Magic Quadrant for the Wired and Wireless LAN Access Infrastructure

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Summary

We evaluate enterprise LAN vendors providing wired and wireless access layer connectivity. Network leaders should evaluate vendors based on their ability to offer the same network applications across both the wired and wireless infrastructure and address new IoT challenges.

Strategic Planning Assumption

By 2020, enterprises' IT organizations will spend 10 times more on network service applications than the associated access point and switch hardware components, up from less than 2% reported today.

Market Definition/Description

This document was revised on 2 September 2016. The document you are viewing is the corrected version. For more information, see the Corrections page on gartner.com.

This market consists of vendors that supply wired and wireless networking hardware and software that provides device connectivity to the enterprise infrastructure access layer. These devices can be laptops, tablets, smartphones, sensors and any device that is fixed or mobile which is communicating to a wired switch port or wirelessly to an access point at the edge of the enterprise infrastructure. These wired and wireless local-area networking components may include:

- Hardware — Wireless access points, wired switches, controllers

- Software — Network service applications, including:

  - Network management

  - Guest access

  - Onboarding services

  - AAA security/authentication

  - Policy enforcement

  - Intrusion detection systems/wireless intrusion detection systems

  - Location services

  - Performance management

  - Application visibility

We typically observe the following types of access layer vendors in this market:

- Those that provide their own wired and wireless infrastructure components, network applications and services.

- Those that mainly focus on a specific connectivity option, such as either wired or wireless components, often focusing on solutions that address a unique set of market requirements.

- Those that use a strategic partner to provide some or all of the hardware or software components of an end-to-end access solution. It is important that these vendors provide differentiating functionality that demonstrates why the vendor partnerships collectively provide a better offer to enterprises, rather than being considered separately.

Clients Want Convergence and Flexibility

Enterprises continue to tell Gartner during inquiries that they prefer a common set of security, policy enforcement and management across both their wired and wireless access networks. In a recent Gartner enterprise client survey, [1] over 70% of clients prefer a single vendor to deploy their access layer solution.

We also hear that they want the flexibility to deploy these network applications on-premises within the enterprise, in a private cloud or in a public cloud to address a variety of implementation scenarios, such as multiple, remote branch offices in addition to large campus environments.

What's Changed in the Market?

Over the past 12 months, clients deploying access layer solutions have had new network service requirements as indoor location services, analytics, managed services and service-level requirements. Additionally, access point and switch component prices for basic functionality have continued to drop as vendors look to add new functionality to justify higher prices. In 2015, clients told us through inquiries that they were less concerned about the higher throughput capabilities of advanced technology, such as 802.11ac Wave 2 or 802.3bz, and were more concerned about the high density and security issues arising from Internet of Things (IoT) devices connecting to the enterprise infrastructure. This is consistent with Gartner research that notes typical users need no more than 5 Mbps of shared media access. [2]

NEW STANDARDS FOR HIGHER THROUGHPUT REQUIRE NEW ACCESS POINTS AND SWITCHES

While vendors launched new wireless LAN (WLAN) access points, the value proposition has been partially negated by the need to replace both the access points and upstream fixed-form-factor switches. The replacement requirement is driven by the yet-to-be-ratified IEEE 802.3bz. The new cabling standard will provide 2.5/5 Gbps throughput when new 802.3bz-compliant components are used on the access points and the switches. Through Gartner inquiry and enterprise equipment forecasting reports, we continue to see only early adopters jumping on the 802.11ac Wave 2 bandwagon.

NEW ACCESS LAYER REQUIREMENTS ARE EMERGING

RFPs from client inquiries continue to focus on end-user experience that can be described by bandwidth, latency and location requirements and less on the speeds and feeds of access layer connectivity as hardware prices continue to decline (see "Forecast Analysis: Enterprise Network Equipment, Worldwide, 2Q16 Update"). Our research finds that vendors are differentiating their access points with new antennas to address more granular location requirements and connectivity options that allow the access point to be used as a hub or gateway to the network to support video surveillance cameras and other peripherals. Wave 1 access points that are only providing bridging from wireless to the wired infrastructure are now available for less than $100.

In 2015, vendors also added new components to access layer solutions, such as sensors that were deployed to provide location information and feedback to the network analytics applications that were used for documenting the health status of the network and showing that managed service providers were meeting service-level agreements.

VIRTUAL SEGMENTATION FOR THE IOT PROVIDES VALUE FOR ACCESS LAYER SWITCHING

As access layer vendors continue to find innovation in wireless components, the wired network continues along the path of commodity as edge switches continue to be candidates for white-box/"brite box" solutions or at least a continued reduction to well below $50 per port. The only glimmer of innovation has been vendors that continue to extend their network fabric from the data center or cloud to the edge of the network to provide "microsegmentation" of IoT devices. Clients continue to cite network service applications and unified-access layer management not only as market drivers, but also as differentiators, when looking at vendor solutions.

The Vendor Landscape Changes Again

In 2015, HP acquired Aruba Networks, Fortinet acquired Meru Networks, Allied Telesis acquired Extricom and SolarWinds was acquired by Silver Lake Partners and Thoma Bravo. In 2016, the convergence of access layer vendors continued as Brocade purchased Ruckus Wireless. We continue to see fewer stand-alone vendors that provide only a portion of the access layer solution.

WHAT'S REQUIRED IN THE ENTERPRISE WIRED AND WIRELESS ACCESS LAYER?

Network administrators are looking for complete solutions that address enterprise wired and wireless connectivity and access layer services, including:

- The ability to minimally sell and support 24- and 48-port Power over Ethernet (PoE) and PoE+, chassis or stackable switches with a roadmap for 2.5/5-gigabit wired connectivity on existing Category 5e/6 cabling to closet switches.

- Switching portfolio with different power supply sizes that allow the enterprise to adjust the PoE power budget based on IoT demands.

- The ability to minimally sell and support IEEE 802.11n and 802.11ac Wave 1 with a roadmap for 802.11ac Wave 2.

- The ability to deploy any or all network service applications within the enterprise on vendor-provided or enterprise-selected hardware platforms, in a private cloud or in a public cloud.

- Support, at minimum, for a captive portal for a guest access application with the ability to provide web authentication credentials via SMS, email or printout to users for Windows, Mac, iOS and Android clients.

- Ability to minimally provide device authentication for Windows, Android and iOS devices via WPA2, as well as an authentication method for supporting devices that cannot support a supplicant.

- Ability to detect wired and wireless intrusion detection.

- Policy enforcement that provides access to applications and parts of the network based on credentials, as well as context-

aware variables, such as location and device profiling. This is particularly useful for "bring your own device" (BYOD) scenarios but also "headless" [3] IoT devices where security will be even more important. There must also be an ability to traffic-shape/rate-limit and content-filter trusted clients, as well as an ability for guest-access-connected clients; the solution may be internally developed or available through a strategic alliance.

- Integrated network management that is aware of wired components and is WLAN-vendor-independent for configuration, provisioning and device profiling.

- Onboarding services, including device authentication and user authorization services for BYOD programs that support many operating systems and device postures.

- Analytic applications that look not only at the network but also the end-user data to help organizations have a better insight into the performance of their access layer networks.

- Network forensics tools to determine what is happening across the entire access layer in addition to security functionality.

- Support for voice and video applications by adding features to detect and resolve latency issues, to reduce jitter, to provide awareness and monitoring of voice and video quality, and to enable fixed-mobile convergence.

- Location-based services, context-oriented services and asset management.

- The ability to provide managed services when additional IT resources are needed.

We also anticipate that vendors will provide additional information about usage and traffic to administrators or be able to monitor service levels of connectivity environments. This proactive management enables enterprises to maximize the productivity and ROI for all access-layer connectivity.

Magic Quadrant

Figure 1. Magic Quadrant for the Wired and Wireless LAN Access Infrastructure

Source: Gartner (August 2016)

Vendor Strengths and Cautions

Aerohive

Aerohive Networks is one of the smaller vendors by annual revenue that are covered in this report. While it has a wired and wireless portfolio, it has historically focused primarily on the WLAN component of access connectivity. It moved up to the No. 5 WLAN vendor in 2015 when measured by revenue. Aerohive sells 100% via the channel, primarily in North America and EMEA and with strategic partners, such as Dell and Juniper Networks, in its target markets of distributed enterprise, education and retail. Aerohive provides a controllerless architecture with the full suite of access applications via its HiveManager software, including guest access, policy management, analytics, provisioning and network management, as well as an integrated RADIUS server for security services. HiveManager can be deployed either as an on-premises application or as a cloud managed service to provide deployment flexibility. It also has a set of external APIs that allow partners and end users to extract their own contextual reporting and analytics. HiveManager has the capability to manage Dell switches, and it can be purchased as a Dell branded solution with Dell professional services and support. Aerohive has recently expanded its fixed-format switching portfolio that provides PoE but offers limited location service capabilities built into HiveManager.

Clients deploying in North America and EMEA should evaluate Aerohive for their WLAN infrastructure.

STRENGTHS

- Aerohive's managed service offering provides a flexible dashboard for service providers to implement a single cloud-based solution that also allows for multiple billing options.

- Aerohive customers cite simplicity in deployment and ease of use of both cloud managed and on-premises deployments as key benefits versus other competitors.

- The cooperative control architecture eliminates the need for large Layer 2 domains, since it allows for seamless roaming across Layer 3 segments.

CAUTIONS

- Aerohive has a limited wired switching portfolio that, to date, represents a very small percentage of its overall revenue.

- Aerohive is one of the smaller players in the market, and it has limited visibility and penetration outside its core markets (distributed enterprise, education and retail) and geographies (North America and EMEA).

- Aerohive offers limited indoor location services, which are needed to expand in its target markets like retail and hospitality, and instead relies on application developers to use Aerohive location and presence APIs.

ALE

ALE, which operates under the Alcatel-Lucent Enterprise brand, provides a unified wired and wireless network portfolio with end-to-end access and control capabilities. In the company's first full year of operation under majority owner China Huaxin, ALE's 4.4% WLAN product revenue growth — based largely on hardware and software from its strategic partner Aruba — outpaced the overall market. ALE focuses on the capabilities of its Intelligent Fabric technology to reduce IT overhead costs with automation and centralized wired and wireless LAN deployment, management, policy and maintenance. ALE has announced a new offering targeting midsize-enterprise deployments: Campus Network on Demand. This outsourced managed-access networking solution enables providers to bill customers based on actual usage of wireless access points or wired ports. Through China Huaxin's acquisition of hardware manufacturer Autelan, ALE will also launch its own line of entry-level access points as a lower-cost alternative to its Aruba-based access points in the small and midsize business (SMB) segment and emerging markets.

Enterprise customers, including those in hospitality, healthcare, transportation, education and public-sector organizations, should consider ALE for unified wired and wireless access network requirements.

STRENGTHS

- ALE continued updating its OmniSwitch Ethernet LAN switch portfolio, including the addition of 10-, 24- and 48-port switches for its 6350 model, a new 6865 hardened fixed-configuration switch line, and a new 9900 modular switch for campus and core.

- Network on Demand's consumption-based pricing provides a differentiating and innovative product for customers interested in operating-expenditure-based network solutions.

- ALU provides network performance statistics that provide the ability to measure latency, jitter and packet loss and provide mean opinion scores (MOSs) for telephony applications.

CAUTIONS

- ALE's results rely heavily on EMEA customers, with the region's share of total revenue rising by nearly 3 percentage points to 51.8%. Customers should confirm that its support capabilities meet their requirements.

- ALE remains heavily reliant on Aruba, owned by competitor Hewlett Packard Enterprise, for innovation in its WLAN hardware and software capabilities. ALE has a long-term partner agreement with Aruba, but customers should assess any

potential impact on their supplier choice.

- Adding an entry-level wireless access point product line may cause some customers to consider more-established, low-cost vendors other than ALE if cost is a primary hardware consideration.

Allied Telesis

Allied Telesis has a wired switching and wireless LAN portfolio for access layer connectivity. Allied Telesis has three wireless architectures: (1) its traditional wireless portfolio consisting of its Unified Wireless Controller (UWC) and TQ access points; (2) AlliedView Cloud with AP series access points; and (3) its Extricom solution with separate access point and controller/switch solutions that integrate its Channel Blanket technology. The AlliedView Network Management System manages the switching and traditional WLAN product portfolio on-premises, while the AlliedView Cloud solution supports deployments without an on-premises controller appliance. Allied Telesis sells predominantly through channels. The company does not appear in Gartner inquires, although it has a global footprint, with about 55% of its revenue from the Asia/Pacific region and the rest split between North America and EMEA. Allied Telesis has a limited indoor location services strategy or a limited agent-based strategy to contain/separate IoT devices from the edge of the network to data center or cloud-based applications.

Enterprise customers in the public sector, education and healthcare should consider Allied Telesis for their wired and wireless infrastructure needs.

STRENGTHS

- Allied Telesis Management Framework (AMF) can be deployed on-premises, or as a private or public cloud. AMF opens the technology to third-party vendors to provide further infrastructure management and provisioning.

- Allied Telesis offers an integrated solution; all products operate via the same operating system (Alliedware Plus) and have embedded management intelligence.

- Net.Monitor, an Allied Telesis managed service, provides a suite of private cloud-based active monitoring, management and professional services.

CAUTIONS

- With the acquisition of Extricom in 2015, Allied Telesis has significantly increased its wireless portfolio, but the two product lines are not integrated, and Extricom products use different on-premises network management, as well as separate cloud management.

- Allied Telesis supports three guest access solutions — Unified-Wireless-Controller-based, cloud-based and Extricom — and each has limited policy enforcement capabilities. Clients should validate their requirements against the available functionality.

- Allied Telesis operates globally but is smaller than the top players. Clients should validate that the reselling partner has the ability to provide sufficient local support capabilities.

Avaya

Avaya's wired and wireless LAN offering is a comprehensive access layer portfolio featuring Unified Access, its solution for management, policy enforcement, guest management and security across single or multivendor wired and wireless access networks. Avaya continues to rely on a strategic partner for wireless hardware, which can be managed as a unified network with Avaya's own switching products. Avaya's Identity Engines portfolio provides guest access and policy management. Avaya's fabric architecture enables automated configuration of the edge network, shortening the time required to provision networking at remote or branch offices, as well as end devices. Avaya's primary vertical-market targets include education and healthcare, for which the vendor has created market-specific offerings. Although it is one of the more complete access layer technology solutions, Gartner does not see Avaya on the shortlist for client engagements.

Organizations with Avaya's unified communications portfolio, as well as in its target markets, which include hospitality and state/local government, should consider the vendor for "greenfield" or network refresh proposals.

STRENGTHS

- Avaya's Unified Access solution supports granular segmentation of users, applications and services, including the segmentation of IoT devices that need secure access to applications in the corporate data center. Avaya also introduced an Android smartphone app network that managers may use to onboard IoT devices.

- Avaya's SLA Mon technology provides performance awareness for networks as well as the ability to measure latency, jitter, packet loss and provide MOS for telephony applications.

- Avaya expanded its managed service portfolio to include professional services installation, deployment and management of the access layer network.

CAUTIONS

- Avaya trailed its primary competitors in offering a cloud-managed WLAN solution, which remained on the vendor's product

roadmap for commercial availability in 4Q16.

- Although Avaya's revenue from the Unified Access business grew in 2015, it is part of the larger Networking segment where revenue declined 4.1% in Avaya's 2015 fiscal year. Local-area networking accounted for less than 6% of Avaya's total revenue in its 2015 fiscal year.

- Avaya has a limited indoor location services offering, which is needed to expand in its target markets.

Brocade (Ruckus Wireless)

In May 2016, Brocade completed its acquisition of Ruckus Wireless. As a result, Brocade is able to offer both access wired switching and WLAN components in a solution that has been tested for interoperability through the Open Mobile Alliance.

Brocade offers a controller-based WLAN architecture that can be deployed on-premises or delivered from a cloud offering and supplemented by a controllerless stand-alone offering for SMBs (Unleashed). The Cloudpath acquisition provides guest access and access control functionality for SmartZone or ZoneDirector controller-based WLAN architectures and Brocade wired switches. In June 2015, Ruckus (prior to the acquisition) announced a new version of SPoT, its cloud-based Wi-Fi indoor location service, which also features an analytics dashboard. In December 2015, Brocade released a new campus fabric offering, which was a software upgrade to the existing ICX switch product line that provided easier management of the access layer. Brocade's Network Advisor can be used to manage a combined solution of both product offerings.

Clients should consider Brocade for wired and wireless solutions in education, hospitality, government and healthcare.

STRENGTHS

- Prior to the acquisition, Brocade already had a technology and sales partnership with Ruckus, providing a jump-start to the integration of the two companies.

- Brocade Network Advisor provides easy management options for stacking and fabrics across the entire ICX 7000 family, as well as health monitoring of the Ruckus product family.

- Both Ruckus access points and Brocade ICX switches have the flexibility to be reused across multiple network architectures. Ruckus access points can be used in controllerless, cloud, virtual and hardware-based controller implementations. Similarly, the Brocade ICX switches can be reused in stacking, spanning tree or fabric architectures.

CAUTIONS

- Over 95% of both Brocade's and Ruckus' solutions are sold through the channel; end users should make sure that the partner selected can deploy and support both solutions now and for the intended useful life of the product.

- While Cloudpath offers policy, device and certificate management for both wired and wireless endpoints, it has limited enforcement capabilities. Network planners should verify that the offering addresses their usage scenario for all Ruckus and Brocade products that are being deployed.

- Prior to the acquisition, Ruckus maintained multiple wired switching partners, and Brocade had multiple WLAN partners. Network planners should be aware that it may take time for service organizations and service plans to be coordinated. Enterprise decision makers should understand future product roadmaps, document their service plan and understand any changes in coverage.

Cisco

Cisco continues to be the global market share leader for access layer connectivity with the broadest vendor wired and wireless portfolio. It is important to note that Cisco has two access layer solutions. Its on-premises solution includes a deep wired switching portfolio via its Catalyst line of fixed-format and modular switches with UPoE support for the IoT and controller-based and controllerless Aironet access points. The on-premises solution also works with Lancope StealthWatch to provide network-as-a-sensor capabilities with Cisco Identity Services Engine (ISE) and Prime for network management. Cisco's Meraki solution has its own separate fixed-format switches and access points, as well as a separate cloud-based Systems Manager for policy and management. Cisco continues to invest aggressively in its access layer, and, over the past year, released its hyperlocation module, Mobility Express and APIC-EM.

Clients should consider Cisco globally for all enterprise on-premises and cloud-based access layer opportunities.

STRENGTHS

- Cisco has made advances in location granularity with its Hyperlocation module. The enhanced antenna solution enables Cisco Aironet access points to locate and track wireless clients with one- to three-meter accuracy.

- Mobility Express, which provides a controllerless deployment capability using all 802.11ac Wave 2 access points (AP 3800, AP 2800, AP 1850 and AP 1830), confers fast and easy provision capability to manage existing Cisco access points.

- Cisco's CMX provides Bluetooth Low Energy (BLE) and Wi-Fi location services, an application toolkit and reporting capabilities that include rich analytics.

CAUTIONS

- Cisco continues to develop new access layer functionality, but end users must be aware that Cisco has two access layer connectivity product lines, which are developed by separate development teams. Not all features for one product line are or will be available with the other. Additionally, inconsistent user interfaces and different capabilities remain for security, guest, network management and policy enforcement.

- Gartner clients have reported that Cisco sales and partners present only one access layer option, either on-premises or in the cloud. End users should evaluate both Cisco product lines and understand any issues that may limit migration options for existing Cisco customers without incurring additional costs.

- Our research shows that Meraki's cloud subscription is available for one-, three- and five-year options. End users need to understand that changes in pricing after the initial term may affect the overall total cost of ownership of the purchasing decision.

Dell

Dell's One Network is an integrated access layer solution with simplified management tailored to organization size and complexity. For small businesses, Dell offers a unified wired, wireless and secure network via an integration with Dell SonicWALL TZ series firewall and SonicPoints. For the midmarket, Dell offers a branded wired and wireless solution based on its N-Series fixed-port, stackable Ethernet switches and Aerohive access points, both configurable and manageable via a single pane of glass using an integrated version of the HiveManager NG platform. For larger campus deployments serving 1,000 or more users, Dell also has begun featuring Aerohive as the WLAN component of an architecture using its C-Series and N-Series switches, although as of 1H16, it had not integrated HiveManager NG management capabilities for the wired portion of that architecture, which provides guest access, policy enforcement and analytics reporting. Dell's strategy for indoor location services and IoT containment is through partnerships. Dell's primary markets include traditional enterprises and verticals, such as healthcare, education and public-sector institutions.

Dell warrants consideration for all enterprise access layer opportunities, especially for SMB or midmarket enterprises seeking a cloud-based management or managed service option for wired and wireless LAN.

STRENGTHS

- Dell's ability to effectively integrate HiveManager NG and offer it as part of a Dell-branded unified-access solution underscores the vendor's progress and capabilities in serving SMBs and medium enterprises for simplified, cost-competitive unified-access networks.

- Dell is a global end-to-end access layer solution vendor with the ability to do installation, support and financing. ProDeploy is an enterprise suite of services to help customers in all phases of installation and deployment and to test/validate the results.

- Dell's portfolio of infrastructure managed services consists of four capabilities: consulting, implementation, management and support.

CAUTIONS

- Dell offers a version of Aerohive's HiveManager NG for network applications, even though it does not support Dell's W-Series or SonicPoint portfolio. This may limit the appeal of this unified networking solution to prospective customers with a need to support legacy equipment from other vendors.

- North America and EMEA continue to account for nearly three-quarters of Dell's annual revenue, so customers in Asia/Pacific, Japan and Latin America should confirm the company's ability to provide them with appropriate levels of support in their regions.

- Dell's reliance on third-party solutions for indoor location services and IoT containment/separation strategies means customers should verify that the solution will work in their environment.

D-Link

D-Link provides wired and wireless solutions for the unified-access layer, as well as other network and security devices. D-Link is a global company and derives over 60% of its revenue from Asia/Pacific and emerging markets. Government, education and SMBs are the most important markets for D-Link, which obtains 85% of its revenue through channels. D-Link focuses on delivering a complete, scalable and easy-to-use solution to clients at an affordable price, even though Gartner does not see D-link on the shortlist for client engagements.

Clients with common connectivity requirements looking for a practical and cost-effective solution, like SMBs or enterprises for their small branch offices or remote locations, should engage with D-Link.

STRENGTHS

- D-Link offers a broad hardware portfolio, with fixed configuration and stackable switches, and wireless access points that operate in stand-alone or coordinate mode with Wi-Fi controllers. D-Link provides its Central WiFiManager software at no cost to the overall solution.

- D-Link remains a low-price leader for both wired switch and wireless network hardware, with Gartner seeing list prices for

some of its unified-access hardware that are, in some cases, lower than the discounted prices from other vendors for equipment with equivalent functionality.

■ The vendor supports specific features to simplify the setup of its own Internet Protocol cameras on their switches, enabling clients to easily integrate video surveillance in the network solution, which can be a significant benefit for SMBs.

■ D-Link's Central WiFiManager software supports only the vendor's access points and switching components and cannot be deployed in a cloud-based model.

■ D-Link's features for managing guest access and onboarding devices are limited when compared with leading vendors. Policy management is not available.

■ D-Link has limited indoor location services and IoT containment/separation strategies.

Extreme Networks

Extreme Networks is a global vendor with a broad portfolio of wired and wireless products that can meet a wide range of enterprise needs. Almost 80% of its revenue is derived from clients in North America and EMEA. As a channel-focused organization, Extreme makes over 80% of its sales through its partner channel. ExtremeManagement, ExtremeControl and ExtremeAnalytics provide network management, guest access, policy enforcement and application analytics for Extreme Network components, as well as other LAN vendors. Extreme has a strong customer service through a 100% insourced service and support team.

Clients should consider Extreme for enterprise access layer opportunities in SMBs and large enterprises, particularly in North and South America and in EMEA.

■ ExtremeManagement (formerly NetSight) is a single console that provides multivendor, centralized management that can be deployed on-premises or virtually in a public or private cloud environment. ExtremeManagement Center is fully integrated with Extreme's guest access services and has the ability to report MOSs for voice applications.

■ Extreme has a strong flow-based packet processing technology and application control embedded at every point in the network. ExtremeAnalytics (formerly Purview) engine software has a wide range of primitives that can be used in reports.

■ ExtremeCloud is a subscription-based device management solution for distributed or campus-based deployments. ExtremeWireless semiautonomous access points provide management for on-premises or cloud using the same hardware (switches and access points), offering investment protection for either mode of deployment.

■ While the vendor continues to expand its channel organization, enterprises should work with resellers to ensure that Extreme can provide the level of support in their specific geographies or markets.

■ Extreme does not show up on client shortlists outside of its target markets.

■ Based on deals that Gartner reviews, Extreme's solutions have not been as aggressively priced compared with other players in the market.

Fortinet

Fortinet provides a unified-access network capability leveraging its legacy wired switching solutions with the WLAN technology that Fortinet acquired with its 2015 purchase of Meru Networks. Fortinet's marketing focus on security leverages its success in that segment, especially in serving midsize enterprises. The Secure Access Architecture integrating Fortinet's core firewall and other security capabilities into a unified-access network provides a value at a time when highly publicized corporate security breaches and data theft have raised awareness of network-oriented threats. The vendor's integrated WLAN architecture targeting higher education, healthcare and distributed enterprise customers, such as retail chains, integrates a WLAN controller into the FortiGate firewall appliance. This solution also provides Fortinet's antivirus and anti-malware; policy enforcement; wired and wireless network management; and analytics. Fortinet also offers a more traditional infrastructure architecture separating the WLAN controller from the firewall and network management hardware appliances; and a cloud-based wired and wireless LAN management solution that may be deployed on-premises or via a public cloud. The company generates about 80% of its revenue in the North America and EMEA regions.

Enterprises should include Fortinet when considering vendors for a unified-access network deployment or refresh, and when considering options for consolidating access network security infrastructure.

■ Fortinet pushes real-time security patches and malware or virus definition updates out to network customers, rather than providing them as periodic batch updates, reducing the time that network elements may be vulnerable to newly created or identified threats.

■ Fortinet does not charge a licensing fee for its infrastructure wireless access points, the former Meru products, in contrast

to its largest identified competitors (Cisco's Meraki, HP's Aruba and Brocade's Ruckus).

- The FortiPresence location service utilizes Wi-Fi signaling from a customer's smartphone to track the device, potentially simplifying the collection of location data for analytics.

CAUTIONS

- Fortinet's unified network management solution enables management of only Fortinet switches, access points and security appliances. This potentially narrows its appeal to enterprises with multivendor infrastructure deployments.

- Fortinet's primary marketing message focused on cybersecurity may lack broad appeal to organizations that already have implemented non-Fortinet network and data security solutions.

- Fortinet has several different lines of wireless access points that are usable to different degrees across the vendor's three access networking architectures, potentially causing customer confusion about the cohesiveness of the overall product line.

HPE (Aruba)

Following the acquisition of Aruba Networks, completed in May 2015, HP separated into two independent publicly traded companies in November 2015: HP Inc. and Hewlett Packard Enterprise (HPE). Aruba operates as a subsidiary of HPE and retails its brand for campus networking solutions. HPE (Aruba)'s revenue growth for WLAN and campus switches lost some momentum in 2H15, but sales in 1Q16 were broadly positive. HPE (Aruba) is the second-largest vendor in the wired/wireless LAN access layer market, with almost 20% wireless revenue share and more than 10% revenue share for access layer worldwide. Since the acquisition, the company rationalized its WLAN and wired access switching portfolio under one brand, Aruba. The "legacy" Aruba wired and HP wireless products on both sides are being retired, which Gartner sees as positive for end users. HPE offers its FlexNetwork core switching and branch routing product portfolio in addition to the Aruba wired and wireless LAN access product family. Aruba also offers a cloud offering through its Aruba Central offering and end-to-end location services with remote beacon management tools via Aruba Meridian. In 1Q16, Aruba Clarity was launched to proactively monitor network performance to address issues before they affect the end user.

Clients globally should consider HPE (Aruba) for all wired/WLAN access layer opportunities.

STRENGTHS

- Gartner clients report a high degree of satisfaction with Aruba's ClearPass, which provides guest access, device profiling, posture assessment, onboarding and more.

- Aruba's management and service applications (ClearPass, IMC, Meridian and AirWave) support non-HPE devices, which simplifies orchestration within multivendor environments.

- A wide selection of HPE (Aruba) switches come with hardware lifetime warranty, covering all critical components, such as power supplies and fans. HPE also offers free technical support in business hours for three years on most Aruba switches (24/7 for 90 days), HPE FlexNetwork and OfficeConnect small business products.

CAUTIONS

- AirWave and ClearPass are fully supported on Aruba switches, but not the same level of granular support and real-time functionality is available on legacy HPE switches.

- While Aruba continues to invest in its cloud offering, Aruba Central, it currently lacks the same functionality as its ClearPass and AirWave offerings.

- Aruba's pricing model has historically been based on a feature licensed sales model, which contrasts with HPE's broad available lifetime warranty. HPE (Aruba) provides customers with periodic software updates to the switching software as part of the limited lifetime warranty. Updates to the WLAN (controller and access point) and security (ClearPass) software are provided only to customers that have an active support contract. This is aligned with the innovation cycle for WLAN technology with rapid change relative to the switching technology.

Huawei

Huawei's Enterprise Business Group (EBG) is a global solution provider that has strong presence in its local Chinese market, which generated more than 60% of its switching and WLAN revenue in 2015. Huawei has a maturing reseller channel where 95% of its revenue was delivered, and in the last three years has grown above average market rates, gaining revenue market share and expanding its presence, predominantly in China and EMEA. Huawei has a number of R&D centers in the United States, but otherwise its presence as a vendor remains tiny (less than 1% of its 2015 worldwide revenue came from North America). Huawei's Agile Network Solution offers the vendor's vision of end-to-end campus networking. In the last 12 months, Huawei has predominantly focused on education, government and the public sector, and finance as the top three target vertical markets. Many Huawei switches have integrated WLAN controller functionality, and software-defined networking remains central to Huawei's strategy. Huawei has announced a cloud strategy, additional indoor location service capabilities and a managed service offering.

Clients should consider Huawei for enterprise access layer opportunities where it has a sizable installation base, especially

China.

- Huawei's campus Agile Controller integrates user policy management, guest access, indoor location services and data analytics. This architecture can scale to up to 6,000 access points and over 1,000 access switches.

- Huawei's eSight management and network applications support both Huawei and competitive-vendor components, including components from HPE and Cisco. eSight can also be deployed in a multitenant cloud environment, and eSight Mobile is a recent addition that enables remote troubleshooting from mobile devices.

- Huawei has a strong foundation in switching, which provides a broad range of fixed-form and modular switches, generally at lower costs than competitors.

CAUTIONS

- Less than 40% of Huawei's revenue is derived from outside of China. While Huawei has a large network of partners and the ability to deploy globally, organizations should request references for implementation and service of applicable Huawei solutions from outside of China.

- We traditionally see Huawei with a larger presence in the data center or core of large enterprises rather than the access layer, even though Huawei is continuing to invest in campus networking.

- Clients report a need for more local-language support and the need for better user documentation.

Juniper Networks

Juniper Networks provides access networking via its EX Series wired switching portfolio, but largely relies on partnerships for wireless through its Open Convergence Framework strategy. Juniper struck a comprehensive partnership with Aruba Networks in 2014, and both Ruckus Wireless and Aerohive in 2015. Brocade's recent acquisition of Ruckus Wireless (completed in May 2016) now puts into question the longevity of its partnership with Juniper, as Brocade is another strong competitor of Juniper in the U.S. federal government vertical market. Juniper had successfully integrated Aruba's AirWave and ClearPass (network and policy management), which provide some differentiation. In 2015, Juniper was the No. 4 wired switching vendor when measured by revenue, and it offers a deep and well-thought-out campus switching architecture but lacks an indoor location and IoT containment/separation strategy. Over the past 12 months, Juniper has enhanced the security framework of the EX Series switches, through more granular integration with its SRX firewalls, as well as third-party network access control solutions, including Aruba's ClearPass. This enforces unified policy and network access control. Juniper should be considered for wired switching opportunities in midsize and large enterprises.

STRENGTHS

- Juniper has a superior reputation for high-quality products and technical support among customers in its core verticals of financial services and the technology sector, which is reiterated in research surveys.

- Juniper aggressively prices its campus switches in competitive scenarios while contributing to open-standards-based solutions and providing flexible architecture for end-to-end access layer connectivity.

- Juniper's portfolio is standards-based and includes several options for automation, including stacking, NETCONF, OpenFlow and Python scripting. Junos Fusion Enterprise is a new fabric technology offering that allows support for up to 6,000 ports in a single domain that can be managed by Network Director through multiple Fusion instances that can be distributed by location or geography.

CAUTIONS

- The participation of Juniper's WLAN partners in the Open Convergence Framework can be short-lived due to the recent consolidation in the market.

- In the past few years, we have seen several vendors bringing WLAN assets in-house through acquisition, yet Juniper's dependence on wireless partners goes in the opposite direction. Organizations need to ensure that any proposed solution warrants long-term support and maintenance.

- The integration of Aruba's AirWave and/or Aerohive's HiveManager with Juniper's Network Director delivers wired/wireless visibility but could entail organizations paying for two separate network management packages. This may also impact customers' ability to implement a unified-access layer with a single policy, security and management interface. Organizations need to ensure that any proposed solution meets their business requirements.

Xirrus

Xirrus is a provider of access solutions focused on wireless, although its portfolio includes some switches to provide connectivity to access points and simplify the integration with campus networks. The company sells exclusively through channels and offers a broad range of access points and network applications, which can be deployed with cloud-based or on-premises management options. Xirrus has a presence in education, healthcare, retail and hospitality. The company receives 70% of its revenue in North America, but operates also in EMEA, Asia/Pacific and Latin America, and it is continuing to invest to expand international coverage, developing new distribution channels and partnerships with managed service providers.

- Xirrus offers a broad range of Wi-Fi access points, including unique outdoor and high-density options with multiple radios in a single access point, and network access applications, that can be used to build effective wireless solutions.

- Xirrus uses a distributed, controller applianceless architecture and software-defined radios for 5 GHz wireless networks, and it provides flexible management options, including SaaS cloud-based management with zero-touch provisioning.

- Xirrus EasyPass provides comprehensive guest access and Wi-Fi device onboarding options, both on-premises and cloud-managed.

CAUTIONS

- Xirrus is focused on wireless access and does not have a complete campus switch portfolio.

- Xirrus does not provide policy-based unified-access solutions that cover both wired and wireless access.

- Clients located outside of North America must assess local sales and technical support capabilities.

Zebra

Zebra Technologies is a global leader for in-store retail, hospitality, manufacturing, transportation and logistics access layer solutions. Zebra continues to drive Enterprise Asset Intelligence and innovate around its WiNG wireless architecture, NSight analytics platform, Azara multitenant cloud platform and MPact location services platform. Zebra is one of the few vendors that provide application visibility and control at the edge of the network instead of upstream in a separately located controller appliance, allowing it to meet the growing needs of policy enforcement introduced by BYOD and IoT. Zebra provides a highly scalable, reliable and flexible solution that addresses the access layer connectivity requirements of it targeted vertical markets.

Zebra should be on the shortlist for any WLAN opportunities in in-store retail, hospitality, manufacturing, transportation and logistics, and other verticals that have data collection or location requirements.

STRENGTHS

- The WiNG 5 Enterprise platform is a highly scalable, controllerless or controller-based WLAN offering with NSight analytics that provides granular data collection and predictive management. The Azara cloud delivers enterprise-class WLAN with the same WiNG 5 enterprise access points on a scalable simple-to-use platform.

- Zebra's MPact location services platform has a broad portfolio of location capabilities, including BLE, Wi-Fi and ultrawideband (UWB)-based location services, as well as an optimized software development kit (SDK) and reporting platform. The MPact solution can consistently deliver one-meter accuracy, and the solution also provides indoor and outdoor beacons with five or more years of battery life.

- Zebra's advanced service validation capabilities are one of the few solutions in the industry to validate the final network performance and provide a baseline to address future comparison. Zebra offers design and deployment services that guarantee WLAN coverage.

CAUTIONS

- Zebra is highly visible in its core verticals, but Gartner does not often see Zebra on the shortlist for enterprise carpeted-office deployments.

- Zebra has a wired switching portfolio that represents approximately 15% of its overall revenue and impedes its ability to deliver to end-to-end access layer solution.

- Zebra lacks the ability to manage its multiple location service offerings with a single application. Each offering has its own management application.

ZTE

ZTE is a multinational headquartered in China and operating in more than 160 countries, with a broad portfolio of telecommunications and networking products. ZTE offers a full range of Ethernet switches, WLAN access points and controllers. The company makes 60% of its revenue in Asia/Pacific, with the rest in EMEA and Latin America, where 50% is delivered through the channel and the remaining 50% is through direct sales. ZTE should be considered by enterprises within Asia/Pacific, where basic access layer connectivity is needed and network applications can be provided by third-party solutions.

STRENGTHS

- ZTE offers a cost-effective range of campus switches and wireless products that can fulfill basic access layer connectivity requirements.

- ZTE switches can provide 60 watts of PoE to support WLAN access points and IoT devices, such as conference room display, thermostats or LED lighting that may need higher power consumption.

- ZTE has a green and ecofriendly design philosophy, which focuses on reducing power consumption of ZTE access layer

switches and WLAN access points.

- ZTE is a large company but one of the smaller players in the enterprise access layer market according to revenue, and it has limited visibility and penetration outside of Asia, where it sells 75% of its access layer solutions.

- ZTE lacks support for basic network applications, such as guest access, onboarding and policy management. Clients will need to rely on third-party applications to provide this functionality. Additionally, ZTE does not have an indoor location service solution, multivendor network management or virtual segmentation functionality for the IoT.

- In regions other than Asia/Pacific, clients must evaluate the availability of ZTE local presence and support capabilities.

Vendors Added and Dropped

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

Added

The following vendors were added to this year's Magic Quadrant:

- Fortinet

- Xirrus

- ZTE

Dropped

The following vendors were dropped in this year's Magic Quadrant:

- Brocade completed its acquisition of Ruckus Wireless prior to the publication of this report; the two vendors are being assessed as the acquiring vendor, Brocade.

Other Vendors

There are several additional vendors that garner interest from Gartner clients and/or that could impact this market over time. These vendors do not currently meet our inclusion criteria, but they can address enterprise access layer connectivity in certain usage scenarios. In some cases, these vendors sell to customers outside the traditional IT organization. Specific players that we track include:

- Netgear

- Ubiquiti Networks

- New H3C

Inclusion and Exclusion Criteria

The following inclusion criteria that have been used to determine which vendors will be covered in this research:

- Vendors in the Magic Quadrant must be able to demonstrate a clear understanding of enterprise access layer networking requirements.

- They must also be one of the top 17 vendors for combined revenue of coordinated WLAN access points or total campus Ethernet switch ports as reported to Gartner's "Market Share: Enterprise Network Equipment by Market Segment, Worldwide, 4Q15 and 2015."

- All hardware and software components must be available on the vendor's published price list. All access layer product revenue must be generated from vendor-manufactured or OEM components.

- Product revenue used for inclusion criteria must be installed in enterprise office environments, which may also include in-store retail, healthcare and education environments. Product revenue may not include convention centers or cellular offloading for outdoor environments. It does not include public venues, such as stadiums and municipal installations, or transportation hubs, such as train or bus stations.

- Vendors must be able to provide references in the enterprise environment.

- Vendors must provide factual details on how they meet these criteria.

Evaluation Criteria

Ability to Execute

We continue to adjust the weighting and criteria for this Magic Quadrant as buyers' requirements and market forces shift what is important for vendors to provide.

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

Product/Service: We evaluate access layer infrastructure products and services consisting of switches, access points and related components, such as external antennas and outdoor enclosures needed for the end-to-end solutions in various vertical markets. We also look at network applications, such as management, monitoring, guest access, policy enforcement and security applications. We consider product differentiation and architectural migration strategies from legacy implementations, whether there is an incumbent vendor or a new solution provider. We also look at maintenance and deployment service capabilities across the global landscape.

Overall Viability (Business Unit, Financial, Strategy and Organization): Viability includes an assessment of the organization's overall financial health, and the financial and practical success of the business. We also evaluate whether the organization continues to invest in access-layer-related business, including technology and product development, as well as solution delivery to the market, including sales channels, marketing communication and service delivery.

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 (including communication of differentiating functionality), and the overall effectiveness of the sales channel, both direct and indirect.

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 differentiating capabilities of the vendor's product lines, company and supporting partners/services. This evaluation also includes the history of the vendor's marketing messages and its ability to react to changes in market requirements in its target markets.

Marketing Execution: This criterion focuses on how the vendor is perceived in the market, and how well its marketing programs are recognized. For access layer infrastructure, the evaluation focused on how well the vendor was able to influence the market around key messages and attributes. An additional indicator for this criterion is how often Gartner clients consider a vendor as a possible supplier in a shortlist evaluation. The change in momentum in this indicator is particularly important.

Customer Experience: How do customers view this vendor? This evaluation includes significant input from Gartner clients in the form of inquiries, face-to-face meetings and written responses about the vendors. A key component in this category is the vendor's ability to provide strong presales and postsales support, especially aligned with vertical requirements.

Operations: This criterion was not ranked.

<p align="center">Table 1.   Ability to Execute Evaluation Criteria</p>

Criteria	Weight
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	Medium
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	High
Operations	No Rating

Source: Gartner (August 2016)

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. Technology providers are ultimately rated on their understanding of how to exploit market forces to create opportunities for themselves.

Marketing Understanding: Does this vendor's marketing message articulate a clear, understandable message that answers the market requirements for technologies and services? Do the vendor's message and supporting products lead the access layer market requirements or merely fulfill them?

Market Strategy: We evaluate the ability of the vendor to look into the future and drive/influence the direction of the market through product roadmaps and offerings. We also look at messaging and marketing campaigns and their ability to communicate differentiating functionality and value proposition. Are the issues that are being communicated and addressed meeting the trends in the market and the needs of end users? Are vendors focusing on building their core competencies or are they investing in random technologies?

Sales Strategy: This criterion was not ranked.

Offering (Product) Strategy: Does the current and future planned product line meet the needs of buyers now with differentiable functionality, and how will it do so in the future? Is the vendor simply building products that the buyers are asking for, or is it anticipating the issues that those buyers will face and allocating resources to address them?

Business Model: This criterion was not ranked.

Vertical/Industry Strategy: Do the vendor's strategy, direct resources, skills and offerings meet the needs of market segments, including vertical industries? In this market, can the vendor differentiate itself with solutions that are specifically developed for the unique requirements of targeted verticals, such as healthcare, logistics, manufacturing, retail and hospitality?

Innovation: What has the vendor done to address the future requirements of access layer infrastructure, including the need for tighter integration with wired networking products, voice, video and application visibility support? Is there innovation in the access layer applications that addresses client needs for easier installation or onboarding, as well as better management? Has the vendor successfully differentiated the current and future product lines to better address customer requirements, both now and two to five years out?

Geographic Strategy: Can the vendor meet the needs of global enterprises for product and support?

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	Medium
Sales Strategy	No Rating
Offering (Product) Strategy	High
Business Model	No Rating
Vertical/Industry Strategy	Medium
Innovation	High
Geographic Strategy	Low

Source: Gartner (August 2016)

Quadrant Descriptions

Leaders

A vendor in the Leaders quadrant will have demonstrated an ability to fulfill a broad variety of customer requirements through the breadth of its access layer product family. Leaders will have the ability to shape the market and provide complete and differentiating access layer applications, as well as global service and support. Leaders should have demonstrated the ability to 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 will have clear and long-term viability in the market, but may not have a complete access layer product portfolio for either products or network applications. Additionally, Challengers may not have shown the ability to shape and transform the market with differentiating

functionality.

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 access layer technologies within the enterprise (for example, convergence, security, management or operational efficiency). The ability to apply differentiating functionality across the entire access layer will affect its position.

Niche Players

A vendor in the Niche Players quadrant demonstrates a near-complete product offering, but it may be unable to control development or provide differentiating functionality because part of the solution is being offered through a strategic partnership, whether it is a hardware component or a network application. Niche Players may also lack strong go-to-market capabilities that limit their regional or global reach or service capabilities in their product offerings. Niche Players often have deep vertical knowledge and will be an appropriate choice for users in the specific vertical markets where they have specialized offerings and knowledge.

Context

There was a lot of innovation in 2015, but different vendors did it with different solutions. For example, some focused on indoor-location solutions, while others focused on moving to controller applianceless solutions, moving applications to the cloud, analytics or addressing the IoT. Cisco's Mobility Express, hyperlocation, APIC-EM and Secure Access solution definitely showed its continuing investment in R&D. While Cisco continues to be the market leader in revenue and market share, the fact that only some of this innovation was implemented in the Meraki product line contributed to the declining overall Cisco WLAN market share, in our opinion. Huawei clearly established itself in the top tier of access layer vendors and has continued to invest in its product portfolio but is hampered in execution by lack of exposure and traction outside of Asia for its access layer solutions. Brocade's acquisition of Ruckus Wireless has set up the combined solution to challenge the market. We anticipate Brocade will need to continue to push the Ruckus team to deliver on its access layer vision, as well as the execution issues associated with any acquisition that include rationalization of channel partners and developing synergies in the go-to-market messaging. Many of our visionary vendors pushed a portion of their solution portfolio forward, whether it was Zebra with indoor location services, Aerohive with its managed service cloud offering or ALE with its use-based pricing model. Through our customer reference survey and inquiries, some vendors focused on operational excellence by providing best-of-breed service. There was a lot of change in 2015, and enterprises needed to evaluate vendors on the basis of their needs and whether the vendor changes provided differentiation that separates them from their competitors.

Market Overview

Enterprises need to be aware that the access layer market continues to change in many different areas. As enterprise clients look to make a single vendor decision at the end of the network, 2015 again saw acquisitions in which vendors of partial solutions combined to address the overall need of access layer customers. Vendors that traditionally focused on hardware components continued to see a decline in pricing of access points and switches, but innovation in network service application areas, such as indoor location, analytics and now the ability to segment IoT devices helped to boost access layer solution pricing.

We continue to evaluate vendors on their ability to provide the entire end-to-end solution, because it is difficult to sit in the seat of the IT administrator when vendors focus on one specific technology or the other. Over half of our evaluation was of the vendors' network applications. Applications such as client onboarding, security, guest access, policy enforcement and multivendor network management are now table stakes, and new applications are needed to address the growing requirements at the edge of the network. These new applications include indoor location services and analytics that can be externally accessed, as well as vertical-market-specific reporting. The IoT is everywhere, and innovation at the access layer extends beyond connectivity and security. The IoT has introduced new issues that require innovation, such as virtual segmentation. Virtual segmentation is the ability to separate IoT devices, such as video surveillance cameras that historically may have been deployed on a different physical network, onto virtual segments that extend beyond VLANs and Layer 3 segment boundaries to applications that are located either in the data center servers or in the cloud. The role of the IT administrator is also expanding with new responsibilities, but staffing is not growing, so ease-of-use user interfaces and single-pane-of-glass solutions continue to gain favor with clients.

Evidence

[1] 2016 wired and wireless access LAN infrastructure customer reference survey

[2] "Growing Connectivity Challenges Necessitate Adoption of WLAN Best Practices"

[3] "Headless" means there is not human intervention, and the device may not include a screen or keyboard.

Evaluation Criteria Definitions

Ability to Execute

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

Overall Viability: 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/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 website, 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.

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