hoangco
Technologies

A Partner of ADTRAN Communication

INTRODUCTION

Wireless LAN system for Enterprise

iCloud vWLAN Management Controller

Wireless Access Solutions

Bringing the Power of Virtualisation to Wireless—vWLAN

Next Generation Wireless Solution

Today's enterprise communicates wirelessly. Users now carry multiple devices that need to connect to the enterprise Wi-Fi network from any point in the building and across the campus. These devices are mobile and are accessing applications that demand higher bandwidth. Wireless connectivity in the enterprise has moved from the access of convenience to the access of choice. Traditional enterprise wireless networks were designed before the explosion of Wi-Fi enabled devices and are now straining under the demand to support more devices, more access points, wider mobility, and greater bandwidth. A more scalable, cost-effective solution has emerged that leverages the power of virtualisation to solve the scale challenges of the enterprise wireless network.

Network Virtualisation

One of the most significant developments in enterprise computing is virtualisation. Virtualisation optimises the computing power of an enterprise allowing for cost-effective scaling of critical applications. Single purpose servers that are tied to only one application or operating system sub-optimise computing resources, and are a relic of a past era in computing. Yet this outdated approach is exactly the design of most conventional WLANs. The answer from most WLAN companies was to build bigger and bigger controllers. And with the advent of higher data speeds and more users, the burden of the controller only becomes greater. ADTRAN took a different route, unshackling the wireless network from the limitations of an expensive physical controller. Rather than building a bigger, more expensive hardware controller, ADTRAN merged the power of virtualisation with the wireless network—creating the next-generation enterprise wireless solution—Bluesocket virtual Wireless LAN (vWLAN).

The Bluesocket vWLAN solution eliminates scaling constraints imposed on the enterprise wireless network by eliminating the hardware controller, and virtualising the control and management of the software to run on a hypervisor (VMware). This fundamental shift brings extraordinary benefits.

Scalability

In conventional controller-based networks, scale is tied to a single purpose device which is the hardware controller. Adding more users and more access points causes the enterprise to buy a bigger controller or add additional controllers. The introduction of 802.11n, which increases bandwidth demand three- to five-fold, also drives the need to buy larger controllers. vWLAN breaks this constant upgrade cycle. Most large hardware controllers support approximately 150 Access Points (APs) and 4,000 users. A single software instance of vWLAN supports 1,500 APs and 48,000 users.

In conventional controller based networks, scale comes at a high price both in terms of OPEX and CAPEX because a single-purpose server is required. This is not the case with vWLAN. With vWLAN, the controller is software on a hypervisor. The cost of this virtual controller software is zero.

Security

Virtualisation not only unlocks cost effective scalability but also enhances the security of enterprise wireless networks. Traditional controller-based networks have two security vulnerabilities. First, unwanted traffic actually enters the LAN through the thin, unintelligent access point. Only after the traffic reaches the controller is unwanted traffic discarded. Why bring unwanted and potentially harmful traffic onto the network? With conventional WLAN architecture, there is no other choice, but vWLAN provides a more secure solution. vWLAN uses intelligent access points that operate a stateful firewall. Unwanted traffic is turned away at the access point before it enters the network and becomes a security problem.

Second, a centralised physical controller is a target for hackers. This device is in the data path and therefore serves as a convenient point to intercept traffic. vWLAN eliminates this vulnerability by keeping the data sessions on the LAN. Only control traffic is centralised. And this centralisation occurs in the enterprise data centre as opposed to a single server.

Reliability
ADTRAN's vWLAN brings wireless reliability to a whole new level. In vWLAN, the user data stream or data plane is separated from the control information about the data session. This separation of the control plane and data plane increases reliability. In the conventional controller-based approach, any failure in the control plane interrupts the data plane. In vWLAN, the data session is the priority. The control plane can be completely lost and the user data sessions remain intact.

This separation of control and data allows vWLAN to support hitless failovers. A secondary virtual control instance can back up the primary control. If an access point loses connection with the primary virtual control instance, it will realign with the secondary control. This re-establishment of the control plane takes place with zero packet loss to any of the data sessions.

802.11ac-ready
The next-generation wireless LAN standard – 802.11ac, is just around the corner bringing Gigabit speeds to the wireless network. This will present a similar challenge as the introduction of 802.11n—the faster AP throughput requires a forklift upgrade to the backend hardware controllers to handle the higher throughput.

vWLAN breaks this upgrade cycle. With vWLAN's distributed data plane architecture, customers do not need to upgrade controllers ever again, providing a solution that is future proof ensuring customers can confidently adopt 802.11ac when it arrives.

Wireless Access Points
ADTRAN's Bluesocket family of high-performance APs is the perfect fit for enterprises, educational institutions, hospitality, and healthcare providers who are looking to move their organisations to a pervasive mobility environment. The Bluesocket portfolio of 1800 and 1900 Series of enterprise-class APs are completely plug-and-play requiring no manual configuration. They include MIMO, beam-forming and high RF transmit power to deliver industry leading throughput and performance. Whether you want to expand wireless coverage in your office or deploy across an entire campus, the Bluesocket APs are designed to meet your needs.

vmware
PARTNER
TECHNOLOGY ALLIANCE

Virtualising the Wireless Network

ADTRAN's next-generation vWLAN architecture brings all the benefits of virtualisation to the wireless network. vWLAN unifies wireless and existing wired networks to produce a truly integrated and optimised networking solution. vWLAN enables customers to dramatically reduce the cost of deploying and operating large-scale Wi-Fi networks while providing wired-equivalent performance to wireless users, with seamless roaming and enterprise-class security and policy management.

Simplified Scalability

vWLAN architecture was designed around a concept of simplified scalability and flexibility. In the era of wireless advancements including 802.11n, voice, and larger wireless networks; maintainability and Total Cost of Ownership (TCO) are at the forefront of new network designs. vWLAN removes the complexities and limitations of dealing with controller capacity by centralising the management and control functions. Further advantages are gained with security and mobility distributed at the edge of the network, the logical placement in networks that are designed for scalability and high availability. Adding additional access points to the vWLAN system is as easy as installing an ADTRAN software license, which extends coverage to thousands of APs without needing to worry about controller capacity or adding additional hardware.
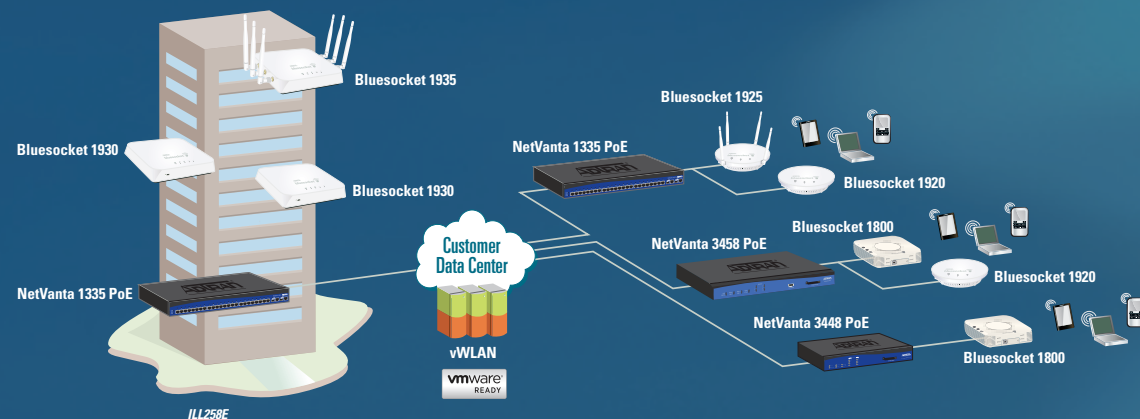
Unprecedented Wireless Security

The Bluesocket vWLAN solution was designed from the beginning with security in mind from both the client side and network side of the system. The Bluesocket APs control the data plane and include a built-in stateful firewall that enforces security policies at the edge to turn away malicious traffic before it hits the LAN. In addition, with Wireless Intrusion Detection System (W-IDS) as a standard feature, comprehensive user authentication options, support for multiple encryption protocols, combined with role-based authentication, Bluesocket vWLAN ensures a secure wireless environment.

Optimised Performance

With vWLAN, 802.11n system capacity is no longer computed by the backplane capacity of the hardware-based controller; rather, it's determined by the aggregate throughput of the APs. This is a revolutionary change from traditional, centralised wireless LAN solutions. The vWLAN distributed architecture enables a tenfold increase in total capacity.

Because the packet forwarding functionality is offloaded from the controller to the access point, the controller is free to now manage thousands of AP's and tens of thousands of users.

Bluesocket 1935
Bluesocket 1925
Bluesocket 1930
NetVanta 1335 PoE
Bluesocket 1920
Bluesocket 1930
Bluesocket 1800
NetVanta 3458 PoE
Customer Data Center
Bluesocket 1920
NetVanta 1335 PoE
NetVanta 3448 PoE
vWLAN
vmware READY
Bluesocket 1800
ILL258E

Businesses of all Sizes

vWLAN provides a flexible solution that can operate in multiple deployments from a branch office to a large campus environment while offering a lower cost of ownership and optimal performance. Remote offices deployments are demanding more from wireless LAN solutions and vWLAN responds by integrating flexibility into the security and data forwarding modules.

Wireless LAN systems, especially in large campus environments, are expected to provide minimal downtime as they support a significant number of users and critical applications. vWLAN addresses this requirement by providing a seamless, high availability solution that is transparent to the wireless users (with zero packet loss) while also providing flexible deployment options.

Virtualisation

By virtualising the centralised management and control function and making it available on a hypervisor, like VMware, ADTRAN removes 100 percent of the controller hardware, vastly reducing capital costs and TCO. This in conjunction with the other benefits that virtualisation provides like, speedy deployments, infinite scale and virtual consolidation across the organisation, makes vWLAN on VMware the most powerful and complete choice for an efficient, secure, high performing and cost-effective wireless LAN solution.

vWLAN Benefits

- **Eliminates the cost and constraints of a physical controller:** Eliminating the physical controller triggers a number of advantages not the least of which is cost. Both the initial CAPEX and the ongoing OPEX associated with the controller are gone.

- **Enforces network security at the edge:** vWLAN takes advantage of intelligent access points and enforces security policies at the edge. A full stateful firewall is configured and managed centrally but the policy is enforced at the access point.

- **Provides seamless, cost-effective scaling:** vWLAN separates the control and data plane. This allows for separate scaling and greater capacity. Adding more access points (data plane) does not drive an increase in the control plane. Likewise, adding more locations or more users does not require an additional investment in the control plane.

- **Optimises Performance:** With vWLAN, system capacity is no longer determined by the backplane capacity of the controller; rather, capacity is a function of the aggregate throughput of the APs.

- **Flexibility:** Virtualisation permits a single application to run independent of the underlying server infrastructure. A vWLAN control instance in one city can control access points anywhere in the world.

- **Reliability:** vWLAN can be configured in a high availability arrangement such that a failover can take place with zero packet loss. Reliability is based on the dependency of the data centre as opposed to a single purpose controller.

vmware
READY

Scalability and Simplicity Come Together

Remove the hardware controller from the wireless LAN and suddenly you remove complexity and add scalability. By virtualising the control of the wireless network, some amazing things happen. No longer is an enterprise tethered to the LAN for control of the wireless network. Control can happen anywhere. Need to add another AP or deploy a new site? No problem with vWLAN, an access point can be anywhere in the world. One instance of vWLAN can control and manage a worldwide deployment of access points.
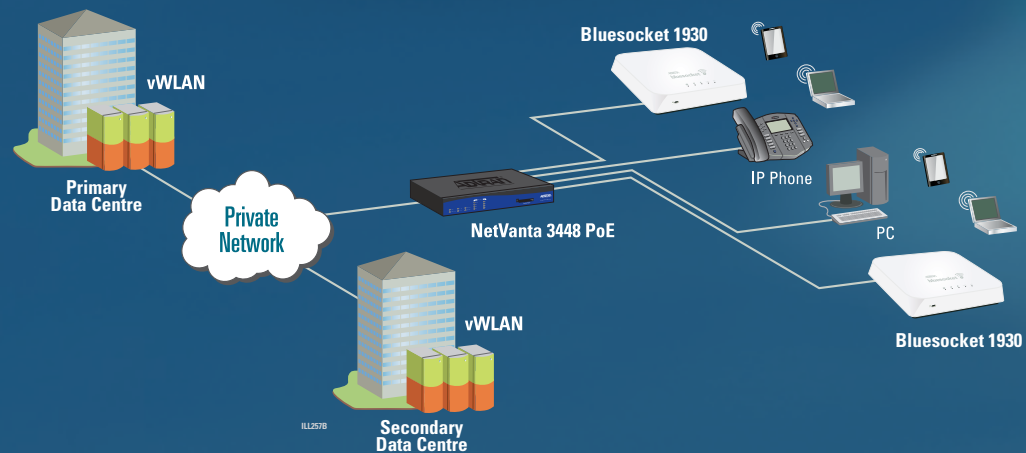
Manage from Anywhere on Any Device

Bluesocket vWLAN's unique architecture involves separation of the management and control plane from the data plane—these functions are virtualised and placed in a VMware environment in your data center. This enables network administrators to configure, control and manage APs located anywhere in the world, via a public or private cloud. This also ensures consistent policy management, seamless roaming, and the ability to trouble-shoot APs without physically traveling to each location. In addition, the GUI is built on HTML5 enabling network admins to access the management system from any mobile device including iOS-based smartphones and iPads, Windows or Android-based devices.

Flexible Role-based Access Control and Policy Enforcement

ADTRAN's unique role-based approach provides convenient management of privileges for different categories of users. The vWLAN solution matches user permissions to your organisational structure. IT Administrators can define destinations (such as a finance server, router or IP address subnet), services (such as HTTP, FTP, POP3), user locations, time/date schedules, and available bandwidth to control user access to each resource. Multiple service and destination groups simplify policy creation and reduce the complexity and cost of the administration of large-scale networks.

vWLAN

Primary
Data Centre

Private
Network

vWLAN

ILL257B

Secondary
Data Centre

NetVanta 3448 PoE

Bluesocket 1930

IP Phone

PC

Bluesocket 1930

Quality of Service for VoIP and Video

802.11n is a shared bandwidth technology, so network contention becomes an issue as the number of users and network traffic increases. ADTRAN overcomes this problem by providing administrators fine-grained bandwidth and wireless LAN prioritisation with Quality of Service (QoS) controls to ensure low latency performance for voice and video. ADTRAN's unique stateful packet inspection allows administrators to identify and secure dynamic, real-time voice protocols such as SIP, H.323 and SCCP and provides a complete platform for converged voice, video and data over a single wireless LAN infrastructure.

High Availability

ADTRAN's High Availability (HA) solution is designed to provide uninterrupted wireless LAN service and a hitless failover "Zero Packet Failover Event". This high availability scheme is based on installing a primary vWLAN software and a

hot-standby vWLAN software. Both vWLAN software can be deployed anywhere as long as ADTRAN's Bluesocket APs have connectivity to them (same building, across campus or over the Internet). If a Bluesocket AP were to fail to communicate to the primary vWLAN software it will seamlessly failover to the secondary vWLAN software, guaranteeing that existing authorised users will not lose a single packet and new users will be redirected to the secondary vWLAN software for authentication.

Key Features

- **Secure Mobility:** Gives users of mobile devices wireless access to corporate networks and the Internet while moving across subnets.

- **Flexible Role-Based Access Control and Policy Enforcement:** Provides convenient management of privileges for different categories of users.

- **Universal WLAN Authentication:** Provides comprehensive authentication options utilising username/password combinations or digital certificates, with the authentication database held locally or centrally in RADIUS, LDAP, NT Domain servers, or Windows Active Directories.

- **VoIP:** Security, maintained QoS, and fast roaming for VoIP.

- **High Availability:** Seamless failover with zero packet loss, no matter the location of the backup data center.

Enabling a profitable, Cost-Effective Wireless LAN Service

The Bluesocket vWLAN's unique virtualised, cloud-based control and management architecture is also revolutionising wireless LANs by enabling service providers to offer a hosted wireless LAN service leveraging their existing data centre and virtualisation investments—resulting in further market penetration, cost savings, and new revenue streams.

Multi-tenant Support

ADTRAN enables service providers to take hosted WLAN services to the next level with multi-tenant support— configure, control and manage users and APs for multiple tenants on a single Bluesocket vWLAN virtual software instance. With the vWLAN's virtualised infrastructure, service providers can now offer a cost effective, profitable wireless LAN service.

Simplified Integration

Bluesocket vWLAN Multi-tenant provides simplified integration allowing service providers to streamline operations and generate revenue faster. Bluesocket vWLAN provides APIs that allow integration with the existing provisioning system to automate creation of tenants and tenant administrators; SNMP traps allow simplified integration with the service provider's monitoring system; and Bluesocket vWLAN integrates with a carrier's or tenant's on-premise Authentication Server (802.1x/EAP Server, Radius or LDAP). In addition, service providers can setup site-to-site secure links (VPN or MPLS) with customers for monitoring and troubleshooting.

Granular, Customisable Administrator Access

The Bluesocket vWLAN's multi-tenant architecture allows the service provider to configure domain (tenant) administrators with varying degrees of access. This customisable approach allows the platform administrator (service provider admin) to configure all system-related items and create new domain administrators who have responsibility for a certain domain or tenant. These domain administrators are completely isolated from other domains, ensuring the highest levels of data privacy.

Flexible Management Options

Not all clients are alike and each client may require different levels of control over their wireless LAN environment. With Bluesocket vWLAN Multi-tenant, you can offer:

- **Hosted WLAN:** Control and management software resides in the service provider cloud and can be subdivided into domains; the administration rights for each end-user is configured by the service provider. The service provider can locate a secondary instance of the control software in a redundant data center or even on the end-user customers premises to ensure High-Availability (HA) and continuous WLAN service for customers.
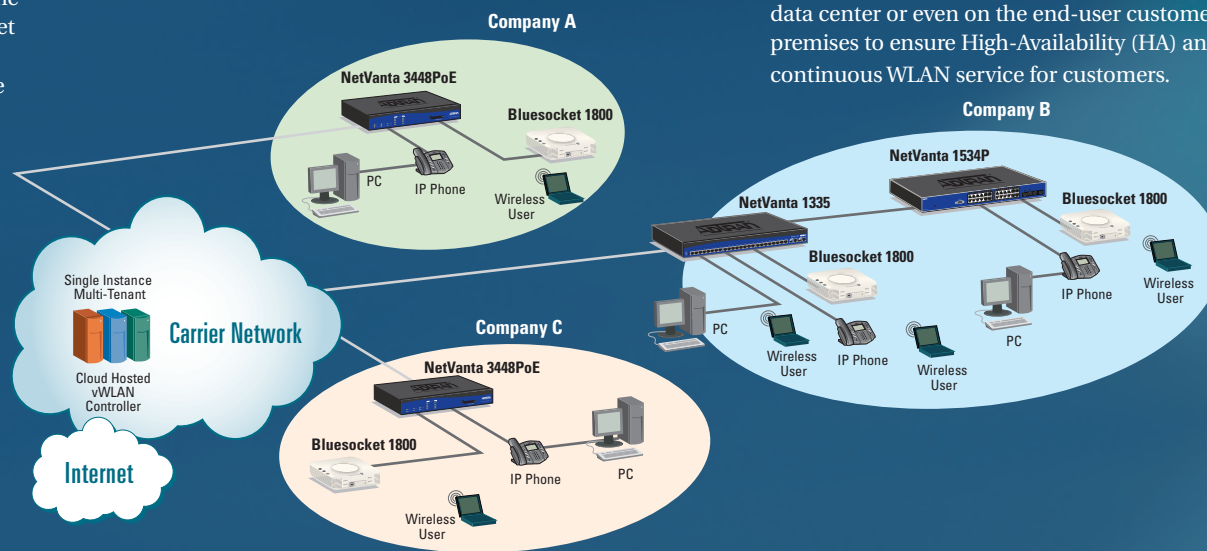
ILL282B

• **Managed WLAN:** The control instance resides with the customer, but the service provider takes complete responsibility for managing the client's WLAN environment. A backup instance of the control software can reside in the service provider cloud, in an HA configuration, to ensure continuous WLAN operations.

Reports and Alerts

Bluesocket vWLAN provides multi-level reporting based on user role. Clients can view detailed reports on the health of each AP, and can create custom dashboards that provide at-a-glance view of the health of the system. Service providers in turn have the ability to view the health of client environments as well as overall platform-level health information.

Multi-Region Support

Bluesocket vWLAN and the Bluesocket APs have been approved for use in all regions of the world. This allows service providers to address the needs of multi-national corporations, with offices in different countries, with a seamless, consistent wireless LAN offering.

Key Features

■ Cloud-based management and control

■ Supports multiple cloud connectivity options— public, private or hybrid

■ Secure TLS communication for control path

■ Supports multiple deployment models

■ Multi-level administration hierarchy

■ Simplified integration into existing Network Operations Center (NOC) environment

■ Security enforced at the edge

■ Complete isolation between NOC and client environments

■ Real-time alarms, logs and system health dashboards

■ Robust multi-level reporting

■ Business continuity and high availability

■ Simplified upgrades

Multi-tenant Administrator Model

Platform Administrator → Tenant Administrator (×4) → Tenant Domain
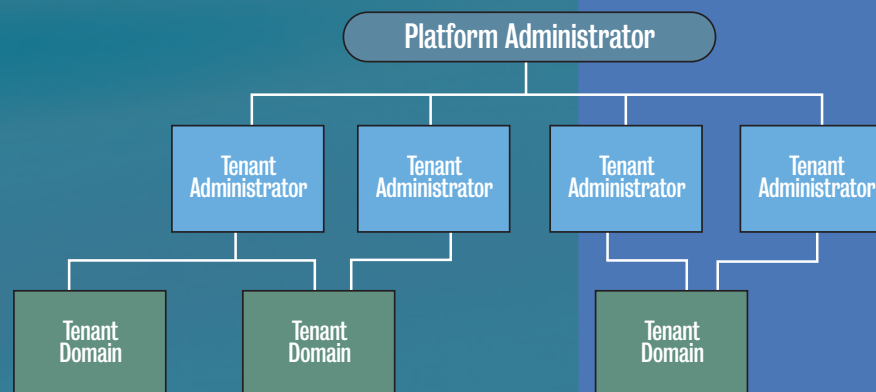
Carrier-Class Wi-Fi to Ensure Mobile Data Profitability

ADTRAN's Bluesocket vWLAN offers the world's first cloud-based Mobile Data Offload (MDO) solution for Communications Service Providers (CSPs). ADTRAN's fundamentally new approach is enabled by combining advanced vWLAN capabilities into a seamless mobile backhaul solution for a highly available, scalable solution capable of integrating into any network topology. ADTRAN's solution also addresses each area of network congestion for the carrier – cellular backhaul, Radio Access Network and enterprise access—and provides the means to eliminate the log jam created by the rapid rise in mobile data traffic.

ADTRAN's vWLAN Wi-Fi Offload Solution

ADTRAN's vWLAN Wi-Fi Offload solution provides a virtualised, carrier-grade architecture that complements existing fixed and mobile core networks. Implementation of the solution is seamless to both the subscriber and the mobile core, ensuring no disruption of service and an uncomplicated, rapid deployment.
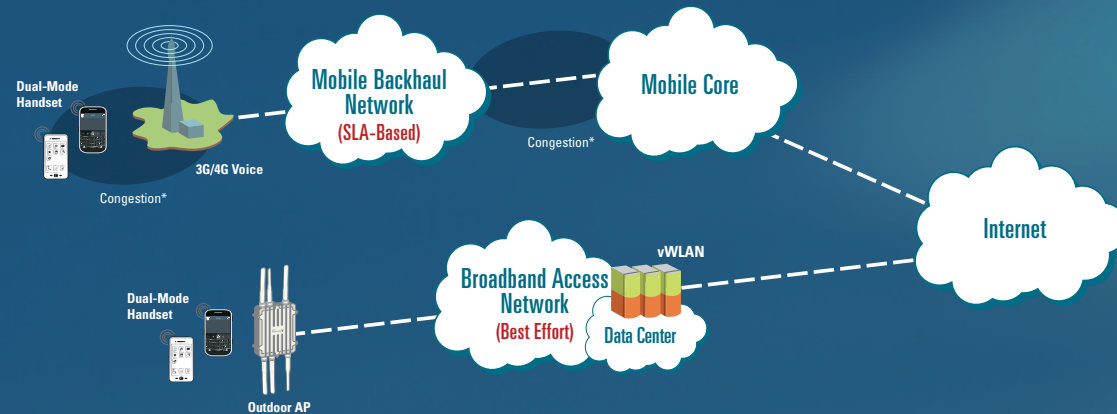
ADTRAN's vWLAN Wi-Fi Offload solution offers operators a seamless extension of their 3G and 4G networks that is easy and economical to implement and maintain. vWLAN enables operators to increase their network capacity immediately at minimal cost while providing the operator with complete control and management of the Wi-Fi offload network.

Since the mobile data traffic that is offloaded to the Wi-Fi network never routes through the local cellular towers or into the operator's Mobile Switching Center (MSC), the vWLAN Wi-Fi Offload solution frees up costly cellular assets to be better utilised wherever the operator sees fit.

Seamless User Experience

The vWLAN Offload solution employs the same subscriber authentication as the cellular mobile core. A connection manager on the subscriber's phone is set to automatically detect and select a Wi-Fi network without user intervention.

Dual-Mode Handset

3G/4G Voice

Congestion*

Mobile Backhaul Network
(SLA-Based)

Congestion*

Mobile Core

Dual-Mode Handset

Outdoor AP

ILL320C

Broadband Access Network
(Best Effort)

vWLAN

Data Center

Internet

*Mobile Offload via Wi-Fi Addresses Two Key Areas of Mobile Broadband Congestion: RAN Congestion and Backhaul Congestion

Cellular Friendly Hotspots

The rapid and widespread proliferation of Wi-Fi-enabled devices along with the growth of hotspot traffic became the drivers for change. According to the Informa Telecoms & Media, figures for 2011 put the total number of Wi-Fi hotspots worldwide at over 1 million. That number is forecasted to take a huge leap forward and grow 350 percent to nearly 6 million by 2015.

The Wi-Fi Alliance recently announced the Wi-Fi Certified Passpoint program (earlier known as Hotspot 2.0), designed to allow certified devices to discover and connect to certified hotspots. With Passpoint, a certified device would automatically discover and select the hotspot, connect, provide security, and support roaming agreements. Passpoint is designed to make Mobile Offload more seamless and encourage increased user adoption.

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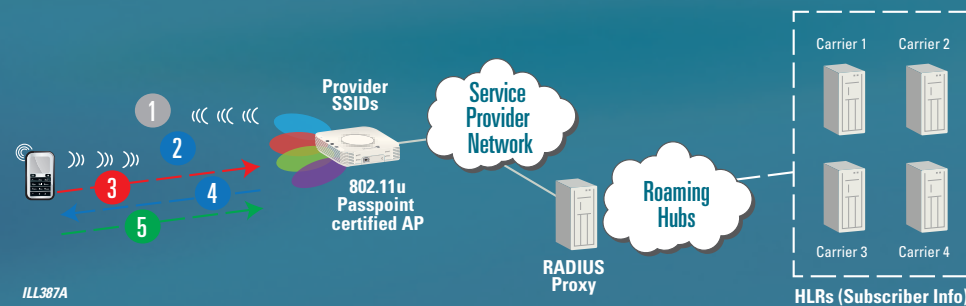
Bluesocket vWLAN Advantages

- **Cloud-Based Control:** Distributed data plane and centralised control plane allows for thousands of APs to be managed by a single software-based controller.

- **High Availability:** Geographically separated controllers that offer zero packet loss during controller failover.

- **Single Solution for Multiple Services:** Hosted/managed enterprise Wi-Fi, mobile offload, smart metering and other Wi-Fi enabled services from a single architecture.

- **Seamless Roaming** across Layer 2 or Layer 3.

- **EAP-SIM/AKA with Integrated AAA Support:** Ability for APs to communicate directly with AAA systems for user authentication.

Global Number of Public Hotspots
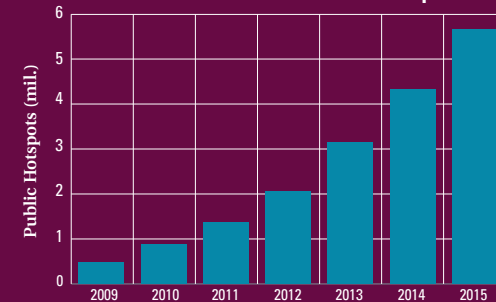
Source: Informa Telecoms & Media

Hotspot 2.0 allows for seamless and secure roaming between 3G/4G cellular networks and Wi-Fi networks. Seamless to the user, it is as simple and secure as roaming between cellular towers.

High-Performance, Plug-and-Play Access Points

ADTRAN's Bluesocket family of high-performance APs is the perfect fit for enterprises, educational institutions, hospitality, and healthcare providers who are looking to move their organisations to a pervasive mobility environment. The Bluesocket portfolio of 1800 and 1900 series of enterprise-class APs are completely plug-and-play requiring no manual configuration, and include MIMO, beam-forming and higher transmit power and receive sensitivity to deliver industry leading throughput and performance. Whether you want to expand wireless coverage in your office, or deploy across an entire campus, the Bluesocket APs are designed to meet your needs.

Comprehensive Portfolio for Multiple Deployment Scenarios

The Bluesocket 1800 and 1900 series include a comprehensive suite of 802.11n APs that range from cost-effective, smoke detector style APs to industrial-grade, weatherised outdoor APs, offering the flexibility to meet multiple deployment scenarios and budgets.

Whether you are looking to deploy a cost effective, yet high performance in-building wireless network or support a large convention centre with blanket wireless coverage or offer campus-wide coverage, the Bluesocket line of APs provides maximum coverage and performance at the right price point.

Higher Performance Wireless Solutions

The growing adoption of Bring Your Own Device (BYOD) among enterprises and educational institutions is driving the explosion of mobile traffic. Employees and students are constantly on the move, each bringing with them multiple wireless devices that require greater coverage, higher throughput and wider mobility.

The Bluesocket suite of high-performance APs includes Dual Radios with two streams or three streams, offering up to 900 Mbps data rates enabling organisations to confidently adopt BYOD. In addition, the Bluesocket APs offer higher receive sensitivity on both the 2.4 GHz and 5 GHz radios to compensate for mobile devices such as

smartphones and tablets that have a fraction of the transmit power of traditional laptops.

Zero Touch, Plug-and-Play Deployment

ADTRAN's Bluesocket APs are completely plug-and-play and self-configuring, requiring no manual configuration, ensuring faster deployment of your wireless network.

Unmatched Security at the Edge

The Bluesocket family of APs includes a built-in stateful firewall that enforces security policies at the edge to turn away malicious traffic before it hits the LAN. In addition, with Wireless Intrusion Detection System (W-IDS) as a

Bluesocket 1840
- Dual-band dual-radio, 802.11a/b/g/n, Indoor APs
- Six internal MIMO antennas (1800)
- Six external RP-SMA connectors (1840)
- 2x3:2 with data rates up to 600 Mbps
- Powered by 802.3af compliant PoE

Bluesocket 1920/1925
- Dual-band, dual-radio, 802.11a/b/g/n, Indoor APs
- Four internal MIMO antennas (1920)
- Four external RP-SMA connectors (1925)
- 2x2:2 with data rates up to 600 Mbps
- Powered by 802.3af compliant PoE

standard feature, comprehensive user authentication options, support for all encryption protocols, combined with Bluesocket vWLAN's role-based authentication, ensures a secure wireless environment.

DynamicRF Management

The Bluesocket APs incorporate DynamicRF that ensures your entire wireless network is setup with the right balance of channels and power. DynamicRF reduces the effort to setup and maintain your wireless network—the system detects any non-optimal environmental conditions, and can automatically adjust RF parameters, or provide administrators with a recommended list of changes.

Smart Bandwidth Management

Leveraging ADTRAN's technology leadership, the Bluesocket APs offer many Class of Service (CoS)/QoS components including granular bandwidth management, Wi-Fi Multimedia (WMM) enabled packet prioritisation, and packet remarking, to provide the highest level of performance.

Key Features

- Plug and Play deployments with "Zero-Touch" configuration
- High Performance 802.11n MIMO with up to three spatial streams
- Cloud managed for global scale with centralised control
- Supports multiple deployment scenarios
- Unmatched Security with built-in Firewall, enhanced authentication and encryption, and W-IDS
- Supports fast roaming
- Granular bandwidth management to optimise performance for specific devices
- Backed by ADTRAN's world class support network

"We needed a solution that would allow us to upgrade to 802.11n technology, accommodate the proliferation of devices hitting our network, and allow expansion cost-effectively and efficiently across remote sites."

Douglas Tamasanis, Senior Director of IT

KRONOS®

Bluesocket 1930/1935

- Dual-band dual-radio, 802.11a/b/g/n, Indoor APs
- Six internal MIMO antennas (1930)
- Six external RP-SMA connectors (1935)
- 3x3:3 with data rates up to 900 Mbps
- Powered by 802.3af compliant PoE

Bluesocket 1940

- Dual-band dual-radio 802.11a/b/g/n
- Outdoor AP with six external N-type connectors
- Ruggedised enclosure that's fully weather resistant
- 3x3:3 with data rates up to 900 Mbps
- Powered by 802.3at compliant PoE

WiFi CERTIFIED

Bluesocket APs Comparison Matrix

Model	BSAP 1800/1840	BSAP 1920/1925	BSAP 1930/1935	BSAP 1940
Type	Indoor	Indoor	Indoor	Outdoor
Deployment Scenario	High density – offices, schools, hospitals, retail stores	High density – offices, schools, hospitals, retail stores	Ultra high density – indoor arenas, conference centres, hotel lobbies, libraries	Ultra high density outdoors – warehouses, college commons, outdoor malls, harsh weather environments
Radio Specification	2x3:2 Dual Radio 802.11a/b/g/n, MIMO	2x2:2 Dual Radio 802.11a/b/g/n, MIMO	3x3:3 Dual Radio 802.11a/b/g/n, MIMO	3x3:3 Dual Radio 802.11a/b/g/n, MIMO
Antennas	1800 – Six internal antennas 1840 – Six external connectors	1920 – Four internal antennas 1925 – Four external connectors	1930 – Six internal antennas 1935 – Six external connectors	1940 – Six external connectors
Throughput	600 Mbps	600 Mbps	900 Mbps	900 Mbps
Physical Profile	Slim profile, mounts flush to drop ceiling	Ultra-slim, smoke detector style, round profile	Ultra-slim, square profile, mounts flush to drop ceiling,	Rugged industrial design, weather resistant, outdoor
Dimensions/Weight	W 8"x D 8"x H 2"/2 lbs	DIA ~6.5" x H 1.5"/0.44 lbs	W 6.5" x D 6.5" x H 1.5"/1.25 lbs	L ~10" x W 8" x H 3"/3.2 lbs
Power	802.3af PoE	802.3af PoE	802.3af PoE or 802.3at PoE+	802.3at PoE+
Enclosure	Plenum rated	Plenum rated	Plenum rated	Ruggedised, weather resistant
Warranty	1 year hardware	1 year hardware	1 year hardware	1 year hardware

Smart solutions for a connected world.

ADTRAN, Inc. is a leading global provider of networking and communications equipment. ADTRAN's products enable voice, data, video and Internet communications across a variety of network infrastructures. ADTRAN solutions are currently in use by service providers, private enterprises, government organisations, and millions of individual users worldwide.

Technical Questions
www.adtran.com/support

Training and Certification
www.adtran.com/training

Simple, Reliable, and Affordable

When you need a networking solution that fits the unique connectivity requirements of your business, ADTRAN is the smart alternative. Our product portfolio offers a breadth of solutions, including a product suite that is tailored to the specific needs of SMB and distributed enterprise customers. With ADTRAN's award-winning and innovative NetVanta switches, routers, multiservice access routers, VPN solutions, wireless, and Unified Communications products, it is easy to find a quality solution that is perfect for your specific network needs.

NetVanta products are backed by an industry-leading warranty, best-in-class technical support from our team of degreed engineers, and is eligible for free firmware upgrades. As a TL 9000 3.0 and ISO 9001:2000 certified supplier supporting next-generation quality standards, the company maintains in-house labs for reliability, component and compliance testing — all with a focus toward customer satisfaction.

High-touch Customer Support and Training

- **Customisable Installation and Maintenance Services Program.**
  The ADTRAN product warranty includes a return-to-factory repair and replacement program and free technical phone support. Technical support engineers are accessible for both pre- and post-sales support. ADTRAN Custom Extended Services (ACES) is also available for an extended guarantee and rapid response time. Priority access to technical support is guaranteed with a 30-minute call back and on-site product replacement in as few as four hours, depending on the service plan selected.

- **Comprehensive Training and Certification Services.**
  ADTRAN provides innovative training solutions designed with a focus toward varying skill levels and job functions. Professional certification programs are designed to help customers structure and individualise continuing education needs. Access to the certification and training programs includes both free and fee-based options. Sessions are available both on-and off-site, using Instructor-Led Training (ILT); Computer-Based Training (CBT); or virtual classroom training with real-time, Web-enabled classes.

Unified Communications
Software and Appliances

IP Business Gateway for Trunking and Hosted VoIP
NetVanta 6000 Series

Multiservice Access Router
NetVanta 3448, 1335

IP Business Gateways for Business Trunking
Total Access® 900/900e Series

Modular Access Router
NetVanta 3000, 4000, 5000

Fixed-port Access Router
NetVanta 3100

Ethernet Switch
NetVanta 1200s and 1500s

Access Points
Bluesocket 1800 and 1900 Series

hoangco

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vWLAN Cloud-Based Control & Management

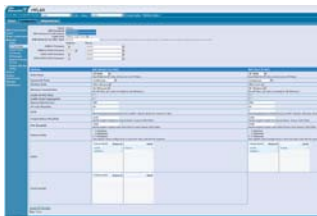## Virtualized Management for Maximum Scale, Reliability and Security

Product Features

- Cloud-based management and control
- Supports private and public cloud connectivity
- AP templates for simplified configuration
- HTML5 based GUI for mobile device access
- Conduct system diagnostics from Admin screen
- Multi-tenant support
- Real-time alarms, logs and system health dashboards
- Built-in Guest Access module
- Unified user access control for integrated wired-wireless user management
- Business continuity and high availability
- Simplified upgrades
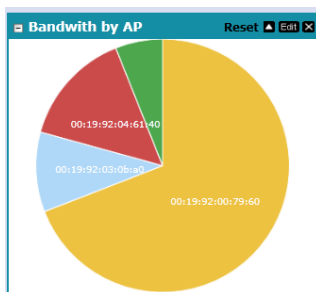
Track bandwidth usage to optimize capacity utilization

Pre-built templates simplify AP configuration

The ADTRAN® Bluesocket® virtual Wireless LAN (vWLAN) offers the industry's first cloud-based, virtualized control and management system for wireless LANs, eliminating physical, hardware-based controllers from the network. By removing 100 percent of the controller hardware, Bluesocket vWLAN® eliminates scale limitations, and enables centralized control and management of access points (APs) across multiple buildings, the corporate campus or across any geographic location.

Integrated Solution

The vWLAN's management and control software is a comprehensive, integrated system that allows you to:

- **Configure** and manage APs, SSIDs, licenses and Wireless IDS, setup users and define access controls, and manage guest access

- **Administer** AP configurations, firmware upgrades and patches, conduct system diagnostics, and backup and restore the system

- **Generate Status Reports** on APs, active users and locations; setup alarms, logs and dashboards, and create status maps using multiple filters

Manage from Anywhere on Any Device

The Bluesocket vWLAN's unique architecture involves separation of the management and control plane from the data plane - these functions are virtualized and placed in a VMware® environment in the data center. This enables network administrators to configure, control and manage APs across multiple locations anywhere in the world, via a public or private cloud. This also ensures consistent policy management, seamless roaming, and the ability to troubleshoot APs without physically traveling to each location. In addition, with HTML5 elements, and no flash components, network admins can access the system from any mobile device including iOS-, Windows- or Android-based smartphones and tablets.

Custom Dashboards, Granular Reports

Bluesocket vWLAN provides multi-level reporting based on user role. Clients can view detailed reports on health of each device (AP), number of active users and locations, and create custom dashboards that provide at-a-glance view of the health of the system.

Templates for Faster Configuration

Bluesocket vWLAN includes the concept of AP templates that have prepopulated data to simplify configuration of groups of APs. Each template has its own unique configuration for settings, radios, firmware, and SSIDs. Simply create a template, and apply it to one or a group of APs in a domain or location without having to individually configure each AP. This simplifies large multi-site deployments by providing the ability to group APs, and applying configurations in bulk.

Multi-tenant Support

Bluesocket vWLAN is revolutionizing wireless LANs by enabling enterprises and service providers to take it to the next level with multi-tenant support – support multiple client domains (tenants) on a single instance of Bluesocket vWLAN. Now you can configure, control, and manage both users and APs for multiple tenants on a single Bluesocket vWLAN virtual software instance. This allows Managed Service Providers to offer a hosted WLAN service to multiple clients, who each may have their own security or access requirements.

Wired and Third-party AP Users Support

Bluesocket vWLAN offers the industry's first software-enabled support for both wired and wireless users. This is a software upgrade option that allows integrated management and control of all users irrespective of method of access – Bluesocket APs, wired ports or even from any third-party AP. This simplifies administration, and enables an enterprise to create a truly unified wireless and wired network providing a seamless user experience, and consistent authentication irrespective of a user's access method.

Business Continuity

A key feature of Bluesocket vWLAN is the ability to provide High Availability (HA) by simply creating an additional instance of the virtualized software in the backup data center and upgrading the AP license to HA mode. In the event of losing network connectivity to the primary instance, the APs will automatically switch over to the backup vWLAN instance with "zero packet-loss". Even if the primary instance of the platform itself fails, client APs are automatically pointed to the secondary instance ensuring business continuity for the service provider.

Configurable Alerts and Notifications

Network administrators can configure several types of notifications to be kept apprised of the functionality and condition of the vWLAN domain. The types of notifications can be configured based on hierarchy and access rights of administrators –the root administrator can create alerts about the domain, such as high CPU or memory usage on the vWLAN system; domain administrators can set alerts that can include information messages, SNMP traps, syslog notifications, email notifications, and any outstanding administrative tasks specific to a domain.

Supported Interfaces

Bluesocket vWLAN supports the following primary northbound interfaces – syslog, SNMP Traps, RADIUS and Email – to track and provide alerts on the overall system or individual domain.

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TL9000
TL19.1270

NSAI

TL 9000
TELECOMMUNICATIONS
ISO 9001:2000
QUALITY
ISO 14001
ENVIRONMENT

ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

vWLAN Cloud-Based Control & Management

Virtualized Management for Maximum Scale, Reliability and Security
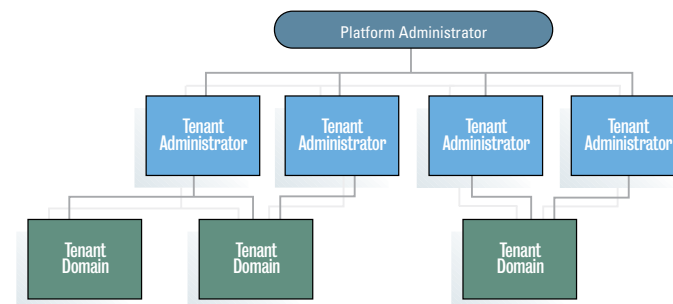
Status Dashboard
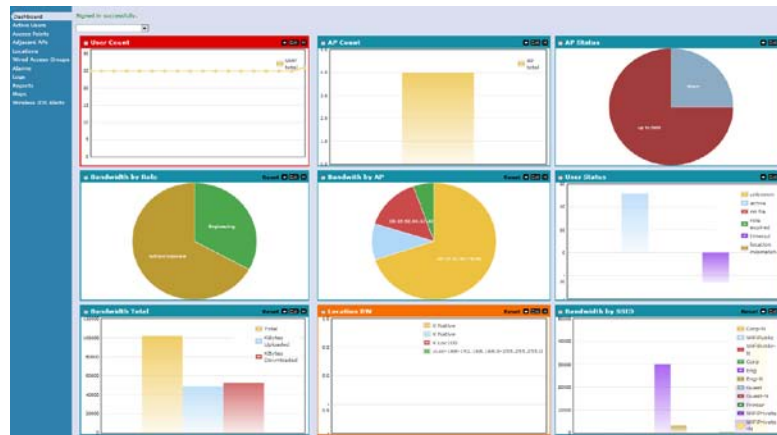
Configurable dashboards provide system health at-a-glance

RF Heatmaps

Import floor maps and model RF coverage characteristics

Multi-Tenant Administrator Model

Ordering Information

Equipment	Part #
vWLAN Control and Management Software For existing VMware ESX/ESXi platforms	1951900G1
Access Point vWLAN Software License	1951901G1
Bluesocket 1800 Access Point: 802.11a/b/g/n; 2x3:2 with six internal MIMO antennas	1700910F1
Bluesocket 1840 Access Point: 802.11a/b/g/n; 2x3:2 with six external RP-SMA connectors	1700911F1
Bluesocket 1920 Access Point: 802.11a/b/g/n; 2x2:2 with four internal MIMO antennas	1700954F1
Bluesocket 1925 Access Point: 802.11a/b/g/n; 2x2:2 with four external RP-SMA connectors	1700955F1

Equipment	Part #
Bluesocket 1930 Access Point: 802.11a/b/g/n; 3x3:3 with six internal MIMO antennas	1700950F1
Bluesocket 1935 Indoor Access Point: 802.11a/b/g/n, 3x3:3, with six external RP-SMA connectors	1700951F1
Bluesocket 1940 Outdoor Access Point: 802.11a/b/g/n, 3x3:3, with six external N-type connectors	1700952F1
Access Point High Availability Software License	1951904G1
Access Point Unified User Access (Wired and Third- Party AP Support) Software License	1951910G1

Bluesocket BlueSecure Controller Family

Product Features

- Architecture supports future 802.11 standards and access points from all major vendors without architectural changes or the need for costly infrastructure upgrades.

- Simple, centralized WLAN deployments from the network edge to the core.

- Open, multi-vendor end-to-end WLAN solution that integrates easily into existing infrastructure.

- Seamless Layer 3 roaming without the need for additional or proprietary client software.

- Flexible policy enforcement: Role, Time, VLAN, Services, Bandwidth/QoS.

- Universal WLAN authentication for diverse users/devices.

- Protects networks from unauthorized users with strong data encryption.

- Intrusion detection and worm protection, with optional client scanning for endpoint security.

- VoIP—QoS and Bandwidth Management to prevent network contention issues.

- Integrated, full service guest access.

- Supports high availability configurations for seamlessly failover

Open solutions to secure and manage WLANs from the branch office to the enterprise.

Wireless local area networks are being deployed at a record pace as the need for mobile connectivity both within and outside the workplace increases. By equipping employees with mobile devices, leading-edge enterprises remove the barriers to networking and communication, increase productivity, and gain competitive advantage.

Even with the obvious cost savings and productivity gains, wireless LAN technology presents significant challenges for IT professionals. How do you support a growing number of wireless devices and competing standards, protect valuable computer resources from the growing threat of Internet viruses and worms, overcome bandwidth limitations, protect the network from unauthorized users, and integrate your WLAN into an existing wired infrastructure? The answer—ADTRAN®'s Bluesocket®'s BlueSecure Controller family.

Utilizing Bluesocket Secure Mobility® technology for wireless data and voice applications, the BlueSecure Controllers provide high-performance, reliable, policy-based WLAN security and management solutions that have been deployed by hundreds of large institutions, enterprises, and public access providers. The Bluesocket BlueSecure Controller family supports edge-to-edge direct forwarding

Enterprise-wide WLAN Solutions from the Edge to the Core

The Bluesocket BlueSecure controllers are one of industry's highest performing and most scalable enterprise mobility platforms. Designed to scale from small branch and regional offices to large enterprises requiring higher throughput and centralized WLAN management and control, the Bluesocket BlueSecure Controllers support your WLAN deployments from the network edge to the core.

Future Ready Platform Supports Third Party Access Points

Bluesocket's "standards agnostic" approach is optimized to support wireless devices and access points from all major vendors, and support for current and future 802.11 versions. This open systems approach means you won't be locked into a specific technology or vendor, thereby ensuring interoperability with your current and future WLAN infrastructure. This unique "open system" functionality, eliminates the need for costly "rip and replace" upgrades.

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Bluesocket BlueSecure Controller Family

Open solutions to secure and manage WLANs from the branch office to the enterprise.

Secure Mobility Adds New Meaning to Wireless LAN Security

Bluesocket's patented Secure Mobility technology gives users of laptops, tablets and other mobile devices wireless access to corporate networks and the Internet while moving across subnets. Secure Mobility gives users freedom to work where they choose—letting them roam seamlessly across networks, even while making a voice call or using a VPN, like PPTP, without the need to-reauthenticate. Secure Mobility technology is compatible with, and enhances current WLAN security standards such as 802.1x, WPA and 802.11i without requiring additional or proprietary client software.

Flexible Role-Based Access Control and Policy Enforcement

Bluesocket's unique role-based approach provides convenient management of privileges for different categories of users. The BlueSecure Controllers match user permissions to your organizational structure. IT Administrators can define destinations (such as a finance server, router or IP address subnet), services (such as HTTP, FTP, POP3), user locations, time/date schedules, and available bandwidth to control which users have access to each resource. Multiple service and destination groups simplify policy creation and reduce the complexity and cost of administration of large-scale networks.
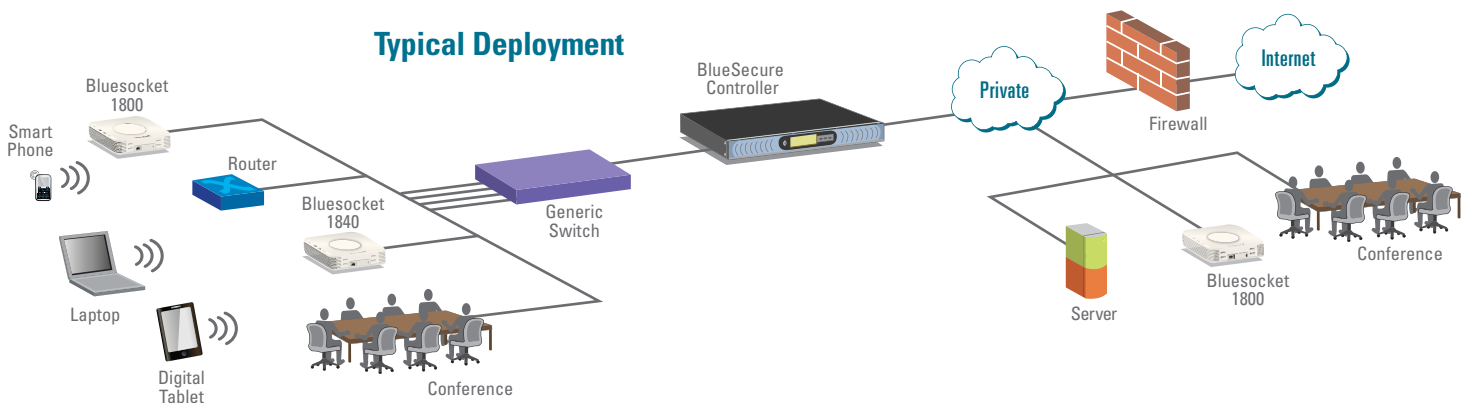
Universal WLAN Authentication

The BlueSecure Controller provides comprehensive authentication options utilizing username/password combinations or digital certificates, with the authentication database held locally or centrally in RADIUS, LDAP, or Windows Active Directories. Where AP-based WPA/WPA2 802.11i authentication is required, Bluesocket complements the login process transparently, allowing appropriate access for the WLAN user. Where browser-based, secure (SSL) login is required (e.g. hot spots, universities, guests/visitors), Bluesocket supports a customizable web-login page that allows end-user branding and an ability to upload third-party SSL certificates. Where "non-intelligent" devices need WLAN access, MAC-based authentication and role/VLAN assignment is supported, providing true wireless fire-walling capabilities.

"Best in Class" Data Encryption

With the Bluesocket BlueSecure Controller, you can bring the highest level of security directly to the user's mobile device. All BlueSecure Controllers support IPSec passthru for clients that want to secure traffic across an open SSID through to a VPN server at the core. Other options include using PPTP which is also built into both Windows and Macintosh platforms.

Typical Deployment

Smart Phone
Bluesocket 1800
Router
Bluesocket 1840
Generic Switch
BlueSecure Controller
Private
Firewall
Internet
Laptop
Digital Tablet
Conference
Server
Bluesocket 1800
Conference

ILL318A

The BlueSecure Controller acts as a firewall between the wireless LAN access points and the wired LAN, and requires no changes to the existing wired LAN hardware or users' client software. Additional BlueSecure Controllers can be connected to provide seamless failover capability, as well as scalability and subnet mobility across the enterprise.

Bluesocket BlueSecure Controller Family

Open solutions to secure and manage WLANs from the branch office to the enterprise.

Intrusion Detection, Worm Protection and Clientless Scanning for Trusted Endpoint Security

Unlike signature-based tools or OS-specific scanners, the Bluesocket BlueSecure Controller has implemented real-time monitoring of Wi-Fi® users' data to detect malicious traffic based on the users' actual behavior without requiring any client-side software. This enables administrators to automatically block network access to hackers or worm infected users even for "zero-day" attacks well before traditional signature-based tools have updates available. The BlueSecure Controller fully integrates clientless scanning, to provide a maintenance-free way to protect wireless devices of viruses, worms, Trojan horses, spyware/malware and other threats and anomalies before they are allowed to log-on and gain access to the WLAN. Taking advantage of automated Web-based scanning, Bluesocket is unique in providing trusted endpoint security, ensuring the user's device is free from viruses and worms, and has the required security and OS patches.

Security and QoS for VoIP

802.11 is a shared bandwidth technology, so network contention becomes an issue as the number of users and network traffic increases. Bluesocket overcomes this problem by providing administrators fine-grained bandwidth and WLAN prioritization QoS controls to ensure low latency performance for voice and video. Bluesocket's unique stateful packet inspection allows administrators to identify and secure dynamic, real-time voice protocols such as SIP, H.323 and SCCP and provides a complete platform for converged voice, video and data over a single WLAN infrastructure.

BlueSecure Controller Family
Platform Specifications

	BlueSecure 600	BlueSecure 1200	BlueSecure 2200	BlueSecure 3200	BlueSecure 5200
Number of APs Supported	8	25	50	100	150
Typical Deployment	Small Offices/ Retail Stores	Branch Office	Regional Office	Regional Office/ Medium Enterprise	Medium/Large Enterprise/Campus
Network Interfaces					
Data Interfaces	Four GbE Managed One GbE Protected	Four GbE Managed One GbE Protected	Four GbE Data Ports Optional Fiber	Four GbE Data Ports Optional Fiber	Four GbE Data Ports Optional Fiber
Other	One 10/100 Failover	One 10/100 Failover	One GbE Failover One GbE Admin	One GbE Failover One GbE Admin	One GbE Failover One GbE Admin
Dimensions					
Rack Units	1U	1U	2U	2U	2U
Width	15″ (380 mm)	15″ (380 mm)	17.5″ (445 mm)	17.5″ (445 mm)	17.5″ (445 mm)
Height	1.75″ (44.5 mm)	1.75″ (44.5 mm)	3.5″ (88 mm)	3.5″ (88 mm)	3.5″ (88 mm)
Depth	11.5″ (290 mm)	11.5″ (290 mm)	17.5″ (445 mm)	17.5″ (445 mm)	17.5″ (445 mm)

* Although user licensing is based on concurrent authenticated users, it is recommended you consider and plan for unregistered users (users connected to the system but not yet authenticated), in your user count, when sizing the appropriate controller for your organization as unregistered users consume system resources. For best performance, have a mixture of authentication types. For example: 802.1X authentication, MAC authentication, and web based authentication. Having all web based authentication may have an unfavorable effect on the BSC's web server performance.

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Bluesocket BlueSecure Controller Family

Open solutions to secure and manage WLANs from the branch office to the enterprise.

Platform Specifications

Authentication Methods
- Local DB
- RADIUS and LDAP
- Windows Active Directory
- Transparent Windows Login
- 802.1x, WPA/WPA2, 802.11i Transparent Login
- EAP methods - PEAP,TTLS, TLS, FAST, LEAP, MD5
- Kerberos
- Digital Certificates
- Cosign/CAS/PubCookie
- Secure Tokens
- MAC Address

Wireless Encryption
- TKIP (128 bit)
- AES-CCM (128 bit)
- SSL encrypted API and HTTPS admin/login page

Multiple Controllers
- Hot- Failover
- Secure Mobility Matrix
- Load Sharing
- Configuration Replication

API
- Web Services Based
- XML/RPC over SSL

Policy Management
- Role
- Location
- Time/Schedule
- VLAN (802.1q)
- Stateful Packet Inspection
- TCP/UDP Ports
- Protocols
- Destinations

QoS/CoS
- Bandwidth Management (incoming, outgoing)
- Traffic Prioritization
- DiffServ Marking
- Voice Prioritization

Management
- Secure Admin Web Page
- BlueView
- Management System
- SNMP v2c & v3
- CLI (Serial Port)
- Local Logging
- Syslog
- HP OpenView

IP Address Assignment
- Static IP
- DHCP Server/Relay
- NAT

Public Access
- Credit Card Billing
- Guest Access
- RADIUS Accounting
- Session-Timeout
- Walled Garden
- Website Redirect
- Any IPTM Support
- iPassTM Client Support
- Email Redirect (SMTP)
- Remote Subnet Aggregation

Intrusion Detection/Protection
- Clientless Endpoint
- Scanning
- Real-time Traffic
- Monitoring
- Protection Against:
  - ❏ Packet Flooding
  - ❏ Noise Generators
  - ❏ Internet Worms/Viruses
  - ❏ "Zero-day" Attacks
- Intrusion Alerts, Log
- Entries and Reports

Power 110-240V
- BSC 600−80 Watts
- BSC 1200−80 Watts
- BSC 2200−350 Watts
- BSC 3200−350 Watts
- BSC 5200−350 Watts

Ease of Use
- No Proprietary Client
- Software Required
- Intuitive Web Configuration
- Uses Existing Authentication Servers
- Multiple Custom Login Pages
- Bulk IP and MAC Address Upload

Voice
- Vocera
- Spectralink
- Cisco
- SIP
- H.323

Compliance
- FCC, UL
- VCCI, CE

Environmental
- 50F to 95F (10 to 35°C) operating temperature
- 40-80% Humidity (non-condensing)

Ordering Information

Equipment	Part #
Bluesocket BlueSecure Wireless Controllers	
BSC-600 Supports up to 8 APs/64 users	1700902F1
BSC-1200 Supports up to 25 APs/200 users	1700903F1
BSC-2200 Supports up to 50 APs/400 users	1700904G1
BSC-2200 Supports up to 50 APs/ 400 users (optional Fiber Interfaces)	1700904G2
BSC-3200 Supports up to 100 APs/ 1,500 users	1700905G1
BSC-3200 Supports up to 100 APs/ 1,500 users (optional Fiber Interfaces)	1700905G2
BSC-5200 Supports up to 150 APs/ 4,000 users	1700906G1
BSC-5200 Supports up to 150 APs/ 4,000 users (optional Fiber Interfaces)	1700906G2
ADTRAN Bluesocket Access Points	
Bluesocket 1800 Access Point: 802.11 a/b/g/n, six internal MIMO antennas	1700910F1
Bluesocket 1840 Access Point: 802.11 a/b/g/n, six external RP-SMA connectors	1700911F1