IDC MarketScape

IDC MarketScape: Worldwide Enterprise WLAN 2018 Vendor Assessment
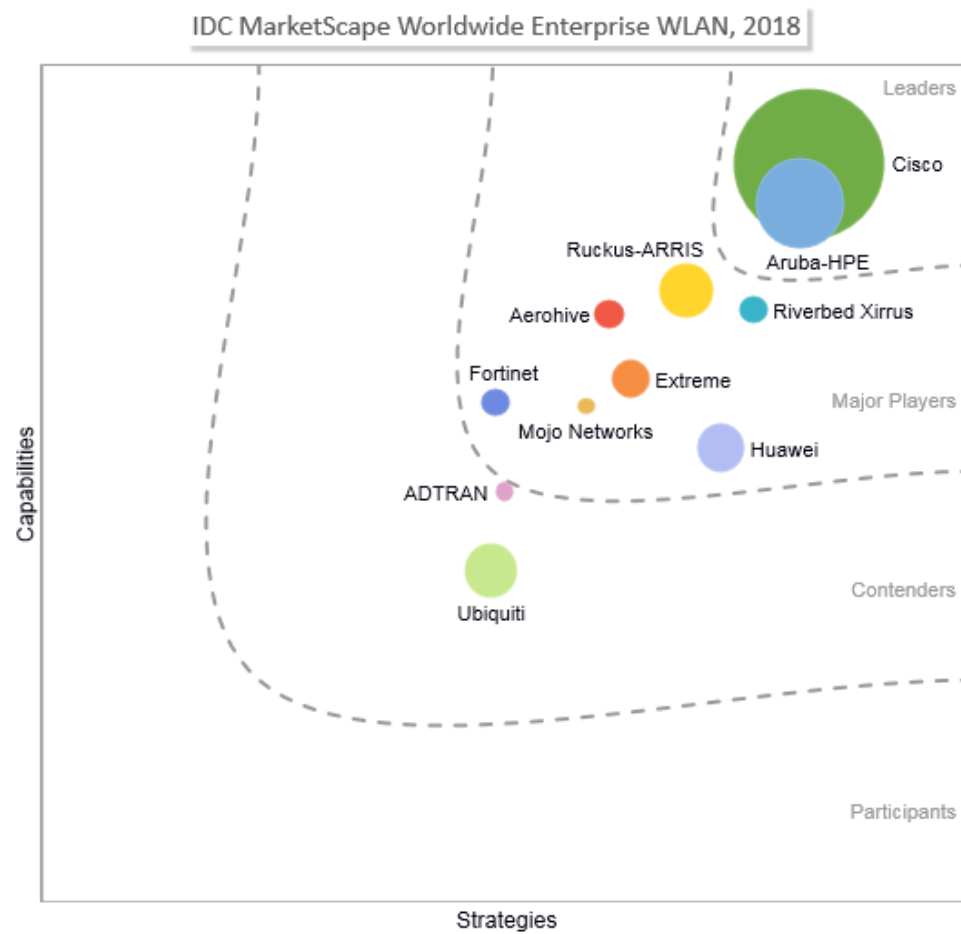
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IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Enterprise WLAN Vendor Assessment

IDC MarketScape Worldwide Enterprise WLAN, 2018

Source: IDC, 2018
Please see the Appendix for detailed methodology, market definition, and scoring criteria.

March 2018, IDC #US42018017e

IDC OPINION

This IDC study represents the vendor assessment model called the IDC MarketScape. This research is a quantitative and qualitative assessment of the characteristics that explain a vendor's chances for present and future success worldwide. This study assesses the capability and business strategy of 11 enterprise wireless LAN (WLAN) vendors. This evaluation is based on a comprehensive framework and set of parameters expected to be most conducive to success in providing enterprise WLAN solutions, for both the short and long terms. As the enterprise WLAN market is highly competitive and relatively mature, all vendors performed reasonably well in this study. Key findings include:

- The enterprise WLAN market continues to see consistent growth and compelling innovation. These overarching trends overlap with unprecedented developments in wireless speeds, RF innovation, and wired and wireless interoperability, as well as a greater level of choice for end users in terms of delivery model.

- Organizations of all sizes, across segments and verticals, are increasingly shifting wired network workloads onto wireless as well as leveraging wireless and mobility to improve customer engagement and bring new products and services to market.

- Although the enterprise WLAN market is inching toward maturity, there are still opportunities for growth including greenfield deployments in areas such as retail, public venues, and SMBs where WiFi is increasingly used to engage customers and transform end-to-end operations. Verticals such as education and healthcare still command a major share of the overall market, with some regional and country-level variances. Emerging markets also remain a strong growth frontier, with some vendors targeting those theatres aggressively.

- Cloud-managed enterprise WLAN continues to grow in prevalence, and vendor offerings are evolving to reflect this. Across all segments and verticals, enterprise IT is continually evaluating the role of cloud management in enterprise campus and branch networking. Cloud-managed WLAN models can help reduce physical infrastructure and improve application alignment and operational agility. In distributed enterprises with centralized IT operations, cloud-managed models can be what makes enterprise-grade WLAN possible. As cloud-managed WLAN scalability improves, there is emerging interest in this technology from some large enterprises.

- Internet of Things (IoT) use cases are moving from concept to reality in the enterprise, and most enterprises are looking to the WLAN to connect many, if not most, of their IoT devices. Vendors generally demonstrate awareness that customers will need WLAN solutions that address IoT device onboarding and provisioning, network access, segmentation, security, and interoperability and optimization among multiple wireless connectivity methods.

- Increasingly, competition in the WLAN market is not around hardware but rather software-based network monitoring and management platforms. These tools go beyond just setting up and managing WLAN environments, but they also provide day 2 management features such as detailed usage metrics and problem remediation. More advanced vendor solutions are utilizing machine learning technology to predict future network behavior and automate more tasks (such as onboarding and policy enforcement). In the future, these systems could be able to automatically troubleshoot many issues before they impact users.

- Unified wired and wireless management continues to be a niche part of the enterprise WLAN market, but is now offered at some level by most major enterprise campus networking vendors. Cloud-managed unified wired and wireless solutions are also on the rise, becoming a competitive differentiator in the cloud-managed segment of the enterprise WLAN market.

SDN-based controller architectures for the enterprise campus represent yet another means by which to unify wired and wireless LAN management, improving network automation.

- M&A continue to make waves in the enterprise WLAN market with five deals impacting the enterprise WLAN market made since our previous study (see *IDC MarketScape: Worldwide Enterprise WLAN 2015-2016 Vendor Assessment,* IDC #US40653915, December 2015). Those deals are Zebra Technologies-Extreme Networks, Brocade-Ruckus, Extreme Networks-Avaya, ARRIS-Brocade/Ruckus, and Riverbed-Xirrus.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This research includes analysis of 11 of the largest enterprise WLAN vendors spanning IDC's research coverage and with global importance. This assessment is designed to evaluate the characteristics of each firm – as opposed to its size or the breadth of its services. It is conceivable, and in fact the case, that specialty firms can compete with multidisciplinary firms on an equal footing. As such, this evaluation should not be considered a "final judgment" on the firms to consider for a project. An enterprise's specific objectives and requirements will play a significant role in determining which firms should be considered as potential candidates for an engagement.

In total, 11 firms were evaluated in this IDC MarketScape. They are (in alphabetical order): ADTRAN, Aerohive Networks, Aruba-HPE, Cisco (including Cisco Meraki), Extreme, Fortinet, Huawei, Mojo Networks, Riverbed Xirrus, Ruckus Wireless, and Ubiquiti. For inclusion in this IDC MarketScape, vendors had to demonstrate two years of general worldwide availability of a standards-based WLAN portfolio and should have reached a critical mass of shipments and/or revenue.

Explanation of Changes from IDC's 2015-2016 Enterprise WLAN MarketScape

The networking industry has seen a steady flow of M&A activity, and the enterprise WLAN space is no exception. Since our previous study, two major enterprise WLAN vendor acquisitions were completed, leading to one consolidation and name change. In September 2016, Extreme Networks acquired the WLAN assets of Zebra Technologies. The combined portfolio is represented in this IDC MarketScape as Extreme. In April 2017, Riverbed acquired Xirrus, and the company is now branded Riverbed Xirrus. In November 2016, Broadcom announced its attention to acquire Brocade and divest its IP networking portfolio, which included Ruckus Wireless. In February 2017, ARRIS announced its intent to acquire Ruckus. Regulatory challenges delayed the closing of the Broadcom and Brocade deal, which closed in November 2017. ARRIS completed its acquisition of Ruckus in December 2017.

In January 2016, AirTight Networks rebranded itself as Mojo Networks. Fortinet completed the integration of Meru Networks into its wireless portfolio, and as such, IDC has dropped Meru from its name. D-Link was not included in the 2017-2018 analysis, and Ubiquiti Networks was added.

ADVICE FOR TECHNOLOGY BUYERS

WLAN infrastructure is a pivotal element in many organizations' digital transformation (DX) journeys enabling DX initiatives such as IoT, omnichannel engagement, and anytime access to mission-critical SaaS applications. IDC recommends organizations evaluating enterprise WLAN solutions consider the following:

- Cloud-managed network models continue to become more common and have grown in capability. Small to midsize organizations and "distributed enterprise" (organizations with a centralized IT and dispersed remote locations) often find that cloud-managed WLAN allows for an accessible, enterprise-grade delivery model. Just over a quarter (26%) of WLAN deployments were cloud based in 2017, but the figure will grow to 38% by 2021. Cloud-managed WiFi is generally more opex oriented than capex (with subscription models) and can be a viable option for organizations seeking greater operational agility and centralized policy controls.

- The march to new standards for new industry shipments continues. 802.11ac shipments are rapidly displacing previous generation a/b/g/n standards, all of which are now considered legacy. 802.11ac Wave 2 equipment continues to see strong adoption, but the market is already looking toward the next standard on the horizon: 802.11ax, which is expected to gain traction in 2019. Businesses that have a need for a refresh now should certainly move forward with Wave 2, but the addition of OFDMA, or the ability for 802.11ax to divide into subchannels, while supporting multiuser, multiple input, multiple output (MU-MIMO), will make the "ax" technology ideal for large-scale deployments, such as conference venues, sports stadiums, and certain IoT uses cases.

- There are a number of architectural options for enterprise WLAN. These include physical controller based, virtual controller, cloud managed, and APs with integrated control. There are strong cases to be made for all of these, and final decisions should be made based on individual business needs. In any case, it may be worthwhile to consider vendors with flexible architectural models as business needs change.

- In choosing an enterprise WLAN solution, organizations must consider the possibilities for creating additional business value from the technology. New WLAN applications for customer-facing location-based services (LBS), network analytics, and in-venue WiFi-enabled tools are leading to new monetization opportunities in retail, hospitality, healthcare, education, and other verticals.

- It is important to consider the security capabilities of any WLAN solution. While all solutions profiled in this document will meet the minimum security requirements of most organizations, IT decision makers should look at advanced security needs, support for vertical-specific protocols and compliance needs, and level of integration offered with non-WLAN security tools. Some WLAN vendors are partnering with security vendors to offer integrated go-to-market WLAN systems with security features, such as next-generation firewalls, intrusion prevention systems, and content filtering features.

- Vendors are developing advanced visibility and performance monitoring of WLAN environments. In some cases, machine learning technology is being used in WLAN management platforms to predict future WLAN performance (based off historical trends) down to individual APs, and even help users automatically troubleshoot issues that degrade performance in the WLAN environment. Expect management tools to continue to advance in the coming years. End users should look to management tools that meet a specific need (performance management, problem resolution, analytics, access control management, etc.).

- As SD-WAN deployments continue to ramp up, look for vendors that offer cross-domain integrated management of the network, out to the network edge and the branch. This could become even more important for organizations with plans to pursue an Internet of Things deployment. Depending on the use case, management of IoT may need to be integrated with edge, cloud, enterprise, and datacenter networks.

- Support and services from vendors, resellers, integrators, and managed service providers (where applicable) cannot be overlooked in the vendor selection process. Good vendors,

resellers, integrators, and managed service providers will provide competent guidance through the RFP, installation, and training processes while being accessible for ongoing support throughout the infrastructure's life cycle. This is especially important for organizations with lean internal network staff.

▪ The networking industry's move to embrace multivendor initiatives like SDN will begin to have impact in enterprise WLAN in the medium term. Organizations should determine their strategies around SDN, and integration of third-party and open networking applications, and choose a WLAN vendor with an aligned strategy.

▪ To assist in the vendor selection process, organizations, IT, and end users are encouraged to utilize the visual graphic in this IDC MarketScape research (refer back to Figure 1), along with the vendor text profiles, to help in developing a short list of potential enterprise WLAN vendors to consider for their WLAN deployment project(s).

VENDOR SUMMARY PROFILE

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of the vendor's strengths and challenges.

Cisco

Cisco is a Leader in this IDC MarketScape. As the vendor with the largest market share, Cisco has developed an end-to-end WLAN portfolio extending from SMB to the largest of enterprises, covering a range of architectures. Cisco carries two WLAN portfolios under its umbrella – more on-premise-managed AP and controller architectures are available through the Aironet line, and cloud-managed WLAN (and other cloud-based networking) is available under the Meraki line (which Cisco acquired in 2012). An SMB-oriented AP line with integrated control, Mobility Express, was introduced in mid-2015.

Cisco is near the top of the market when it comes to the depth and breadth of its WLAN portfolio (and its entire enterprise networking portfolio) and it meets the needs of a wide variety of verticals and segments. The Aironet line has traction in the higher education, healthcare, and manufacturing markets, among others, whereas Meraki sees success in distributed organizations in verticals such as K-12 education and retail, among others. Both lines offer the CMX location-based services solution for location analytics and WiFi-enabled customer engagement, along with multiple security integrations.

From 2016 to now, Cisco has made several forward-looking product, architecture, and feature announcements. Among the most prominent of those are Cisco Digital Network Architecture (DNA), an open and extensible software-driven architecture that adds new levels of programmability, automation, security, and analytics to the wired and wireless LAN. In June 2017, Cisco unveiled its intent-based networking (IBN) strategy, built on Cisco DNA. Intent-based networking furthers the automation and contextual analytics capabilities and brings forth new levels of both security integration and centralized manageability within a software subscription orientation for the wired and wireless LANs. Management of all the network elements is centralized through DNA Center, an all-in-one management console for managing the end-to-end enterprise network. DNA Center supports software-defined access, network assurance, and core automation capabilities for full life-cycle management and control of the enterprise network.

Strengths

- The breadth and depth of the verticals, segments, use cases, ecosystem partners, and geographies covered by Cisco WLAN is nearly unmatched.

- With the Meraki portfolio increasing in scalability and the addition of assurance in the form of Wireless Health capabilities, Cisco offers a viable solution even for larger cloud-managed WLAN deployments.

- Cisco's scale and organizational health positions the company to ride out technology transitions and adverse macroeconomic conditions with minimal disruption to its ability to serve customers.

- With intent-based networking and DNA Center, Cisco is taking the lead on end-to-end, software-defined, and converged enterprise campus and branch networking.

Challenges

- DNA is becoming an integration point for the company's datacenter, campus, and branch office networking solutions. But many products across these domains, such as Cisco Meraki in the enterprise, the company's Application Centric Infrastructure (ACI) in the datacenter, and its Viptela SD-WAN offerings, largely existed in separate spheres before DNA. Integration among these products is a work in progress.

- While still the vendor with the largest market share, Cisco has seen its share drop as customers evaluate more price-conscious options. Cisco is perceived as one of the higher-priced options in the market.

- In its aggressive shift to subscription (opex) models for WLAN infrastructure consumption, Cisco may become a less appealing option for organizations with capex-oriented consumption behavior.

- While DNA is completely open and uses standard-based REST APIs and NetConf/YANG model, Cisco is currently focused on having DNA Center manage and optimize Cisco's own networking portfolio. So it may not be the best option today for organizations requiring support for multivendor wireless or wired platforms or best-of-breed solutions.

Consider Cisco When

IDC recommends Cisco for organizations seeking a robust single-vendor enterprise networking ecosystem including WLAN. While Cisco is applicable to many verticals, its partnerships in healthcare, retail, and smart cities are of note for full-stack deployments. Large enterprises seeking cloud-managed WLAN should evaluate Cisco Meraki on account of its growing scalability, relatively full cloud-managed stack, and Cisco's history in large enterprises.

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies. See the sections that follow for details on each of the criteria.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor in the first three quarter of 2017 within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

Enterprise WLAN

IDC breaks wireless LAN (WLAN) infrastructure into three segments: WLAN equipment, WLAN connectivity, and WLAN IT services. This IDC MarketScape competitive analysis is primarily focused on the WLAN equipment category but looks at other segments to deliver complete enterprise wireless solutions.

Product Class

The WLAN equipment category is segmented into enterprise and consumer infrastructure:

- **Enterprise:** Enterprise-grade access devices are WLAN access devices designed for use in multi-access point systems or for standalone deployments and typically have a rich and upgradeable feature set. There are two types of enterprise-class access point (AP) devices: independent (traditional) and dependent. Deployments are in building or outdoor.
- **Consumer:** Consumer-grade access devices are products designed for small office/home office (SOHO) and consumer (residential) deployments. Access points and gateways/routers with WLAN functionality that sell for under $200 are typically included in this category.

Product Category

- **Controller/switch:** Access point controllers typically manage access to the network, load balance users, enforce security policies, and provide a number of higher-level network services. This functionality is typically packaged in a Layer 2 or 3 edge or core controller, integrated in an Ethernet LAN switch, or an appliance. These are products designed to integrate a WLAN infrastructure with a wired Ethernet network through automating WLAN access point configuration and RF management.

- **Access points:** This category includes equipment that acts as an intermediary between the wired and wireless part of the network by receiving and transmitting 802.11 packets. The packets are sent over a set of predefined bands in the 2.4GHz and 5GHz radio spectrums to and from associated wireless client devices. Access devices are connected to the wired network either directly through Ethernet cables or via wireless connections to other access devices. WLAN may also be used for establishing LAN-to-LAN bridges that usually involve providing connectivity between buildings without the use of cabling. The current generation of APs have one or more (typically two) radios with the 802.11n standard but are backward compatible to support legacy 802.11a/b/g protocols. Increasingly, WLAN vendors are introducing APs that support the emerging 802.11ac standard.

- **Independent (traditional) AP:** Independent (in-building, standalone) access points, or traditional access points, include network processing hardware, are set up and configured with standalone configuration tools, and have a full feature set that allows them to operate as independent endpoints on the wired network.

- **Dependent AP:** Dependent access points ("thin" or "light" or "managed" or "in-building-thin" access points) rely on a centralized controller or alternate management and control platform (integrated, cloud based, or virtualized) for operation and management. They may be lighter in terms of onboard network processing hardware, although that difference has started to erode recently as controller-based architectures are also being deployed using alternate centralized or decentralized solutions for provisioning and managing network parameters and policies.

- **Gateways/routers:** Gateway/routers are networking devices that connect local area networks (LANs) at home or SOHO environments to wide area networks (WANs) or other LANs. The WAN connectivity can be provided through cable modems, DSL modems, or a cellular/mobile network.

Related Research

- *IDC Predictions 2018: Worldwide Enterprise Communications Infrastructure* (IDC #US43581218, February 2018)
- *Worldwide Enterprise WLAN Forecast, 2018-2022* (IDC #US43528118, January 2018)
- *IDC's U.S. Enterprise Communications Survey, 2017: Managed Wired and Wireless LAN Services* (IDC #US43020517, September 2017)
- *Market Analysis Perspective: Worldwide Enterprise Communications Infrastructure, 2017* (IDC #US42018317, September 2017)
- *Worldwide Internet of Things Infrastructure Forecast, 2017-2021* (IDC #US42999017, August 2017)
- *Worldwide SD-WAN Forecast, 2017-2021* (IDC #US42904317, July 2017)

Synopsis

This IDC study provides an assessment of the capabilities and business strategies of 11 vendors in the worldwide enterprise WLAN market for 2017-2018.

"The worldwide enterprise WLAN market is a healthy and growing one that while approaching maturity is still producing significant innovations," says Brandon Butler, senior research analyst, Enterprise Network Infrastructure. "This market is driven by the need of enterprises to offer reliable and high-performing WLAN networks that support new business value, while taking advantage of the latest WiFi standards to support the ever-increasing use of mobile devices, and in the future, Internet of Things applications on the network. Meanwhile, vendors are increasingly turning to cloud-based management platforms and software tooling that uses machine learning technology to provide higher levels of automation. This IDC MarketScape can be helpful for organizations considering new or updated WLAN solutions, including evaluating various deploying options."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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