BroadbandScanner

Automate Your Mesh and PMP Network Measurement Process

Motorola's BroadbandScanner software enables the validation of mesh and point to multi-point networks through an intuitive, GPS-driven interface that eliminates the need for deep RF expertise.

Manual verification of mesh and point-to-multipoint networks is costly and time-consuming. Early trial deployment teams have struggled to compile information using paper maps, custom spread-sheets, and manual cut-and-paste between GIS applications, crude measurement tools, and ad-hoc logs. However, today's large, mature and complex projects require automated, hardware-independent validation of Quality of Service (QoS) and performance.

BroadbandScanner equips network integrators and post-deployment teams with a money-saving, hardware-independent solution for measuring and visualizing network performance. BroadbandScanner can also be used in conjunction with Broadband-Planner, Motorola's comprehensive software solution for designing and verifying wireless mesh and point-to-multipoint networks. To ensure accuracy and usability, BroadbandScanner leverages GIS maps for recording, displaying, and storing vital network information. The software's visualization capability displays the information integrators need to pinpoint and validate critical QoS issues such as wireless coverage and data throughput.

With BroadbandScanner, the measurement process starts by importing the GIS terrain and map of the area. Using "drive test" mode, the user records live measurements by acquiring GPS located measurement data from a wireless LAN card or an attached spectrum analyzer. As measurement data accumulates, BroadbandScanner adds this information in real-time to the site map. Users then visualize the results as RSSI (Received Signal Strength Intensity), SIR (Signal

to Interference Ratio), SNR (Signal to Noise Ratio), and throughput data rate.

Identify Pre-Deployment RF Interference Issues and Mounting Point Locations

Mesh access points (APs) require a high level of Signal to Noise Ratio (SNR) to maintain reliable service. BroadbandScanner contains a RF monitoring feature that design planners can use to measure wireless interference. When configured with an approved LAN card and spectrum analyzer or a PMP subscriber module, BroadbandScanner empowers integrators with time and money-saving capabilities for identifying noise-floor concerns that could impact the QoS – before deploying a single piece of hardware.

Identifying AP mounting locations is another crucial design planning task. While performing interference testing or during a separate drive test, the team can use BroadbandScanner to specify precise mounting locations. When a candidate site is identified, a simple mouse click adds the GPS-accurate AP mounting location to the site map.

Measure and Validate Post-Deployment QoS

BroadbandScanner provides a solution to help guarantee that the deployed network achieves coverage and capacity requirements detailed within the project contract – prior to customer hand-off. This enables network integrators to differentiate their solution and deliver a high performance wireless broadband network that runs the most demanding data, video and voice applications, in the most challenging environments.

A Total End-to-End Solution
Motorola's wireless broadband portfolio offers an array of access and backhaul technologies for complete end-to-end municipal wireless initiatives. Motorola Point-to-Multipoint and Point-to-Point solutions can provide reliable, high-capacity Internet backhaul links to Motorola mesh networks. BroadbandPlanner and BroadbandScanner enable detailed network planning and optimization capabilities.

Motorola Wireless Broadband

BroadbandScanner is part of the Motorola's comprehensive portfolio of wireless broadband solutions, applications and services. Designed to complement and complete wireless networks, Motorola Wireless Broadband solutions address a broad range of applications across municipal, enterprise, and operator segments. The comprehensive Motorola Wireless Broadband portfolio creates a true end-to-end ecosystem of complementary products, services and solutions that provide high speed connectivity enabling a broad range of applications in fixed, nomadic, portable or mobile environments. Working together, Motorola Mesh Wide Area Network solutions combined with other wireless broadband access technologies deliver ubiquitous, metro-wide (community-wide, campus-wide) wireless broadband coverage.

WHY MOTOROLA

Motorola is uniquely positioned to meet customers' need for great agility through its wireless network solutions vision. Motorola has aligned its business units and roadmaps to provide a comprehensive, end-to-end solution covering all aspects of the broadband wireless access deployment. With our deep and extensive patent portfolio, over a decade of R&D investment, and our experience as a global supplier of broadband wireless access solutions, Motorola is primed to deliver its best in class wireless networks. Motorola is committed to leading the industry with Mesh Wide Area Networks solutions addressing the full scope of the operator's deployment needs including access, core, devices, network management and services.
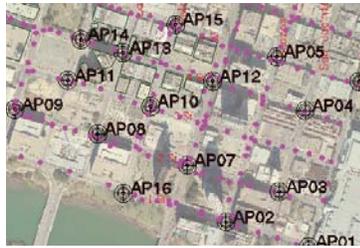
Measure and record live network activity

Visualize the network coverage

Display the throughput data rate

When used with Motorola's SiteSpy software, BroadbandScanner's AP performance feature provides a unique capability to generate network traffic and assess real application-level throughput without the need for an active Internet backhaul connection. As a result, post-deployment teams can verify and troubleshoot AP link connectivity, packet latency, data throughput, and connections to the NOC (Network Operations Center) before connecting live to the outside world.

GPS-Driven Accuracy

Knowing precise locations during measurement is crucial for accurately validating mesh and point-to-multipoint network performance. Access to live GPS coordinates is the best way for a validation team to determine measurement locations. BroadbandScanner supports direct connection to industry-standard GPS receivers. When recording measurements with GPS enabled, the software updates latitude and longitude coordinates within the site map in real-time.

BroadbandScanner is a key component in Motorola's Outdoor Wireless Network Design process, which details the various stages of the outdoor network project lifecycle (Fig. 1). BroadbandScanner is used in Phases two and four, while BroadbandPlanner, Motorola's comprehensive design and measurement solution, addresses all four phases.

FEATURES AND BENEFITS

- Directly import AutoCAD, GeoTIFF, DXF and SHP files
- GPS support enables accurate measurement and AP location
- Measure and visualize network RF characteristics to ensure contract performance goals
- Maintain flexibility through a hardware independent, common software platform
- Differentiate by guaranteeing superior network QoS, which enables bandwidth-intensive applications like VoWi-Fi and streaming media
- Decrease the total cost of ownership (TCO) of mesh and point-to-multipoint networks by reducing costly field work and rework
- Visualize critical QoS information such as RSSI (Received Signal Strength Intensity), SIR (Signal to Interference Ratio), SNR (Signal to Noise Ratio), and throughput data rate

THE MOTOROLA ADVANTAGE

An innovator of indoor and outdoor wireless communications technology, Motorola provides the network performance needed to boost productivity and increase operational efficiency across your business enterprise.
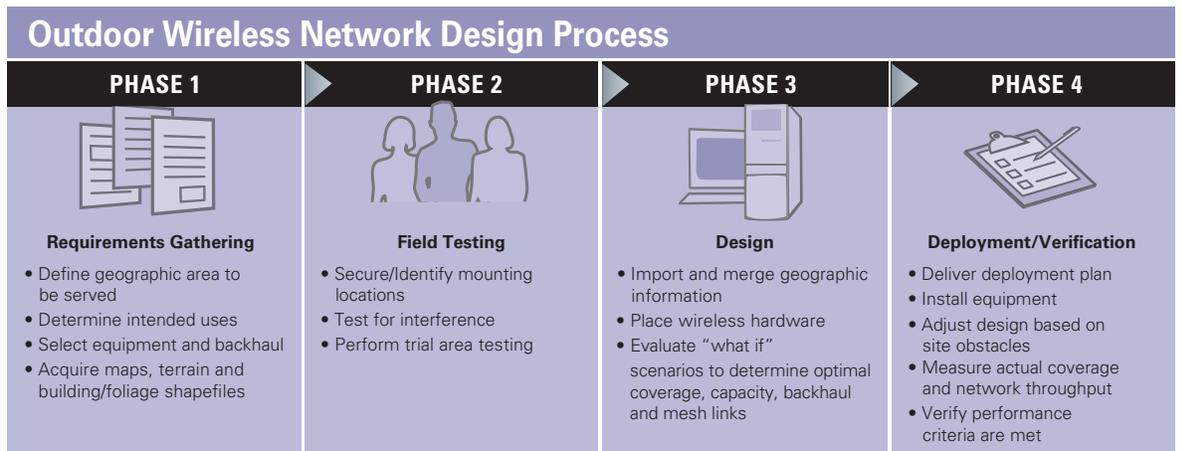
Outdoor Wireless Network Design Process

PHASE 1	PHASE 2	PHASE 3	PHASE 4
Requirements Gathering	**Field Testing**	**Design**	**Deployment/Verification**
• Define geographic area to be served • Determine intended uses • Select equipment and backhaul • Acquire maps, terrain and building/foliage shapefiles	• Secure/Identify mounting locations • Test for interference • Perform trial area testing	• Import and merge geographic information • Place wireless hardware • Evaluate "what if" scenarios to determine optimal coverage, capacity, backhaul and mesh links	• Deliver deployment plan • Install equipment • Adjust design based on site obstacles • Measure actual coverage and network throughput • Verify performance criteria are met

Figure 1: Outdoor Wireless Network Design Process

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