Vendor Landscape: Wireless LAN

There's an ideal mate for every enterprise – pick yours.
Introduction

The Wireless LAN (WLAN) market will become your primary network access layer – this is inevitable in most enterprises. Use Info-Tech’s research to help you choose the solution best suited to your needs.

This Research Is Designed For:

✓ Mid-sized enterprises looking for efficiency and productivity by adding wireless to an existing LAN or upgrading legacy wireless to 802.11n.

✓ Organizations across verticals that rely on mission-critical wireless for day-to-day operations.

✓ Mid-sized organizations and institutions looking to provide wireless access to customers and employees using personal devices to access corporate resources.

This Research Will Help You:

✓ Understand the current state of the Wireless LAN market, from both a business and technology perspective.

✓ Evaluate Wireless LAN vendors and products for your enterprise needs.

✓ Determine which products are most appropriate for particular use cases and scenarios, helping you develop a shortlist of the best solutions for you.
Executive summary

Info-Tech evaluated twelve competitors in the WLAN market, including the following notable performers:

**Champions:**
- **Aruba**, with leading security, feature-rich, and BYOD-ready solutions from a leading vendor.
- **Cisco**, a trusted vendor with a strong WLAN solution, a large installed-base, and rapidly evolving wired-wireless unification.
- **HP Networking**, with solid WLAN hardware and wired-wireless unification at the lowest cost.
- **Juniper**, with strong security, good progress on wired-wireless unification, from a trusted networking vendor.
- **Ruckus**, with outstanding RF features, an innovative vendor with innovative solutions and rapidly growing mind-and-market share.

**Value Award:**
- **HP Networking**, the most cost-effective solution in Info-Tech’s pricing scenario, partially attributable to lifetime warranties and support on much of the product line.

**Trend Setter Award:**
- **Xirrus**, for a truly innovative multi-radio array solution that is well suited to large, challenging RF and cabling environments.
- **Honorable mention** to Aerohive and Meraki for innovating in cloud management and supporting distributed wireless networks.

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**Info-Tech Insight**

1. **Discount list pricing 25-50%:**
   Don’t pay list price. Expect discounts of 25-50% depending on vendor and volume. For instance, expect 25% from a low-cost vendor on a moderate-volume purchase. Expect 50% or more from a higher-cost vendor with high-volume purchases. Education and not-for-profit (NFP) should be on the higher end of discounts.

2. **Know what you need:**
   Do a detailed needs and feature requirements analysis prior to purchasing. Do you need centralized or distributed? Guest access or full Bring Your Own Device (BYOD) support? Wired-wireless unification? Choose wisely, as solutions will match your needs.

3. **You need ubiquitous wireless:**
   If you’ve been fighting ubiquitous, mission-critical wireless, stop now. Virtually every enterprise needs a robust, secure, high-performance, manageable wireless solution.
Market overview

How it got here

• As IEEE 802.11 standards have evolved over the past 15 years, Info-Tech finds most enterprises fully entrenched in 802.11n, the latest ratified standard, and 802.11i (aka WPA2). Speeds from multi-radio, multi-spatial stream, multiple-input and multiple output (MIMO) access points (APs) are pushing – and in some cases topping – the 1Gbps threshold, with currently unbreakable port-based authentication (802.1x) and AES encryption.

• The market has become increasingly competitive, with vendors differentiating offerings with unique solutions that push the laws of physics in the most challenging radio frequency (RF) environments.

• The market has settled significantly and while further consolidation is possible, the current players will likely remain in place for the next five years.

• Commoditization still eludes this market as differentiation remains the focus.

Where it’s going

• BYOD is an enterprise reality, and wireless is the only connectivity option for smartphones and tablets. Many vendors have developed excellent solutions for managing capacity, inspecting and fingerprinting personal devices, and applying policy based on a number of device and user attributes. This will become table stakes in the next year.

• The next IEEE standard is expected to be ratified in Q3-2013, but the draft standard will be workable by late 2012. The Wi-Fi Alliance will be approving hardware based on the draft in early 2013. The majority of vendors will have multi-gigabit 802.11ac hardware on the market in early-to-mid 2013. There will be over 1 billion 802.11ac-enabled devices by the end of 2015.

• The access layer of the enterprise will be largely wireless within 2-3 years. As such, the next Vendor Landscape on Enterprise Network Infrastructure will be combined wired and wireless.

Don’t wait until the next IEEE standard is ratified to move to a primarily wireless access network. A new standard comes along every 4-5 years. Vendors will generally help with “investment protection” by offering an upgrade path that allows enterprises to enjoy the best of the current version while still offering a cost effective upgrade path – either through buy-back, or modular APs that can add or change radios.
WLAN vendor selection / knock-out criteria: market share, mind share, and feature breadth

- For this Vendor Landscape, Info-Tech focused on those vendors that offer broad capabilities across multiple platforms and that have a strong market presence and/or reputational presence among mid-sized enterprises.
- After considerable consolidation in the mid-to-late 2000s, the WLAN infrastructure market has settled. The vendor landscape is unlikely to change much in the coming years.

**Included in this Vendor Landscape:**

- **Aerohive.** Offers easy-to-deploy, cloud-managed wireless solutions for distributed networks.
- **Aruba.** Second largest vendor (by market share) showing continued growth and best-in-class security.
- **Avaya.** Delivers wired and wireless solutions optimized for voice and video applications.
- **Cisco.** Possesses the largest market share in both the wired and wireless networking spaces.
- **Enterasys.** An experienced networking vendor offering integrated wired and wireless solutions.
- **HP.** Recent acquisitions (Colubris and 3Com) have led to a large, diverse product line.
- **Juniper.** A relatively new player in the WLAN market (through Trapeze acquisition) focusing on integrated solutions.
- **Meraki.** A young company offering purely cloud-based solutions for distributed networks.
- **Meru.** A pure-play WLAN vendor focusing on reliable, high-density, mission-critical deployments.
- **Motorola.** Focuses on scalability and adaptability, well suited for certain vertical markets.
- **Ruckus.** Brings unique, innovative technology and simple deployment to the market.
- **Xirrus.** Provides differentiated wireless arrays well suited for large campus wireless networks.
## WLAN criteria and weighting factors

### The Table Stakes

<table>
<thead>
<tr>
<th>Product Evaluation Criteria</th>
<th>Weighting</th>
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<tbody>
<tr>
<td><strong>Features</strong></td>
<td>40%</td>
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<td><strong>Usability</strong></td>
<td>25%</td>
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<tr>
<td><strong>Affordability</strong></td>
<td>25%</td>
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<tr>
<td><strong>Architecture</strong></td>
<td>10%</td>
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#### Vendor Evaluation Criteria

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<td><strong>Vendor</strong></td>
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<td><strong>Viability</strong></td>
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<td><strong>Strategy</strong></td>
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<td><strong>Channel</strong></td>
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### Criteria Weighting:

- **Usability**: 25%
- **Affordability**: 10%
- **Architecture**: 25%
- **Product**: 50%
- **Vendor**: 50%
- **Viability**: 25%
- **Strategy**: 35%
- **Reach**: 15%
- **Channel**: 25%
The Info-Tech WLAN 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 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.

For an explanation of how the Info-Tech Vendor Landscape is created, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Balance individual strengths to find the best fit for your enterprise (slide 1 of 2)

<table>
<thead>
<tr>
<th>Product</th>
<th>Features</th>
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<th>Afford.</th>
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For an explanation of how the Info-Tech Harvey Balls are calculated, please see Vendor Landscape Methodology: Information Presentation in the Appendix.
Balance individual strengths to find the best fit for your enterprise (slide 2 of 2)

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Legend: ● = Exemplary, ○ = Good, □ = Adequate, △ = Inadequate, ◼ = Poor

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The Info-Tech WLAN Value Index

**What is a Value Score?**

The Value Score indexes each vendor’s product offering and business strength relative to its price point. It does not indicate vendor ranking.

Vendors that score high offer more bang-for-the-buck (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*The vendor could not provide comprehensive pricing to fit the pricing scenario

For an explanation of how Price is determined, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Table Stakes represent the minimum standard; without these, a product doesn’t even get reviewed

### The Table Stakes

<table>
<thead>
<tr>
<th>Feature</th>
<th>What it is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic hardware</td>
<td>802.11n, dual-band, multi-radio access points, MIMO antennae.</td>
</tr>
<tr>
<td>Basic intelligence</td>
<td>Traffic prioritization, QoS, automatic RF resource/spectrum management, etc.</td>
</tr>
<tr>
<td>Basic management</td>
<td>Policy and resource management, basic site planning, remote monitoring, etc.</td>
</tr>
<tr>
<td>Basic security</td>
<td>Standards-based authentication and encryption, LDAP/AD/RADIUS, rogue AP/intrusion detection.</td>
</tr>
<tr>
<td>Guest access</td>
<td>Simple and secure provisioning for guests to access Internet without intranet access.</td>
</tr>
<tr>
<td>Performance &amp; usage reporting</td>
<td>Drill-down analysis from enterprise-wide to individual APs and clients.</td>
</tr>
</tbody>
</table>

### 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.

If Table Stakes are all you need from your WLAN solution, the only true differentiator for the organization is price. Otherwise, dig deeper to find the best price to value for your needs.
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.

<table>
<thead>
<tr>
<th>Feature</th>
<th>What we looked for:</th>
</tr>
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<tbody>
<tr>
<td>Advanced management</td>
<td>Unified management of wired and wireless networks, security, etc. Vendor agnostic.</td>
</tr>
<tr>
<td>Advanced RF visibility</td>
<td>RF visibility, spectrum analysis, heatmaps with real-time visibility, floor plan upload.</td>
</tr>
<tr>
<td>BYOD/mobile support</td>
<td>Features specific to mobile / personal devices, beyond guest access.</td>
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<tr>
<td>Client health monitoring</td>
<td>Proactively identify and alert on problematic devices in need of attention.</td>
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<tr>
<td>Intrusion prevention</td>
<td>Wireless intrusion prevention system (WIPS) to initiate counter-measures against threats.</td>
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<tr>
<td>Mesh networking</td>
<td>All APs can intelligently optimize over-the-air routing and mesh together APs to reduce cables.</td>
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<tr>
<td>Policy enforcement</td>
<td>Advanced enforcement. Monitor connection states and filter traffic with granular attributes.</td>
</tr>
<tr>
<td>Telecommuter/remote APs</td>
<td>Standalone APs that operate independently on the same network. VPN, split-tunneling.</td>
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</table>

For an explanation of how Advanced Features are determined, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Each vendor offers a different feature set; concentrate on your organization’s needs (slide 1 of 2)

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For an explanation of how Advanced Features are determined, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Juniper’s integrated mobile device management sets it apart

**Champion**

Product: Juniper Networks

Employees: 9,134
Headquarters: Sunnyvale, CA
Website: [www.juniper.net/us/en/](http://www.juniper.net/us/en/)
Founded: 1996
Presence: New York: JNPR

Overview

- Juniper entered the WLAN market in late 2010 by acquiring Trapeze Networks, and has been aggressively pursuing market share.

Strengths

- Juniper differentiates its product with a suite of BYOD and mobile features, such as a native mobile client (Junos Pulse) and bundled mobile device management.
- Juniper provides a stateful failover with no interruption of user services, eliminating network complexity.
- Advanced and flexible traffic forwarding that comes without any loss of features or functionality.

Challenges

- Juniper entered the WLAN market in late 2010 with the acquisition of Trapeze Networks, and is still building the WLAN side of its business.
- Two hardware variants – indoor mesh and 802.11n telecommuter access points – are missing from Juniper’s portfolio.

3 year TCO for this solution falls into pricing tier 8, between $250,000 and $500,000

Pricing provided by vendor

FY11 Revenue: $4.48 billion
Juniper is a trusted networking vendor with a solid WLAN solution

Although Juniper is a new entrant, its integrated mobile device management makes it a desirable choice with BYOD gaining popularity in organizations.
Central campus or multi-site business? The type of deployment can determine your ideal WLAN vendor

Most vendors can handle both centralized (e.g. hospitals) and distributed (e.g. K-12) networks, but some are better suited for one type over the other.

1. Network Distribution

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, please see Vendor Landscape Methodology: Information Presentation in the Appendix.
Some vendors are better at handling complex or challenging RF environments.

Businesses such as manufacturing and distribution need wireless access in challenging physical environments. Some vendors can meet the challenge.

**Why Scenarios?**

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For an explanation of how Scenarios are determined, please see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Businesses with a BYOD program should choose a vendor that handles the unique challenges of mobile

Mobility-specific functionality and network access control features can make the network BYOD-ready.

Why Scenarios?
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For an explanation of how Scenarios are determined, please see Vendor Landscape Methodology: Information Presentation in the Appendix.
Appendix

1. Vendor Landscape Methodology: Overview
2. Vendor Landscape Methodology: Product Selection & Information Gathering
3. Vendor Landscape Methodology: Scoring
4. Vendor Landscape Methodology: Information Presentation
5. Vendor Landscape Methodology: Fact Check & Publication
6. Product Pricing Scenario
Vendor Landscape Methodology: Overview

Info-Tech’s Vendor Landscapes are research materials that review a particular IT market space, evaluating the strengths and abilities of both the products available in that space, as well as the vendors of those products. These materials are created by a team of dedicated analysts operating under the direction of a senior subject matter expert over a period of six weeks.

Evaluations weigh selected vendors and their products (collectively “solutions”) on the following eight criteria to determine overall standing:

- **Features**: The presence of advanced and market-differentiating capabilities.
- **Usability**: The intuitiveness, power, and integrated nature of administrative consoles and client software components.
- **Affordability**: The three-year total cost of ownership of the solution.
- **Architecture**: The degree of integration with the vendor’s other tools, flexibility of deployment, and breadth of platform applicability.
- **Viability**: The stability of the company as measured by its history in the market, the size of its client base, and its financial performance.
- **Strategy**: The commitment to both the market-space, as well as to the various sized clients (small, mid-sized, and enterprise clients).
- **Reach**: The ability of the vendor to support its products on a global scale.
- **Channel**: The measure of the size of the vendor’s channel partner program, as well as any channel strengthening strategies.

Evaluated solutions are plotted on a standard two by two matrix:

- **Champions**: Both the product and the vendor receive scores that are above the average score for the evaluated group.
- **Innovators**: The product receives a score that is above the average score for the evaluated group, but the vendor receives a score that is below the average score for the evaluated group.
- **Market Pillars**: The product receives a score that is below the average score for the evaluated group, but the vendor receives a score that is above the average score for the evaluated group.
- **Emerging Players**: Both the product and the vendor receive scores that are below the average score for the evaluated group.

Info-Tech’s Vendor Landscapes are researched and produced according to a strictly adhered to process that includes the following steps:

- Vendor/product selection
- Information gathering
- Vendor/product scoring
- Information presentation
- Fact checking
- Publication

This document outlines how each of these steps is conducted.
Vendor Landscape Methodology: Vendor/Product Selection & Information Gathering

Info-Tech works closely with its client base to solicit guidance in terms of understanding the vendors with whom clients wish to work and the products that they wish evaluated; this demand pool forms the basis of the vendor selection process for Vendor Landscapes. Balancing this demand, Info-Tech also relies upon the deep subject matter expertise and market awareness of its Senior and Lead Research Analysts to ensure that appropriate solutions are included in the evaluation. As an aspect of that expertise and awareness, Info-Tech’s analysts may, at their discretion, determine the specific capabilities that are required of the products under evaluation, and include in the Vendor Landscape only those solutions that meet all specified requirements.

Information on vendors and products is gathered in a number of ways via a number of channels. Initially, a request package is submitted to vendors to solicit information on a broad range of topics. The request package includes:

• A detailed survey.
• A pricing scenario (see Vendor Landscape Methodology: Price Evaluation and Pricing Scenario, below).
• A request for reference clients.
• A request for a briefing and, where applicable, guided product demonstration.

These request packages are distributed approximately twelve weeks prior to the initiation of the actual research project to allow vendors ample time to consolidate the required information and schedule appropriate resources.

During the course of the research project, briefings and demonstrations are scheduled (generally for one hour each session, though more time is scheduled as required) to allow the analyst team to discuss the information provided in the survey, validate vendor claims, and gain direct exposure to the evaluated products. Additionally, an end-user survey is circulated to Info-Tech’s client base and vendor-supplied reference accounts are interviewed to solicit their feedback on their experiences with the evaluated solutions and with the vendors of those solutions.

These materials are supplemented by a thorough review of all product briefs, technical manuals, and publicly available marketing materials about the product, as well as about the vendor itself.

Refusal by a vendor to supply completed surveys or submit to participation in briefings and demonstrations does not eliminate a vendor from inclusion in the evaluation. Where analyst and client input has determined that a vendor belongs in a particular evaluation, it will be evaluated as best as possible based on publicly available materials only. As these materials are not as comprehensive as a survey, briefing, and demonstration, the possibility exists that the evaluation may not be as thorough or accurate. Since Info-Tech includes vendors regardless of vendor participation, it is always in the vendor’s best interest to participate fully.

All information is recorded and catalogued, as required, to facilitate scoring and for future reference.
Vendor Landscape Methodology: Scoring

Once all information has been gathered and evaluated for all vendors and products, the analyst team moves to scoring. All scoring is performed at the same time so as to ensure as much consistency as possible. Each criterion is scored on a ten point scale, though the manner of scoring for criteria differs slightly:

- Features is scored via Cumulative Scoring
- Affordability is scored via Scalar Scoring
- All other criteria are scored via Base5 Scoring

In Cumulative Scoring, a single point is assigned to each evaluated feature that is regarded as being fully present, a half point to each feature that is partially present or pending in an upcoming release, and zero points to features that are deemed to be absent. The assigned points are summed and normalized to a value out of ten. For example, if a particular Vendor Landscape evaluates eight specific features in the Feature Criteria, the summed score out of eight for each evaluated product would be multiplied by 1.25 to yield a value out of ten.

In Scalar Scoring, a score of ten is assigned to the lowest cost solution, and a score of one is assigned to the highest cost solution. All other solutions are assigned a mathematically determined score based on their proximity to / distance from these two endpoints. For example, in an evaluation of three solutions, where the middle cost solution is closer to the low end of the pricing scale it will receive a higher score, and where it is closer to the high end of the pricing scale it will receive a lower score; depending on proximity to the high or low price it is entirely possible that it could receive either ten points (if it is very close to the lowest price) or one point (if it is very close to the highest price). Where pricing cannot be determined (vendor does not supply price and public sources do not exist), a score of 0 is automatically assigned.

In Base5 scoring a number of sub-criteria are specified for each criterion (for example, Longevity, Market Presence, and Financials are sub-criteria of the Viability criterion), and each one is scored on the following scale:

- 5 - The product/vendor is exemplary in this area (nothing could be done to improve the status).
- 4 - The product/vendor is good in this area (small changes could be made that would move things to the next level).
- 3 - The product/vendor is adequate in this area (small changes would make it good, more significant changes required to be exemplary).
- 2 - The product/vendor is poor in this area (this is a notable weakness and significant work is required).
- 1 - The product/vendor is terrible/fails in this area (this is a glaring oversight and a serious impediment to adoption).

The assigned points are summed and normalized to a value out of ten as explained in Cumulative Scoring above.

Scores out of ten, known as Raw scores, are transposed as-is into Info-Tech's Vendor Landscape Shortlist Tool, which automatically determines Vendor Landscape positioning (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, below), Criteria Score (see Vendor Landscape Methodology: Information Presentation - Criteria Score, below), and Value Index (see Vendor Landscape Methodology: Information Presentation - Value Index, below).
Vendor Landscape Methodology: Information Presentation – Vendor Landscape

Info-Tech’s Vendor Landscape is a two-by-two matrix that plots solutions based on the combination of Product score and Vendor score. Placement is not determined by absolute score, but instead by relative score. Relative scores are used to ensure a consistent view of information and to minimize dispersion in nascent markets, while enhancing dispersion in commodity markets to allow for quick visual analysis by clients.

Relative scores are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion Raw score is multiplied by the pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process to eliminate any possibility of bias. Weighting factors are expressed as a percentage such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100% and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.
4. Overall Vendor scores are then normalized to a 20 point scale by calculating the arithmetic mean and standard deviation of the pool of Vendor scores. Vendors for whom their overall Vendor score is higher than the arithmetic mean will receive a normalized Vendor score of 11-20 (exact value determined by how much higher than the arithmetic mean their overall Vendor score is), while vendors for whom their overall Vendor score is lower than the arithmetic mean will receive a normalized Vendor score of between one and ten (exact value determined by how much lower than the arithmetic mean their overall Vendor score is).
5. Overall Product score is normalized to a 20 point scale according to the same process.
6. Normalized scores are plotted on the matrix, with Vendor score being used as the x-axis, and Product score being used as the y-axis.
Vendor Landscape Methodology: Information Presentation – Criteria Scores (Harvey Balls)

Info-Tech’s Criteria Scores are visual representations of the absolute score assigned to each individual criterion, as well as of the calculated overall Vendor and Product scores. The visual representation used is Harvey Balls.

Harvey Balls are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).

2. Each individual criterion Raw score is multiplied by a pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process, based on the expertise of the Senior or Lead Research Analyst, to eliminate any possibility of bias. Weighting factors are expressed as a percentage, such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100%, and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.

3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.

4. Both overall Vendor score / overall Product score, as well as individual criterion Raw scores are converted from a scale of one to ten to Harvey Ball scores on a scale of zero to four, where exceptional performance results in a score of four and poor performance results in a score of zero.

5. Harvey Ball scores are converted to Harvey Balls as follows:
   • A score of four becomes a full Harvey Ball.
   • A score of three becomes a three-quarter full Harvey Ball.
   • A score of two becomes a half full Harvey Ball.
   • A score of one becomes a one-quarter full Harvey Ball.
   • A score of zero (zero) becomes an empty Harvey Ball.

6. Harvey Balls are plotted by solution in a chart where rows represent individual solutions and columns represent overall Vendor / overall Product, as well as individual criteria. Solutions are ordered in the chart alphabetically by vendor name.
Vendor Landscape Methodology: Information Presentation – Feature Ranks (Stop Lights)

Info-Tech’s Feature Ranks are visual representations of the presence/availability of individual features that collectively comprise the Features’ criterion. The visual representation used is Stop Lights.

Stop Lights are determined as follows:

1. A single point is assigned to each evaluated feature that is regarded as being fully present, a half point to each feature that is partially present or pending in an upcoming release, and zero points to features that are deemed to be fully absent.
   - Fully present means all aspects and capabilities of the feature as described are in evidence.
   - Fully absent means all aspects and capabilities of the feature as described are in evidence.
   - Partially present means some, but not all, aspects and capabilities of the feature as described are in evidence, OR all aspects and capabilities of the feature as described are in evidence, but only for some models in a line.
   - Pending means all aspects and capabilities of the feature, as described, are anticipated to be in evidence in a future revision of the product and that revision is to be released within the next 12 months.

2. Feature scores are converted to Stop Lights as follows:
   - Full points become a Green light.
   - Half points become a Yellow light.
   - Zero points become a Red light.

3. Stop Lights are plotted by solution in a chart where rows represent individual solutions and columns represent individual features. Solutions are ordered in the chart alphabetically by vendor name.

For example, a set of applications is being reviewed and a feature of “Integration with Mobile Devices” that is defined as “availability of dedicated mobile device applications for iOS, Android, and BlackBerry devices” is specified. Solution A provides such apps for all listed platforms and scores “Green”, solution B provides apps for iOS and Android only and scores “Yellow”, while solution C provides mobile device functionality through browser extensions, has no dedicated apps, and so scores “Red”.

### Stop Lights

<table>
<thead>
<tr>
<th>Feature 1</th>
<th>Feature 2</th>
<th>Feature 3</th>
<th>Feature 4</th>
<th>Feature 5</th>
<th>Feature 6</th>
<th>Feature 7</th>
<th>Feature 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Red</td>
<td>Red</td>
<td>Yellow</td>
<td>Red</td>
<td>Red</td>
</tr>
</tbody>
</table>

Yellow shows partial availability (such as in some models in a line).
Vendor Landscape Methodology: Information Presentation – Value Index

Info-Tech’s Value Index is an indexed ranking of solution value per dollar as determined by the Raw scores assigned to each criteria (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).

Value scores are calculated as follows:

1. The Affordability criterion is removed from the overall Product score and the remaining Product score criteria (Features, Usability, Architecture) are reweighted so as to retain the same weightings relative to one another, while still summing to 100%. For example, if all four Product criteria were assigned base weightings of 25%, for the determination of the Value score, Features, Usability, and Architecture would be reweighted to 33.3% each to retain the same relative weightings while still summing to 100%.

2. A sum-product of the weighted Vendor criteria scores and of the reweighted Product criteria scores is calculated to yield an overall Vendor score and a reweighted overall Product score.

3. The overall Vendor score and the reweighted overall Product score are then summed, and this sum is multiplied by the Affordability Raw score to yield an interim Value score for each solution.

4. All interim Value scores are then indexed to the highest performing solution by dividing each interim Value score by the highest interim Value score. This results in a Value score of 100 for the top solution and an indexed Value score relative to the 100 for each alternate solution.

5. Solutions are plotted according to Value score, with the highest score plotted first, and all remaining scores plotted in descending numerical order.

Where pricing is not provided by the vendor and public sources of information cannot be found, an Affordability Raw score of zero is assigned. Since multiplication by zero results in a product of zero, those solutions for which pricing cannot be determined receive a Value score of zero. Since Info-Tech assigns a score of zero where pricing is not available, it is always in the vendor’s best interest to provide accurate and up to date pricing.

Vendors are arranged in order of Value Score. The Value Score each solution achieved is displayed, and so is the average score.
Vendor Landscape Methodology: Information Presentation – Price Evaluation

Info-Tech’s Price Evaluation is a tiered representation of the three year Total Cost of Ownership (TCO) of a proposed solution. Info-Tech uses this method of communicating pricing information to provide high-level budgetary guidance to its end-user clients while respecting the privacy of the vendors with whom it works. The solution TCO is calculated and then represented as belonging to one of ten pricing tiers.

Pricing tiers are as follows:
1. Between $1 and $2,500
2. Between $2,500 and $5,000
3. Between $5,000 and $10,000
4. Between $10,000 and $25,000
5. Between $25,000 and $50,000
6. Between $50,000 and $100,000
7. Between $100,000 and $250,000
8. Between $250,000 and $500,000
9. Between $500,000 and $1,000,000
10. Greater than $1,000,000

Where pricing is not provided, Info-Tech makes use of publicly available sources of information to determine a price. As these sources are not official price lists, the possibility exists that they may be inaccurate or outdated, and so the source of the pricing information is provided. Since Info-Tech publishes pricing information regardless of vendor participation, it is always in the vendor’s best interest to supply accurate and up to date information.

Info-Tech’s Price Evaluations are based on pre-defined pricing scenarios (see Product Pricing Scenario, below) to ensure a comparison that is as close as possible between evaluated solutions. Pricing scenarios describe a sample business and solicit guidance as to the appropriate product/service mix required to deliver the specified functionality, the list price for those tools/services, as well as three full years of maintenance and support.
Vendor Landscape Methodology: Information Presentation – Scenarios

Info-Tech’s Scenarios highlight specific use cases for the evaluated solution to provide as complete (when taken in conjunction with the individual written review, Vendor Landscape, Criteria Scores, Feature Ranks, and Value Index) a basis for comparison by end-user clients as possible.

Scenarios are designed to reflect tiered capability in a particular set of circumstances. Determination of the Scenarios in question is at the discretion of the analyst team assigned to the research project. Where possible, Scenarios are designed to be mutually exclusive and collectively exhaustive, or at the very least, hierarchical such that the tiers within the Scenario represent a progressively greater or broader capability.

Scenario ranking is determined as follows:

1. The analyst team determines an appropriate use case.  
   For example:  
   • Clients that have multinational presence and require vendors to provide four hour onsite support.

2. The analyst team establishes the various tiers of capability.  
   For example:  
   • Presence in Americas  
   • Presence in EMEA  
   • Presence in APAC

3. The analyst team reviews all evaluated solutions and determines which ones meet which tiers of capability.  
   For example:  
   • Presence in Americas – Vendor A, Vendor C, Vendor E  
   • Presence in EMEA – Vendor A, Vendor B, Vendor C  
   • Presence in APAC – Vendor B, Vendor D, Vendor E

4. Solutions are plotted on a grid alphabetically by vendor by tier. Where one vendor is deemed to be stronger in a tier than other vendors in the same tier, they may be plotted non-alphabetically.  
   For example:  
   • Vendor C is able to provide four hour onsite support to 12 countries in EMEA while Vendors A and B are only able to provide four hour onsite support to eight countries in EMEA; Vendor C would be plotted first, followed by Vendor A, then Vendor B.
Vendor Landscape Methodology: Information Presentation – Vendor Awards

At the conclusion of all analyses, Info-Tech presents awards to exceptional solutions in three distinct categories. Award presentation is discretionary; not all awards are extended subsequent to each Vendor landscape and it is entirely possible, though unlikely, that no awards may be presented.

Awards categories are as follows:

- **Champion Awards** are presented to those solutions, and only those solutions, that land in the Champion zone of the Info-Tech Vendor Landscape (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, above). If no solutions land in the Champion zone, no Champion Awards are presented. Similarly, if multiple solutions land in the Champion zone, multiple Champion Awards are presented.

- **Trend Setter Awards** are presented to those solutions, and only those solutions, that are deemed to include the most original/inventive product/service, or the most original/inventive feature/capability of a product/service. If no solution is deemed to be markedly or sufficiently original/inventive, either as a product/service on the whole or by feature/capability specifically, no Trend Setter Award is presented. Only one Trend Setter Award is available for each Vendor Landscape.

- **Best Overall Value Awards** are presented to those solutions, and only those solutions, that are ranked highest on the Info-Tech Value Index (see Vendor Landscape Methodology: Information Presentation – Value Index, above). If insufficient pricing information is made available for the evaluated solutions, such that a Value Index cannot be calculated, no Best Overall Value Award will be presented. Only one Best Overall Value Award is available for each Vendor Landscape.

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### Vendor Awards

- **Info-Tech’s Champion Award** is presented to solutions in the Champion zone of the Vendor Landscape.

- **Info-Tech’s Trend Setter Award** is presented to the most original/inventive solution evaluated.

- **Info-Tech’s Best Overall Value Award** is presented to the solution with the highest Value Index score.
Vendor Landscape Methodology: Fact Check & Publication

Info-Tech takes the factual accuracy of its Vendor Landscapes, and indeed of all of its published content, very seriously. To ensure the utmost accuracy in its Vendor Landscapes, we invite all vendors of evaluated solutions (whether the vendor elected to provide a survey and/or participate in a briefing or not) to participate in a process of Fact Check.

Once the research project is complete and the materials are deemed to be in a publication ready state, excerpts of the material specific to each vendor’s solution are provided to the vendor. Info-Tech only provides material specific to the individual vendor’s solution for review encompassing the following:

- All written review materials of the vendor and the vendor’s product that comprise the evaluated solution.
- Info-Tech’s Criteria Scores / Harvey Balls detailing the individual and overall Vendor / Product scores assigned.
- Info-Tech’s Feature Rank / Stop Lights detailing the individual feature scores of the evaluated product.
- Info-Tech’s Value Index ranking for the evaluated solution.
- Info-Tech’s Scenario ranking for all considered scenarios for the evaluated solution.

Info-Tech does not provide the following:

- Info-Tech’s Vendor Landscape placement of the evaluated solution.
- Info-Tech’s Value Score for the evaluated solution.
- End-user feedback gathered during the research project.
- Info-Tech’s overall recommendation in regard to the evaluated solution.

Info-Tech provides a one-week window for each vendor to provide written feedback. Feedback must be corroborated (be provided with supporting evidence), and where it does, feedback that addresses factual errors or omissions is adopted fully, while feedback that addresses opinions is taken under consideration. The assigned analyst team makes all appropriate edits and supplies an edited copy of the materials to the vendor within one week for final review.

Should a vendor still have concerns or objections at that time, they are invited to a conversation, initially via email, but as required and deemed appropriate by Info-Tech, subsequently via telephone, to ensure common understanding of the concerns. Where concerns relate to ongoing factual errors or omissions they are corrected under the supervision of Info-Tech’s Vendor Relations personnel. Where concerns relate to ongoing differences of opinion they are again taken under consideration with neither explicit not implicit indication of adoption.

Publication of materials is scheduled to occur within the six weeks immediately following the completion of the research project, but does not occur until the Fact Check process has come to conclusion, and under no circumstances are “pre-publication” copies of any materials made available to any client.
Product Pricing Scenario

The corporate office breakdown is as follows:

**Head Office**
200 dual band 3x3 MIMO 802.11n access points. Redundant controllers capable of supporting 300 APs, or annual licensing costs if cloud-based controller.

**Branch Office**
50 dual band 2x2 MIMO 802.11n access points. Local controller (not redundant) capable of supporting 60 APs and falling over to head office controller(s) in the event of a failure, or annual licensing costs if cloud-based controllers.

**Teleworkers**
10 dual band 2x2 MIMO 802.11n access points. Licensing costs for remote, standalone AP – must be manageable from main controller or cloud console.

**Support and Maintenance**
Either a percentage of the original list price of the solution annually, specific support contract costs annually, or the ongoing annual cost if a cloud solution. 8x5NBD advanced hardware replacement, call in technical support, and software updates and patches.