Vendor Landscape: Enterprise Wired and Wireless LAN

Network connectivity is a commodity; the magic is in managing and controlling those thousands of connections.

INFO~TECH
RESEARCH GROUP

Introduction

Wireless local area network (WLAN) has become the primary network access layer but wired infrastructure is still required. Use Info-Tech's research to choose a vendor that can meet both wireless and wired needs.

This Research Is Designed For:

✓ Enterprises seeking to select a solution for wired and wireless LAN infrastructure and management.

✓ Their wired and wireless LAN use case may include:

- Implementing LAN at a new organization or new location.

- Upgrading LAN infrastructure to address increased need for wireless access by customers and employees using personal devices to access company resources.

This Research Will Help You:

✓ Understand what's new in the wired and wireless LAN market.

✓ Evaluate wired and wireless LAN vendors and products for your enterprise needs.

✓ Determine which products are most appropriate for particular use cases and scenarios.

Executive summary

Info-Tech evaluated nine competitors in the wired and wireless LAN market, including the following notable performers:

Champions

- **Aerohive** has a strong wireless portfolio with enough wired strength to service almost any enterprise, wrapped up with an easy-to-use management interface.

- **Aruba/HPE** continues to innovate, delivering new features across a dizzying lineup of products yet maintaining world-class support from a strong service organization.

- **Cisco/Meraki** is one of the most mature integrated cloud management platforms available, with advanced features and extensive partner networks.

- **Extreme Networks** focuses on developing the network as a platform to enable software now and in the future.

Info-Tech Insight

1. **Unified management and application visibility is a must.**

   It is no longer enough to just be able to see network assets and traffic from a central console, one needs to be able to see into that traffic to manage it properly.

2. **The Internet of Things will demand more of your network than you think.**

   IoT is the biggest thing to come along in network endpoint innovation. This potential for exponential growth will radically change the way you architect your network, from the frequencies you choose for Wi-Fi, to security and access, to where you locate your compute resources.

3. **Software-defined networking is here to stay.**

   The only way to survive the pace of change expected of the modern network will be through the automation and orchestration tools afforded by SDN.

Market overview

How it got here

- Wireless was once only secondary or tertiary to the access layer. But users demanded mobility and the challenges of dealing with increasing numbers of access points (APs) spurred innovations to manage them better. The functionality of these tools quickly became the envy of traditional wired infrastructure administrators.

- Endpoint devices were known fixed and persistent quantities. Almost all had a human operator in front of them to help validate network access and those that didn't (such as VC devices) were treated as special cases.

- Switched Gigabit to the desktop began in earnest around 2002 and was driven by the need for PC backup and file transfer. APs (essentially hubs at the far edge of the network) running 802.11 b through n made no further demands thus fore-stalling the need for further innovation in edge switching speeds.

Where it's going

- The Internet of Things will derail the commoditization of the access layer. Vendors have the chance to put forward solutions using multiple wireless technologies, frameworks for access control, analytics, and even compute architecture.

- Ethernet standards are evolving. 802.11ac Wave 2 devices are now shipping, promising to alleviate access congestion and thus spurring infrastructure investment. 802.11ah promises greater wireless penetration using the 900Mhz range, 802.3bz promises 2.5 and 5 Gbps speeds over existing cabling, and 802.3bt provides for up to 49 watts of power per Ethernet port.

- Software-defined networking (SDN) will enable this new networking paradigm. Exponential growth of endpoint devices and the associated complexity of security and access control can only be managed by the automation and orchestration SDN provides.

Info-Tech Insight

Good enough networking (including security, manageability, and performance) has become commoditized. Today you pick your network vendor based on business practice alignment, but with SDN pushing the adoption of advanced features (application visibility, BYOD, and IoT strategy) the day is coming when you will pick your network vendor as you would an application provider.

Wired and wireless LAN vendor selection / knock-out criteria: market share, mind share, and platform coverage

- The WLAN market started to consolidate in the mid-to-late 2000s, and continues to do so. Some major players dominate the market, while smaller players have tended to merge or fade away.

- For this Vendor Landscape, Info-Tech focused on those vendors that offer broad capabilities across wired and wireless infrastructure and that have a strong market presence and/or reputational presence among mid- and large-sized enterprises.

Included in this Vendor Landscape:

- **Aerohive.** One of the smallest vendors included and one of the few original wireless vendors that has not been acquired by a bigger rival.

- **Aruba/HPE.** An Ethernet pioneer merged with one of wireless' most active and involved user communities.

- **Avaya.** Strong in the unified communications space and carving out an identity managing network traffic.

- **Brocade/Ruckus.** A fabric-agnostic networking company that provides connectivity across all mediums.

- **Cisco/Meraki.** The enterprise networking giant with a compelling, subscription-based management solution.

- **Dell.** Present in some way at almost every enterprise organization and currently making a big play in the SDN market.

- **Extreme.** A pure-play Ethernet vendor with high-quality hardware and a strong SDN focus.

- **Juniper.** Carrier-grade wired Ethernet vendor porting advanced features and security down to the enterprise; the only vendor in our landscape without a strong wireless offering.

- **Ubiquiti.** The fourth largest vendor by market cap in the landscape, providing good enough networking and comprehensive wireless coverage to the enterprise.
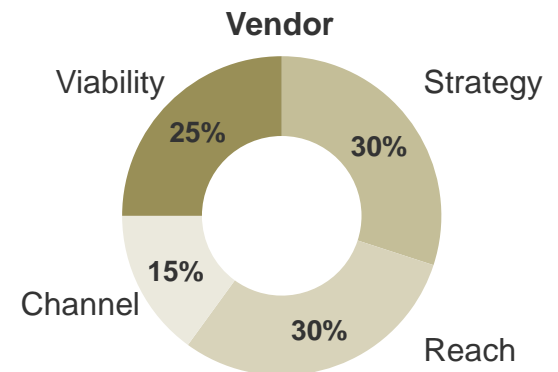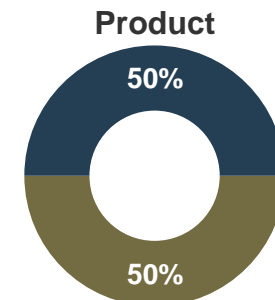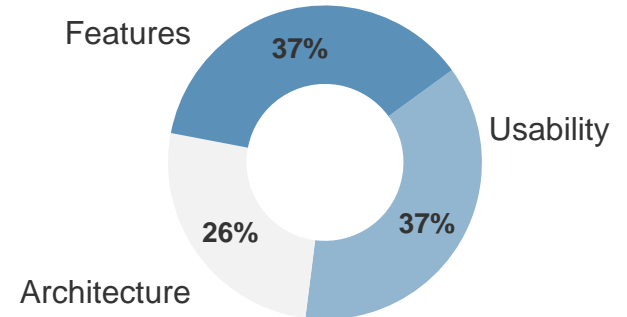
LAN criteria & weighting factors

Product Evaluation Criteria

Features	The solution provides basic and advanced feature/functionality.
Usability	The end-user and administrative interfaces are intuitive and offer streamlined workflow.
Affordability	*Vendor response was insufficient for a consistent evaluation of this criterion.*
Architecture	Multiple deployment options and extensive integration capabilities are available.

Vendor Evaluation Criteria

Viability	Vendor is profitable, knowledgeable, and will be around for the long term.
Strategy	Vendor is committed to the space and has a future product and portfolio roadmap.
Reach	Vendor offers global coverage and is able to sell and provide post-sales support.
Channel	Vendor channel strategy is appropriate and the channels themselves are strong.

Criteria Weighting

Features 37%
Usability 37%
Architecture 26%
Product

50%
50%
Vendor

Viability 25%
Strategy 30%
Channel 15%
Reach 30%

The Info-Tech Wired and Wireless LAN Vendor Landscape
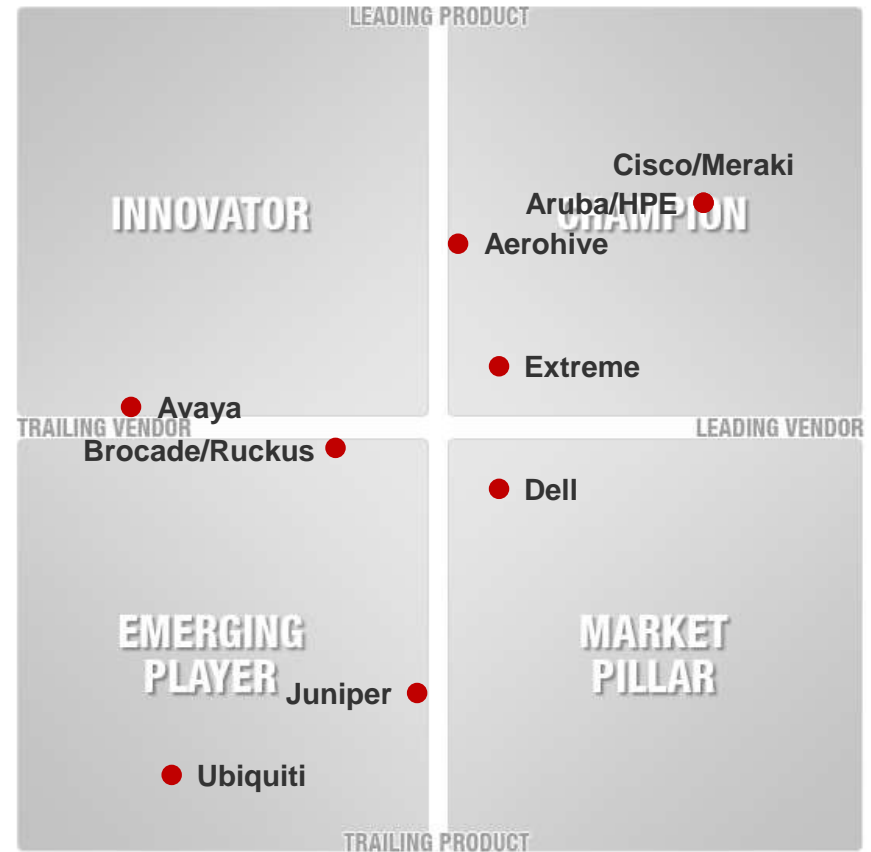
The zones of the Landscape

Champions receive high scores for most evaluation criteria and offer excellent value. They have a strong market presence and are usually the trend setters for the industry.

Market Pillars are established players with very strong vendor credentials, but with more average product scores.

Innovators have demonstrated innovative product strengths that act as their competitive advantage in appealing to niche segments of the market.

Emerging Players are comparatively newer vendors who are starting to gain a foothold in the marketplace. They balance product and vendor attributes, though score lower relative to market Champions.

The Info-Tech Wired and Wireless LAN Vendor Landscape

For an explanation of how the Info-Tech Vendor Landscape is created, see Information Presentation – Vendor Landscape in the Appendix.

Balance individual strengths to find the best fit for your enterprise

	Product				Vendor				
	Overall	Features	Usability	Arch.	Overall	Viability	Strategy	Reach	Channel
Aerohive	Exemplary	Exemplary	Exemplary	Exemplary	Good	Adequate	Exemplary	Exemplary	Exemplary
Aruba/HPE	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary
Avaya	Exemplary	Adequate	Adequate	Exemplary	Good	Adequate	Adequate	Adequate	Adequate
Brocade/Ruckus	Exemplary	Exemplary	Adequate	Exemplary	Good	Adequate	Adequate	Adequate	Adequate
Cisco/Meraki	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary	Exemplary
Dell	Good	Exemplary	Adequate	Exemplary	Good	Adequate	Adequate	Exemplary	Exemplary
Extreme	Exemplary	Exemplary	Adequate	Exemplary	Good	Exemplary	Exemplary	Adequate	Exemplary
Juniper	Adequate	Adequate	Adequate	Adequate	Good	Adequate	Adequate	Exemplary	Exemplary
Ubiquiti	Adequate	Inadequate	Adequate	Adequate	Good	Adequate	Adequate	Adequate	Inadequate

Legend	⬤ =Exemplary	◕ =Good	◑ =Adequate	◔ =Inadequate	◯ =Poor

*Inconsistent vendor response made it impossible to reasonably compare affordability.

For an explanation of how the Info-Tech Harvey Balls are calculated, see Information Presentation – Criteria Scores (Harvey Balls) in the Appendix.

Table Stakes represent the minimum standard; without these, a product doesn't even get reviewed

The Table Stakes

Feature	What it is:
802.11ac	Support for the 802.11ac wireless standard.
Basic Wired Features	PoE+, stacking, redundancy/failover, IPv6 support, flow visibility.
Basic Wireless Features	Dual-band multi-radio access points, MIMO antennae, intelligence, remote APs.
Management & Directory	Basic policy and resource management, site planning, and integration with directory services.
Security & Policies	Filter traffic, standards-based authentication & encryption, rogue AP detection, and basic IDPS.
Performance & Usage	Monitor and analyze performance and usage, from enterprise-wide to individual APs.

What does this mean?

The products assessed in this Vendor Landscape™ meet, at the very least, the requirements outlined as Table Stakes.

Many of the vendors go above and beyond the outlined Table Stakes, some even do so in multiple categories. This section aims to highlight the products' capabilities **in excess** of the criteria listed here.

Info-Tech Insight

If Table Stakes are all you need from your wired and wireless LAN solutions, look to which vendor can provide you with the support levels you need in order to make your decision.

Advanced features are the capabilities that allow for granular market differentiation

Scoring Methodology

Info-Tech scored each vendor's features offering as a summation of its individual scores across the listed advanced features. Vendors were given one point for each feature the product inherently provided. Some categories were scored on a more granular scale with vendors receiving half points.

Advanced Features

Feature	What we looked for:
Application Visibility	Granular visibility and control over application data. Automatic detection and optimization of different types of traffic.
BYOD & Mobile	Automated onboarding and self-provisioning. Device fingerprinting and client health. Mobile device management integration.
Internet of Things Support	IoT device provisioning, data transport/analytics, and additional fabric support (LTE, 4G, etc.), as well as security and privacy policy control.
Unified Management	Unified management of multi-vendor wired networks, wireless networks, and network security.
RF Visibility & Location	Advanced RF visibility, spectrum analysis, heat maps with real-time visibility, triangulation of clients, and roaming assistance.
SDN & App. Capabilities	Network virtualization and APIs to integrate with applications (e.g. OpenFlow).

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.

Each vendor offers a different feature set; concentrate on what your organization needs

Evaluated Features

	Application Visibility	BYOD and Mobile	Internet of Things Support	Unified Management	RF Visibility and Location Services	SDN and Application Capabilities
Aerohive	🟢	🟢	🟢	🟢	🟢	🟡
Aruba/HPE	🟢	🟢	🟢	🟢	🟢	🟢
Avaya	🟢	🟢	🟢	🟢	🟢	🟢
Brocade /Ruckus	🟢	🟢	🟢	🟢	🟢	🟢
Cisco/Meraki	🟢	🟢	🟢	🟢	🟢	🟢
Dell	🟢	🟢	🟢	🟡	🟢	🟢
Extreme	🟢	🟢	🟡	🟢	🟢	🟢
Juniper	🟢	🟡	🟡	🟢	🔴	🟢
Ubiquiti	🔴	🔴	🟡	🟡	🔴	🔴

Legend   🟢 =Feature fully present   🟡 =Feature partially present/pending   🔴 =Feature absent

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.

BYOD and IoT are drastically increasing the number and variety of devices on your network

Location services, beacons, policy-based onboarding, segmentation, and isolation can all help manage a new set of network challenges.

Suitable for environments with wide variety of devices

1 **BYOD readiness and device support**

2

Why Scenarios?

In reviewing the products included in each Vendor Landscape™, certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Aerohive. NETWORKS

AVAYA

Extreme networks

CISCO Meraki

aruba
a Hewlett Packard Enterprise company

For an explanation of how Scenarios are determined, see Information Presentation – Scenarios in the Appendix.

Single pane of glass is no longer a dream but a necessity in the modern network

Unified management is common, forcing vendors to differentiate based on visualizations, RF control, automation, and secure access.

Best suited for unified network management

1

2 **Fully unified management**

Why Scenarios?

In reviewing the products included in each Vendor Landscape™, certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

For an explanation of how Scenarios are determined, see Information Presentation – Scenarios in the Appendix.

Aerohive continues to innovate and become more attractive in a merging landscape

Champion

Product: SR-Series Switches
Aerohive Access Points
Employees: 624
Headquarters: Sunnyvale, CA
Website: aerohive.com
Founded: 2006
Presence: NYSE: HIVE

Overview

Considered an excellent target for acquisition, Dell has partnered with Aerohive to resell its APs and management platform. Aerohive continues to innovate in the space, having been one of the first to come to market with 802.11ac Wave 2 products.

Strengths

- Independent of any partnership, Aerohive brings a competitive lineup of strong wired and wireless products for the campus enterprise networking space.
- Aerohive excels in the BYOD space, providing data on types of users and devices connected, application control, and visibility all under a unified management platform with connective intelligence.
- HiveManager, once only available as an on-premises solution, is now available through a cloud subscription model as well.

Challenges

- Despite a reasonably successful IPO in 2013, Aerohive is still smaller in both size and reach compared to traditional wired and wireless LAN vendors.
- Its lack of high-end aggregation or chassis products may limit its attractiveness within some customer segments.
- Aerohive is an attractive acquisition target, leading to some concern that it will be swallowed up by a bigger player and the uncertainties that arise from those kinds of mergers.

Aerohive employs mesh cooperation to achieve distributed control

Vendor Landscape

Product				Vendor				
Overall	Features	Usability	Arch.	Overall	Viability	Strategy	Reach	Channel
◑	●	●	●	◔	◗	●	●	●

Aerohive Access Points

Aerohive's controllerless **Access Points** employ the company's **Cooperative Control** protocol, which distributes control across access points, eliminating single points of failure, reducing bottlenecks as data is collected and inspected at the access points, and making the network more easily scalable. The access points are centrally managed through the cloud, helping to automate and simplify operations. Application visibility and control happen directly at the AP, which allows for flexible expansion as well as superior branch performance and survivability.

Features

Application Visibility	BYOD and Mobile	Internet of Things	Unified Management	RF Visibility and Location Services	SDN and Application Capabilities
🟢	🟢	🟢	🟢	🟢	🟡

Info-Tech Recommends:

Deploy Aerohive for an excellent single-vendor edge access solution with powerful management tools.