# Magic Quadrant for Wireless LAN Infrastructure (Global)

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**The ratification of the 802.11n standard provides higher-speed wireless options and a replacement for access connectivity that has traditionally been wired. As momentum grows, vendors need to provide migration strategies, converged services and reliability that is on a par with wired networks.**

## WHAT YOU NEED TO KNOW

The vendors profiled in this Magic Quadrant provide basic, standards-based wireless LAN (WLAN) connectivity from access points to an expanding number of devices using the IEEE 802.11 standards-based WLAN. Differences in WLAN architecture, product mixes (controllers and access points), and integration with existing and newer wired LAN products and services differentiate the offerings from each vendor. The market has continued to shift during the past 16 months, as reliable connectivity continues to become “table stakes” for enterprises evaluating WLAN vendors. Network services to manage, optimize or enhance applications traversing the wireless medium are becoming important differentiators.

To address these changes, the evaluation criteria and the associated weightings change each year. In this Magic Quadrant, product vision was weighted higher than last year and included evaluations of both hardware and network services. In addition, each vendor’s vision and road map to extending the use of wireless in new or existing vertical markets and industries was given a higher weighting. Therefore, we recommend that this research (see Figure 1) not be used to make year-to-year comparisons of the represented companies.

As the number of deployed access points in an enterprise continues to grow — whether in a single location, across campus branches that are WAN-connected or as the result of the proliferation of teleworkers — expectations have exceeded base connectivity. In addition to increased functionality, useful life requirements (back to historical requirements of five to seven years, which now match edge switches) and management options of new and existing equipment have risen dramatically.

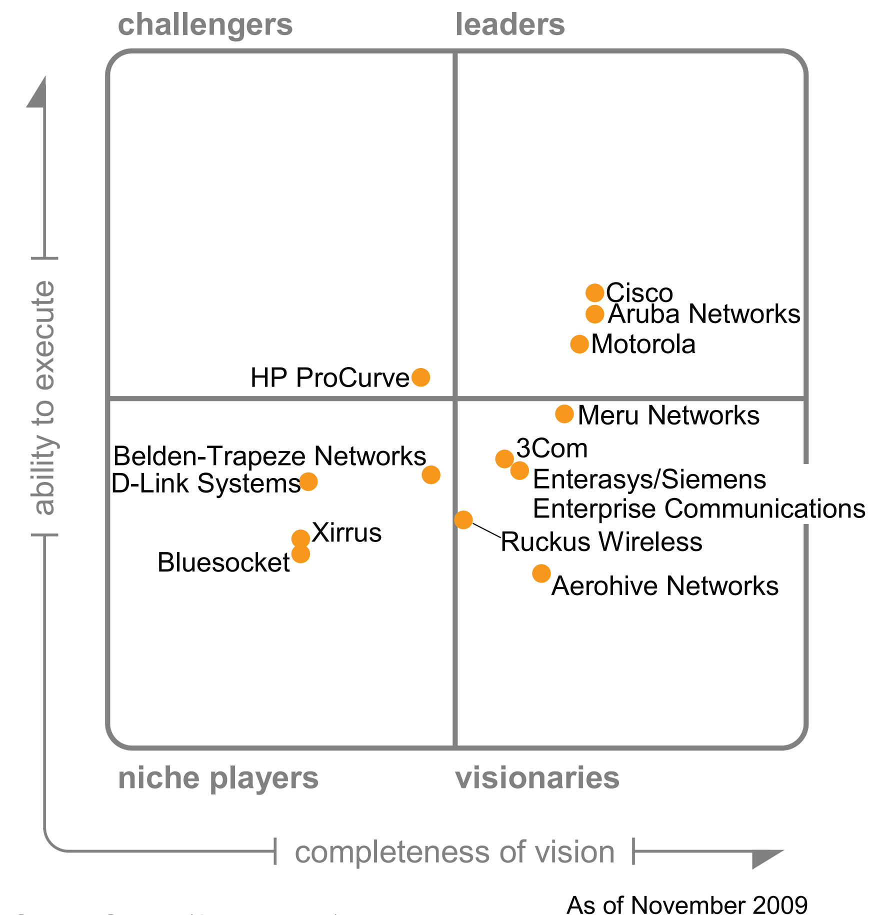
Several smaller vendors have focused on vertical markets and have built up significant war chests of often regional customers, partners and end-to-end solutions. However, in the long run, this narrow focus may not equate with horizontal-market success. Hence, enterprises should expect vendors not only to supply vertical solutions, but also to meet broader, horizontal and often global networking requirements. Leaders and challengers in this Magic Quadrant will pose the least risk for client investment, but they may not always provide the most leading-edge or current technology. Vendors termed visionaries could provide this capability, but they may present a greater risk. Those that are rated as niche players will typically appeal to vertical users, low-price buyers or those looking for specific sets of features.

## MAGIC QUADRANT

### Market Overview

The decision criteria for enterprise WLAN functionality is beginning to shift and so are the end users. Although vertical-market-specific solutions still exist for operational productivity enhancements, digital natives, mainly the younger generation that has grown up with technology, now expects WLAN connectivity to be available everywhere — in the home, at school or at work. This is evident in our research with institutions of higher education, where WLAN connectivity is expected anytime and anywhere on campus, and wired connectivity is often not considered an option. As these students move into the workforce, the fact that most laptops are now shipping with default wireless connectivity, in addition to a higher need for mobility, is fueling the notion of anywhere connectivity. We expect this trend to continue as products such as voice, video and even gaming expand to consume the higher-throughput capabilities of wireless communications now offered by the ratification of 802.11n.

Figure 1. Magic Quadrant for Wireless LAN Infrastructure (Global)




Source: Gartner (January 2010)

While the users are expecting the connectivity to be available in the enterprise, vendors are using network services to provide their next level of differentiation. Many of these new services are making wireless easier to implement, secure, optimize and manage, as they provide best-practices guidance or proactively identify, locate and resolve issues in the network that, in the past, required not only intervention, but the wireless knowledge to diagnose the problem. Lowering the bar for adoption, maintenance and integration into the end-to-end network access layer (i.e., wired and wireless) is the right step to continue the market momentum and growth.

Changes continue to occur with the traditional access point and controller components of the WLAN. The market gained momentum as vendors guaranteed upgradability and compatibility of access points to the new standard through software radios that would require only a FLASH update. We also saw the emergence of a trend that bifurcated the access point market, as vendors introduced fully functional two-radio 802.11n access points for less than $350 when purchased on volume (although higher functional components maintained their pricing premiums). As the access point market matured, so did the rest of the structured WLAN communication as controller functionality could be placed anywhere within the network. Vendors introduced models for which controller functionality was available as a separate physical appliance or without additional hardware, with the application residing in the cloud, in access points or in switches. This flexibility was designed to reduce the installation, management and, ultimately, the total cost of ownership (TCO) of wireless connectivity.

The market is populated with original equipment manufacturers (OEMs) and resellers of technology. Although both provide and support the technologies, to date, none have been able to provide a "stickiness" or differentiating value beyond the reseller relationship. Without the "skin in the game" functionality, OEMs will continue to play musical chairs with a decreasing number of WLAN vendors, as wired network vendors look for long-term relationships to complete the vision of a single access layer connectivity strategy.

## Market Definition/Description

The WLAN market consists of vendors that supply IEEE 802.11 standard networking components that provide mobility to the infrastructure access layer, from the edge of the wired network to the end user. Vendors have significantly narrowed the performance gap between the divergent wired and wireless environments, and continue to integrate management, security, guest access and planning services. These solutions have combined wired and wireless functionality, as well as spawned multivendor wireless solutions, to provide a solid foundation and continuity.

### Critical Components

The 802.11n standard has added an unprecedented level of complexity that combines automatically negotiated and user-configured variables. At the core, each WLAN solution has an access point, a component that distributes a Wi-Fi radio frequency (RF) signal to a variety of client devices. Prevailing solutions also have controller-like functionality that may be integrated into different networking components or reside separately and sit behind the access points to consolidate functions. However, the physical appliance is becoming increasingly optional, as vendors provide multiple deployment options for the controller application, depending on the vendor and the environment.

Access points continue to support the full set of 802.11 worldwide-assigned frequencies at 2.4GHz, 4.9GHz and 5.2GHz through 5.8GHz, even though some of the frequencies cannot be legally used in every country. Multiple-frequency, multiple-radio access points have become the norm to support the continued operation of 802.11b/g solutions and address 802.11n migration issues. Soft-radio designs in the access points have provided the required migration, as well as a path to support for multiple stream functionality defined by the 802.11n standard. The market has bifurcated as two-radio 802.11n access points are now available for less than the $700 list price. Three- and four-radio access points continue to command a premium, but can also be used to support other functionality, such as wireless backhaul for mesh networking or wireless intrusion detection. Access points that can be used outdoors are provided as options by most full service vendors, as well as a variety of antenna and power options.

The look and feel of controllers continue to change. Since the introduction of controller-based architectures, most vendors use a separate appliance; however, the hardware has slowly been transformed (subsumed into blades or appliances), or, in some cases, it has vanished. Although the structured network functionality still exists, the physical controller has disappeared into the cloud or into the one or more access points. In addition to lower-priced access points, these new solutions continue to reduce the TCO for WLAN connectivity at the edge of the network. In the past 12 months, managed services for WLANs have broken into the market to supplement managed security. They also enable enterprises that do not have the time or skills to implement the complexities of WLANs to enjoy the benefits in conference rooms, as well as small or remote offices, while ensuring that they maintain compliance for Payment Card Industry requirements and don’t open the door to security threats.

Enterprises need to continue to understand the various usage scenarios that exist in their environments. “One size does not fit all,” even for best-of-breed vendors, and, in some cases, the best vendors for the particular enterprise may be a niche or visionary.

### Defining Network Services

Beyond the hardware, the market has seen an increase in focus on wireless network services and applications beyond the physical connection. The services are continuing to grow and include:

- Role-provisioning, guest access administration for wired and wireless guests
- Network management integrated with system management, which is aware of wired components and is WLAN vendor-independent
- Network access control (NAC)
- Authentication and authorization services
- WLAN forensics
- Wireless intrusion protection
- Voice services that enhance the application, including integrating with unified communications services
- Video services that enhance the application
- Location-based, as well as context-oriented and asset management
- Policy and resource management

We anticipate that as the WLAN market continues to mature that these services will be used to differentiate vendors as expanded functionality continues to provide additional information to enterprises that is needed to maximize the productivity and return on investment of WLAN for all access-layer connectivity.

## Inclusion and Exclusion Criteria

Vendor inclusion criteria are:

- Access-point-based WLAN infrastructure must be accomplished through one of two architectures: centralized controller/switch or intelligent mesh. In most cases, a separate and central WLAN switch/controller coordinates the enterprise access points. Alternatively, some vendors integrate controller functionality through intelligence embedded in their mesh access points, which communicate to each other, instead of to a coordination point.

- All vendors must have 802.11a/b/g/n standard products available in the market, with extra "vision" points for those that offer clear migration strategies to next-generation standards.

- All vendors must either manufacture their own equipment or demonstrate differentiating value to customers that can only be achieved between the two participating vendors. The value must extend beyond an OEM/reseller relationship and simple integration into network management consoles or running controller software on a blade in a chassis. This integration may include integrated network services, such as showing consolidated security, or a guest access policy in which wired and wireless components are centrally managed.

- Vendors should have sold WLAN equipment for at least one full year prior to the publication of the WLAN Magic Quadrant and achieve a minimum of $10 million per year in annual revenue from wireless equipment.

- Vendors should have elicited interest from end users through inquiries placed by Gartner customers, appearances on shortlists and industry acknowledgement of market position.

- Vendors should have demonstrated a focus and a commitment toward the enterprise WLAN market. This should include a track record of selling to large-enterprise clients, appropriate marketing and partnerships, and a support organization capable of servicing global enterprise requirements.

- Vendors participating in the Magic Quadrant must have equipment certified to meet the minimum requirements for security, as mandated by the Wi-Fi Alliance, including those set forth in the WPA2 standard for authentication and encryption.

- Network management must be supported for the configuration and management of the infrastructure, with "vision" points given to vendors to document wireless services that include:

    - Guest networking — captive portal and/or role-provisioned

    - Wireless intrusion detection — embedded and/or overlay solutions

    - Location management

In this Magic Quadrant, we include vendors that provide controller-based WLAN systems. Vendors that provide stand-alone access point solutions are not covered in this Magic Quadrant.

### Added

- D-Link

### Dropped

- Alcatel-Lucent

- Foundry/Brocade

- Extreme

- Extricom

- Nortel

- Proxim

#### Note 1 "Overlay" Defined

An installation of a networking component that is noninvasive to the wired infrastructure. Overlays generally employ tunneling techniques that connect the endpoint functionality to a central controller offering a variety of data, management and control plane functions.

## Evaluation Criteria

### Ability to Execute

The criteria used to assess vendors in this Magic Quadrant are described here and listed in Table 1. We have adjusted slightly the weighting and evaluation criteria from 2008 to better reflect the buying requirements that enterprises are facing, including an increased focus on applications and management capabilities.

Gartner evaluates technology providers on the quality and efficacy of the processes, systems, methods or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively affect revenue, retention and reputation. Technology providers are ultimately judged on their ability and success in capitalizing on their vision:

- **Product/Service:** The product/service assessment consists of an evaluation of the WLAN infrastructure products consisting of access points, controllers, management and security software, and the associated services (hosting and software updates). Also included in this evaluation are any of the services required to maintain and support applications on the network.

- **Overall Viability (Business Unit, Financial, Strategy, and Organization) Financial:** Viability includes an assessment of the organization's overall financial health, the financial and practical success of the WLAN business unit, and the likelihood of that organization continuing to invest in WLAN and WLAN-related technology and product development.

- **Sales Execution/Pricing:** This involves the vendor's capabilities in presales activities and the structure that supports them. This criterion includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.

- **Marketing Responsiveness and Track Record:** This includes the quality and effectiveness of the organization's marketing messages in communicating to the market the advantages and the unique capabilities of the vendor's product lines, company and supporting partners/services. This evaluation also includes the history of the vendor's marketing message and its ability to react to changes in market requirements.

- **Customer Experience:** How do customers and partners view this vendor? This evaluation includes significant input from Gartner customers in the form of inquiries, face-to-face meetings and written responses about the vendors. Also included in this evaluation are the results of Web-based surveys that went out to vendor-supplied references.

- **Operations:** The vendor's ability to meet its goals and commitments. Factors include the quality of the organizational structure, such as skills, experiences, programs, systems and other vehicles that enable the vendor to operate effectively and efficiently.

## Completeness of Vision

Gartner evaluates technology providers on their ability to convincingly articulate logical statements about current and future market directions, innovation, customer needs and competitive forces, as well as how they map onto the Gartner position (see Table 2).

Technology providers are ultimately rated on their understanding of how market forces can be exploited to create opportunities for the provider.

- **Marketing Strategy:** Does this vendor's marketing message articulate a clear, understandable message that answers the market requirements for technologies and services? Does the vendor's message and supporting products lead the WLAN market requirements or merely fulfill them?

- **Sales Strategy:** Does the vendor's sales strategy support a wide range of customers with different requirements for WLAN and the supporting networking products? Does it have the best value-added resellers and integrators to deliver the sales and product support? Can it price and bundle to effectively compete with other vendors?

- **Offering (Product) Strategy:** Does the current and future planned product line meet the needs of buyers now and in the future? Does the vendor identify future customer requirements and build products to meet those requirements? Is the vendor simply building products that the WLAN buyer is asking for, or is it anticipating issues those buyers will face and building in resources to address those issues?

- **Vertical/Industry Strategy:** Does the vendor's strategy, direct resources, skills and offerings meet the needs of market segments, including vertical industries?

- **Innovation:** What has the WLAN vendor done to address the future requirements of wireless networking customers, including the needs for tighter integration with wired networking products, voice, video and applications support? Has the vendor successfully differentiated the current and future product lines, to better address customer requirements, now and two to five years out?

- **Geographic Strategy:** Does the vendor's strategy, direct resources, skills and offerings meet the needs of regions outside of the vendor's "home" or native area, directly or through partners, channels and subsidiaries, as appropriate for that region and market?

### Table 1. Ability to Execute Evaluation Criteria

| Evaluation Criteria | Weighting |
|---|---|
| Product/Service | high |
| Overall Viability (Business Unit, Financial, Strategy, Organization) | hight |
| Sales Execution/Pricing | standard |
| Market Responsiveness and Track Record | high |
| Marketing Execution | no rating |
| Customer Experience | high |
| Operations | standard |
| Source: Gartner (January 2010) | |

### Table 2. Completeness of Vision Evaluation Criteria

| Evaluation Criteria | Weighting |
|---|---|
| Market Understanding | no rating |
| Marketing Strategy | high |
| Sales Strategy | standard |
| Offering (Product) Strategy | high |
| Business Model | no rating |
| Vertical/Industry Strategy | standard |
| Innovation | high |
| Geographic Strategy | standard |
| Source: Gartner (January 2010) | |

## Leaders

A vendor in the Leaders quadrant will have demonstrated an ability to fulfill a broad variety of customer requirements, provide an end-to-end infrastructure-based solution and have financial viability to continue that support beyond a single installation. Leaders should have demonstrated the ability to shape the market, maintain strong relationships with their channels and customers, and have no obvious gaps in their portfolios.

## Challengers

A vendor in the Challengers quadrant will have demonstrated sustained execution in the marketplace, and have clear and long-term viability in the market, but will not have shown the ability to shape and transform the market.

## Visionaries

A vendor in the Visionaries quadrant demonstrates an ability to increase features in its offering to provide a unique and differentiated approach to the market. A visionary will have innovated in one or more of the key areas of WLAN technologies (e.g., convergence, security, management or operational efficiency).

## Niche Players

A vendor in the Niche Players quadrant has a complete or near-complete product offering, but does not have strong go-to-market capabilities or innovation in its product offerings. Besides a capability to fulfill mainstream technology requirements, a niche player often has deep vertical knowledge and will be an appropriate choice for users in those vertical markets.

## Vendor Strengths and Cautions

### 3Com

The purchase of 3Com/H3C by HP provides a powerful combination and a significant opportunity for the 3Com/HP entity to enter the Leaders quadrant once the integration issues have been addressed during the next 12 months. Once a Trapeze OEM, the current product set relies on its own H3C R&D in China to deliver a fully homegrown solution. H3C, 3Com's enterprise brand, is highly successful in China — it has a strong presence in higher education and government — and has been looking to enter the U.S. market, a move than can be accelerated by the HP acquisition.

The solution is a well-integrated wired and wireless networking line with high-speed chassis and stackable switches that have integrated controller functionality and a broad range of access points. 3Com/H3C is an appropriate choice for users of its voice or wired products, as well as greenfield installations that require wired and wireless integrated management/administration. Once the acquisition is complete, we expect HP to provide a more consolidated stance for all access-layer connectivity.

#### Strengths

- Good, integrated wired and WLAN networking product line, controller functionality now integrated in most H3C chassis and stackable switches.
- Voice product line in the process of supporting management and access control functions throughout the wired and wireless edge.
- Consolidated network management, security/policy enforcement and provisioning platform across the wired and wireless LAN networking products, with a common operating system.
- Lower-cost R&D and production in China enables aggressive price points for access points and controllers.

#### Cautions

- 3Com/H3C's networking products are not well-known outside the Chinese market; they will have to spend significant dollars to reinvigorate the name and establish channels to market in other geographies.
- Penetration in the U.S. market will be difficult due to the intense competition; we expect 3Com/H3C to use the production cost advantage to provide differentiation.
- Requires 3Com/H3C products end-to-end to accomplish all the advanced end-to-end management and policy tasks.

### Aerohive Networks

Although Aerohive is one of the smaller companies considered in this research, its record of innovation and product enhancements is impressive. It supports a limited range of access points, with controller functions accomplished solely by software (offering an on-premises and cloud-based management solution) that is sold mainly through indirect channels in North America and Europe, the Middle East and Africa (EMEA). Aerohive is an appropriate solution for enterprises with many small or branch offices or any small and midsize business (SMB) with its structured communication solution, integrated security and policy management, which does not require a physical controller. The solution should also be considered for enterprises that need the high availability achieved by Aerohive's meshing functionality.

#### Strengths

- Aerohive supports an innovative service-level agreement (SLA) capability that not only monitors, but proactively manages user-defined SLAs for applications that need a minimum level of wireless access to maintain application performance.
- With failover and security functionality built into the access point mesh, and no single point of failure (the controller), Aerohive's solution supports a high degree of redundancy.
- Customers gave Aerohive high marks for its experience, including sales, support and performance of the solution.

### Cautions

- Although Aerohive continues to grow faster than the market, it is still a smaller, private company, which raises questions about risk in an environment where the industry is seeing the useful life of products pushed to five to seven years.

- Aerohive lacks strategy for buyers that require integrated wired/wireless solutions and must establish, at a minimum, partnerships in this area.

- Historically North America and EMEA-focused, Aerohive has a limited sales channel that is 100% indirect. Expansion of the channel will assist in availability of the product into new geographies and vertical markets.

## Aruba Networks

Aruba's, robust, security-focused WLAN product, with a diverse set of access points and controllers to fit most end-user requirements, has won many customers and ranks a strong No. 2 in total market share. Aruba continues to provide innovative infrastructure support software and services to expand its market footprint. Coupled with some of the best technical marketing for any of the vendors profiled, this has further solidified he company's position as a top vendor. Although traditionally a strong enterprise player focused on education, it has made good inroads into developing relationships and deploying vertical market solutions, primarily in North America, and continues to use its OEM relationship with Alcatel-Lucent for expansion in EMEA. Aruba is an appropriate choice for enterprises for which security, multivendor access point management or teleworking are high-priority decision criteria.

### Strengths

- Aruba has done a good job in not only making shortlists, but winning large WLAN opportunities. It has also been successful winning vertical market opportunities that have historically been Cisco customers.

- In our interactions with Gartner clients and our WLAN customer survey, Aruba received high marks for its performance, including sales experiences, support and performance of the solution.

- It has done a good job in focusing and articulating its marketing message with the "right sizing networks" marketing. Coupled with the newly introduced price points for access points and controllers, this is likely to strike a chord with budget-conscious buyers.

- Due to its traditional focus on access and application security, when WLAN security is a customer priority, Aruba is on the vendor shortlist.

### Cautions

- Sales and support outside of North America, EMEA and the Asia/Pacific (APAC) region is not equal to the largest vendors.

- Aruba's product capabilities often exceed their channels' ability to sell and articulate benefits. Although right sizing is the best messaging we've seen from the company, it remains one-dimensional, with costs as the primary driver.

- Aruba's position as an overlay-only vendor will hurt it. As access-layer decisions continue to converge, Aruba needs to expand its wired vendor relationships for enterprises looking for end-to-end access-layer capabilities.

## Belden-Trapeze Networks

Trapeze Networks has a solid WLAN solution that struggled in its route to market after being acquired by Belden in July 2008. The company has since refocused its marketing efforts, product alignment, sales resources and channel delivery on a global healthcare initiative in North America and EMEA, and is an appropriate choice for vendors in this vertical market (healthcare). Trapeze has the ability to deliver, through its channel into other markets, such as education, which is an area of historic strength.

### Strengths

- The purchase of Newbury Networks for real-time location tracking and security applications has helped Trapeze to articulate its product focus on wireless networking services and is an asset for its message in healthcare.

- In our WLAN survey, customers gave Trapeze extremely high marks for its service and support experience and solid performance for small and large installations.

- As a pure-play overlay WLAN provider, Trapeze has a good breadth of components and wireless networking services, which enable customers to deploy and manage highly reliable WLANs.

### Cautions

- Efforts to use the Belden sales and distribution channel slowed Trapeze's momentum and the company lost visibility in the market. In the last year, it has continued to educate and build on the Belden distribution channel, while focusing its internal efforts on growing its wireless presence in healthcare.

- Customers that purchased Trapeze solutions through OEM relationships that no longer exist (as a result of mergers, acquisitions and new product announcements) should ensure that they know where their service support is coming from for the remaining life of the solution. This may include establishing a relationship directly with Trapeze, which has several programs for enterprises that find themselves in this situation.

- As with other pure-play, wireless LAN vendors, Trapeze needs to expand its networking strategy beyond Belden as a cabling provider. Although the Belden channel may provide expanded visibility, it will need wired vendor relationships for those enterprises looking for end-to-end access-layer capabilities.

## Bluesocket

Bluesocket is one of a group of smaller players in the WLAN community whose steady, organic growth can be found mainly in the northeastern U.S. It has a solid security solution with a good following, as well as high-availability architecture based on virtual WLAN (vWLAN). Bluesocket needs to be more vocal about its differentiation and to leverage that differentiation more in its bid to expand its market share. Its vWLAN distributed architecture is appropriate for enterprises in education, hospitality and healthcare, and those enterprises that are building end-to-end 802.11n networks and/or clients that are not planning full replacement of existing access points, as Bluesocket controller supports multivendor management of access points.

### Strengths

- Bluesocket has an excellent, fully integrated security suite and NAC that supports WLAN and wired networking. The company needs to market this capability more in its message and leverage this differentiation when competing with vendors that cannot provide this functionality.

- In our WLAN survey, customers gave Bluesocket high marks for its service and support experience across all of its target markets and solid performance for both small and large installations.

- Bluesocket's WLAN solution is a good fit for clients looking for secure WLANs, as well as those that require redundancy. Its high-availability scheme runs throughout the architecture to provide seamless, zero-failover capability.

### Cautions

- Enterprises with global installations looking at Bluesocket need to ensure that their service and support needs can be addressed to meet their business needs.

- The company needs greater investment in sales and marketing to accelerate growth to become more broadly relevant.

- Bluesocket needs to expand its networking strategy to include a wired vendor relationship for those enterprises looking for end-to-end access layer capabilities.

## Cisco

Cisco is the largest company in the enterprise WLAN infrastructure market and has the strongest channel in the industry, which results in global presence and strong revenue market share. The ability to stretch across many verticals and identify not only WLAN solution needs, but also provide a wide range of networking components means that many customers have the ability to implement entire end-to-end Cisco solutions.

### Strengths

- Cisco's ability to stretch across verticals and identify different solution needs means that many customers have Cisco products end-to-end. Cisco's control of the distribution channels leads to greater penetration on untapped market demand.

- Cisco's strong presence in many hardware and services offerings in the network helps it to build customer trust as solutions that can be leveraged as its brand recognition, account relationships and end-to-end solutions.

- Cisco has the broadest range of WLAN hardware and services, which enable it to compete with any WLAN vendor, regardless of its point of differentiation.

- Cisco's vision of end-to-end networking, with its MOTION and Borderless Networks initiatives, is both inclusive and innovative; the early representative products are excellent first steps.

### Cautions

- As with any long-range product and services vision, Cisco's ambitious plans for WLAN's role in the future of networking (e.g., MOTION and Borderless Networks) will require time to implement. Enterprises need to track the execution of its deliverables to ensure that required functionality is available in the needed time frame.

- Because of the huge number of Cisco reseller partners, enterprises need to ensure that the resellers have the appropriate experience in selling and installing WLANs. We believe that Cisco is rectifying this issue by upgrading its training, again enabling those wired resellers to expand their product offerings.

- In some of our customer surveys and client comments, clients noted that the sales and installation support had a high level of variability. Enterprises should check the references of their suppliers to ensure that they have the appropriate wireless experience.

- Although CCX has been helpful in the past in ensuring that vendors using Cisco infrastructure can work together and is supporting standards efforts, enterprises should not be paying a premium for this functionality, and should push back on any client device vendor that attempts to pass on those costs.

## D-Link Systems

D-Link is a large, solid WLAN solution provider that has historically been strong with SMBs. It has a broad global presence with more than 130 offices in 170 countries. Although focused in the APAC region and emerging countries, it also has a significant footprint in North America and EMEA. It is an appropriate choice for enterprises primarily in education, government, hospitality and retail market sectors.

### Strengths

- D-Link has an expanded channel delivery strategy that can provide new partners and open up its presence in other locations.
- It has a unified product offering that has integrated controller functionality into its Power over Ethernet switching product family.
- With the integrated switch, it provides a single security solution for wired and wireless network management applications and embedded intrusion detection. It is also continuing to build network services relationships for applications, such as in-building location and site-survey planning.

### Cautions

- D-Link provides 802.11a/b/g solutions that represent most of its business. Enterprises looking for 802.11n solutions need to test D-Link's newer products to ensure that they meet the usage scenario requirements for the environment.
- D-Link has a limited lifetime warranty offering for its wireless solutions sold in Asia, Europe, India, Australia, Latin America and the Middle East, although it is only a one-year warranty for solutions sold in North America. Enterprises should also review references regarding service before considering D-Link for large-scale deployments.
- The company needs greater marketing to enterprise decision makers to accelerate visibility and growth to become more broadly relevant in larger opportunities and new markets.

## Enterasys/Siemens Enterprise Communications

This joint venture (JV), initiated by the purchase of majority interests in both companies by the Gores group, occurred in late 2008. Since that time, the merged company has made impressive progress combining the two product lines and offering Hi-Path integrated network functionality as a replacement for its Trapeze OEM relationship. The focus of the combined product line has been on operational integration not limited to management, but covering security, application functionality and access control as well. Enterasys/Siemens is an appropriate choice for enterprises with Siemens voice or Enterasys data networking products, as well as greenfield networks with a requirement for the integration of wired and wireless networking.

### Strengths

- The solution has good integration with Siemens voice infrastructure products and Enterasys data networking lines.
- Unified, application-level security and access policy enforcement, coupled with a single management console across wired/wireless/voice/data products, provides differentiation and can contribute to a lower TCO; however, this requires Enterasys/Siemens products end-to-end.
- Strong presence in core markets in the U.S. and EMEA, as well as the healthcare, education and government vertical industries.

### Cautions

- Enterasys/Siemens has large controllers and small/home office controllers and a number of access points; however, it will need to continue to flush out the controller and switch line to stay competitive with full product lines from Cisco.
- A confusing ownership structure may hinder the speed with which the JV can execute on partnership and channel activities.
- The solution has little presence outside core markets in the U.S. and EMEA, and among existing data-networking customers. Enterasys/Siemens will need to continue to make significant investments in marketing to expand this presence.

## HP ProCurve

HP's purchase of Colubris Networks in late 2008 appears to have been only the first step, as HP has announced it will also acquire 3Com. With a renewed focus on networking and wireless, the combined entity will make a strong bid for the Leaders quadrant, as it rationalizes its product set and integrates the two organizations. HP is an appropriate choice for large-enterprise customers with requirements for integrated wireless and wired network management and greenfield environments.

### Strengths

- Integration between wired and wireless networking products remains the strong suit of the ProCurve line. Although focused mainly on the management software, and less on the operational qualities, this remains a differentiator when competing with Cisco.
- HP's long-established expertise in profitable network services applications, e.g., network management, should enable it to capture the move toward more service-based product lines.
- Good global sales and service channels — few vendors can equal HP's reach.
- Aggressive pricing for access points and controllers, especially when bundled with wired switches/networking products.

- One of the first WLAN vendors with a lifetime warranty on infrastructure products.

Cautions

- The ProCurve WLAN products have been slow to develop differentiable networking services to accompany the core networking products and software.
- The integrated WLAN management products require end-to-end ProCurve products; however, HP software is an enterprise-class, multivendor monitoring and alerting application.
- Outside hospitality, healthcare and education (one of Colubris's core markets), HP has been slow to create vertical solutions, concentrating instead on the carpeted, horizontal customers.
- Channel and sales training still lags behind offerings from Cisco and Aruba.

## Meru Networks

One of the largest private companies evaluated in this Magic Quadrant, Meru continues to provide a differentiated wireless networking product. With its single-cell architecture, further proved out with the highest percentage of 802.11n customers, now well-established, Meru must now focus on the growing requirement for application services and support to maintain its differentiation. Meru has expanded its presence in new markets and remains a good choice for healthcare and education and other vertical markets, as well as enterprises with requirements for highly dense voice applications. Meru filed for an initial public offering on 18 December 2009.

Strengths

- Meru's virtual cell architecture is supported throughout its 802.11a/b/g/n product lines. It continued its hardware innovation with RF barrier, virtual port and other WLAN innovations throughout 2009.
- Its virtual port, focus on voice and video applications, and proactive network management solution provide a solid foundation for application services.
- Meru's momentum in the market, as well as its strong sales growth in its core markets of education and healthcare, has expanded its market reach into new markets, such as retail.
- Ease of addressing wireless issues has made Meru a preferred choice for enterprises with limited staffing.
- Meru has a well-articulated, easy-to-grasp technical differentiation.
- The company has developed a loyal customer base, which is further enhanced by good customer support and service.

Cautions

- Meru will need to continue to expand its visibility into new markets to sustain growth, particularly in the face of an increasingly crowded WLAN market.
- Because its value proposition is unique, Meru needs to invest more in marketing education and channel development to expand its presence.
- As a wireless overlay-only vendor, Meru will have to continue to establish relationships with wired networking partners for customers that will increasingly require end-to-end strategies for equipment, policy enforcement, management and support.
- Large, complex installations have required direct Meru involvement, suggesting that added complexity may be difficult for some smaller channel partners to configure.

## Motorola

With the purchase and integration of the Symbol product lines now complete, and additional acquisitions continuing to add to the functionality of its WLAN product line, Motorola has built out one of the more complete WLAN product lines. Its software integration efforts are beginning to bear fruit, with a robust, graphically rich planning and troubleshooting tool, and increasingly integrated wireless intrusion detection/protection. Motorola is a solid choice for retail, healthcare, and education enterprises, as well as greenfield, carpeted enterprises and those that require indoor and outdoor network requirements.

Strengths

- Solid vertical-market experience and customer base in core markets of retail and state/local governments, burgeoning healthcare and K through 12 practices.
- Security, wireless intrusion detection and network management application services are now available across indoor and outdoor networking products. Best-of-breed reporting and audit tools gleaned from the AirDefense acquisition will require additional integration to claim seamless integration with existing controller software.
- Strong sales channels and relationships in its traditional markets, migration of enterprise group under governments enables even better synergy with that sales channel, giving Motorola an advantage in the fast-growing K through 12 education market.

Cautions

- Motorola's application/services strategy outside of wireless intrusion detection and network management will require additional focus by the company to compete with the best-of-breed vendors.

- With clear functionality differences between the included wireless intrusion detection/protection functionality and the premium, more-expensive AirDefense offering, clients will have to carefully evaluate what levels of functionality they will require.

- Motorola remains a limited presence outside traditional vertical industries.

- Motorola's new wired solution partners, Extreme and Brocade, represent definitive steps in the right direction; however, these partnerships will require significant work to integrate policy and management functions to compete with the combined wired and wireless offerings from HP/3Com and Siemens/Enterasys.

### Ruckus Wireless

As it doubles its footprint in the WLAN marketplace, Ruckus is quickly building a customer and partner base. Bolstered by a foundation of wireless sales through carriers, Ruckus is a global company with a strong presence in Asia. It has shown the ability to deploy to all theaters as it extends its ability to reach beyond the wireless carriers. Ruckus is a good solution for enterprises deploying in education, hospitality or healthcare. Ruckus is a good solution for enterprises in the aforementioned vertical industries and enterprises that require a cost-effective solution.

#### Strengths

- Ruckus has a large customer base using the in-home distribution of standard and high-definition IP television in subscriber's homes worldwide. It has done an excellent job in leveraging its carrier relationships.

- It has a broad offering with an aggressive pricing model that provides the ability to deploy indoors and outside, as well as in different usage scenarios from enterprise to branch to teleworker.

- In our WLAN survey, customers gave Ruckus high marks for its service and support experience across all of its target markets, and solid performance for both small and large installations.

- Ruckus now offers a limited lifetime warranty as an option for its wireless offering.

#### Cautions

- Ruckus needs to expand its wired vendor relationships for enterprises looking for end-to-end access-layer capabilities.

- The company needs a greater investment marketing message to accelerate visibility and growth, and become more broadly relevant in larger opportunities and new markets outside carrier-centric opportunities.

- Ruckus should also invest in filling out its network services portfolio and invest in marketing in network services where it already has differentiation (e.g., video).

### Xirrus

With one of the more unusual solutions in the market, Xirrus has been a longtime proponent of "controllerless" architectures and beam forming. It remains a specific solution-focused WLAN infrastructure vendor. Its unique architecture and access point design enables it to service dense user environments and traditionally difficult to wire locations (e.g., classrooms, auditoriums and entertainment venues). Xirrus is an excellent choice for enterprises with dense user requirements and as a supplemental vendor in those environments.

#### Strengths

- Unique access point design enables highly concentrated coverage to be accomplished with a single access point, containing up to 16 radios. This has enabled dense user concentrations to be served.

- Loyal customer base with high marks for customer service, requirement-based network design and as-promised infrastructure performance.

#### Cautions

- Xirrus remains one of the smaller private companies in the WLAN infrastructure space. Lack of viability in the large enterprise space is a cause for concern.

- With the falling price of traditional two-radio access points, and the growing number of cloud-based offerings, Xirrus' price advantage on radios (due to a shared power and physical design) and its lack of a controller requirement has all but evaporated.

- Xirrus is still a point solution in most cases, with many enterprises using it as a supplement to existing networks or even side-by-side in new installations.

## Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

## Evaluation Criteria Definitions

### Ability to Execute

**Product/Service:** Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

**Overall Viability (Business Unit, Financial, Strategy, Organization):** Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

**Sales Execution/Pricing:** The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

**Market Responsiveness and Track Record:** Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

**Marketing Execution:** The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

**Customer Experience:** Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

**Operations:** The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

### Completeness of Vision

**Market Understanding:** Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

**Marketing Strategy:** A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the Web site, advertising, customer programs and positioning statements.

**Sales Strategy:** The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services, and the customer base.

**Offering (Product) Strategy:** The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

**Business Model:** The soundness and logic of the vendor's underlying business proposition.

**Vertical/Industry Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

**Innovation:** Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

**Geographic Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.