Improving Wi-Fi Connectivity in Enterprise Environments:

An Ekahau Guide

ekahau®
by Ookla®

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Reliable, high-capacity, and low-latency Wi-Fi is the invisible engine driving modern enterprise operations. As organizations increasingly transition to "wireless-first" environments, Wi-Fi networks have evolved into mission-critical assets that facilitate productivity and dictate the success of hybrid work and cloud-based collaboration. They empower everything from high-density video conferencing to the seamless movement of employees across office environments of any size.

However, the shift toward real-time collaboration tools like Zoom and Microsoft 365 has fundamentally changed the demands on infrastructure. Modern Wi-Fi must now handle dozens of simultaneous, high-definition video conferencing streams in concentrated areas, while maintaining strict security protocols at the same time. In office environments, delays in re-authentication or roaming as users move between meeting rooms can lead to dropped calls, frozen screens, and lost billable hours.

The challenge is further intensified by the physical and technical complexities of the modern office. From the interference caused by neighboring networks and building automation systems to the RF-blocking properties of modern office layouts (such as sound-isolating panels and suspended ceilings), standard predictive deployments are no longer sufficient. Furthermore, the rapid adoption of Wi-Fi 7 and the 6 GHz band means that today's infrastructure choices must be optimized for longevity to leverage the additional capacity and features that improve network efficiency.

This guide is designed to help enterprise IT teams navigate the connectivity challenges unique to office environments. Inside, you'll find practical, proven strategies for designing, validating, and optimizing networks that serve as a foundation for your organization's success.

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Understanding Key Wi-Fi Challenges in Enterprise Environments

Modern office environments represent a complex wireless landscape where connectivity directly impacts business continuity and employee performance. IT teams are faced with high bandwidth requirements of today's business applications, real-time collaboration tools, and cloud-based software, while also supporting seamless mobility and instant connectivity when a user moves from a private desk to a high-density meeting room.

Delivering this level of performance requires a reliable network that is built with both physical and technical office specifications in mind. Network designers must account for challenging layouts, from signal-reflecting meeting rooms to architecturally complex floor plans in large enterprise offices. These environments often incorporate grand design elements or minimalist finishes that lack standard mounting surfaces. Simultaneously, IT teams must manage external interference from neighboring tenants and integrated smart building IoT systems.

Designing for High-Density and Real-Time Work

Enterprise Wi-Fi must be able to sustain reliable performance under pressure. While day-to-day network usage may appear evenly distributed across users and spaces, modern work patterns (such as video conferencing, real-time collaboration, and the use of cloud-based applications) expose networks to short, intense bursts of traffic.

Under these conditions, performance is often limited not by how far access points (APs) transmit, but by how effectively the network can receive and manage traffic from many client devices simultaneously. Reliable performance and a consistent user experience depends on thoughtful capacity and coverage planning, along with traffic management and prioritization during peak demand. High-density and real-time usage scenarios place a significant strain on enterprise Wi-Fi, including:

High-Density Meeting Rooms

Meeting rooms create extreme, short-term spikes in Wi-Fi demand. Instead of a single shared video stream on a main screen, it's now common for 20–30 participants in the same room to join video conferences individually on their mobile devices while the room's display streams simultaneously. This concentrates dozens of real-time video streams into a small physical area, placing far greater demands on airtime, uplink and downlink capacity, and latency than typical desk-based usage. Wi-Fi designs that are built for evenly distributed users can fail under these conditions.

Video Conferencing & Latency

The growing reliance on cloud-based collaboration (Zoom, Office 365, Google) makes low latency critical. Today, high upload speeds are often just as important as download speeds for effective work and collaboration, but low latency is even more relevant to user experience because delays directly affect real-time interactions like voice, video, and screen sharing.

"Client-Up" Design

In high-density environments, the bottleneck can often be the client device's ability to "talk back" to the network. With newer Wi-Fi bands, APs can transmit signals with much more power than client devices can respond. A successful design ensures the network can reliably "hear" the client, preventing frozen video and dropped calls.

Quality of Service (QoS)

To enforce end-to-end QoS, the network must be able to classify and mark traffic at the AP level. This marking applies priority labels to different types of data so time-sensitive applications are delivered first. Business-critical apps (such as video conferencing, screen sharing, live document editing) need priority, and the infrastructure may need to "remark" traffic if client devices incorrectly tag routine activities like web browsing, email, or background synchronization as high priority. This ensures critical data is prioritized. Over-saturated high-priority queue, however, can degrade performance even further. Investing in advanced infrastructure can allow to manage this by limiting the number of high-priority devices per radio and redirecting clients to nearby APs to evenly distribute the load.

Security and Access Control

Enterprise wireless networks have become a primary frontline for corporate defense. With 82% of organizations now allowing BYOD devices, and 90% of successful cyberattacks beginning at the endpoint devices, there is increasing pressure on network infrastructure to continuously identify and verify devices on the network, according to the 2024 Global Mobile Threat Report by Zimperium.

In modern office environments, security controls must operate continuously and at scale, without impacting the user experience. Network designs that work under light or static conditions can quickly break down once mobility and peak usage are introduced. This process is further complicated by:

Zero Trust & Roaming

The "never trust, always verify" methodology requires constant device re-authentication. In Wi-Fi environments, this places significant pressure on roaming performance. As users move between APs, authentication and backend checks must complete fast enough to avoid interrupting active sessions while still transmitting client state information from one AP to another. Poorly designed authentication workflows can lead to dropped calls, frozen video, and apps can be forced to reconnect.

Network Segmentation

Modern office networks need to support a mix of fully managed corporate devices alongside contractor and guest devices. Effective Wi-Fi design must ensure that traffic is correctly segmented as it enters the network, enforcing strict separation between enterprise resources and untrusted users.

Rogue Access Points

Employees may plug in personal APs to connect legacy devices or improve local coverage, unaware that they are creating unauthorized entry points into the wireless network. These rogue devices bypass standard security controls and can expose the enterprise network to external threats, making continuous monitoring and easy detection essential.

Strengthening Security Protocols

Improving Wi-Fi security by disabling older protocols can expose weaknesses in network design that may have previously gone unnoticed. While WPA3-only deployments strengthen security, they also create a strict environment where devices that are not designed and validated for WPA3 will outright fail to connect or maintain connections while roaming.

Planning Office Network for Longevity

Enterprise Wi-Fi refresh cycles typically span three to five years, meaning today's technology choices must remain viable well beyond initial deployment. True "future-proofing" is not just about buying the latest APs; it is about ensuring the underlying wired infrastructure—cabling, switching, and power—can actually sustain the demands of newer Wi-Fi standards.

To ensure a network delivers reliable performance throughout its lifecycle, organizations must navigate several critical deployment and infrastructure challenges:

Wi-Fi 7 & 6 GHz Adoption

As new client devices increasingly align with Wi-Fi 7 support, delaying 6 GHz adoption can shorten network lifespan or force premature upgrades, turning short-term savings into long-term cost.

Power over Ethernet (PoE) Constraints

With more active radios, modern Wi-Fi 6E/7 APs require significantly more power than previous generations. Many existing switches and cabling infrastructures were not designed to deliver these higher PoE levels, potentially forcing access points to operate in reduced performance modes or requiring costly upgrades to switching and cabling to safely support higher power loads.

Upgrade Shortcuts

To reduce upgrade costs, organizations often attempt to reuse existing cabling or access point locations. This can save money initially, but may restrict where APs can be placed and prevent the network from taking full advantage of newer Wi-Fi capabilities.

Technology Consistency

Upgrading the network gradually rather than all at once often results in multiple Wi-Fi generations operating within the same building. This inconsistency can cause sticky client behavior, inefficient roaming, and inconsistent user experience over time.

Redundancy & Downtime

In wireless-first office environments, Wi-Fi is business-critical, meaning infrastructure failures can quickly disrupt day-to-day operations. When APs on a floor depend on a single switch or wiring closet, even a minor hardware issue or firmware upgrade can result in a complete loss of service rather than a partial shutdown, turning it into a full operational outage.

Navigating the Modern Office Environment

Modern office buildings introduce physical and environmental challenges that directly affect how wireless networks behave. Architectural trends favor open layouts, glass, and dense urban locations, all of which affect signal propagation, reflection, and interference patterns. Because of these factors, correct AP placement becomes even more critical to reliable, high-performance coverage. To build a resilient network, network designers must account for the invisible impact of the following factors:

The "Glass Box" Effect

Modern offices often feature floor-to-ceiling glass, creating complex reflection and refraction environments that require careful modeling during the design phase.

Open Office vs. Walled Environments

- **Open Plans:** The lack of physical barriers can lead to co-channel interference because there is nothing to attenuate RF signals as they travel across the floor.
- **Walled Offices:** Traditional layouts benefit from natural attenuation provided by walls, making propagation control easier.

Vertical & External Interference

In dense office buildings, interference isn't just horizontal—it comes from floors above, below, and neighboring buildings. This can saturate available spectrum and degrade RF conditions, making stable channel planning on 5 GHz increasingly difficult, often necessitating a move to 6 GHz for clean air.

Impact of Aesthetic Choices

In luxury zones, design choices often conflict with connectivity; this includes hiding APs behind walls and decorations, and using sleek "switchable" privacy glass (liquid crystal glazing) in meeting rooms that, when activated, creates a barrier for wireless signals, cutting off coverage that existed moments prior and potentially disrupting active connections in the space.

Managing the Device and IoT Ecosystem

Modern offices are increasingly defined by a dense ecosystem of smart devices that share the same network as laptops and phones. As organizations adopt energy-efficiency and space-optimization initiatives, making their offices "smarter," Wi-Fi planning must account for how non-user devices and smart building technologies coexist with core employee connectivity to ensure uninterrupted performance.

Smart Building Automation as a Source of Interference

Modern offices drive energy efficiency by using Zigbee-based systems to automate lighting, HVAC, and blinds—adjusting for sunlight to naturally regulate building temperature. Rather than deploying separate hardware, many wireless manufacturers now integrate Zigbee radios natively into their Wi-Fi access points, allowing the APs to act as gateways for these IoT sensors. This places Zigbee and Wi-Fi 2.4 GHz radios in immediate proximity, creating constant competition that has to be managed during the design stage to prevent Wi-Fi performance issues.

Wi-Fi-Powered Smart Offices

Some office environments leverage existing Wi-Fi infrastructure for Real-Time Location Services (RTLS). Platforms such as Cisco Spaces use Wi-Fi signals from existing devices and access points to provide insights into workspace utilization, asset visibility, and wayfinding, offering smart building capabilities without the need to deploy additional location tracking sensors. However, this introduces an additional design challenge: the AP density required for accurate location analytics is often higher than what is needed for data connectivity alone. If the network is not designed with these requirements in mind, the resulting location data may be insufficient to support actionable location and space insights.

Ekahau Solutions for Wi-Fi Excellence in Enterprise Environments

Ekahau helps enterprise IT teams maximize wireless network performance throughout the entire Wi-Fi lifecycle with our comprehensive focus on Wi-Fi design, troubleshooting, optimization, and security.

Below, we detail how Ekahau's industry-leading tools streamline critical phases of network management, from new network design and validation to ongoing optimization and troubleshooting, ensuring robust connectivity across device-dense, demanding, and varied enterprise environments.

Ekahau Product Suite

Better data. Better insights. Better outcomes.

SOFTWARE

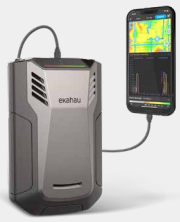
Ekahau AI Pro

Powerful Wi-Fi planning and design software for reliable, high-performing networks. Create enterprise-ready designs, analyze performance, and optimize configurations to support your most demanding digital transformation initiatives.

One-time investment in software.
License required for cloud access.
Ekahau Connect Subscription required.

HARDWARE

Ekahau Sidekick 2



The industry's fastest, most precise Wi-Fi testing and measurement device. It's supercharged and tuned for 2.4/5/6 GHz spectrum (including supporting the latest Wi-Fi 7 technology), providing the visibility your organization needs to protect IT investments and maximize ROI.

One-time investment in hardware.
Extended warranty available.

SUBSCRIPTION

Ekahau Connect Subscription

An annual subscription for continuous updates, advanced capabilities, and customer support.

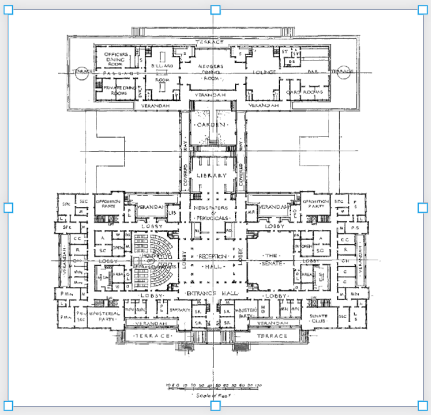
- Ekahau Cloud Access: Ekahau AI Pro Online, Optimizer, and Insights (AI Pro License Required)
- Survey Mobile App for Comprehensive Network Measurement
- Analyzer Mobile App for Live Troubleshooting
- Speedtest® Integrations
- Cloud Project Sync with Guest Sharing
- Software & Firmware Updates
- Latest AP Models & DAshboard Integrations

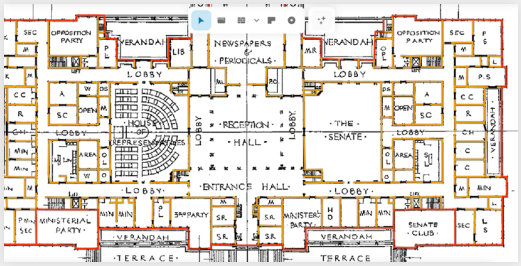
Annual software maintenance and support.
Sidekick 2 required to use all features.

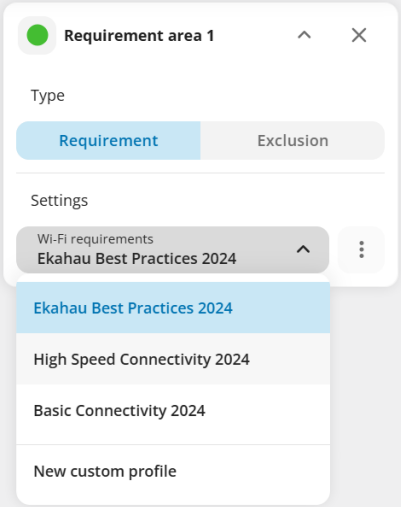
New Network Designs for Enterprise Facilities

A well-designed network ensures a Wi-Fi signal reaches every corner of your facilities, providing fast and consistent performance, free from interference.

Ekahau's core design software, Ekahau AI Pro Online, transforms the complex process of Wi-Fi design into a streamlined workflow. Whether you're designing for a complex multi-floor office building or a small company office, Ekahau's precision tools ensure optimal performance from day one. Ekahau offers both cloud-based and offline versions to ensure enterprise facilities can use the tools, regardless of IT requirements or security policies. While many advanced features now leverage the cloud, the ability to operate in a fully offline mode remains a key differentiator for high-security environments.







1 Import Your Floor Plan

Begin by importing your floor plan, which can be in JPG, PNG, PDF, or CAD file format. From here, you can adjust your floor plans' rotation, opacity, and choose from color or greyscale. Then, set the scale for your project.

Setting a proper scale for your floor plan determines how the signal will propagate through your space. For best accuracy, use a clearly defined and a long, easily measurable feature—like the length of a hallway—to set the correct scale.

2 Draw Walls

When planning a Wi-Fi design, drawing walls on your floor plan helps create a more accurate network model by accounting for how different building materials affect signal propagation. Designs that ignore wall structures might look fine on screen but fail in practice, with signal loss and coverage gaps where materials block or weaken transmission. For example, drywall can reduce signal strength by about 3dB (halving the power), while glass walls can create complex refraction and reflection patterns.

Ekahau AI Pro Online analyzes floor plan files and automatically draws walls for you, saving time and effort. The software even automatically identifies outer windows in addition to walls and doors, making floor plan preparation faster and more accurate, letting you jump into actually designing the WLAN without spending hours on drawing walls.

Whether working with PDFs, JPGs, PNGs, or CAD files, the software's automated detection system quickly identifies architectural elements with precision, reducing the time needed for initial project setup. This means less time manually adjusting wall placements and more time focusing on your network design.

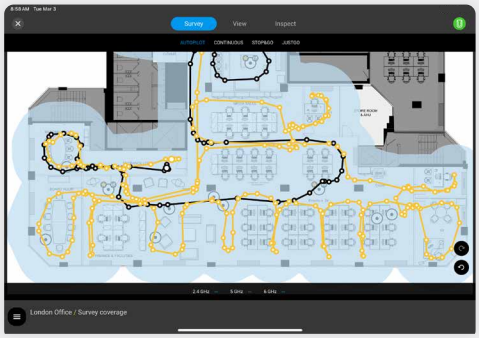
3 Define Connectivity Requirements for Your Space

Defining all of the network requirements for specific areas of your office environment is essential for delivering reliable performance. Will the network need to support basic administrative data entry, or must it handle real-time video conferencing and high-throughput design and programming applications? Ekahau makes it easy to define network requirements with built-in industry presets for common connectivity requirements or fully customizable settings for signal strength, capacity, signal-to-noise ratio, data rate, and channel interference.

Ekahau's software lets you apply RF coverage and capacity requirements manually or automatically across different parts of the floor plan. For example, you might set high-density requirements in critical areas like meeting and conference rooms, while applying high-availability profiles for open office areas.

4 Perform On-Site Survey

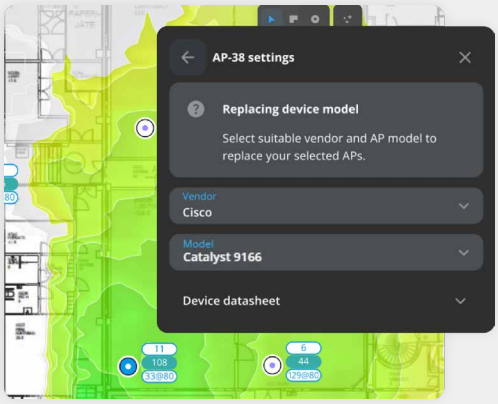
Surveying before the network is deployed is an important step in the design process and should be considered essential in any environment. While considering to only perform a predictive design without an on-site survey often seems economically attractive in office environments, it is largely because these spaces allow for limited post-deployment adjustments without major structural changes. In practice, however, unverified assumptions about building materials, attenuation, and signal behavior can lead to coverage gaps that disrupt roaming and cause real-time applications to fail.



Conducting an on-site survey during the design phase allows engineers to measure actual wall attenuation, identify sources of interference that must be avoided, and account for physical constraints that may affect deployment. This includes confirming suitable access point mounting locations and cabling paths. Performing an on-site survey ensures the predictive model is accurate and the network performs as intended from day one.

5 Choose Your Access Point Model

Choose from our comprehensive database of over 4,500 enterprise APs and external antennas. We work with every major wireless networking infrastructure company to ensure you can create accurate designs based on actual antenna radiation patterns for each access point.

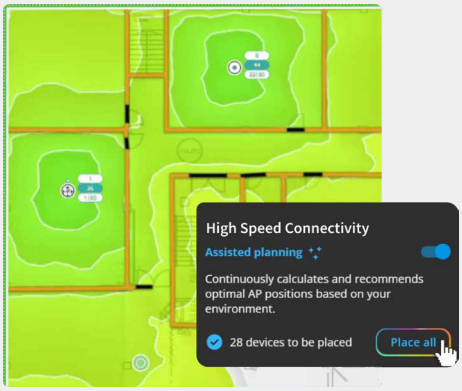


6 Determine Ideal Access Point Locations

Working through an iterative process to find the perfect placement for access points traditionally required extensive RF expertise and time-consuming calculations. Ekahau simplifies this process through intelligent automation while still giving you complete control. Based on your floor plan and selected AP models, you can either manually place APs or leverage Ekahau's powerful algorithms to determine ideal locations automatically.

With AI-powered Assisted Planning, you can select from thousands of the most popular access point or antenna models and calculate in real-time the optimal positions based on your requirements and configurations. The system intelligently analyzes your environment in 3D, accounting for walls, distances, and coverage requirements to recommend precise AP placements that maximize performance while minimizing hardware costs.

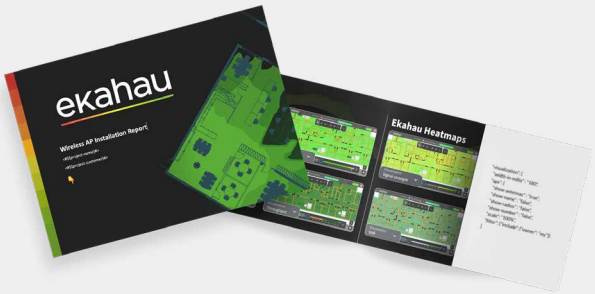
For greater control, you can place access points in specific locations where you know you need them, and watch as the assisted planner algorithm dynamically adjusts proposed new AP locations to complement your manual placements.



7 Export Design Report and Bill of Materials

Once your design is complete, comprehensive documentation transforms your plan into an actionable implementation blueprint. Ekahau generates detailed reports and a bill of materials that clearly communicate your network plan to both technical teams and non-technical stakeholders. From there, it's time to install and validate the network to ensure it performs as expected.

The ability to visualize and simulate network performance before any equipment is installed eliminates costly trial-and-error approaches that are typical in Wi-Fi redesigns. You can see exactly how modifications will perform in your unique environment, reducing deployment time, avoiding expensive mistakes, and delivering reliable performance from day one.



Design Multiple Technologies in a Single Project

Modern enterprise facilities may not rely on Wi-Fi alone—they often utilize multiple technologies that work together as part of one network. Devices such as room occupancy sensors, temperature and light controllers, and high-value asset tracking require different radio technologies to function optimally based on their specific needs for range, power, latency, and data rate.

Previously, network professionals had to use separate tools for designing the primary Wi-Fi network and then planning specialized networks like Private 5G or Bluetooth Low Energy (BLE). Ekahau's new multi-technology wireless network planning feature in AI Pro Online consolidates this process, making it possible to design the Wi-Fi network and other critical wireless technologies together in one environment for a single, fully integrated network plan.

The mix of supported technologies includes:

Private 4G/5G

Provides dedicated, wide-area coverage and low-latency for mission-critical communication and collaboration.

BLE (Bluetooth Low Energy)

Used for low-power, short-range transmission, typically for indoor room-level location services, wayfinding, and asset tracking.

UWB (Ultra-Wideband)

Used for highly accurate, real-time location tracking of assets and personnel with centimeter-level accuracy.

Zigbee

A low-power mesh network protocol ideal for building a high-density grid of stationary sensors that need to communicate reliably. Examples include lighting, room temperatures, motorized blinds, and other smart building automation.

By offloading specialized, mission-critical traffic—such as staff communication or location data from asset tags—to purpose-built technologies like Private 4G/5G, BLE, Zigbee, or Ultra-Wideband, facilities can keep Wi-Fi focused on high-bandwidth applications such as video conferencing, cloud syncing, or internal applications that teams often rely on. This multi-technology design helps ensure optimal performance across all connected systems.

With Ekahau AI Pro Online, you can design all of these technologies within a single project file. This ensures optimal performance across all your critical wireless systems.

Wi-Fi Data Collection and Network Validation with Ekahau

Even the most carefully designed network requires validation after deployment. While design software can predict wireless coverage, real-world conditions often introduce unexpected variables. Validating the design confirms that the physical installation was executed correctly and your network performs as expected.

To ensure reliable performance, collecting Wi-Fi data and validating the network with specialized tools is essential. This is done through a process called a Wi-Fi validation survey, where you simply walk the environment with a data collection device like the Sidekick 2 to measure how the network actually performs. The primary role of such a survey is to validate the design assumptions made in the predictive model and expose any unforeseen variables, which can then drive necessary changes to AP placement or layout.

Ekahau's integrated approach to data collection and planning capabilities ensures your wireless infrastructure performs as expected and continues to deliver exceptional performance post-deployment and throughout your network's lifecycle. Measuring what's actually happening in your environment—not just what should be happening according to software predictions—helps you both identify and address issues before they impact users.

The World's Most Accurate Wi-Fi Measurement Device

The Ekahau Sidekick 2 sets the industry standard for Wi-Fi analysis through its precisely engineered, in-house built hardware, precision components, and patented technologies. The Sidekick 2 provides comprehensive visibility into your entire wireless environment, delivering unmatched measurement accuracy, consistency, and scanning speed.

Faulty measurements or poor data collection methodologies lead to costly network design mistakes and troubleshooting headaches—that's why each Sidekick 2 is specially designed with purpose-built parts and is individually compensated for superior omnidirectional accuracy.

By comparing real-world measurement data from the Sidekick 2 against your design predictions, you can quickly identify and address any discrepancies before they become problems for customers.

Integrated Spectrum Analysis: Only with Ekahau

During Wi-Fi surveys, the Sidekick 2's patented integrated spectrum analyzer simultaneously detects channel utilization, signal-to-noise ratio, and sources of interference across multiple frequency bands (2.4 GHz, 5 GHz, and 6 GHz). This capability is critical for identifying performance-degrading issues caused by both Wi-Fi and non-Wi-Fi interferers.

Devices like Bluetooth peripherals, motion sensors, coffee machines, LED lights, and even microwaves can disrupt your network—and **unlike many other Wi-Fi measurement tools, the Sidekick 2 detects them all.**

Unique Survey Modes

Collecting Wi-Fi data is remarkably simple with Ekahau's innovative survey modes—capabilities you won't find anywhere else.

Just Go Survey

Uses augmented reality to create floor plans automatically as you walk—ideal for situations when no floor plan is available.

Autopilot Mode

Automatically tracks your location on an uploaded floor plan during a survey, making walkthroughs fast and accurate.

GPS Surveys

Add outdoor maps manually or integrate with Apple Maps and your iPhone's GPS to perform large-scale outdoor surveys—ideal for enterprise campuses with wide coverage areas, including open spaces, and even parks.

Stop & Go

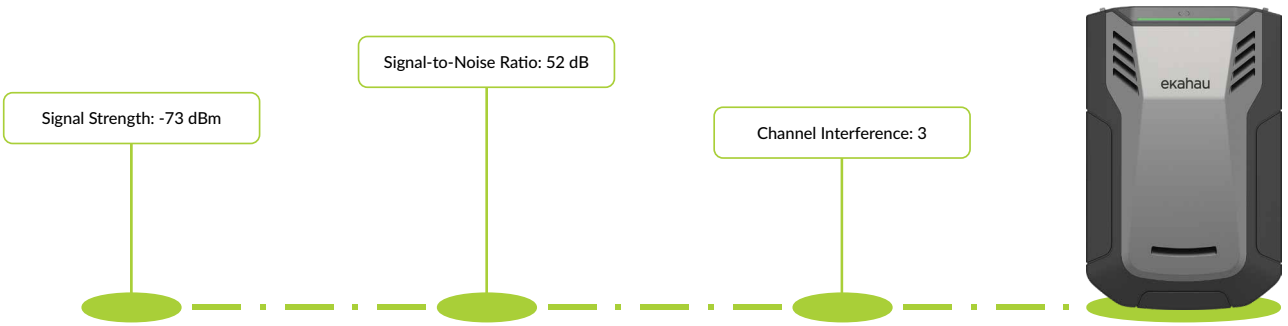
Best used in challenging or sensitive environments where you need to be aware of your surroundings or when it is not possible to move at a constant pace in between clicks. Data is only collected when you click.

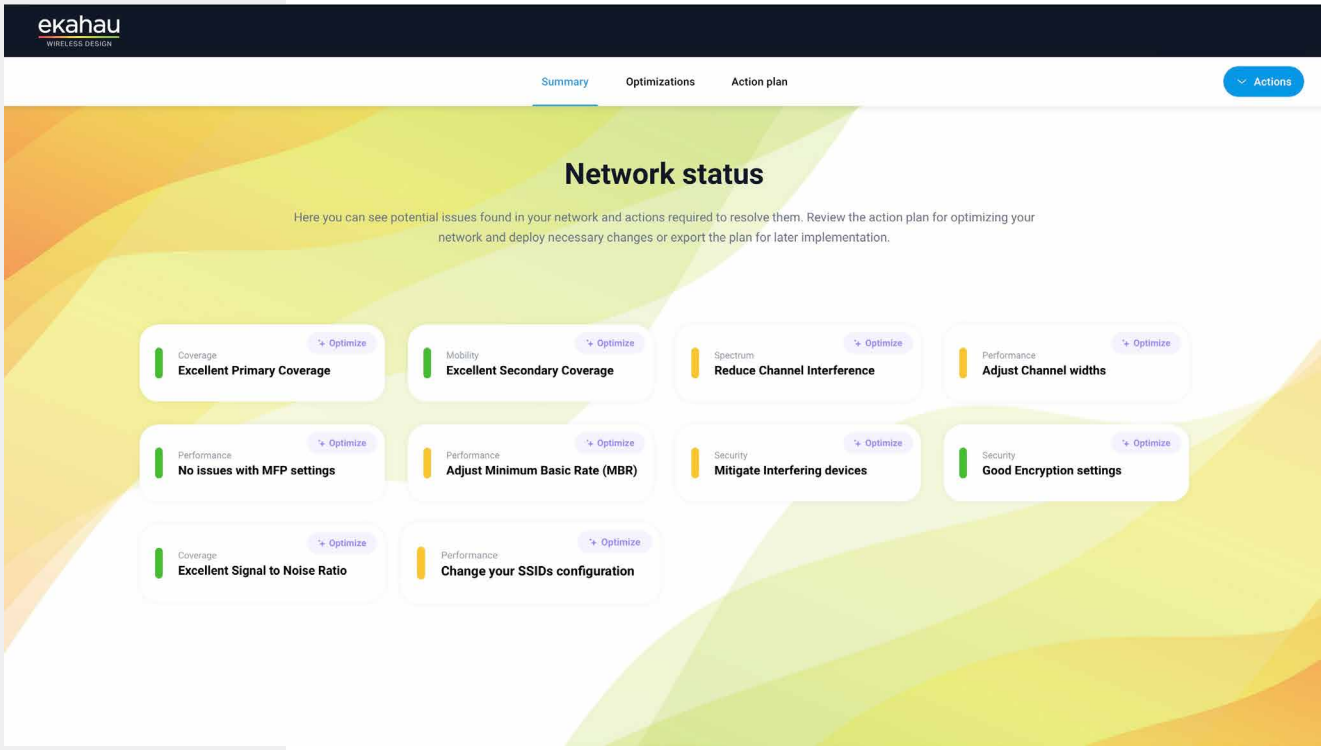
Continuous

A traditional method of collecting survey data where measurements are recorded continuously along the walking path. The surveyor taps the screen to mark the start and end of a movement, and data is logged for the entire path between those taps, providing a dense record of the RF environment.

When following survey best practices, our survey modes instantly locate access points, place them precisely on your floor plan, and generate heatmap visualizations. Ekahau allows you to combine the best features of Autopilot, GPS, Stop & Go, and Continuous survey modes into one "super survey," making it easy to switch modes in the middle of a walk-through. This makes professional-grade Wi-Fi surveying accessible to anyone without requiring special expertise.

Stop & Go	Continuous	Autopilot	Just Go	GPS
Stop, collect, move, and repeat. Collects the least amount of data.	Tap when you start, when you turn, when you change pace and when you stop.	Calibrate your position on the floor plan, and then walk. Survey app understands where you are on your floor plan.	Just go, no floor plan needed! Uses LiDAR and Apple ARKit to scan environment as you walk.	Works best for outdoor surveys, requires a GPS-equipped mobile device with a SIM card.





Optimization and Troubleshooting

Once a Wi-Fi network is deployed, effective and efficient troubleshooting are crucial for maintaining peak performance and providing a consistently reliable experience for users. Proactively addressing issues and fine-tuning the network prevents minor glitches from escalating into widespread disruptions that could affect daily business operations.

Ekahau offers a comprehensive suite of tools designed to simplify ongoing troubleshooting and optimization, ensuring your network remains robust and responsive, even during periods of peak density.

Continuous Optimization for Peak Performance

When IT teams learn of poor Wi-Fi performance, a common reaction is to add more APs. But without understanding the root cause, simply adding more APs can make the situation worse, potentially introducing new problems like channel interference. Ekahau offers a data-driven way to optimize performance and fix issues without overspending on unnecessary hardware.

The process starts by capturing a survey of your RF environment. A simple walkthrough with the Ekahau Sidekick 2 collects comprehensive and precise data on your network's current performance. The Sidekick 2's integrated spectrum analyzer is crucial for this process, as it accurately measures the signal-to-noise ratio (SNR) and detects non-Wi-Fi interference from devices like security cameras, coffee machines, or motion sensors that can disrupt your network.

Once your survey data is collected, Ekahau Optimizer analyzes it and translates the complex RF data into simple, actionable recommendations.

Optimizer pinpoints issues such as:

Coverage Gaps

Areas with insufficient primary or secondary signal strength for reliable connectivity and smooth roaming.

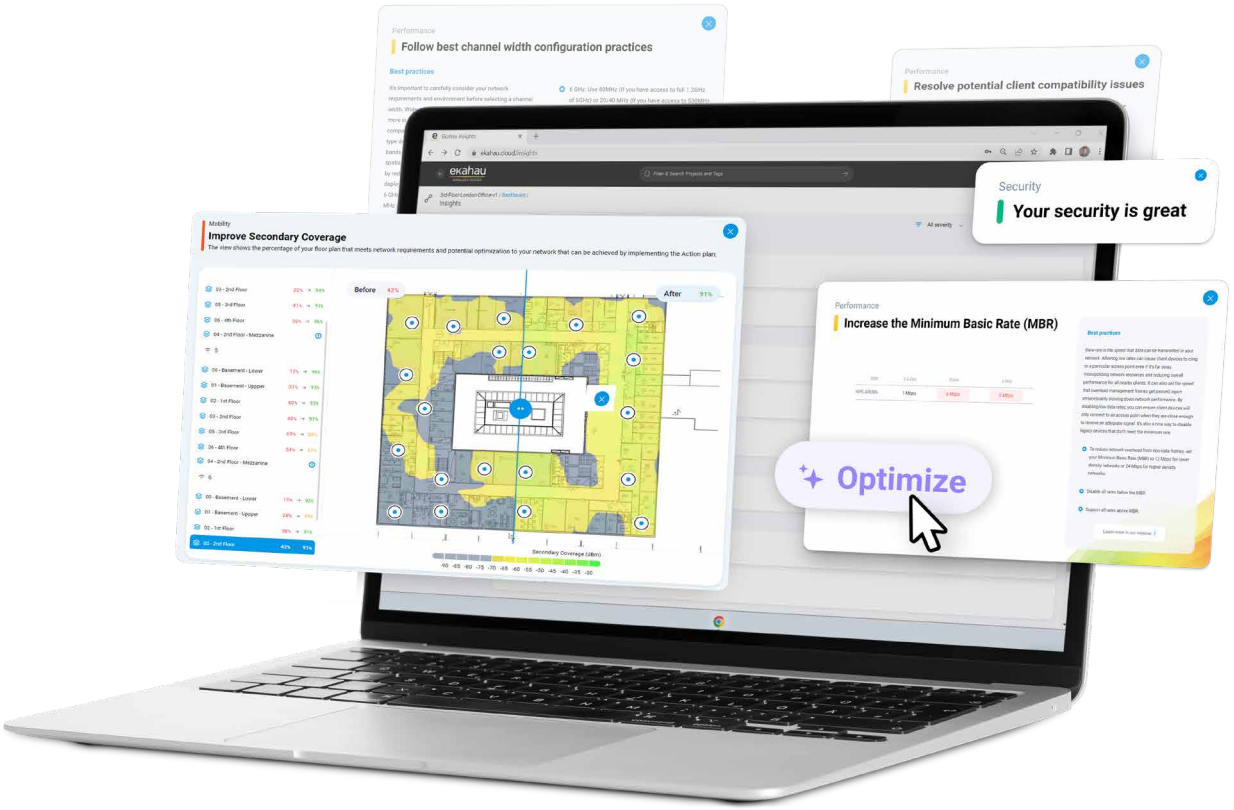
Channel Interference

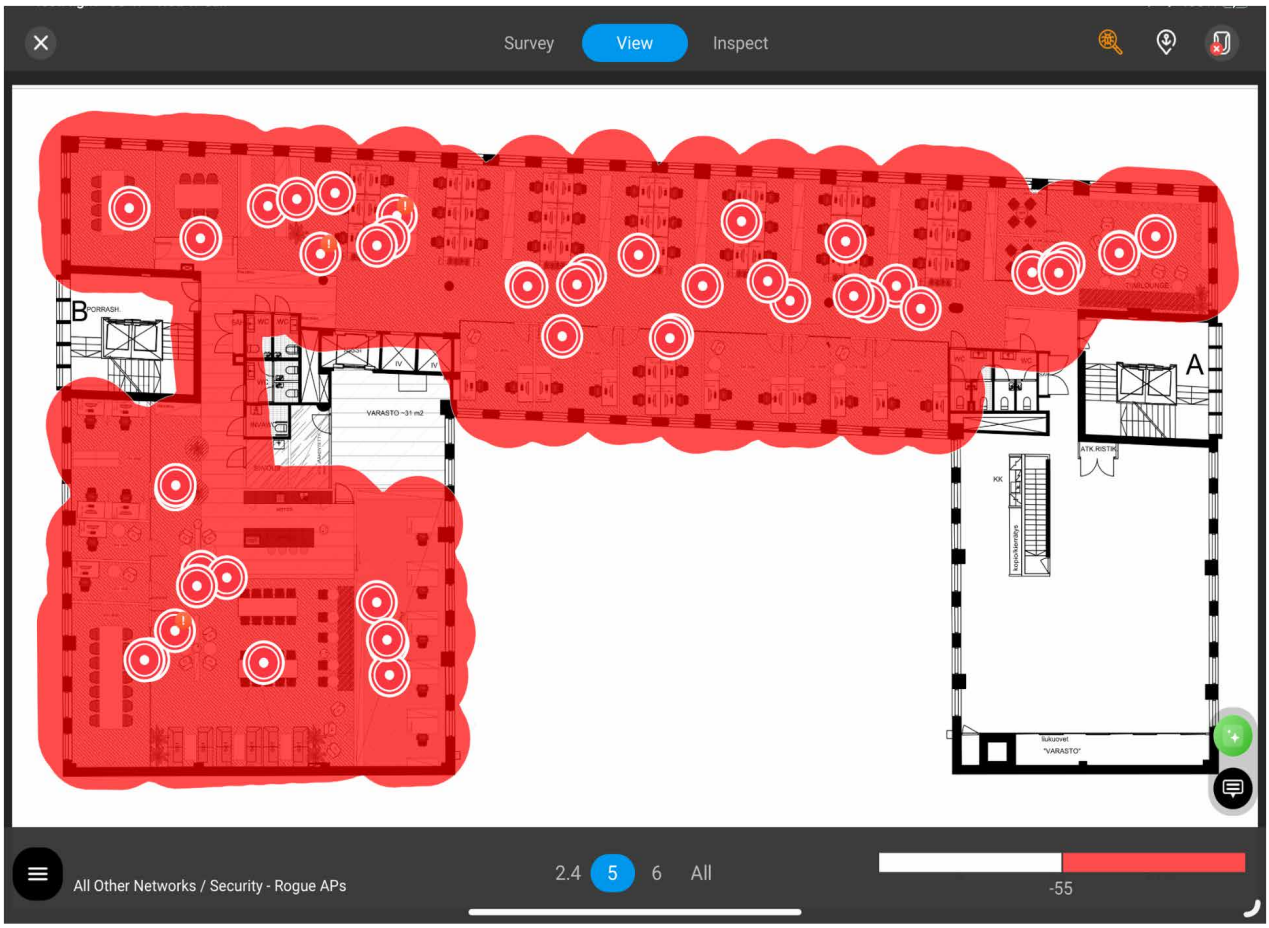
Overlapping channels from your own network that degrade performance.

Misconfigured Settings

Suboptimal channel widths, SSIDs, or minimum basic rates that slow down the entire network.

Optimizer delivers a step-by-step action plan—personalized for each AP—that you can implement directly into your network controller with a log of the changes for auditing. Proactive optimization improves the user experience, reduces troubleshooting time, and extends the life of your current network to maximize your return on investment.





Securing Your Network Against Wireless Threats

While performance matters, Wi-Fi security is even more critical. A single breach can be devastating, and vulnerabilities can come from unexpected places, like unauthorized APs or unsecured building management systems.

Maintaining a secure wireless environment requires constant vigilance, but Ekahau makes it simple to identify and eliminate risks. A quick security survey with the Ekahau Sidekick 2 is all it takes to uncover major vulnerabilities across your network.

The Sidekick 2 and Ekahau software work together to pinpoint critical threats, including:

- **Rogue APs:** Unauthorized APs within your building perimeter that provide an easy entry point for hackers.
- **Weak Encryption:** The use of outdated and crackable security standards like WEP, WPA, or open networks that can expose sensitive corporate and employee data.
- **Missing Management Frame Protection (MFP):** The absence of MFP leaves your network vulnerable to spoofing attacks, where an attacker can create a denial of service (DoS) situation and continuously kick users off your Wi-Fi network or trick them into connecting to a malicious network.

After a site survey, Ekahau Optimizer instantly provides a deep-dive security snapshot you can use to fortify your network's defenses. Performing regular security checkups with Ekahau helps you validate your configurations and keep your sensitive data, users, and network safe from threats that evolve between your automated monitoring cycles.

A high-performing network is also a more secure one. When official enterprise Wi-Fi is fast and reliable, employees are far less likely to create vulnerabilities by turning to personal hotspots or unauthorized routers—a practice known as “Shadow IT.”

Advanced Troubleshooting

Effective troubleshooting provides immense value by enabling teams to quickly identify, diagnose, and resolve underlying issues to ensure dependable and uninterrupted connectivity. The Ekahau Analyzer app, optimized for use with the Ekahau Sidekick 2, provides a suite of professional-grade features on Android and iOS to identify the root cause of Wi-Fi issues and resolve them fast.

When your employees report slow connectivity, the first step is determining if the problem stems from the Internet Service Provider (ISP), the local Wi-Fi network, or the client device itself. The Analyzer app provides advanced tools to pinpoint the source of Wi-Fi-related problems across all three bands (2.4 GHz, 5 GHz, and 6 GHz).

Analyzer is also integrated with Speedtest® by Ookla® (currently available on iOS), allowing IT professionals to measure internet speeds while simultaneously analyzing live Wi-Fi spectrum for interference or congestion. This capability provides clear visibility into whether the issue originates with the ISP or the local network, critical information for identifying true bottlenecks in enterprise environments.

For a deeper look at the RF environment, the Analyzer app leverages the Sidekick 2's high-resolution spectrum analyzer, which displays RF interference in real-time with 50 sweeps per second to catch even quick, intermittent events. The network overview feature (currently available on iOS) further assists in root cause analysis by validating your network against predefined requirements and providing clear pass/fail indications for critical configurations like security settings, roaming amendments, and minimum basic rates.

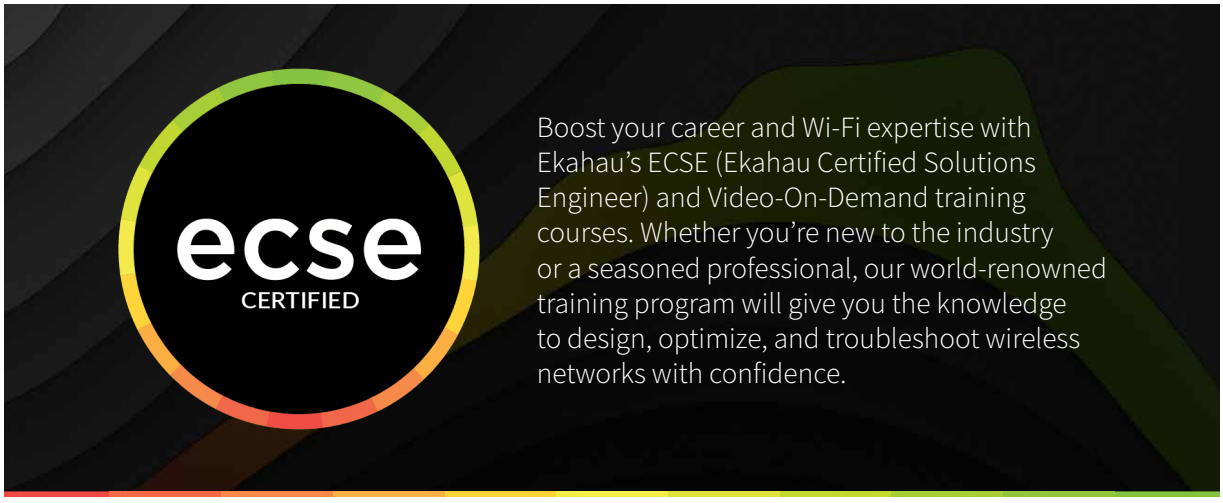
For even more advanced troubleshooting, Ekahau's Client Analysis Tool (currently available on iOS) revolutionizes how client-specific issues are diagnosed. Instead of immediately resorting to time-consuming packet capture, IT professionals can simply bring a user's device close to the Sidekick 2 for a rapid assessment of its connection health. The tool presents key performance indicators with an intuitive green-yellow-red color-coding system, empowering users of all technical levels to quickly understand if the issue lies with the network or the client device.

Learn to Design Wireless Networks for Enterprise Environments with ECSE Design Course

Enterprise Wi-Fi design is not just about coverage; it has to ensure high-throughput for data-heavy applications, enough bandwidth for peak usage scenarios, security of all the confidential data, and compliance with the latest digitalization initiatives. The Ekahau Certified Solutions Engineer (ECSE) program is a respected, BICSI-accredited training series that equips IT professionals with the advanced skills required to design, optimize, and troubleshoot business-critical enterprise networks.

After completing an ECSE Design course and obtaining a certification, you'll be ready to:

- Accurately model signal behavior in challenging propagation areas, such as glass-walled rooms, high-density open offices, and lobbies and reception areas with reflecting floor tiles.
- Design and validate networks that support multi-technology environments using Ekahau AI Pro Online and Sidekick 2.
- Troubleshoot and fix tough wireless problems, including roaming failures and dropped calls when employees move around office facilities, channel interference caused by dense urban environments, and security threats.
- Apply proven methods to ensure seamless coexistence for numerous high-demand devices and applications simultaneously, from cloud-based tools to high-bandwidth photo and video editing apps.
- Identify and eliminate security threats originating from rogue APs and weak encryption protocols to protect sensitive data.

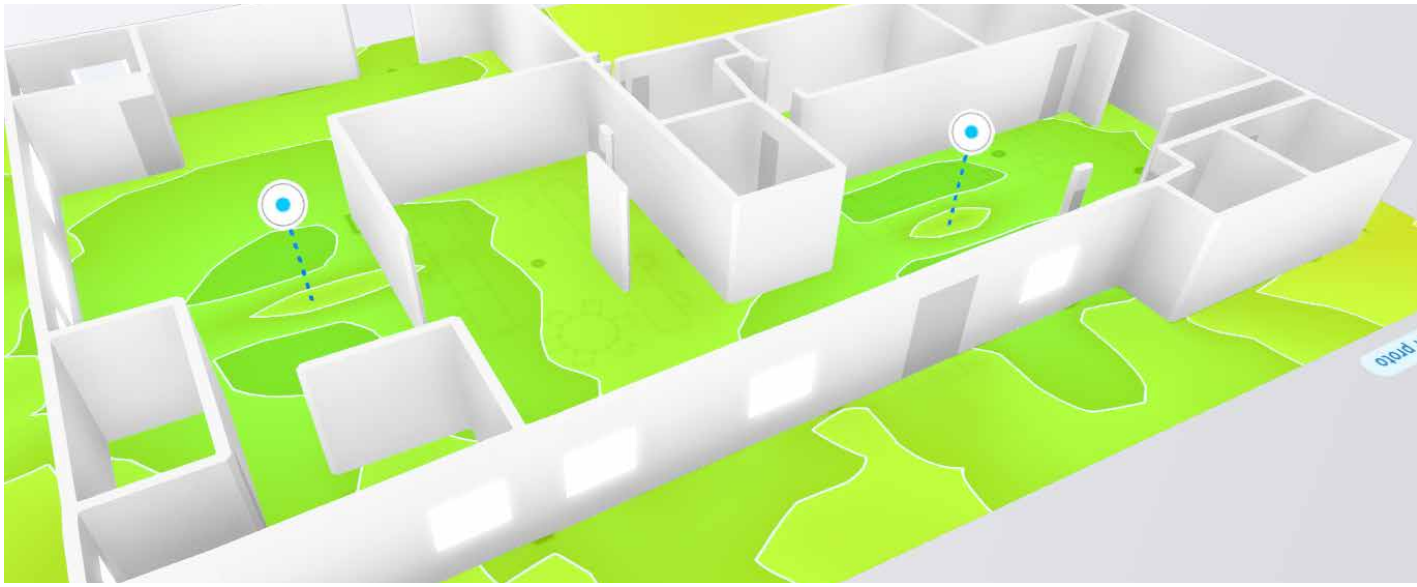


Earning an ECSE certification demonstrates your commitment to professional growth and helps you provide the reliable wireless connections that modern business operations demand.

- **Flexible Scheduling:** Our comprehensive 4-day courses run Tuesday – Friday and are available in friendly global time zones to suit your schedule.
- **No Hardware Required:** Don't have a license or Sidekick 2 yet? No problem. Enjoy a 14-day temporary license when you enroll in the class.

Are you ready to get certified? Check the course curriculum and upcoming training schedule here:

Explore the ECSE Design Course →



Network Redesigns for Wi-Fi in Enterprise Facilities

Nearly 80% of all network design projects are actually redesigns. In the enterprise sector, Wi-Fi networks are often being reworked to replace aging infrastructure with newer technology that delivers faster speeds, ultra-low latency for communication systems, and stronger security. And sometimes, redesigns are simply a consequence of physical changes to the space, like renovations, new equipment, or office layout changes. Some of the triggers for office network redesigns are:

- **Evolving Wi-Fi standards:** Rapid changes in Wi-Fi standards (such as the jump to Wi-Fi 6E/7) to support higher bandwidth and low latency applications, as well as enable faster speeds in high density areas.
- **Physical Changes:** An open office may be converted into a number of glass-walled meeting rooms, or a standard storage room may become a localized server room. These structural changes instantly introduce new RF obstacles and alter the network performance requirements.
- **Increased Digitalization and Device Ecosystem Growth:** The rapid adoption of smart building automation and intelligent workspace management—such as Cisco Spaces for room booking, wayfinding, and occupancy analytics—has significantly increased device density. Combined with modern collaboration technology that enterprises often deploy, this mixed device ecosystem requires a network redesign to accommodate increased device density without performance drops or co-channel interference.
- **Vendor Lifecycle Limitations:** When hardware reaches End-of-Life (EOL), vendors cease providing critical firmware and security updates. Replacing aging infrastructure requires a network redesign to account for the different coverage patterns and capabilities of the new access points compared to the retired models.

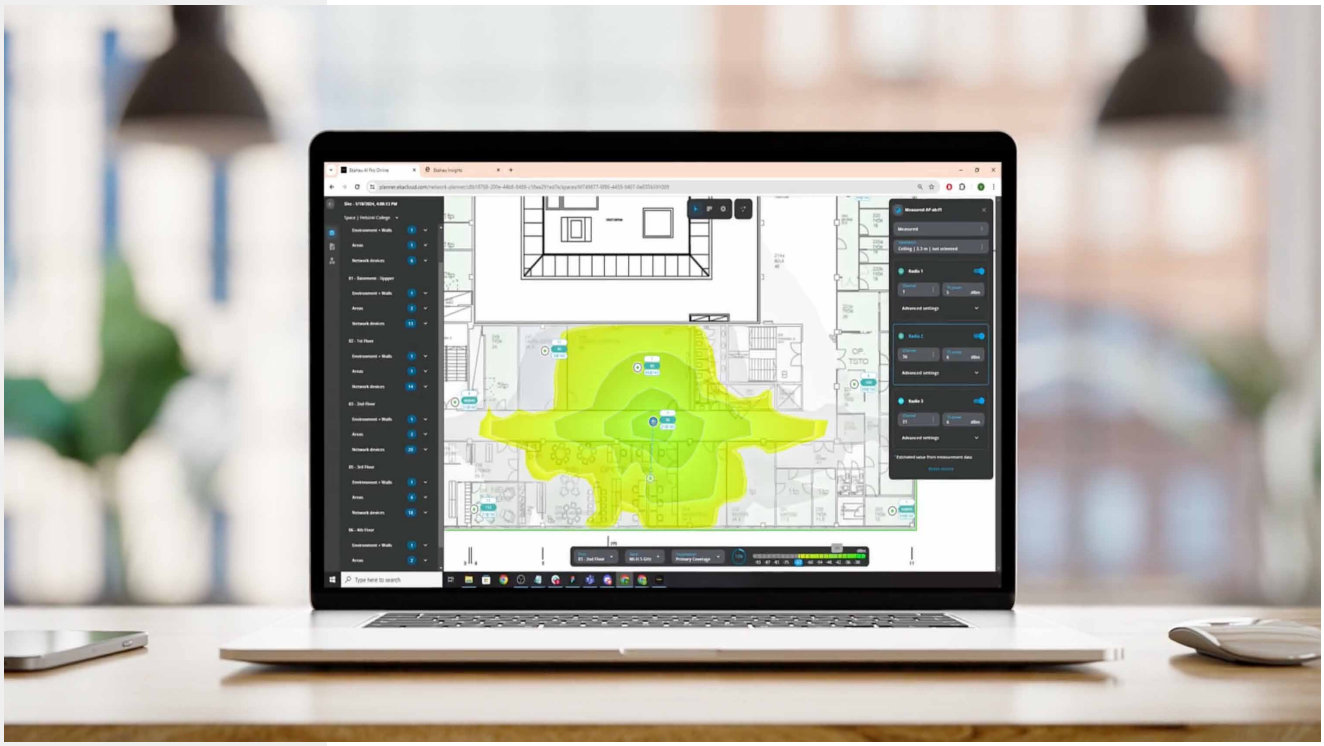
In the past, planning for these upgrades meant a lot of guesswork: estimating coverage needs, manually modeling environments and AP placement, and hoping for the best. That often led to performance gaps or budget surprises, but those days are over. Ekahau eliminates the uncertainty, making it easy to plan and execute Wi-Fi redesigns in different office environments with confidence and accuracy.

Simulate Your RF Environment

The first step in any redesign is understanding how your current Wi-Fi environment actually performs. With Ekahau, that starts by walking the premises with a Sidekick 2 paired with an Android or iOS device to capture accurate, real-world survey data—no guesswork, no manual wall drawing.

Real-world measured data from the Sidekick 2 feeds into Ekahau AI Pro Online, which automatically builds a detailed RF model of your space. You'll get a precise view of how signals behave in your buildings, accounting for building materials, obstructions, office equipment, and other factors that might not be visible on a floor plan.

Ekahau tools replace the old, error-prone method of manually sketching out walls and guessing at how materials affect signal strength. Without accurate data, it's easy to overlook hidden barriers—metal cabinets, dense storage room shelving, hidden HVAC systems—that can quietly degrade performance. With Ekahau's solutions, you can catch issues early and make informed design decisions before a single AP is deployed.



Visualize Network Upgrades Before You Deploy

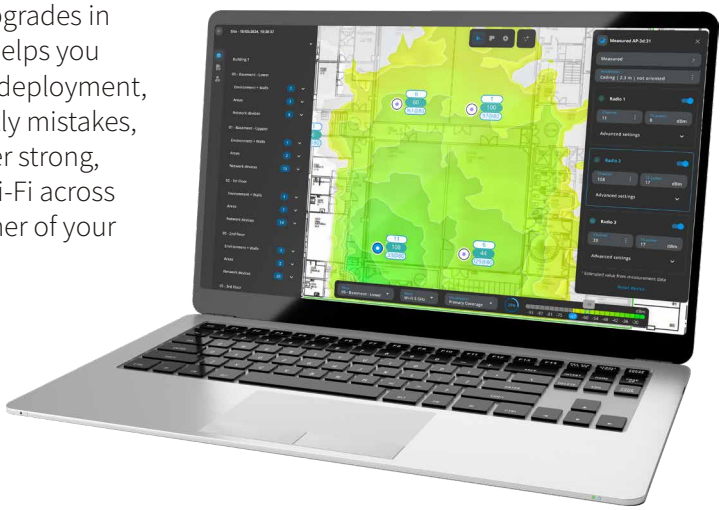
Once you've built a reliable model of your current environment, redesigning your network becomes much more efficient. With Ekahau AI Pro Online, you can select your existing APs on the floor plan and instantly simulate an upgrade by swapping in newer models from a library of over 4,500 options.

This "rip-and-replace" feature lets you see exactly how different APs would perform in their current locations before touching a single ceiling tile—whether your APs are mounted in high-density open offices, glass-walled executive rooms, near elevators, or within multi-floor atriums. If you need to adjust placements or add more APs to support higher device density or growing operational needs, you can drag and drop them on the floor plan and watch the heatmaps update in real time.

Ekahau's powerful simulation capabilities allow you to test, validate, and fine-tune your design by modeling the most common upgrade scenarios, such as:

- **Upgrading to newer APs:** Simulate performance improvements with Wi-Fi 6E or Wi-Fi 7 in high-traffic areas like lobbies, conference rooms, and hot desk stations.
- **Expanding coverage:** Add APs to eliminate dead zones in areas like stairwells, elevators, and hallways.
- **Expanding capacity:** Add APs to increase available capacity in high-density areas for high-bandwidth applications or high concentration of client devices.
- **Switching vendors or AP models:** Compare performance across vendors, or AP models to ensure consistent connectivity throughout your facilities.

Testing upgrades in advance helps you speed up deployment, avoid costly mistakes, and deliver strong, reliable Wi-Fi across every corner of your office.



Conclusion

Successfully managing Wi-Fi networks in enterprise environments requires tools and strategies that account for diverse and sometimes complex architectural layouts, demanding devices and systems. The network must deliver consistent performance that enables the continuity of business operations while simultaneously ensuring employee productivity and a seamless working experience. While the challenges can be significant, they are not insurmountable.

The key to providing consistently high-performing Wi-Fi lies in approaching these hurdles systematically. By leveraging tools designed specifically for demanding environments like corporate offices, multi-story buildings, and satellite campuses, IT teams can ensure reliable, secure, and cost-effective connectivity across your entire infrastructure.

Whether you're designing for a small company office located in a densely populated office building, an executive meeting room, or corporate headquarters with outdoor areas, Ekahau's wireless design and validation tools make it simple to deliver the reliable connectivity modern business operations depend on.

To see how Ekahau products can help the Wi-Fi in your organization, reach out for a demo.

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