Smart Mesh Networking

High Performance, Reliable and Easy Wi-Fi Mesh

The First Intelligent 802.11 Meshing for Building Low Cost, High Performance, and Ultra-Reliable Wireless LANs

Ruckus Wireless Smart Mesh Networking is a unique, new approach to building high-performance wireless LANs (WLANs). It reduces cumbersome RF planning and costly cable backhaul by lowering the need to run Ethernet wiring to individual ZoneFlex™ Smart Wi-Fi access points.

Smart Mesh Networking dramatically simplifies, speeds and reduces the cost of WLAN deployment. With Smart Mesh Networking, enterprises now simply plug ZoneFlex access points into any convenient power source, and walk away. No extensive RF site surveys, cable runs, configuration, or optimization adjustments are required.

Ruckus Hybrid Mesh also allows APs to be connected by Ethernet to remote mesh nodes. Forming new trees in the middle of the mesh, Hybrid Mesh takes advantage of spectrum reuse to increase system capacity while expanding the mesh. APs automatically determine their role in the mesh, and automatically react to topology changes.

Proven in the largest outdoor mesh installation in the world, Smart Mesh Networking delivers three key ingredients that have previously hindered the use of indoor meshing:

1) **high performance**
by combining 802.11n with smart Wi-Fi technology

2) **reliable connectivity**
between mesh nodes, using best path selection and interference avoidance techniques

3) **ultra-simple deployment**
through the automation of AP and mesh provisioning

Smart Mesh Networking extends Ruckus Smart Wi-Fi technology to create a new class of reliable and high-performance wireless LANs that are self-organizing, self-optimizing and self-healing. It is the first Wi-Fi meshing approach that combines high-gain smart antenna arrays, sophisticated RF routing and centralized management with a single WLAN system.

BENEFITS

Smart Mesh Networking dramatically lowers deployment costs
Smart Mesh Networking eliminates costly Ethernet cabling to every Wi-Fi access point. Extended signal range from high-gain directional antenna arrays reduce the number of mesh APs typically required.

No RF experts required
Smart Mesh Networking automatically determines the optimal network topology and maintains the best connections between APs.

Extended range minimizes mesh hops for high performance
High-gain directional antenna arrays in every Smart Mesh Networking access point enable signals to reach farther to eliminate needless mesh hops that degrade performance.

Hybrid mesh architecture expands the mesh without reducing throughput
APs can be connected by Ethernet to remote Mesh APs, forming new trees on new channels and eliminating the "halving of throughput" that happens when adding a hop.

Deploys in half the time of conventional 802.11 WLANs
Smart Mesh Networking automates configuration, reducing Ethernet cabling and eliminating extensive RF planning, enabling Smart Mesh Networking WLANs to be deployed and operational in half the time of conventional WLANs.

Integrated interference avoidance ensures high reliability
An intelligent antenna array in each ZoneFlex AP picks the best signal path for traffic at any given time and automatically steers signals around interference to ensure high availability of mesh links.

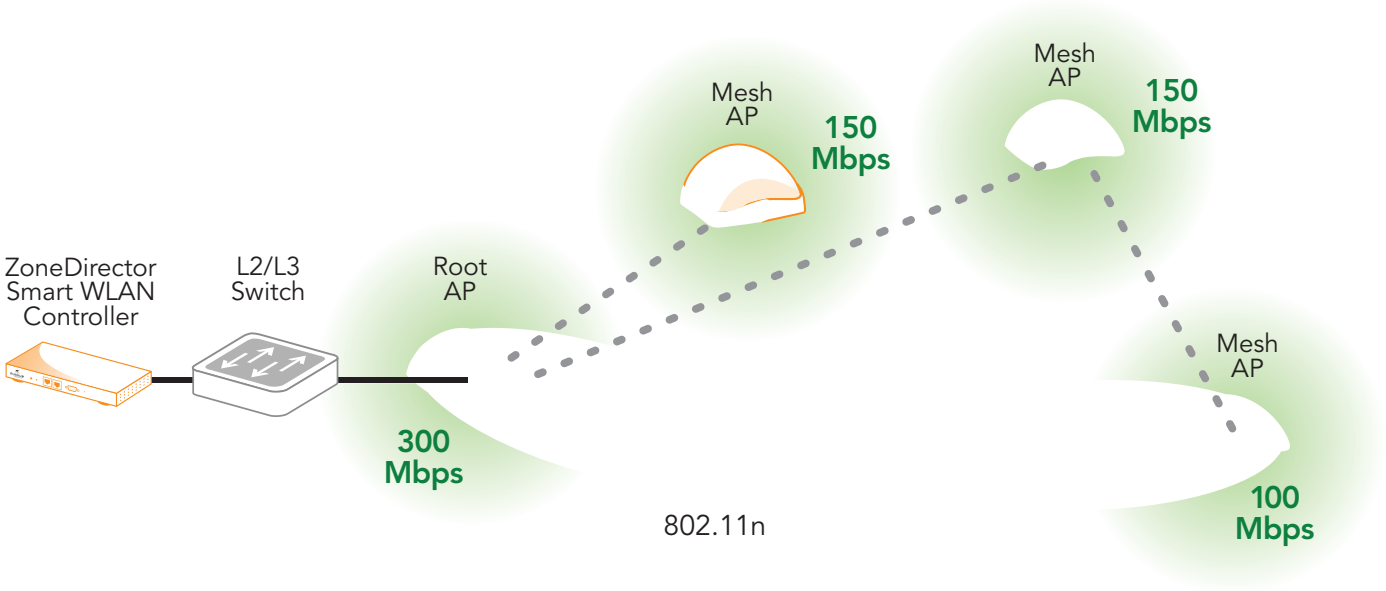
Automated deployment keeps things simple
Configure the entire Smart Mesh Network in minutes from a central management system. Plug mesh APs into the network and the ZoneDirector™ automatically provisions all nodes.

Highly secure
All mesh backhaul links between nodes are encrypted and hidden to ensure safe and secure operation.

Ruckus™ WIRELESS

Smart Mesh Networking

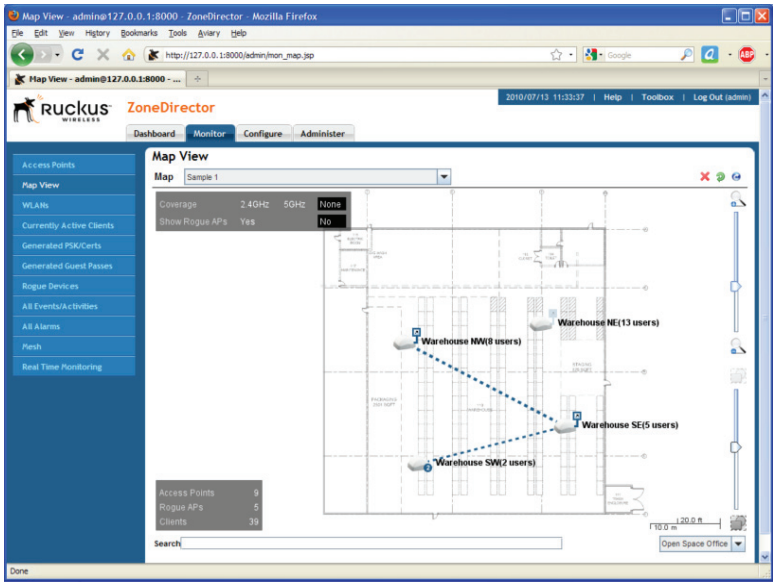
802.11g/n Wireless Indoor Meshing



Smart Mesh Networking

802.11g/n Wireless Indoor Meshing

Ruckus Smart Mesh Network is managed centrally from the Ruckus ZoneDirector WLAN controller. Powerful mapping and management tools allow a complete view of the entire Smart Mesh Network, including connections within the mesh, associated mesh clients and other unique controls.



Smart Mesh Networking characteristics including its own potential throughput and the path through which it is connected to the wired network. This allows other APs to make real-time topology decisions, reacting to any changes in the environment.

In the event of an AP failure or if an upstream path drops below a set performance threshold due to overloading or interference, a new path to the best performing AP is selected. This efficient "tree" topology minimizes convergence risks and latency while maximizing performance.

Ruckus Hybrid Mesh

In a Hybrid Mesh architecture, APs are connected by Ethernet to remote Mesh nodes. Using Ethernet as its uplink, the AP forms a new tree using a different channel than its parent node. By separating the tree onto a different channel, more capacity becomes available to the system. APs can be installed in separate locations on the rooftop to eliminate co-channel interference, or can be attached to a switch for deploying wireless throughout a remote building.

Everything with Smart Mesh is automatic. APs automatically determine their role in the network, detect the topology to avoid loops, and adapt to use wired or wireless as their uplink when better throughput is achievable.

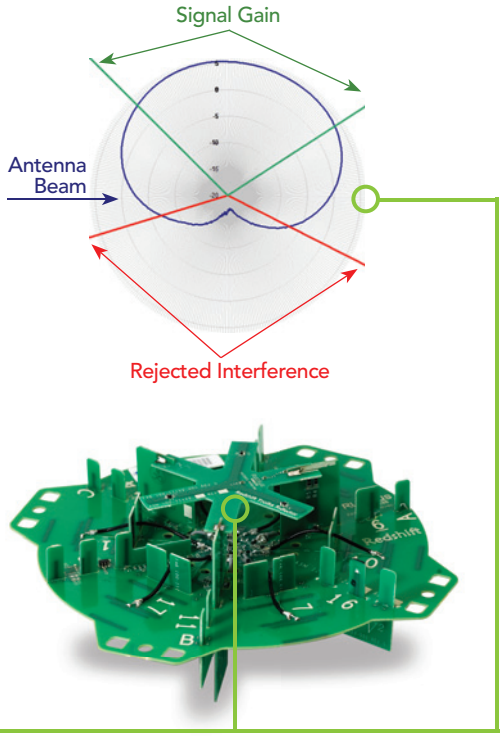
Simple to Deploy

To enable Smart Mesh Networking, administrators simply click a check box within the ZoneFlex Setup Wizard. Once the WLAN is configured, the administrator attaches the Smart Mesh Network access points to the ZoneDirector for auto-provisioning. After provisioning is complete, the administrator can place the ZoneFlex APs virtually anywhere.

Once plugged into any power source, the Ruckus Smart Mesh Network determines the optimal network topology and each ZoneFlex AP chooses the best mesh path back to a root AP.

Simple to Manage

All management of the Smart Mesh Network is performed from the ZoneDirector. There, administrators can view a topology map of the mesh, see associated clients and make any desired changes.



Each Smart Mesh Network AP integrates a patented Ruckus smart antenna array with up to nine high-gain vertically-polarized, and up to nine horizontally-polarized antenna elements. This enables up to 4224 potential antenna combinations and up to 9 dBi gain and 17 dB interference rejection, thereby delivering unprecedented range extension and signal reliability.

Ruckus Wireless, Inc.
880 West Maude Avenue, Suite 101, Sunnyvale, CA 94085 USA (650) 265-4200 Ph \ (408) 738-2065 Fx

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