based policies (e.g., VLANs and QoS)
- Receive precise alarms for rapid troubleshooting
- Monitor and manage WLAN capacity in real-time
- Track wireless assets



Alcatel: The Standard for Wireless LANs

Alcatel mobility solutions are adaptable for enterprises of all types and sizes, and increase overall profitability by delivering a scalable, reliable, and cost-efficient platform for wireless networking. Our wireless products have revolutionized the wireless space by bringing simplicity to day-to-day wireless network operations. The OmniAccess family of WLAN switches, appliances, APs, and comprehensive management software offer the highest level of WLAN functionality in the industry with the lowest total cost of ownership making Alcatel the clear choice for enterprises looking to deploy business-critical wireless networks.

Alcatel WLAN Solutions



Product Specifications

OmniAccess 4100/4000

Protocols and standards

Wireless

802.11, 802.11a, 802.11b, 802.11g

Wireline / switching

IEEE 802.3z 1000Base-X, IEEE 802.3x flow control, IEEE 802.1q VLAN Tagging, IEEE 802.1D spanning tree protocol

OmniAccess 4000 additional protocols and standards:

IEEE 802.3 10BaseT, IEEE 802.3u 100BaseTX specification, IEEE 802.3ab 1000BaseT, IEEE 802.3af Power over Ethernet

Data RFCs

RFC 768 UDP, RFC 783 TFTP, RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 826 ARP, RFC 854 Telnet, RFC 1122 host requirements, RFC 1542 BOOTP, RFC 2068 HTTP, RFC 2131 BOOTP/DHCP Relay, RFC 1493 bridge, RFC 2665 Ethernet like interfaces for SMLv2

Security

IEEE 802.1x, IPSec, HMAC (MD5-96, SHA-1), Encryption (DES, 3DES, Aes), TKIP, Michael Integrity Code (MIC), WEP 40, 104 and 128 bits (both static and shared keys), Aes-OCB 128 bit, broadcast key rotation, IKE (+IPSec and various crypto/hash transforms), XAuth (password based IKE - RADIUS backend), web based authentication, WPA

Security RFCs

RFC 2104 Keyed Hashing for Message Authentication, RFC 2401 Security Architecture for the Internet Protocol, RFC 2403 use of HMAC-MD5-96 within ESP and AH, RFC 2404 Use of HMAC-SHA-1-96 within ESP and AH, RFC 2405 ESP DES-CBC Cipher Algorithm With Explicit IV, RFC 2406 encapsulating security payload, RFC 2408 ISAKMP, RFC 2407, 2409 internet key exchange, RFC 2560 online certificate status protocol, RFC 2510 certificate management protocols, RFC 2511 certificate request message format, RFC2451 ESP CBCMode Cipher Algorithms, RFC 2459 certificate and CRL profile

Authentication

RFC 2866 RADIUS Accounting, RFC 2867 RADIUS Tunnel Accounting, RFC 2618 RADIUS Authentication, RFC 2869 RADIUS Extensions Others Alcatel wireless MIBs, Alcatel switching MIBs

Secure Management

Management interface

SNMPv2/3, Command Line Interface, web-based HTTP(S), SSL, SSH2, TELNET, SYSLOG

Management RFCs

RFC 1155-1157 SNMP V1, SNMP V2c, SNMP V3, HTTP/HTTPS, RFC 1213 SNMP MIB II, RFC 1493 bridge MIB, RFC 1643 Ethernet MIB, RFC 2239 802.3 MAU MIB, RFC 1757 RMON/Lite, RFC 2233 interfaces group MIB, RFC 2674 VLAN MIB, RFC 2863 interfaces group, RFC 2574 User-based Security Model (USM) for SNMP v3, RFC 2575 View-based Access Control Model (VACM for SNMP), Alcatel private MIBs

Console port

RS-232 with male DB-9 connector

Management port

10/100 Mbps Ethernet RJ-45

Physical and environmental

- Weight: 11.9 lbs (5.4 kg)
- Dimensions: (WxDxH): 17.5 x 13 x 1.75 in. (44.5 x 33.1 x 4.5 cm)
- OmniAccess 4000 Power over Ethernet: 48 VDC over CAT5, IEEE 802.3af PoE specification
- Storage humidity: up to 95%
- OmniAccess 4100 Input power: – without PoE: 1.4 A at 110 VAC, 60 Hz, 0.8 A at 220 VAC, 50 Hz
- OmniAccess 4000 Input power: – with PoE: 2.6 A at 110 VAC, 60 Hz, 1.3 A at 220 VAC, 50 Hz
- 3 LEDs: status, 1000BaseX activity and alarm
OmniAccess 4000 includes separate link and activity LEDs for 1000BaseSX and 1000BaseT modules
- Operating temperature: 0 to 50°C (32 to 122°F)
- Storage temperature: 25 to 70°C (13 to 158°F)
- Operating humidity: 10 to 95%, non-condensing

Agency approvals

Safety – CSA 22.2 No. 950-95

CSA 1950

EMC – FCC Part 15 class A

EN55022 class A

ICES-003 (Canada)

Alcatel WLAN Solutions



OmniVista Air Control System

Server

- Windows 2000, SP3 or greater
- 2.4 GHz Pentium 4 or better
- 512 MB RAM
- 20 GB Hard Drive
- Java Runtime Engine 1.4 or greater

Client

- Windows 2000, SP3 or greater
- 1 GHz Pentium 4 or better
- 256 MB RAM
- 20 GB Hard Drive
- Java Runtime Engine 1.4 or greater

Management

- SNMP v1, v2c, v3

Managed devices

- Alcatel OmniAccess 4000 WLAN switch
- Alcatel OmniAccess 4100 WLAN appliance
- Alcatel OmniAccess 1200 access point
- Third party access points

Database

- Integrated Solid FlowEngine SQL

OmniVista Air Control Location Tracking

Location tracking in 802.11 networks

The location approach taken by the Alcatel wireless solution has clear advantages over systems offered by location appliance and software vendors.

- Integrated with Alcatel OmniAccess's RF prediction for detailed RF topology information
- 10 meter accuracy (based on three or more monitoring APs)
- Requires no incremental hardware or location-only access points required for deployment
- Software component to Alcatel OmniVista Air Control System (ACS). Requires ACS 2.0
- No software client required
- Compatible with all major WLAN network adapters
- Compatible with devices that use:
 - 802.11a
 - 802.11b
 - 802.11g

Requirements

Server

- Windows 2000, SP3 or greater
- 2.4 GHz Pentium 4 or better
- 512 MB RAM
- 20 GB hard drive
- Java Runtime Engine 1.4 or greater

Management

- SNMP v.1, v.2c, v.3

Solution components

- Alcatel OmniAccess 4000 wireless switch (4012 and 4024)
- Alcatel OmniAccess 4100 wireless appliance (4102)
- Alcatel OmniAccess 1200 and 1200R access points (802.11b/g and 802.11a/b/g)

Database

- Integrated Solid FlowEngine SQL

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