AVAYA

The Power of We™

Avaya Wireless LAN 8100 Series

The Avaya WLAN 8100 Series combines the latest 802.11n wireless standard with a new and truly integrated wireless/wired architecture for a stellar result – an advanced solution that delivers wired performance to wireless users at a lower total cost of ownership.

Optimized Support for Real Time Applications

With the explosion of mobile devices such as smart-phones and tablets within the enterprise, it is imperative that WLAN networks can handle this rapid growth. At the same time, networks must meet the stringent requirements that real time applications, such as video and voice, place on the Wi-Fi infrastructure. Avaya has designed the WLAN 8100 Series from the ground up to provide optimized support for real time applications and to provide anytime, anywhere access for the full breadth of enterprise applications. The series includes three primary components: WLAN Access Points, WLAN Controllers and the WLAN Management Software.

WLAN Access Points provide wireless access to mobile devices and perform encryption/decryption for wireless traffic, priority queuing and radio frequency (RF) monitoring, including rogue access point identification and containment.

Features include:

• One to three 802.11a/b/g/n radios

• Two spatial streams over integrated MIMO Antennas (2.4 GHz and 5 GHz)

• Integrated and external antenna options

• Simultaneous dual band operation (2.4 GHz and 5 GHz)

• Adaptive frame aggregation

• One GigE uplink port

• Full performance with current 802.3af Power over Ethernet standard

• Indoor and outdoor AP options

The New Era of Wireless Connectivity

The market is embarking on a new era where an enterprise's wireless network will deliver services at levels equivalent to wired LANs. This will enable office environments to be entirely wireless and integrated with existing fixed and cellular wide area networks, giving workforces seamless universal mobility both in and out of the office. This will require a true wireless broadband infrastructure capable of supporting all communications needs, including voice, video, unified communications, and other real-time applications. With the Avaya next generation WLAN 8100, the freedom of true high-speed wireless can transform the office environment.

WLAN Controllers control the access points and perform key centralized functions such as security, networking, quality of service (QoS), and roaming for mobile users. Controllers can be deployed as either standalone wireless controllers or integrated into the Avaya wired portfolio with the control capability running as a virtual machine on a server.

Features include:

- Support for up to 512 access points

- Scalable architecture with separate data and control planes, each of which can scale independently

- Expansion module for further scalability

- Ability to move data plane and/or control plane to core/edge switches

The WLAN Management Software is a comprehensive design and management tool that provides granular monitoring and reporting for complete visibility and control over the entire system. It integrates with Avaya Unified Communications Management.

By offering centralized management and eliminating the need to support multiple overlay networks—including LAN, WLAN, VPN, voice and network management—the WLAN 8100 Series can lead to significant operational cost savings. The series simplifies surveying, configuring, deployment, monitoring and reporting functions, and also includes self-diagnosing and self-healing capabilities to support mainstream WLAN applications as efficiently as possible.
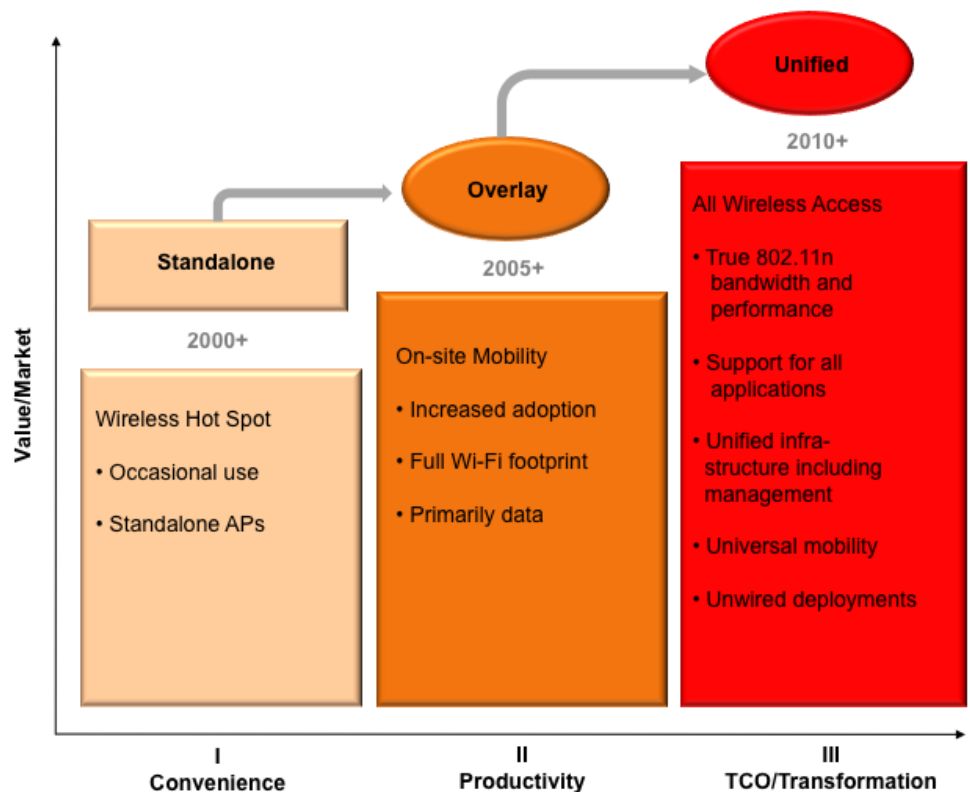
New Architecture for a New World

To help WLANs reach the speeds of wired LANs, Avaya has developed a new approach to solve old wireless traffic bottlenecks.

Traditional centralized architectures route all wireless control and data traffic through a wireless controller before forwarding it to its final destination. As more users join the network, traffic increases. Bandwidth-heavy applications such as video add to this congestion. Because everything on the network is forced through the same gate, the wireless controller becomes an unavoidable bottleneck and degrades performance.

Avaya next generation WLAN architecture decouples wireless control (management) traffic from wireless data (application) traffic, enabling increased resilience and performance, without sacrificing the ability to quickly increase network capacity.

By separating the control and data functions, the Wireless Control Point can run on virtual servers rather than dedicated network hardware. This not only increases network performance; it can reduce hardware costs and network complexity.

For enterprises using Avaya LAN Switching products, wireless switching will be implemented as a software function in Avaya-enabled core or access switches upon availability of next generation stackable Ethernet Routing Switches.
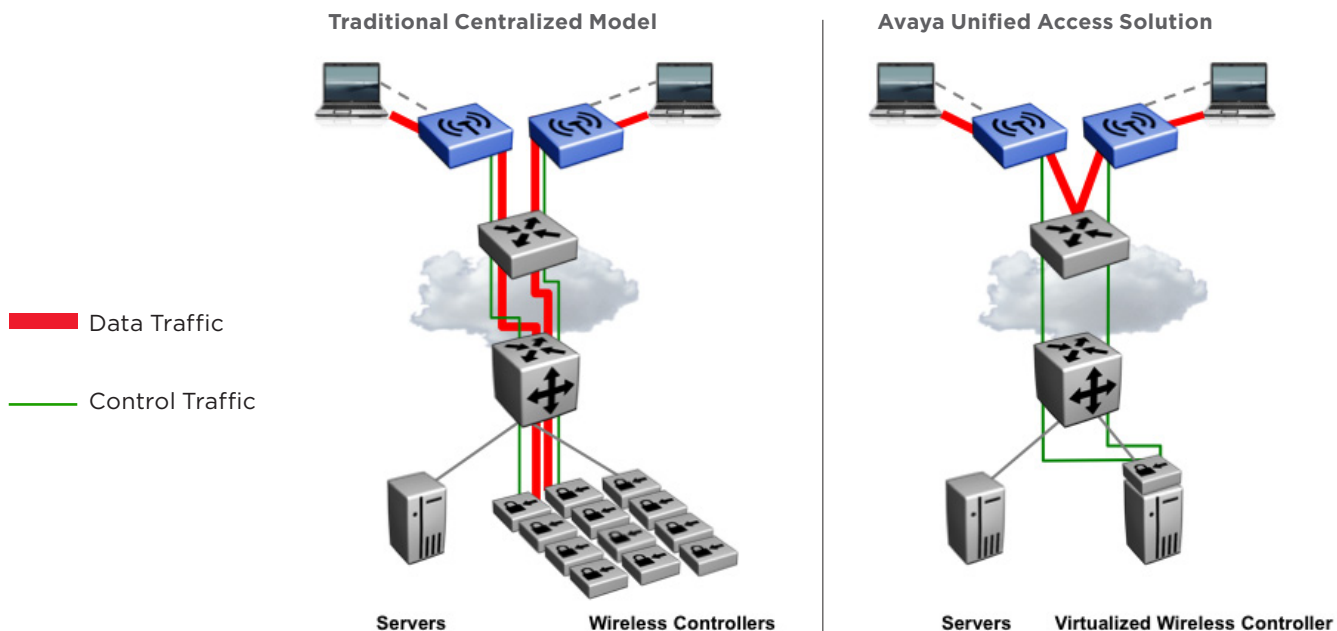
Key benefits of the Avaya VENA Unified Access architecture include:

• Optimized performance allowing wireless data to take the most efficient path through the LAN switches directly from source to destination, helping reduce latency and jitter to create a better user experience for real time traffic, such as voice

• Improved network resilience and flexibility through virtualization of the wireless control function

• Easy, independent scalability for wireless application and control traffic, allowing businesses to scale bandwidth in a sensible and efficient way, and enterprises to load services (such as mobility roaming) without limiting the domain size

• Reduced hardware and equipment costs through switch virtualization and more efficient data flow

Advanced Services for an Advanced Network

For wireless to truly become an end user's primary means of network access, it must be able to support the same applications that run over a wired LAN infrastructure. The WLAN 8100 provides optimized support for every aspect of an enterprise network including voice, unified communications, video, emergency location services (E-911 in U.S.), location tracking, guest management and advanced security, all with un- precedented reliability and resilience.

Traditional Centralized Model

Avaya Unified Access Solution

Data Traffic

Control Traffic

Servers Wireless Controllers

Servers Virtualized Wireless Controller

Avaya VENA*
Unified Access

The Avaya VENA Unified Access offers a unique, innovative approach to wired and wireless integration. It enables enterprises to build a unified infrastructure that can extend across the entire enterprise environment. By embedding wireless forwarding in the Ethernet switching infrastructure it solves the challenge of cost-effective scale and performance as media-rich collaboration and Bring Your Own Device (BYOD) descend upon the Enterprise.

Unified Access seamlessly combines Avayas WLAN 8100 wireless solutions with its Ethernet Routing Switch (ERS) 8800 by integrating wireless LAN forwarding directly into the switching architecture. This improves application performance and provides enhanced resiliency and scalability. Wireless management traffic is centralized to help ensure ubiquitous mobility to users as they roam and can be virtualized. And, because WLAN forwarding is integrated into Avaya's switches, wireless traffic is routed directly to its final destination, reducing latency and jitter and ensuring the optimal experience for real-time traffic such as voice and video.

Video

An increasing number of enterprises are relying on video to facilitate communication and reduce travel expenses. While video already represents a major driver of bandwidth consumption, this is expected to grow more rapidly in the next five years, placing increasing demands on the network in the process.

The WLAN 8100 Series Unified Access architecture efficiently routes high bandwidth video traffic and can quickly scale to meet the increased demand without additional hardware investment.

Voice

The WLAN 8100 delivers high-quality voice and converged services to achieve measurable user productivity improvement. By offering a single turnkey end-to-end mobility solution (the Avaya Mobile Collaboration solution), that includes networking and UC infrastructure, enterprise applications and services, Avaya can truly unify enterprise communications.

The Avaya VoWLAN solution includes:

- Industry leading voice and video call density per **access point**

- VIEW certification with Avaya Wireless Handsets for proven Wi-Fi interoperability and maximum performance

- VoWLAN clients offering full interoperability with Avaya IP PBX systems

- Voice calling from PCs with Avaya one-X® Softphone

- Advanced Call Admission Control (CAC) algorithms to help ensure excellent voice quality

Instead of simply counting calls like most competitive solutions, the Avaya Dynamic CAC solution takes into account bandwidth usage and changes in the RF environment. This allows more calls to be admitted while preserving optimum call quality. Three key parameters allow Avaya CAC to preserve optimum quality:

Media Measurement gives a holistic understanding of resource consumption for all sessions in progress, including RF bandwidth consumption, inter-ference and other factors. The product of these measurements constitutes a "utilization factor" that helps estimate traffic and call flow.

New-Flow Estimation lets new calls send mobile signals to the AP that specifies the traffic attributes and QoS requirements for a session. The New-Flow Estimator combines the resource requirements for the call with available resources in the network to estimate the total new resource usage.

Admission Decision decides whether or not to admit the new call based on the New-Flow Estimation. If enough resources are not available, Admission Decision can borrow bandwidth from other applications, enabling powerful resource sharing possibilities.

Emergency Location Services

While mobile communications offer many advantages, an emergency offers a unique challenge. E-911 tracking systems can be ineffective for WLAN handsets since a user with a Wi-Fi mobile handset can call from anywhere.

Traditionally, call locations were mapped to an originating static line. Since the advent of mobile phones and IP telephony, 911 emergency response systems have had to adapt to an environment where calls can be placed from almost anywhere and change at a moment's notice.

A number of solutions have tried to solve this problem with limited success. Most have been undermined by a presumption that a network's wiring structure doesn't change. While they allow for instantaneous identifica-tion of a call's origin, the entire network database must be updated the moment a single cable is moved or changed for the system to continue functioning.

With the WLAN 8100 Series, Avaya supports full E-911 VoWLAN integration. The WLAN 8100 Controller interfaces with the Avaya Communication Server 1000 call server or Avaya Aura® architecture to precisely identify the location of an emergency call. This is made possible by allowing the mobile handset or client application to communicate with the nearest AP to establish an emergency response location (ERL). In the event of an E-911 call, the ERL is relayed to emergency dispatchers. If the call location changes, dispatchers are updated in real-time.

ERLs are mapped to APs, thus covering the entire wireless network area. Because they are rarely moved, mapping devices to access points is an efficient and reliable way to establish their location and is resistant to disruption by future technological changes.

Guest Access and Management

Enterprise networks must be open enough to allow easy access for guests and temporary users, but secure enough to prevent these same users from accessing restricted information.

Guest access is one of the most pervasive applications of wireless networking, but most solutions require dedicated resources, such as front desk and IT personnel, in order to provision accounts. Privileged access to infrastructure devices can also open the core network to potential security risks.

The WLAN 8100 Guest Management solution provides enterprises with 24/7 guest network access without requiring the overhead of an IT helpdesk. The Avaya IDEngine Guest Manager generates a unique user ID and password for each visitor, providing secure, convenient network connectivity for guests and temporary users. User IDs come with specific security profiles that enable access only for specific resources and a limited amount of time. Guest provisioning can be generated automatically, or customized by front desk or IT personnel. Once a user has been provisioned, they have seamless controlled access through either wired and/or wireless infrastructures.

Avaya Guest Management solutions include:

• Authenticated wireless access using captive-portal for guest users and temporary staff with notebook PCs, tablets, PDAs or smart phones

• Simplified guest user provisioning by corporate end-users, which offloads the task of creating and managing guest user accounts from front desk personnel or IT staff

• The ability to allow partial access to specific parts of the network based on different guest user classes

Location Tracking

More businesses are embracing location tracking as a means to improve productivity and reduce costs. In certain environments, such as hospitals, knowing the location of a staff member or a specific piece of equipment can literally be the difference between life and death. For other enterprises, tracking equipment location can be a significant driver for cost savings.

Enterprises can implement location tracking for all 802.11 devices using active RFID tags and their existing WLAN infrastructure. Avaya Real

802.11n: A Truly Wireless Standard

The 802.11n standard brings wireless networking greater range and penetration than ever before. The standard adds multiple-input multiple-output (MIMO) antennas to wireless devices. In addition, with bandwidth up to 300 megabits per second, 802.11n is up to five times faster than the previous wireless standard for a true broadband experience.

Time Location Services (RTLS) allows enterprises to track personnel and assets as they move within the Avaya WLAN 8100 Series network. Easy to use, cost effective and accurate, Avaya location tracking is interoperable with any Wi-Fi-enabled device in the WLAN 8100 coverage area. To track non-Wi-Fi assets, Avaya offers battery-powered RFID tags that interact with RTLS servers and applications for comprehensive, real-time tracking.

Network Security

As with any network, security is a top priority for the Avaya WLAN 8100 Series. A holistic approach addresses security in a number of ways:

Authentication and Encryption keep user data secure and confidential. Built around the 802.11i standard, the WLAN 8100 Series supports WPA2, WEP, 802.1X and Proactive Key Caching; security measures that are more robust than most wired networks.

Wireless Intrusion Detection (WID) provides RF surveillance to detect rogue network activity and malicious attacks. WLAN 8100 provides basic WID capabilities and an advanced Wireless Intrusion Detection System / Wireless Intrusion Prevention System option for enterprises requiring greater security.

Unauthorized Access Point Protection finds and contains unauthorized wireless activity. The WLAN 8100 Series scans and maps the RF neighborhood, monitoring activity to help ensure only authorized access points are granted network access. Any unauthorized wireless paths into the network, such as peer-to-peer sharing programs, are isolated and contained.

Secure BYOD delivers secure network access to users and devices. Because most Wi-Fi devices are also mobile, they can connect to hundreds of networks in their lifetime. The WLAN 8100 Series supports 802.1X Port-Based Network Access Control for identifying users for authentication and authorization to an assigned virtual LAN. The physical or virtual WLAN Controller works closely with the AAA server to offload the 802.1X EAP protocol processing, reducing the burden on the AAA server. In addition, Avaya IDEngines Ignition Server provides centralized authentication and authorization for wired, wireless and VPN network devices, including:

- AAA identity-based network access control
- Easy-to-use standards- based policy engine
- RADIUS integration with all enterprise network equipment
- Quick and deep integration with major directories

Avaya Identity Engines also makes it easier and more cost effective for organizations to provide secure, controlled BYOD access to employees and guests on wired and wireless networks.

- The Identity Engines Access Portal "finger prints" devices, providing detailed visibility into the type and profile of BYOD devices being used on the network. For example, it allows IT staff to recognize whether users are connecting with an Android phone, iPad or laptop, and to tailor the access level appropriately.

- The Identity Engines Client Access to the Secure Enterprise (CASE) wizard is a dissolvable client that configures user devices for secure access without revealing shared keys or certificates. The CASE client is particularly useful when guests arrive with unmanaged personal devices that need secure limited access to network resources. The client configures such devices within seconds then disappears without a trace.

Always-On Architecture

Next generation WLAN solutions require high resiliency and ubiquitous WLAN coverage. The Avaya always-on architecture features a number of capabilities that maximize network uptime:

- Hitless failover without service interruption

- APs that dynamically map to controllers, optimizing auto-AP load balance

- AP/controller clustering support, many-to-many redundancy and the addition of new switches without

needing to configure changes and with zero network downtime

Each WLAN Controller 8180 comes with 16 or 64 AP licenses, with more available for purchase as needed. When fully operational, the WLAN controllers automatically load balance the APs. If a controller fails, licenses on that controller automatically shift to another. In the event of a hardware failure, this provides license failover and eliminates the need to purchase additional licenses. To get the same level of resiliency from other solutions, enterprises would have to purchase licenses on both controllers, doubling the cost.

WLAN 8100 – A Wireless Solution for a Wireless World

The WLAN 8100 offers the speed and security of a wired LAN with increased scalability, flexibility and resilience. A next generation solution that offers common policies and tools for security, guest access and network management, the WLAN 8100 is the cornerstone to a truly wireless environment. The Avaya WLAN 8100 Series leverages the rich heritage of carrier-grade voice and more than a decade of wireless innovation. A unique, wireless architecture allows the WLAN 8100 Series to adapt to enterprise needs as they arise using fewer components and more affordable hardware investments.

Move to the next generation of wireless without compromising speed, security or performance, all for a lower total cost of ownership.

WLAN AP 8120
Indoor, high performance, 802.11n, dual radio access point with integrated antenna.

WLAN AP 8120-E
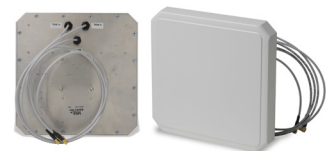Plenum-rated, two radio, 802.11n access point for use with external antennas.

Omni directional external antenna
External dual band MIMO antenna 180o for WLAN AP 8120-E (6 element).

WLAN 8120-O
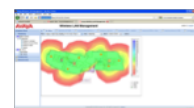Outdoor, two radio, 802.11n access point

Directional external antenna
External dual band MIMO antenna 70o for WLAN AP 8120-E (3 element).

WLAN Controller 8180
Two models: WC 8180: 64 license controller and WC 8180 -16L: 16 license controller.

WLAN Management System 8100
Comprehensive design and management tool license controller.

Top 10 WLAN 8100 Differentiators

1. **Optimized support for Business Applications**

   More than just web or email access, Avaya WLAN excels at voice, video and data

2. **Support for Advanced Wireless Applications**

   Out-of-the-box E-911 location tracking helps reduce integration costs

3. **Availability**

   Avaya WLAN supports load balancing, controller clustering and license pooling, delivering higher availability at a lower cost

4. **Scalability**

   Scale users or data paths independently as needed

5. **Performance**

   Avaya WLAN supports a high number of active Wi-Fi calls per access point

6. **Security**

   Much more than just WLAN security standards, Avaya provides full centralized (unified) network access control for both wired and wireless

7. **Network Management/Administration**

   Manage the ecosystem, not the box with integrated wired, wireless and voice network management from Avaya

8. **Architecture**

   Users receive equal levels of service whether running wired or wireless

9. **Total Cost of Ownership**

   Unified approach removes not only performance boundaries but also CAPEX and OPEX versus the overlay model

10. **Full Solution Provider**

    Avaya offers a true and proven end-to-end ecosystem, from critical unified communications applications through the access technologies, management and services

Learn More

To learn more and to obtain additional information such as white papers and case studies about Avaya Wireless LAN contact your Avaya Account Manager or Authorized Partner or visit us online at **www.avaya.com**.

About Avaya

Avaya is a global provider of business collaboration and communications solutions, providing unified communications, contact centers, networking and related services to companies of all sizes around the world. For more information please visit **www.avaya.com**.