

Mike Anderson's Quarterly Technology Analysis

Wireless LAN Management & Security Industry Overview

Mike Anderson
Managing Director, Ardent Ventures

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This document is one of a series that are published on a quarterly basis (more often if I have the time) and contain research surrounding a specific technology, market or service of personal interest. This summary document is by no means all encompassing, but a collection of what I deem to be the best technology or solutions providers on the market to date. If you are aware of new developments, agree or disagree with any of thoughts, published data, projections or analysis, feel free to contact me directly at: mike@ardentventures.com or call: 530-706-9255.

Increasingly Growing Market for Wireless LANs

- Successful standardization and adoption has quickly led to very low cost and wide availability for access points and wireless cards
- Broad retail distribution Wireless networking capability now embedded in most mid and high-end laptops, that trend is continuing to proliferate into consumer electronics.
- Rapidly growing number of publicly accessible networks in airports, hotels, cafes, etc. Strong validation that Wi-Fi Internet access is here to stay with the formation of Cometa Networks (deployment of 20,000 hot spots nationwide).
- "Plug-n-play" installation in home or office, plugs it in and it works (most of the time).
- Technology is flexible and easily enhanced -- i.e. high gain or directional antennas, double data rates possible, etc.)
- Security concerns seem "overblown" for a majority of the user base.
- Viral growth rates by consumers and corporations – natural "desire" to be unteathered.

Wireless LAN Challenges

- Adding wireless to a corporate network = putting an Ethernet jack on the outside of your building for anyone to tap into.
- 802.11 security holes are well-publicized and will not be remedied by standards bodies for some time = additional security solutions.
- Corporation struggle with management issues that arise in large-scale deployments.

- Lack of QoS, Network availability and performance – a single user can drown an access point.
- Enabling large scale provisioning access to client devices
- Mobility between access points (roaming) and subnets causes disconnects without additional solutions (i.e. Netmotion Wireless)
- Increased need for intrusion detection to prevent unauthorized network access vs. traditional wired LAN.

Wireless LAN Management Requirements

Efficient administration

- Provisioning and automated configuration without client device applications
- Centralized management of access and roaming policies
- Needs to work with any vendor's access points and wireless cards

Robust security

- User authentication
- VPN?
- Data encryption
- Wireless traffic inspection and filtering

Standardization

- Avoid use of vendor specific performance enhancements
- Utilization of two leading vendors – match with existing internal infrastructure if it makes sense.
- Not all Wi-Fi is equal, test performance metrics

Wireless LAN Management & Security Vendor Profiles

Company	Vernier Networks Communications: Wireless Communications Equipment
Location	Mountain View, CA
Web Site / Contact	www.verniernetworks.com 650-237-2200
Concentration / Summary	Developers of systems and software to protect, manage, and enhance wireless networks.
Product/ Technology	The Vernier Networks System™ provides the foundation for building secure, scaleable, and mission-critical 802.11 wireless networks. At the core of the WLAN, the Vernier Network System provides key services including fine-grained access control, centralized management, and seamless roaming that enable companies to deploy and manage 802.11 networks ranging from 10s to 1000s of access points. The CS 6000 Control Server™ is a centralized security configuration and management system for wireless networks of any size. The AM 6000 Access Manager™ is a scalable platform that enforces network security and resource usage policies at the edge of the wireless network.
Customers	University of Washington, University of California at Berkeley, Sprint, Financial institutions.
Strategic Partners	HP, SMC Networks, Digital Technologies, Global Secure Systems, Techmatrix
Investors	Allegis Capital Doll Capital Management Financial Technology Ventures Foundation Capital Hitachi ITX International Masthead Venture Partners Packet Design UV Partners Weber Capital Management
Stage Investment Details	Shipping Product 3 rounds of financing \$34.7 million
Management	Doug Klein, CEO (Packet Design) Janak Pathak, VP, Sales (SmartSAN) Ken Klingman, VP, Engineering (Silicon Graphics) Sydney Carey, CFO (Pacific Broadband Communications) Mary Ruberry Vice President, Marketing (NuvoMedia)
Notes	

Company	Blue Socket
Location	Burlington, MA
Web Site / Contact	www.bluesocket.com 781-328-0888
Concentration / Summary	Manufactures high performance solutions enabling the broad deployment and effective management of WLANs.
Product/ Technology	Bluesocket Wireless Gateways offer single scalable solutions to the security, class of service (CoS), and management issues facing institutions, enterprises and service providers that deploy WLANs based on the IEEE 802.11 and Bluetooth standards. Each Gateway is designed to meet various user and organizational demands while supporting enterprise needs for Secure Mobility™ - Bluesocket's patent-pending technology that enables wireless users to maintain a secure connection as they move across subnets. Hardware based solution set.
Customers	Abbott Laboratories, BTG, Duke Energy, KPMG Consulting, Microsoft, Orange, Harvard University, University of California, Cambridge University, London School of Economics, Rutgers, University of Michigan, Best Western, Marriott Courtyard, Ritz Hotels, the US General Accounting Office, the US National Security Agency, Canadian Standards Association, and the office of the Prime Minister of Singapore.
Strategic Partners	KPMG Consulting, Intel, Microsoft, Netrix, Equip, Genesta, Mayflex, SideBand Systems
Investors	Ascent Venture Partners Boulder Ventures Limited Individual Investors Intel Corporation Ironside Ventures Osborn Capital Ridgewood Capital St. Paul Venture Capital
Stage Investment Details	Shipping Product 3 rounds of financing Approx \$23m
Management	Eric Janszen, CEO (Osborn Capital) Dave Juitt, CTO & Chief Security Architect (Redwood Investment Systems) Martin Cassidy, VP & General Manager (Ericsson) Carol Schmitt VP Biz Development (Adero)
Notes	

Company	NetMotion Wireless
Location	Seattle, WA
Web Site / Contact	www.netmotionwireless.com 206-691-5500
Concentration / Summary	Developer of wireless networking infrastructure software that enables mobile and secure Internet and intranet access. The technology provides persistent application sessions, allowing users to suspend and resume, roam between subnets, roam from LAN to WAN, or drop connections and then resume their work right where they left off.
Product/ Technology	NetMotion Mobility works with third-party VPNs, including PPTP, L2TP/IPSec, IPSec, and Cisco. The Roamable IPSec allows IPSec tunnel to roam with Windows 2000 and Windows XP devices wherever they go. Also allows users to roam in and out of network coverage, between network segments, and roam from LANs to WANs with its InterNetwork Roaming™ technology (which provides continuous and secure connections between wired and wireless data networks, regardless of the network type, enabling application persistence no matter where a user roams). Also provides firewall functions, ensuring that only authenticated users and devices are granted access to the network.
Customers	Customers include organizations in public safety, healthcare, hospitals, and police departments and enterprise customers with a mobile workforce. Noted customers include: St. Luke's in Houston, the Spokane Fire Department, the San Jose Police Department, and the Broomfield, Colorado, Police Department.
Strategic Partners	Microsoft Sierra Wireless
Investors	Alexander Hutton Venture Partners Digital Partners eFund Fluke Venture Partners Northwest Venture Associates Seapoint Ventures Silver Haze Partners WRQ Inc.
Stage Investment Details	Shipping Product 2 rounds of financing Approx 13.5m investment
Management	Steve Cullen, CEO (AT&T Wireless) Emil Sturnilo, Chief Scientist Joe Savarese, CTO (WRQ) Bob Colton, CFO (Captura Software) Gary Schofield, SVP, Worldwide Sales (SEVEN Networks)
Notes	

Company	ReefEdge
Location	Fort Lee, NJ
Web Site / Contact	www.reefedge.com 201-242-9700
Concentration / Summary	Provides solutions for managing enterprise-wide WLAN deployments, providing advanced security and session persistence, in addition to management for WLANs.
Product/ Technology	The ReefEdge Mobile Domain Architecture™ is an open, standards-based framework, which provides common authentication, security, mobility, scalability, manageability and provisioning across both local and wide-area wireless networks. A Connect System deployment includes a Connect Server and Edge Controllers that operate at the network edge and enforce addressing, authentication, access control, encryption mobility, and bandwidth management functions. Each Edge Controller works with all access points (including 802.11b, 802.11a, 802.11g, and Bluetooth) to support wired network connections.
Customers	U.S. Air Force, American Axle
Strategic Partners	Computer Associates, Axis Communications
Investors	Allegra Partners Bessemer Venture Partners Columbia Capital LLC Ericsson Venture Partners i-Hatch Ventures Individual Investors LiveWire RRE Ventures 2 Saturn Venture Partners Telecom Italia Lab
Stage Investment Details	Shipping Product 2 Rounds of financing Approx \$28.8 million
Management	Inder Gopal, Chairman & Chief Strategy Officer (AT&T) Ajei Gopal, CEO (IBM) Sandeep Singhal, CTO (IBM) Craig Miller, VP, Worldwide Sales (Loudcloud) Steven Kaminsky, Chief Financial Officer (OnDemand)
Notes	The company's competition includes Vernier, BlueSocket, NetMotion, Fortress and Cranite.

Company	Rappore Technologies
Location	Orem, UT
Web Site / Contact	www.rappore.com 801-932-2400
Concentration / Summary	Provides wireless connectivity and security solutions for enterprise WANs on 802.11b or Bluetooth networks.
Product/ Technology	Rappore Shield™ protects against common wireless security hazards. The user interface consists of three components: a pop-up menu with options to change wireless protection status, a system tray icon that visually communicates current protection status, and settings to include or exclude network adapters from Shield's protection. Rappore Guard™ is a software application designed to secure data whether residing on computers or whether the data is in transit through a wireless connection, supporting secure Web browsing, e-mail, and file sharing between any two nodes on the IEEE 802.1x standard so even non-Rappore Guard™ clients can be authenticated. Also can assign security policies to existing legacy protocols.
Customers	The company's target includes tier-one OEM manufacturers of notebook and personal computers, personal digital assistants, and a variety of embedded devices including portable office equipment, automotive computing, cellular phones, digital cameras, medical equipment, and industrial automation products.
Strategic Partners	Fujitsu, Panasonic, CSR, MaxStream
Investors	Amp Capital Partners BizCradle Brycen EsNet Matsushita/Panasonic Ridgewood Capital Rocket Ventures
Stage Investment Details	Shipping Product 3 rounds of financing Approx \$6.0 million
Management	Dr. William Hogan, President & CEO (LynuxWorks) Gabe Nault, VP, Engineering (Novell) David Randle, Director, Sales (3Com) Kip Meacham, Director of Business Development (3Com)
Notes	The company's competition includes Widcomm, Cisco, ReefEdge, Zeevo, and Extended Systems.

Company	AirDefense
Location	Alpharetta, GA
Web Site / Contact	www.airdefense.net 770-663-8115
Concentration / Summary	Integrates multi-dimensional intrusion detection with stateful monitoring to secure WLANs from intruders, hackers, interference and network abuses.
Product/ Technology	AirDefense is a wireless LAN intrusion protection and management system that discovers network vulnerabilities, detects and protects a WLAN from intruders and attacks, and assists in the management of a WLAN. AirDefense discovers vulnerabilities and threats as they happen, secures a WLAN by recognizing intruders and attacks and eliminating those threats and provides a WLAN management functionality that allows users to understand their network, monitor network performance and enforce network policies. The solution consists of distributed sensors and server appliances. The remote sensors sit near 802.11 access points to monitor all WLAN activities and report back to the server appliance, which analyzes the traffic in real-time.
Customers	Not Available
Strategic Partners	Not Available
Investors	Founded 2001 Privately Held
Stage Investment Details	Shipping Product
Management	Jay Chaudhry, Chairman & CEO (IBM, SecureIT) Jay Johnson, VP, Sales (VeriSign) Dr. Scott Hraster, CTO & VP, Engineering (Pathfire) Fred Tanzella, Chief Security Officer (EAS)
Notes	

Company	Colubris Networks
Location	Laval, Quebec (Canada)
Web Site / Contact	www.colubris.com 866-241-8324
Concentration / Summary	Designs, develops and manufactures highly secure and reliable wireless networking products for applications in Enterprises, Government Agencies and public area "Hot Spots". Network Computing's "World Class" Award - 2002
Product/ Technology	Makes a range of WLAN products that are designed to take full advantage of industry standard protocols and practices, providing built-in, non-proprietary network and security services (such as VPN clients/servers and RADIUS support). The CN1000™, for the corporate head office, extends the reach of the existing wired corporate VPN server to the wireless network, through on-board management tool that provides the ability to define the IP address of the VPN server on the wired backbone. All traffic passing through must be encapsulated within a valid VPN tunnel, if not, all packets are dropped. Only valid VPN traffic is accepted resulting in a truly secure wireless extension to the wired network.
Customers	Distributed through VAR and Partnerships
Strategic Partners	Alcatel, Boingo Wireless, LG International, Lucent, Funk Software, Airpath Wireless, Signa Services
Investors	Prism Venture Partners Business development bank of Canada
Stage Investment Details	Shipping Product Investment stage & details unknown at this time...
Management	Barry Fougere, President & CEO (EDS) Pierre Trudeau, Founder & CTO (TouchTunes Digital Jukebox) Mari Shiel, VP Sales (IBM, Wang)
Notes	

Company	WaveLink
Location	Seattle, WA
Web Site / Contact	www.wavelink.com / 888-697-WAVE
Concentration / Summary	Developer of wireless communications software for the management of wireless networks, devices, and applications.
Product/ Technology	Wavelink's end-to-end solution encompasses the following WLAN issues. Wireless Applications: Wavelink Studio™ allows for rapid deployment and management of wireless enterprise applications and Wavelink Client-Side Emulators™ that quickly extend existing legacybased application to mobile devices and workers. Network Management: Wavelink Mobile Manager™ rapidly installs, secures and supports multi-vendor WLAN across a multi-site enterprise. Mobile Device Management: Wavelink Avalanche™ e manages a heterogeneous mix of wireless devices "over-the-air." Network Security: the Mobile Manager and the Avalanche both have security features inherent to their architecture.
Customers	Intel, GM, Siemens, Ford, Lucent, GAP, Amazon.com, Costco, FedEx, USPS, Sears
Strategic Partners	Computer Associates, Cisco, Ericsson, Palm, Retek
Investors	Cascadia Capital Partners Digital Partners Washington Mutual Whitney & Co.
Stage Investment Details	Shipping Product Two Rounds Approx: \$19 million
Management	Robert Whelan, Founder, Chairman & CTO (CIMS) Jim Souders, VP, Worldwide Sales (GTE) David Bullis, President & CEO (Loudeye Technology); Roy Morris, VP, Engineering (Zetron)
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Company	Ecutel
Location	Alexandria, VA
Web Site / Contact	www.ecutel.com / 703-998-2588
Concentration / Summary	Provider of mobile VPN software that enables users to roam in the office on wireless and wired LANs or outside on public networks.
Product/ Technology	Viatores software combines standards-based security and mobility protocols IPSec and Mobile IP to enable users to roam in the office on wireless and wired LANs or outside on public network, while maintaining a connection to the home network. Security features: network data authentication, confidentiality and integrity, user authentication, and IPSec ESP tunnel. Management features: central management of security and mobility policies, integration with Simple Network Management Protocol (SNMP) based systems, policy distribution to clients, and communication device prioritization. Mobility features: roaming (LAN/WLAN (including subnet), WWAN/Hot spot, private visiting networks), bi-directional communication, IP-in-IP Reverse Tunneling and triangular routing, and Mobile IP compliance.
Customers	Distributed through VAR and Partnerships
Strategic Partners	HP, Integrated Systems, Net2Link, PAI Systems, Anyware Network Solutions
Investors	Avansis Ventures Core Capital Partners Individual Investors Intel Corporation McDonnell and Associates Steve Walker & Associates Udata Venture Partners
Stage Investment Details	Shipping Product Three Rounds Approx \$11 million
Management	Sanders Partee, CEO (Viewgate Networks) Dzung Tran, Co-founder & CTO (MITRE) Bill Cole, VP, Business Development (Redback Networks) Eric Gibson, VP & CFO (CyberCash)
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Company	AirWave
Location	San Mateo, CA
Web Site / Contact	www.airwave.com 650-286-6100
Concentration / Summary	Provider of wireless network management software, offering network administrators a single, centralized console from which they can monitor and configure all wireless network devices.
Product/ Technology	The AirWave Management Platform supports access points and network devices from all leading vendors, enabling the IT staff to manage different devices from the same user interface, greatly reducing support cost and complexity, integrates seamlessly into virtually any existing network infrastructure, and can be fully installed and operational within hours, has been designed to support the largest WLANs in the world, with thousands of access points in multiple locations, and the architecture enables it to extend support immediately for all new standards and technology innovations.
Customers	Unknown
Strategic Partners	Unknown
Investors	Ignition Partners IdeaLab
Stage Investment Details	Shipping Product
Management	Greg Murphy, President (Idealab) Paul Gray, VP, Engineering (iService) Bryan Wargo, VP, Sales & Business Development (2Roam)
Notes	

Company	BlackStorm Networks
Location	Palo Alto, CA
Web Site / Contact	www.bstormnetworks.com 650-617-2930
Concentration / Summary	Developer of wireless infrastructure systems.
Product/ Technology	The company is developing a wireless managed access box that will support multiple air interfaces and will network into the existing IP infrastructure.
Customers	Unknown
Strategic Partners	Unknown
Investors	Battery Ventures Norwest Venture Partners, Storm Ventures
Stage Investment Details	Product Development Two Rounds Approx: \$15.5 million
Management	Tae Hea Nahm, Acting CEO (Storm Ventures) Tim Danford, Technologist In Residence (Storm Ventures)
Notes	Venture is still in stealth mode.

Company	Aruba Networks
Location	San Jose, CA
Web Site / Contact	www.arubanetworks.com 408-277-4500
Concentration / Summary	Developer of wireless LAN networking equipment.
Product/ Technology	Unknown
Customers	N/A
Strategic Partners	N/A
Investors	Sequoia Capital Matrix Partners
Stage Investment Details	Product Development One Round Approx \$9.5 million
Management	Pankaj Manglik, CEO (AltonWeb Systems & Cisco) Keerti Melkote, VP Product Management (Shasta Networks)
Notes	Still in stealth mode...

Company	Cranite Systems
Location	San Jose, CA
Web Site / Contact	www.cranitesystems.com (408) 360-4900
Concentration / Summary	Developer of scalable and secure software solutions for various wireless LAN technologies
Product/ Technology	Developer of scalable and secure software solutions for various wireless LAN technologies. The company's WirelessWall architecture secures, speeds, and simplifies wireless local-area and personal-area networks. Network managers can use the company's products to protect corporate data resources, enhance the user's experience, and centrally manage policies controlling wireless network access. Ushering in a new era of user mobility and performance, The Company's products are delivered in partnership with systems integrators, infrastructure manufacturers, and service providers.
Customers	Distributed through value-added resellers, systems integrators, and original-equipment manufacturers (OEMs).
Strategic Partners	Symbol Technologies
Investors	BV Capital Diamondhead Ventures H&Q Asia Pacific Industry Ventures JK & B Capital Pacifica NeoVentures Selby Venture Partners
Stage Investment Details	Shipping Product Three Rounds Approx: \$15.5 million
Management	Greg McNulty, CEO (Nx Networks, Microsoft) Ken Schneider, CFO (TollBridge Networks) Michael Gilley, VP Sales (Checkpoint Software)
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