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Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure

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Enterprise wired and wireless networks must support business and technical use cases, many of which are ill-defined and unforeseen. I&O leaders must select a vendor that delivers pervasive network intelligence, prioritizes end-user experience and supports the full spectrum of user and IoT devices.

STRATEGIC PLANNING ASSUMPTIONS

Network opex costs will rise by at least 15%, every year for the next five years, for 70% of enterprises for lack of a plan to mitigate network hardware supply chain issues.

Over 90% of enterprises purchasing Wi-Fi 6e access points will realize no calculable return on investment until at least 2024 due to a lack of devices supporting the new standard.

MARKET DEFINITION/DESCRIPTION

Gartner defines the enterprise wired and wireless LAN infrastructure market as that of vendors supplying, at a minimum, wired and wireless networking hardware and the related network software. Products in this market enable devices and end users to connect to the enterprise wired LAN or Wi-Fi network in support of the required organizational mission. Supported network devices include end-user-operated devices such as laptops, smartphones and networked office equipment; and non-user-operated devices such as Internet of Things (IoT) devices.

Hardware — The core capabilities of physical network elements include:

- Wi-Fi access points
- Ethernet network switches suitable for deployment at the network access, distribution and core network layers

Software — Network service applications that are cloud-, appliance- or virtual-appliance-based. The core capabilities include, but are not limited to:

- Network management
- Network monitoring
- Guest access portals
- Self-service device onboarding services
- Network security integration (for example, IPS, IDS, 802.1X, DNS security and Anomaly detection)
- Network policy enforcement/integration
- WLAN location services
- Application visibility and/or performance management
- AI- and ML-enabled network assurance tools
- Network automation tools
- Dedicated non-user device (IoT) management and security mitigation
- Natural language troubleshooting interface

However, the enterprise wired and wireless LAN infrastructure market has evolved beyond its traditional role of merely providing network connectivity for devices. The market now comprises vendors delivering not only wired and wireless networking hardware, but also the inter-related network management, analytics and security applications. This tight integration of network hardware and software delivers the mission agility, pervasive security and increased levels of experience required by end users across all types of connected applications and devices.

Additionally, core integration of artificial intelligence (AI) and machine learning (ML) are integral to correlating the flood of resultant data. They present the data points necessary to optimize the network in support of digital business requirements while also becoming a source of business-relevant data useful to I&O and business leadership.

It is important to note that this research is not inclusive of wired and wireless networking infrastructure devices that primarily are used to support adjacent markets such as public venues, industrial settings or point-to-point WAN offerings.

MAGIC QUADRANT

Figure 1: Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure

The Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure shows 11 providers placed in either the Leaders, Challengers, Visionaries or Niche Players quadrant, as of September 2022. Providers are positioned based on ability to execute and completeness of vision.

ALE

Alcatel-Lucent Enterprise (ALE) is a Niche Player in this Magic Quadrant. Its OmniSwitch switches, OmniAccess Stellar wireless access points and associated network software products broadly address the enterprise network market. ALE's operations are mostly focused in EMEA. The company prioritizes the mid-size enterprise (MSE) business market segment, and its clients are primarily in the healthcare, government and education verticals. Gartner expects ALE to continue to invest in its OmniVista network management capabilities; significantly expand its sales and support capabilities into other verticals; and expand operations outside the EMEA region.

Strengths

- **Intelligent Fabric:** ALE's Intelligent Fabric technology automates the deployment of large network installations, enabling a simplified framework, including policy enforcement and IoT onboarding.
- **Pervasive network management:** ALE provides a wide range of network management options with OmniVista, including a recently introduced Wi-Fi assurance module, baseline Wi-Fi location analytics and free network access control (NAC) functionality with OmniVista Cirrus.
- **Specific vertical expertise:** Clients with complex networking requirements in ALE's key target verticals (education, government, healthcare and transportation) will benefit from its industry-specific expertise.

Cautions

- **Trailing in advanced network security capabilities:** Buyers with an emphasis on network security found that ALE lags in advanced NAC and wired anomaly detection capabilities.
- **Stagnant market execution:** ALE lags in sales execution. The vendor was unable to grow its global WLAN revenue share in 2021, despite its focus on verticals such as healthcare and education where WLAN technologies have become critical to their business operations.
- **Small market footprint:** ALE has one of the smallest enterprise network market footprints of all vendors in this research. The company has pockets of market penetration in EMEA and APAC, but there is very little enterprise network market penetration outside these areas.

ARISTA NETWORKS

Arista Networks is a Visionary in this Magic Quadrant. The company addresses the enterprise networking market with its 700 series leaf switches and 7000 series enterprise spine switches; Cognitive Wi-Fi 200 and 300 series access points; and CloudVision management platform. Arista's operations are primarily based in North America and APAC. Most of its customers are located in North America and are in the high technology, financial, retail and healthcare sectors. Gartner expects Arista to continue to invest in its CloudVision network automation; integrated security and AI and ML capabilities; and in expanding its wireless and enterprise switching portfolio, which remains highly skewed toward large-enterprise environments.

Strengths

- **Unified network operations tools:** Arista's CloudVision management platform is unified for both data center and enterprise switching. Therefore, existing Arista data center network customers will have a minimal learning curve while managing enterprise switching products.
- **Advanced AI and ML capabilities:** CloudVision AIOps includes the Autonomous Virtual Assist (AVA) platform for natural language processing in addition to automated trouble ticketing, incident severity classification and issue remediation, and predictive and prescriptive analytics.
- **Integrated network management and security:** CloudVision CUE offers functionality with network security, WAN, LAN and WLAN components managed as a single integrated construct for each site. Multiple branch locations can then be interconnected for centralized management and security policy enforcement.

Cautions

- **Leaf-spine topology-focused switching portfolio:** Arista's enterprise switching portfolio is largely derived from the leaf-spine architecture of its data center networking switches. While Arista switches can scale down to midsize enterprise networks, leaf-spine topologies are often unnecessary in most midsize enterprise LANs, which don't have the performance, scalability and network traffic mitigation requirements of larger deployments.
- **Limited wireless Wi-Fi 6 LAN portfolio:** Arista's Cognitive Wi-Fi portfolio is limited, with four enterprise grade 802.11ax indoor access points.
- **Limited exposure outside North America:** Arista has limited sales and support resources available for global deployments, deriving significantly more than half of its enterprise wired and wired revenue inside North America.

CAMBIUM NETWORKS

Cambium Networks is a Niche player in this Magic Quadrant. The company addresses the enterprise market with its Wi-Fi 6/6e, cnPilot, Xirrus series access points and cnMatrix wired Ethernet switches. Additionally, Cambium offers its cnMaestro cloud-based and on-premises network management platform. Cambium focuses on customers in the hospitality, education, government and healthcare sectors, and its operations are geographically diverse. Gartner expects Cambium to continue to invest in its cnMaestro network management platform in addition to growing its policy-based network overlay/underlay fabric capabilities and switching platform selection.

Strengths

- **Cloud management platform:** cnMaestro X network management platform delivers simplified wired, wireless and security policy configuration with little need to use the command line interface for complex configurations. cnMaestro X includes a voice- and text-based natural language assistant for troubleshooting.
- **Robust IoT security:** Cambium offers specific IoT device threat assessment, profiling, virtual network segmentation and policy-based automation, which occur automatically when such devices are detected on the network.
- **Enterprise grade, MSE friendly:** Cambium's wired and wireless hardware, cnMaestro, and EasyPass security ecosystems deliver enterprise-grade features and performance in a platform that is relatively easy to configure and maintain.

Cautions

- **Limited enterprise vertical exposure:** Cambium has limited visibility in the enterprise space outside the hospitality, education and healthcare verticals. Cambium's exposure at deployment scales above MSE is also very limited.
- **Weak wired switch portfolio:** Cambium does not offer switching platforms with performance above the medium-density network access layer. Additionally, most Cambium switches lack true stacking capabilities, high-capacity access and switching capabilities at the core and distribution layers, including the lack of capability for supporting leaf-spine architectures.
- **Limited AIOps functionality:** Cambium's wired and wireless products do not offer true AI and ML functionality, and are limited to basic functionality such as automated Wi-Fi channel selection, application and device identification, and intrusion detection.

CISCO

Cisco is a Leader in this Magic Quadrant. Its Catalyst and Meraki wired and wireless products deliver one of the most comprehensive hardware and application portfolios that can address enterprise network requirements for all scales. Cisco's operations are geographically diversified, and the company has the largest channel partner footprint among all network equipment vendors. Cisco continues to invest in the capabilities of Cisco DNA Center, its on-premises network management and orchestration platform, which is inclusive of its software-defined architecture (SDA). Cisco announced its Cisco+ offering in 2021, which primarily offers an alternative consumption model for its enterprise hardware. In June 2022, Cisco announced monitoring and limited configuration capabilities of its Catalyst portfolio with Meraki Dashboard. Therefore, the vendor will be investing in increasing functionalities, achieving use-case parity and delivering experience consistency across the two portfolios.

Strengths

- **Vast wired and wireless portfolio:** The breadth and scope of Cisco's wired and wireless hardware and software products, and ancillary device ecosystems, enable the company to address use cases across nearly all scenarios.
- **Strong global channel ecosystem:** Cisco's global internal sales and partner channel enables it to address and support enterprise presales engineering and procurement requirements, irrespective of location.
- **DNA Center management platform:** Primarily an on-premises deployment option via either a physical or a virtual form factor. DNA provides an AI/ML-enabled network management platform that can help reduce configuration burden, improve troubleshooting and decrease operational complexities for customers across the Catalyst wired and wireless portfolio.

Cautions

- **Mandatory DNA licensing:** All new purchases of Catalyst wired switching products require mandatory DNA licensing for 36 months, whether the customer intends to use Cisco DNA Center or not. This results in many Catalyst customers paying for features and functionalities that they will not use.
- **Overlapping product lines and tools:** Catalyst products cater to various segments, ranging from large enterprises to mid-size enterprises. However, Meraki also targets many of the same market segments. Additionally, Cisco has two separate management products: Cisco's DNA Center and Meraki Dashboard, neither of which currently fully monitors or provides full cross-platform configuration functions.
- **Lackluster Cisco+ Offering:** Cisco announced its Cisco+ hardware "as a service" in 2021; however, it is largely relegated to a consumption and managed services model. Cisco has not invested in dedicated hardware that would support true NaaS cloud-like technical feature flexibility. Therefore, interest and adoption of Cisco+ remains in the low single digits.

COMMSCOPE (RUCKUS)

RUCKUS, owned by CommScope, is a Niche Player in this Magic Quadrant. The company addresses the market with its RUCKUS brand ICX wired switches, R series wireless access points and RUCKUS Analytics — its AIOps and network management platform. RUCKUS operates globally and focuses primarily on the federal, state and local government and education segments of the enterprise network market. Gartner expects that RUCKUS will continue to invest in the AIOps capabilities of its RUCKUS Analytics platform, its Melissa virtual network assistant, and expanding its Wi-Fi 6 and 6e portfolio.

Strengths

- **Detailed root cause analysis tools:** RUCKUS Analytics offers detailed root cause analysis across the wired and wireless network. Users are presented with the data used to arrive at the root cause, any alternatives and expected results of applying the directed resolution.
- **Line of business specificity:** The RUCKUS line of business dashboard presents data that is specifically optimized for various business use cases of the enterprise network. This offers business leaders metrics that measure how efficiently the current operation of the network aligns with the operational intent.
- **Strong wired and wireless portfolio:** The wireless access point portfolio offers 802.11ax access points, which meets most performance requirements, and wired switches, which meet most access and aggregation cases up to 100 Gbps. The company covers enterprise use cases of all sizes across a single unified portfolio.

Cautions

- **Limited experience outside its focused market segments:** RUCKUS has limited experience in, and shows limited growth into, large and complex enterprise network environments outside the government and education markets. This is especially apparent for deployments outside the wired and wireless network access layer.
- **Lack of modular switches:** With no modular chassis product, the RUCKUS portfolio cannot adequately address high-density access or high-speed core/distribution use cases in which a common high-speed backplane and redundant management and power supplies in a single chassis are highly desirable.
- **No 802.11ac access points:** RUCKUS has retired all 802.11ac (Wi-Fi 5) access points, which will limit its ability to address opportunities where cost is a primary driver for the Wi-Fi deployment.

EXTREME NETWORKS

Extreme Networks is a Leader in this Magic Quadrant. Its Extreme Cloud products deliver a broad portfolio of cloud-managed and on-premises-managed network applications and services in conjunction with its end-to-end wired switching and WLAN products. Its operations are geographically diversified. Extreme Networks services clients in all markets, from SMBs to large enterprises with specific focus on state and local government, education, healthcare, manufacturing and retail. Extreme Networks continues to invest in its universal platform, security, fabric innovation and digital twin initiatives.

Strengths

- **Network fabric automation:** Extreme Networks has invested heavily in automated network fabric functionality. Therefore, enterprises requiring network fabric topologies should experience less manual configuration burden and time to deployment versus competing vendor products.
- **Digital twin:** Extreme Network's digital twin capabilities are unique among enterprise network vendors. They enable operations teams to test configuration changes in a virtual representation of the production network environment.
- **Multivendor integration into Extreme Cloud:** Extreme Network's management platform performs basic management of multivendor network equipment, and includes some essential operational functionality such as firmware updates, configuration backup and task scripting as part of a multivendor migration strategy.

Cautions

- **Global reach challenges:** Extreme Networks has gaps in its presence in regions such as Asia and Latin America.
- **Subpar channel training:** Customers and prospects report confusion with Extreme Networks' channel and direct sales product demonstrations, which hampers the company's ability to ensure the correct product alignment for given technology and business use cases.
- **Migration issues:** Customers report being challenged with an unclear and limited migration strategy of features and functionality from acquired vendors while the integration into Extreme Network's larger portfolio is in progress.

FORTINET

Fortinet is a Visionary in this Magic Quadrant. Its FortiAP and FortiSwitch products are broadly focused on tight integration with network security capabilities leveraging its FortiGate security appliances and FortiCloud, and FortiLAN cloud-based management platforms. Fortinet's operations are geographically diversified, and its clients range from MSEs to large enterprises across various sectors. Fortinet continues to invest in integrating and consolidating its network and security portfolio into its cloud and virtual server management platforms. Additionally, Fortinet is investing in native AI and ML functionality across its portfolio, a feature that is almost absent today outside the specific FortiAIOps module in FortiManager.

Strengths

- **Tightly integrated portfolio:** Fortinet delivers an architecture in which LAN, WLAN and security are tightly integrated under a unified operating system (FortiOS) and cloud management platform.
- **Dedicated AI operations module:** The FortiAIOps AI engine provides network assurance (event correlation and issue remediation) across security, wired and wireless by leveraging data feeds from the FortiGate portfolio.
- **Security-focused networking:** FortiOS has NAC functionality for IoT onboarding, and the licensed FortiNAC offering provides anomaly detection capabilities for advanced threat security.

Cautions

- **Lack of large-enterprise experience:** Fortinet's networking footprint is significantly lower than its revenue share in the firewall market. Fortinet's switching portfolio cannot adequately support the high-density enterprise network, distribution or core switching required at large-enterprise scales.
- **Product inventory for return merchandise authorizations:** Fortinet's customers may find that the company has insufficient inventory to support RMAs for certain products. This means that customers may experience long replacement times in the event of a Fortinet hardware failure.
- **Overlapping products, tools and licenses:** Fortinet has a confusing set of "Forti" branded products with overlapping functionality. The result is an expansive and confusing mix of tools and licenses.

HPE (ARUBA)

HPE (Aruba) is a Leader in this Magic Quadrant. The company offers a comprehensive portfolio of CX switches in addition to its 500/600 series Wi-Fi 6/6e access points. Wired and wireless networking is managed primarily through Aruba Central, available both on-premises and via cloud, and inclusive of the pervasive AIOps and analytics technologies. The vendor's operations are geographically diverse, and it addresses clients of all sizes in all major markets. HPE (Aruba) will continue to invest in feature parity between cloud and on-premises offerings, and increasing AIOps functionality in its Aruba Central platform. Additionally, Aruba has announced that NaaS will be a core aspect of its go-to-market strategy, which will cause the company to invest heavily in refining its current offering and deploying the necessary service management infrastructure and resources.

Strengths

- **Cloud-based campus management:** Aruba ESP delivers a unified automation and security platform that manages its wired, wireless and WAN portfolio, and includes deep AI and ML network and endpoint (IoT, bring your own device [BYOD]) profiling features.
- **Integrated leasing and managed network consumption model:** HPE (Aruba) has invested heavily in delivering an integrated leasing and managed network option to market. It has one of the largest user bases using this consumption model of all enterprise networking vendors.
- **Accurate Wi-Fi location technologies:** Investments by HPE (Aruba) in GPS integration for its wireless access points offer expanded internal and external capabilities for hyperaccurate location and indoor wayfinding services. This also offers an open location framework that third parties can leverage.

Cautions

- **Struggles to meet Gartner's definition of NaaS (see Note 1):** HPE (Aruba) struggles to align its current network portfolio, targeted at meeting legacy consumption and operational requirements, with NaaS, which requires an evolved set of NaaS-specific features and functionality. This disjointed approach limits its NaaS strategy to being primarily a leasing and managed services consumption model.
- **Lack of parity between cloud and on-premises offerings:** Aruba Central and Aruba Central On-Premises still have not achieved feature parity. Therefore, customers must ensure that the required functionality is available in their preferred deployment model.
- **Limited experience in large core switch deployments:** HPE (Aruba) is predominantly known for its access layer wired and wireless enterprise network infrastructure and lags some of its competitors in large core switching infrastructure deployments.

HUAWEI

Huawei is a Leader in this Magic Quadrant. This is its first year in the Leader's quadrant for this research. This is largely due to strong market execution, despite adverse geopolitical conditions, and progress in its marketing strategy, which has allowed it to remain the third-largest provider in this market (in terms of global revenue share). The company has also weathered supply chain issues better than other vendors. Its CloudEngine S series switches, AirEngine wireless APs and associated network software products are broadly focused on addressing a wide range of use cases. Huawei's operations are globally diverse, with clients across multiple verticals and sizes. However, geopolitical issues cause Huawei to have virtually no presence in North America and limited penetration in a few other countries, such as Australia and the U.K., where it ceased operations of its own accord. Gartner expects Huawei to continue to invest in AI and ML functionality, in addition to automation and network orchestration capabilities across its portfolio.

Strengths

- **Comprehensive product portfolio:** Huawei has a comprehensive wired and wireless product portfolio. This allows it to address all customer use cases and price competitively compared to most of its competitors.
- **AI- and ML-enabled network management platform:** The iMaster NCE-Campus network management platform provides AI-driven Wi-Fi, wired and WAN network assurance services, and user policy orchestration, plus the ability to simulate, test and verify network planning.
- **Wireless-first support:** Huawei is focused on supporting firms that are adopting a "wireless-first" strategy. A focus on integrated features that support ease of management and high levels of end-user experience has contributed to growth in Wi-Fi revenue of over 50% in 2021.

Cautions

- **Geopolitical challenges:** Ongoing geopolitical challenges and questions around the security integrity of its network portfolio limits Huawei's exposure in some regions, including North America, the U.K. and Australia.
- **Weak product branding recognition in some markets:** Gartner has observed that potential buyers interested in adopting Huawei in some markets outside the APAC region ask about the company and its products in generalities and, usually, in relation to pricing rather than specific products or technologies.
- **Less influential on technical market direction than other market leaders:** Despite having the third-largest market share by revenue (behind Cisco and HPE, respectively), Huawei does not deliver groundbreaking innovation that would shape the market on its own terms.

JUNIPER

Juniper is a Leader in this Magic Quadrant. Its Juniper AI-driven enterprise (AIDE) offering includes EX series switches, QFX series switches and Mist AI access points, which address most use cases across large-enterprise and MSE markets. Juniper's client base is globally diverse, with particular focus on the general enterprise market as well as retail, education, government and healthcare. The company continues to invest in integrated AI and ML operations, as well as cloud-based security capabilities. Gartner expects that Juniper will also invest significantly in bringing a NaaS offering to market.

Strengths

- **AI-driven automation:** Juniper continues to invest in the differentiation of its cloud-managed enterprise network portfolio automation, orchestration AI, ML The Marvis Virtual Network Assistant (VNA) and the Marvis client provide additional AI algorithm support for automation actions and recommendations.
- **Strong marketing messaging:** Juniper Mist AI "experience-first networking" and "Self-Driving Network" market messaging continue to educate the market on its differentiation that documents clients lowering ongoing operational costs and maximizing IT efficiencies.
- **Mist assurance:** Juniper's network equipment provides rich data while Junos OS provides telemetry data that allows Juniper to provide customizable service-level expectations (SLEs) and a highly rated end-user experience.

Cautions

- **Global sales reach challenges:** Juniper continues to extend its global sales reach; however, its presence in some areas of Asia and Latin America can vary widely.
- **Cloud-dependent management platform:** The Juniper Mist AI network management platform is primarily a cloud-based offering, which could be problematic for customers in areas requiring a fully on-premises system. Those looking for a fully on-premises offering are relegated to Mist Edge and/or Junos Space Network Management Platform, which is functionally lagging compared with the Juniper Mist AI platform.
- **Pricing:** Gartner inquiry and subsequent pricing analysis indicates that Juniper's bills of material are often quoted higher than customers expect and compared with other major network vendors.

TP-LINK

TP-Link is a Niche Player in this Magic Quadrant. Its Omada WLAN, T series wired switches and associated network software products mainly focus on addressing the needs of the small and mid-size enterprises. Its operations are geographically diversified, with the bulk of its revenue generated from EMEA, followed by Asia/Pacific and North America. Gartner expects that TP-Link will continue to invest in the ease of configuration and operations requirements of MSE customers by adding to the capabilities of its GUI web-based configuration and cloud-management platforms.

Strengths

- **Scalable network management offering:** The Omada network management offering is bundled with its access network hardware, which provides unified monitoring for an unlimited number of TP-Link APs, campus switch and security gateway products.
- **Wi-Fi 6 portfolio:** TP-Link has a comprehensive portfolio of Wi-Fi 6 access points, all of which are supported by RF optimization features, which can improve overall end-user experience and the ability to troubleshoot the wireless network infrastructure.
- **Highly competitive pricing:** TP-Link's pricing is among the lowest of its competitors, which aligns with the needs of most MSEs. More broadly, this strategy is particularly attractive to organizations having basic network connectivity needs and where cost is the primary determinant.

Cautions

- **Lack of enterprise focus on innovation:** Despite products that meet all traditional levels of enterprise network technology, TP-Link lags behind other vendors in its support of advanced network operations technologies such as network assurance, automation and AIOps functionality.
- **Basic network security and location features:** TP-Link provides only basic network policy enforcement, and very limited IoT containment and indoor location services.
- **Limited product capabilities:** TP-Link's enterprise network portfolio lags the competition in its lack of aggregation and high-density access layer switches. Additionally, TP-Link's portfolio lacks support of next-generation networking features such as network fabrics, leaf-spine topologies and dynamic segmentation.

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