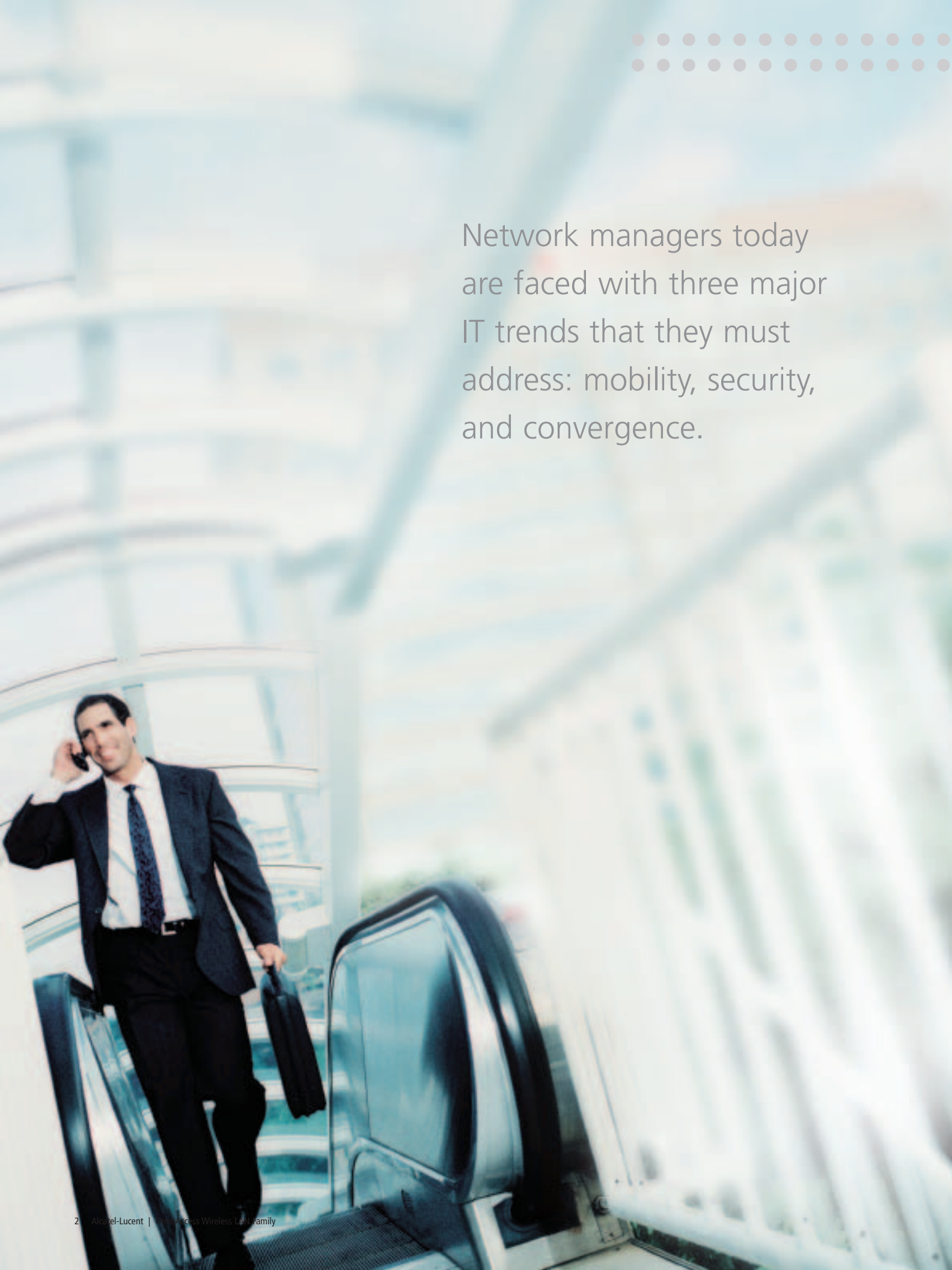
Alcatel-Lucent OmniAccess Wireless LAN Family

The Next Generation of Wireless LAN Connectivity



Network managers today are faced with three major IT trends that they must address: mobility, security, and convergence.

Mobility is driven by users through technologies such as wireless LANs, cellular phones and VPNs to conduct business in the office, on the road and at home.

Network security has become increasingly important in the age of Internet worms, viruses, and spyware. Information assets need to be protected against unauthorized disclosure, alternation, or destruction. Security has also taken on increased importance with the introduction of new government regulations related to privacy, confidentiality, and integrity of financial results.

A converged network of data and voice offers an organization significant financial benefits along with richer enterprise communications.

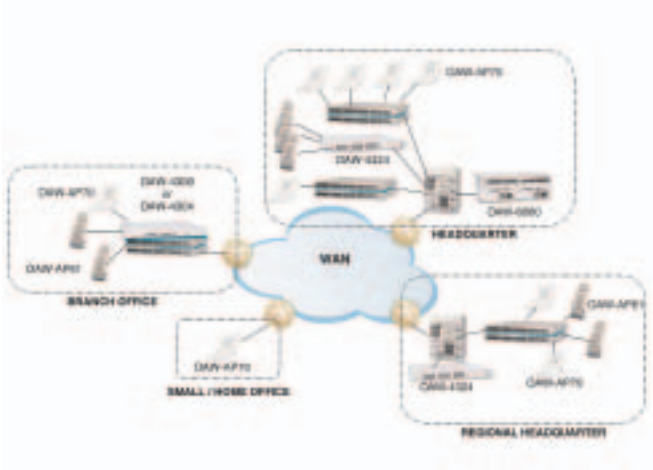
All three trends intersect at the edge of the network – the point where users connect to enterprise services.

Alcatel-Lucent's OmniAccess Mobile Edge System (OAW-MES) enables a new type of edge for the enterprise network – the mobile edge. The mobile edge allows users and devices to connect over the air and across any network, to securely gain access to enterprise resources. It is a new layer in the network that logically sits on top of existing fixed networks and fulfills the requirements of security, mobility and convergence without requiring major upgrades to the existing network. The mobile edge is architected to securely work over existing IP network facilities, and extends across both private enterprise networks as well as the public Internet.

The mobile edge by definition supports true mobility where users can seamlessly and securely roam across multiple locations. In addition, it delivers voice convergence through multimedia mobile devices and voice over wireless LAN (VoWLAN) handsets with high quality and reliability. This eliminates the significant expense of adding powered VoIP ports to the fixed edge. Further, the mobile edge is built on the notion of identity-based security. Mobile users and devices, by definition, do not connect to the network through a fixed port. For this reason, the network must identify every user and device that joins the network. Once this identity is known, custom security policies may be applied to the network so that only access appropriate to the business needs of the user or device is provided. This drastically improves network security by eliminating excess privilege on the network while providing identity-based auditing.

The natural long-term evolution of the enterprise network edge is to become predominately mobile. When this happens, a radical transformation of enterprise network economics will be realized when the costs of the cabling infrastructure and operational expense of moves, adds and changes are eliminated.

The mobile edge, by drastically reducing networking costs, runs directly counter to the needs of the incumbent vendors. The "incumbent's dilemma" develops whenever major turning points in technology develop – the incumbent cannot grow the business by offering a solution that allows a customer to spend less.



The mobile edge is not based on this incumbent's dilemma. It is an evolutionary new architecture that delivers mobility, security and convergence for today's networks and builds on a vision where the enterprise network will ultimately have far fewer ports than today.

The Products

Alcatel-Lucent's Mobile Edge System consists of four components:

- Alcatel-Lucent's AOS-W system software which provides all the intelligence for the mobile edge.
- Mobility controllers which are centralized service delivery platforms for the mobile edge.
- Controlled access points (APs) which tunnel wired and wireless user traffic to mobility controllers over the LAN, WAN and the Internet.
- The Alcatel-Lucent Mobility Management System (OAW-MMS) provides a purpose-built network management system optimized for mobility. The OAW-MMS resides on a dedicated appliance extending the benefits of AOS-W integrated management across multiple mobility controllers.

Alcatel-Lucent's AOS-W System Software

Providing unified services to power the mobile edge, AOS-W is a comprehensive suite of system software for Alcatel-Lucent controllers and access points. AOS-W uniquely integrates services of security, mobility, application-awareness, management and RF-tuning together to deliver the most secure and reliable anywhere, anytime access for enterprise users. The total cost of ownership (TCO) is also lowered by unifying these services in software that run on the same hardware used to provide wireless LAN access – Alcatel-Lucent controllers and access points, so no extra server or specialty hardware is required. Furthermore, AOS-W is purpose built to add wireless LAN access on an existing wired network. AOS-W includes innovative technologies to enable non disruptive, low cost integration with existing networks.

The Alcatel-Lucent difference

- Enterprise-wide mobility with user profile roaming and remote-access provisions
- Better-than-wired security with a per-user firewall
- Low TCO with single unified system for security services
- Voice and data convergence support with application-aware access
- Simplified management with a single point of control for all controllers and access points
- Easy to design and install with adaptive radio management (ARM) for self-configuring WLANs
- Over-the-air reliability with a self-tuning RF footprint
- Enterprise-grade reliability with fully redundant architecture

Centralized Wi-Fi Switching
With AOS-W, installing and running a wireless LAN becomes simple. Controllers become the single point of configuration, management, security (one point of entry) and troubleshooting for all access points and wireless users. Additional centralized services include analysis tools, location tracking and more.

Sophisticated Authentication and Encryption
Enterprise users can be secured with one or more options of standards security mechanisms including 802.11i security.

Mobility Services
With central coordination, users can roam within and across IP domains without loosing their connection or impacting application performance – low loss handoffs.

Automatic Radio Management (ARM)
Over-the-air reliability is improved with built-in RF smarts called ARM that automatically calibrates access points for optimal coverage and channel usage, detects and corrects and coverage holes or RF interference, performs multi-band RF scanning and load-balances traffic.

N+1 Redundancy
Built-in redundancy mechanisms enable highest uptimes and fast recovery, in the event of unforeseen equipment or network outages.

Policy based access
Guests or non-employee connectivity is made possible with "internet-only" and time/location bound access policies.

Voice over Wi-Fi Services
Converged voice and data networks are supported with built-in voice classification and QoS mechanisms as well as other voice services such as call admission control (CAC) and load balancing.

Optional software modules

Wi-Fi Intrusion Detection: AOS-W gives administrators a single point of control from which to locate and shut down rogue APs, identify and thwart malicious attacks and impersonations. AOS-W includes the following optional software modules:

Policy Enforcement Firewall module

Wireless LAN access is made more secure than wired LAN access with per-user or per-group policies through an integrated ICSA certified stateful firewall. Security policies are centrally defined and follow users as they move across the enterprise connecting to different Alcatel-Lucent access points and controllers. Policies are enforced dynamically, taking into account a variety of metrics such as user location, time-of-day, device type, authentication method and others.

VPN Server module

External and discrete VPN concentrators are no longer needed. AOS-W has integrated support for a variety of virtual private network implementations including both client termination as well as site-to-site VPNs. Furthermore, hardware acceleration provides LAN-speed VPN connectivity. Supported VPN protocols include L2TP/ IPSec, IPSec/XAUTH and PPTP.

Wireless Intrusion Protection module

The new network edge (i.e., the wireless edge) is protected against malicious attacks to the wireless LAN (such as denial of service, client and AP impersonation, and man-in-the middle attacks) and also vulnerabilities in the network from accidental backdoors in the wireless LAN (such as rogue APs and ad-hoc networks).

Client Integrity Module

The wired and wireless network is protected against infection from malware such as viruses and worms on clients with client integrity enforcement capabilities. The Client Integrity Module integrates software from Symantec™ for host integrity, virtual desktop with file and cache cleaner and safe guest access with protection against 'zero-day' threats.

External Services Interface module

Extend existing network and application services such as anti-virus, network intrusion detection, content filtering, usage auditing, load balancing and health checking to the mobile network.

The ESI module interacts with existing network services either through an API or by selectively redirecting traffic, based on policy, to devices providing inline network services. ESI exposes multiple application programming interfaces including an XML-based user-control API for external management of mobile users, an API based on RFC 3576 for RADIUS-based dynamic authorization, and a control API based on industry-standard Syslog.

xSec module

Military-grade security for wireless and wired LAN access is possible with FIPS 140-2 certified, xSec security. AOS-W can terminate xSec client sessions with link-layer 256-bit AES-CBC encryption and complete header obscuration for highly sensitive environments. The xSec module also enables the encryption of trunk ports between multiple Alcatel-Lucent mobility controllers – based on the same strong encryption standard.

Remote AP module

Extend corporate-like WLAN access to telecommuters and remote offices without requiring sophisticated network infrastructure or even an Alcatel-Lucent controller at these remote locations. Alcatel-Lucent's centrally secured and managed remote-APs come with site-to-site VPN and split-VPN capability to securely and cost-effectively provide corporate wireless functionality at any location with an Internet connection.

Alcatel-Lucent Mobility Controllers: The intelligence behind the mobile edge

Alcatel-Lucent's OmniAccess Mobility Controllers completely change how mobile networks are deployed and managed.

In a mobile network, users can be anywhere, at office, on the road and even at home. Securing these mobile users and maintaining their access privileges while providing reliable wireless-tone is the core capability of mobility controllers. Alcatel-Lucent mobility controllers enable a mobility overlay, known as the mobile edge, which creates an envelope of secure mobile services around each user.

THE ADVANTAGE OF INTEGRATION

Enabling secure mobile services requires a combination of network elements and RF intelligence. Until now, enterprises have been forced to perform this integration with limited success. Alcatel-Lucent offers the only mobile security system with an integrated ICSA certified stateful firewall and hardware-based encryption. All Alcatel-Lucent mobility controllers combine powerful packet processing with 10/100/1000 Mbps Ethernet switching, stateful LAN-speed firewall, VPN termination, wireless intrusion protection, AAA, client integrity, captive portal and advanced RF management within a single network device. Alcatel-Lucent mobility controllers provide enterprises with complete control over the mobile environment.

All Alcatel-Lucent mobility controllers integrate non-disruptively into any existing L2/L3 wired network with no logical or physical re-configuration of the underlying transport infrastructure required. As a result, administrators are freed from the costly and time-consuming process of managing individual components of a mobile network and hundreds of individual APs and realize the ROI of mobility much faster than competing solutions. Further, as new mobile services added, they are easily implemented at the central controller and propagated throughout the enterprise.

ROI of mobility

"Enterprises deploy mobility to enhance knowledge worker productivity but often are slow to realize the gains due to complexities of adding wireless to existing infrastructure. New security components, existing network re-configuration and management costs quickly add up.

Alcatel-Lucent's unique integrated overlay approach is designed to simplify mobility and solve these issues."

Brad Noblet

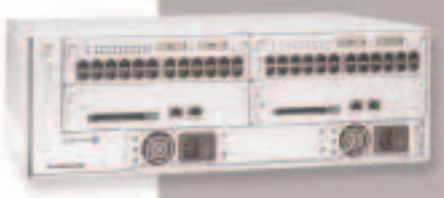
Dartmouth College

Deployment Scenarios and Applicable Platforms

Alcatel-Lucent mobility controllers are one of industry's highest performing and most scalable enterprise mobility platform. The product family includes a complete line of centrally managed modular and dedicated mobility controller systems, supporting everything from home offices and branch offices to regional headquarters and campus environments.

CORPORATE HEADQUARTERS: ALCATEL-LUCENT OMNIACCESS 6000

Alcatel-Lucent's flagship product, the modular Alcatel-Lucent OmniAccess 6000 (OAW-6000) is the most scalable mobility controller on the market. The four-slot OAW-6000 mobility controller delivers a high performing enterprise mobility platform. The Alcatel-Lucent OmniAccess 6000 supports up to eight Gbps of clear / 7.2 Gbps encrypted throughput, up to 72 10/100BaseT ports, over 8,000 simultaneous users and up to 512 access points.



OmniAccess 6000

REGIONAL HEADQUARTERS: ALCATEL-LUCENT OMNIACCESS 2400

The Alcatel-Lucent OmniAccess 4324 (OAW-4324) mobility controller is equipped with 24 10/100BaseT Ethernet ports and two Gigabit Ethernet (GBIC) uplinks. The OAW-4324 supports up to 48 APs and up to 768 simultaneous users. Designed for regional headquarters or dense office deployments, the OmniAccess 4324 delivers up to 400 Mbps of encrypted throughput.

OmniAccess 4324

REMOTE OFFICE AND BRANCH OFFICE: ALCATEL-LUCENT OMNIACCESS 4308

OmniAccess 4308

Designed for remote office applications, the Alcatel-Lucent OmniAccess 4308 (OAW-4308) mobility controller supports up to 16 APs and hundreds of simultaneous users. The OAW-4308 comes equipped with eight 10/100BaseT Ethernet ports and one 10/100/1000Base-T or one Gigabit Ethernet uplink. The Alcatel-Lucent OmniAccess 4308 delivers up to 200 Mbps of encrypted throughput.

RETAIL OUTLET: ALCATEL-LUCENT OMNIACCESS 4302

OmniAccess 4302

The Alcatel-Lucent OmniAccess 4302 is designed for branch office, retail store and small business applications and can be easily deployed as a single box mobile connectivity solution, centrally managed from the corporate headquarters or in a data center.

HOME OFFICE: REMOTE APS

OmniAccess Remote APS

Alcatel-Lucent remote AP software module enables any Alcatel-Lucent access point to be securely and easily connected from a remote location to an Alcatel-Lucent mobility controller across the Internet. It is ideal for home office telecommuters and mobile executives.

Mobility Controller Matrix	Alcatel-Lucent OmniAccess 4302	Alcatel-Lucent OmniAccess 4308	Alcatel-Lucent OmniAccess 4324	Alcatel-Lucent OmniAccess 6000
Max access points	6	16	48	512
Max 10/100BaseT ports	1	8	24	72
Max Gigabit Ethernet	1	1	2	6
Form factor	<1RU	1RU	1RU	3RU
Encrypted throughput	200Mbps	200Mbps	400Mbps	7.2Gbps
Max users	100	256	768	8192

Access Points

Alcatel-Lucent dependent access points (APs) when connected to an IP network will automatically discover an Alcatel-Lucent mobility controller, configure themselves, and begin operation. The mobility controller is responsible for downloading software images, configuring, and coordinating all dependent APs. APs continuously scan the RF environment, supplying information used by the mobility controller to optimize radio coverage and provide wireless intrusion prevention (WIP) without having to deploy a separate sensor network.

Alcatel-Lucent's dependent AP architecture coupled with radio planning optimization and workspace deployment options (e.g., desk, jack mount) greatly reduce WLAN deployment costs. IT staff can place APs, all of which support power-over-Ethernet (i.e., PoE), in employee cubicles leveraging existing Ethernet cabling. Alcatel-Lucent's Adaptive Radio Management (ARM) automatically determines the optimal RF settings eliminating the need for expensive site surveys. The chart below demonstrates how Alcatel-Lucent delivers a 60% reduction in AP equipment / installation costs in a workspace deployment in a cubicle office space environment.

INDOOR DUAL RADIO DEPLOYMENTS

The Alcatel-Lucent OmniAccess Access Point 70 (OAW-AP70) and 65 (OAW-AP65) dual radio APs provide access to 802.11g and 802.11a clients simultaneously. Dual radio deployments provide flexibility in choosing wireless client devices. In addition, these APs can perform wireless intrusion prevention (WIP) in both the 2.4 GHz and 5 GHz bands simultaneously.

INDOOR SINGLE RADIO DEPLOYMENTS

The Alcatel-Lucent OmniAccess Access Point 61 (OAW-AP61) and 60 (OAW-AP60) are single radio, multi-band 802.11a or b/g APs designed for deployments where all client devices are mandated to operate in a single band (e.g., 2.4 or 5Ghz). These APs are available at a lower price than dual radio offerings.

CHALLENGING RF INDOOR DEPLOYMENT

Challenging RF environments (e.g., warehouses, hospitals, retail stores) require the flexibility to choose from different antenna options. The OAW-AP70 and OAW-AP60 have antenna connectors that are used to attach the optimal antenna.

CEILING DEPLOYMENT

The Alcatel-Lucent OmniAccess Access Points 70/65/61/60 have the plenum rating required for mounting above the ceiling tile. For deployments flush with the ceiling tile, the OAW-AP65 is an attractive option.

WORKSPACE DEPLOYMENTS

Deployments in the workspace (e.g., on desks) can be an effective way to reduce installation costs in the enterprise office. The OAW-AP65 and OAW-AP61 are ideal for this scenario. Through a partnership with Ortronics, the Alcatel-Lucent is able to offer an AP, the "Wi-Jack", which can be mounted directly in an Ethernet wall outlet.

TELECOMMUTER DEPLOYMENT

While all AP models support "Remote Access Point" functionality, the Alcatel-Lucent OAW-AP65's small form factor makes it an ideal solution for the telecommuter to take home and on the road.

OUTDOOR/BRIDGING DEPLOYMENTS

The Alcatel-Lucent OAW-AP80 is designed for deployment outdoors and for bridging applications (e.g., connecting different buildings in the same campus).

	Indoor Access Points (APs)			Outdoor APs
	Alcatel-Lucent OAW-AP70	Alcatel-Lucent OAW-AP7066	Alcatel-Lucent OAW-AP61/60	Alcatel-Lucent OAW-AP80
Single radio			✔	
Dual radio	✔	✔		✔
Dual mode (AP and sensor) operation	✔	✔	✔	✔
Power-over-Ethernet (PoE)	✔	✔	✔	✔
Wireless bridging				✔

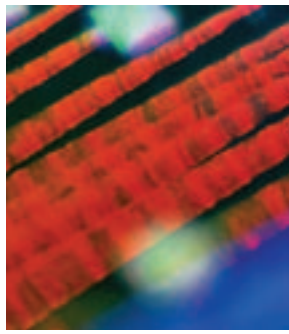
Centralized Network Management

Alcatel-Lucent enables management of mobile networks without requiring a dedicated network management appliance. Comprehensive network planning, configuration, and monitoring are all achieved with either a single mobility controller or a dedicated mobility management system (MMS). In both cases, the management interface is presented to clients as an intuitive graphical user interface (GUI). To extend management capabilities further, either system can be used with existing NMS systems and best of breed management tools.

- **Dependent AP:**
  Mobility controller automatically detects and configures APs.
- **Adaptive Radio Management:**
  No RF site survey required
- **Integrated wireless intrusion prevention:**
  No separate sensor network required
- **WLAN industry's only multi-function AP:**
  APs can function as AP, WIP sensor, or both simultaneously
- **60% reduction to AP equipment/ installation cost**
- **Wide range of APs**

INTEGRATED MANAGEMENT SYSTEM – AOS-W

Extensive management capabilities are built in to the base AOS-W, which comes bundled with every Alcatel-Lucent Mobility Controller. With AOS-W, a single Mobility Controller offers a local point of aggregation and management for an entire Alcatel-Lucent network. With integrated management, the configuration of one mobility controller is automatically replicated to other controllers throughout the network.



Alcatel-Lucent APs obtain their software image and configuration through a single master Mobility Controller. AOS-W integrated management provides the following capabilities:

Single Point of Reference
Single reference to track users and client devices, identify rogue devices, plan new deployments, enable troubleshooting of client issues, and visualize RF coverage patterns.

Scalable, Network-wide Management
Automatic discover and management of large networks with up to hundreds of mobility controllers and thousands of APs and users.

Real-time RF Awareness
View real-time RF coverage, automate calibration of power levels and channels, and perform location tracking of wireless devices User-centric Control – Expedite problem resolution with rapid scope and visualization of objects related to any network user.

Extensibility
Open architecture for integrating best-of-breed location and analysis tools via an open XML/SOAP API, allowing secure 3rd party access to current and historical data.

The Mobility Management System (MMS) provides a purpose-built network management system optimized for mobility. The MMS resides on a dedicated appliance offering the same benefits of AOS-W integrated management with the following added capabilities:

Dedicated Mobility Management
A standalone system optimized for mobile networks running converged applications.

Rolled-up Display
Dashboard tool provides a consolidated database view of the entire mobility system.

Long-term Storage
Perform historical analysis on archived network statistics and usage data.

Scheduled Reporting
Versatile scheduling engine will run reports, locate stations, and email reports at scheduled intervals.

Alcatel-Lucent Mobility Management System software can be deployed on a PC platform or optionally purchased as a robust, hardened network appliance system. The MMS consists of five targeted Java-based client-server applications that can be run individually or together:

Dashboard

Instantaneously assess the health of the mobility infrastructure, streamlining troubleshooting efforts. Dashboard provides rolled up displays of fault management information or detailed information on specific clients or APs.

RF Live

RF Live offers real-time visualization of the RF environment for pre-deployment planning or troubleshooting a production network. Signal strength and interference are displayed in the context of floor plans using coverage contours and colored heat maps.

Monitor

Monitor offers live graphing of network activity. By selecting any object, live graphs of the selected data can be created for enhanced visualization.

RF Locate

Track and locate any observed Wi-Fi device within range of the Alcatel-Lucent mobility infrastructure. Devices that can be easily located include PDAs, rogue APs/clients, VoWLAN phones, laptops, Wi-Fi asset management tags, and more.

Reports

Understand WLAN network health, usage trending and capacity planning with comprehensive reporting. Reports can be scheduled to run at configurable time intervals and sent via email or displayed on the GUI.

The Applications

The mobile edge is an enabling technology for new applications that can deliver increased productivity, cost savings, security improvements, and faster access to information that ultimately leads to better decision making. The mobile edge enables several major applications in the areas of mobility, security, and convergence.

MOBILITY

Guest Access

Provides controlled Internet access, both wired and wireless, to authorized visitors while keeping the internal network secure.

Internal WLAN Hotspots

Wireless LAN access for employee and visitor convenience in strategic locations such as conference rooms, lobbies, cafeterias, and auditoriums.

Enterprise-wide WLAN

Pervasive, highly-available, high-performance wireless LAN access throughout an entire enterprise building, campus, or extended enterprise.

Comprehensive Management

- **Flexible management options with integrated or dedicated systems**
- **Single point of reference and control for the entire mobile network**
- **Extensive fault management and network monitoring capabilities**
- **Automated site survey and real-time RF coverage views**
- **Extensible management architecture for integration with third party location and network analysis partners**

Remote/Branch Office Access

Secure extensions of the mobile edge to remote and branch offices using the Internet or enterprise WAN as transport.

Small Office, Home Office, and Road Warrior Access

Extends the mobile edge anywhere a user travels through portable, personal remote access points.

Secure Mobility for Legacy WLANs

Extends the life of existing wireless LAN deployments through enhanced security, roaming, and management.

Location Tracking

Uses an enterprise-wide WLAN deployment to provide precise location tracking of any Wi-Fi device in the facility.

SECURITY

Identity-based Security

Enhances security by identifying the business role of the user and then allowing only network access appropriate to that role.

WLAN Intrusion Prevention

Prevents radio-based security breaches by identifying threats to the network from attackers and uncontrolled wireless devices.

Endpoint Integrity

Ensures a defined level of client security, such as anti-virus, anti-spyware, or personal firewall software is present before network access is granted.

External Security Services

Integrates best-of-breed security appliances, such as anti-virus, content filtering, and IDS as interior network services that are client independent.

L2 Security for Wired LANs

Delivers mobile edge solutions such as encryption, mobility, and identity-based security to legacy wired LANs.

CONVERGENCE

Telephony Solutions

Provides the cost advantages of voice over IP with the mobility benefits of cellular voice.

Voice Instant Messaging

Enables hands-free voice communication through an innovative new class of voice instant messaging devices, enhanced with proximity sensing.

Converged Mobile Devices

Delivers quality of service and access control to unified communications messaging devices integrating multi-media services such as voice, data, email, and fax.

Fixed-mobile Convergence

Unifies public and private voice networks by providing seamless handoffs between networks for dual-mode cellular/Wi-Fi voice devices.

The Alcatel-Lucent Difference

Alcatel-Lucent's mobile edge architecture provides superior features and benefits to competing wired and wireless LAN solutions. With Alcatel-Lucent's mobile edge solution, enterprises can transform the network into a competitive advantage through a highly mobilized workforce with instant access to information. At the same time, the reduced infrastructure costs, increased security, and increased flexibility provide a powerful economic advantage.

ONLY ALCATEL-LUCENT DELIVERS:

1. Identity-based security to protect the network and mobile users

The mobile edge is, by definition, mobile. On the mobile edge any user can appear in any place at any time, so the network must recognize the user or device by identity. Identity-based security solves security problems by applying rules to people rather than to ports on the network, only permitting access appropriate to the business role of the user.

2. Non-disruptive integration into existing networks

The mobile edge must be cost-effective in order to enjoy widespread adoption. Deployment of the mobile edge cannot force large scale upgrades or changes to the existing infrastructure, nor can it force network downtime. The mobile edge must integrate into existing management tools, security monitoring systems, and auditing procedures.

3. Secure convergence for mobile VoIP and data services

The mobile edge must be multi-service. On the mobile edge, voice is a critical service. Voice over wireless LAN (VoWLAN) provides all the mobility benefits of cellular with the cost savings of VoIP and does not require expensive power upgrades to wiring closets. Newer dual-mode voice handsets operate over the enterprise wireless LAN wherever it is available, and over the public cellular network everywhere else, providing true cost effective voice mobility to users.

4. Adaptive radio management for self-configuring WLANs

The mobile edge requires adaptive control of the air. Radio frequency (RF) transmission is an inherent part of wireless, and one with which many network administrators are not familiar. The goal of any wireless deployment is to provide the required coverage while guaranteeing maximum performance. With the pervasive nature of wireless on the mobile edge, RF tuning cannot be a manual task that the network administrator must perform. RF management must be entirely automatic, reliable, and adaptable.

5. Remote extensions for instant enterprise hotspots

The mobile edge moves with the user. Users move outside the walls of the enterprise facility, yet still need access to enterprise voice and data networks. Left to their own devices, users will create their own version of the mobile edge wherever they need to – using DSL or cable connections at home, using open wireless networks at public hotspots, plugging into Ethernet jacks in hotel rooms, or connecting over public wireless networks such as GSM or EVDO. To avoid the support and security problems caused by this approach, the mobile edge must extend on-demand enterprise voice and data connectivity over the Internet to create secure personal hotspots wherever users need to work. These hotspots move with the user, but control and configuration remains with the network administrator.

6. Enterprise-grade scalability, reliability and performance

The mobile edge must be dependable. To realize the full benefits of the mobile edge, it must provide predictable, consistent performance and high reliability. The system should gracefully recover from all component failures with no network outage noticeable to the user. Performance should meet all requirements of mobile applications, and should remain high even in challenging RF environments. Finally, the mobile edge should grow with the enterprise without requiring additional people to manage it.

7. Open mobility platform for application development and integration

The mobile edge is a business-enabler. New mobile applications will create business opportunities and enhance existing ones, creating competitive advantages for users of the technology. Applications such as voice, location tracking, and sensor networks are the first purely mobile applications and more are being developed as mobile networks become more prevalent. In addition to mobile applications, new services are continually being developed for security, such as network-based spyware blocking, and convergence, such as fixed-mobile handoff and emergency call location tracking. The mobile edge must be flexible, extensible, and open to application development by best-of-breed vendors.

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