



MESHCONNEX

ALL "MESHES" ARE NOT CREATED EQUAL

MeshNetworks, Inc. technology powers the largest, commercial mesh networks in the world. These networks use a combination of a military-grade radio (QDMA) and proven MeshConnex technology. Now, this patented mesh networking technology is available to Wi-Fi OEMs.

MeshConnex Technology Advantages for Wi-Fi OEMs

- Removes development risk
- Delivers time-to-market & competitive advantage
- Uses commercially proven technology
- Preserves technology investment

MeshConnex software embodies all of MeshNetworks' unique Layer 2 routing technology - with a special focus on Wi-Fi protocols. It operates within a small, tunable memory footprint under any embedded operating system. This high performance, scalable ad hoc mesh networking approach is applicable across all deployment scenarios, from enterprise to digital home.

By licensing the MeshConnex software library from MeshNetworks, OEMs can rapidly add the following benefits of mesh networking to their product line while maintaining their existing brand identity, look and feel.

The "build vs. buy" decision has never been easier.

FEATURES AND BENEFITS

Increased Revenue

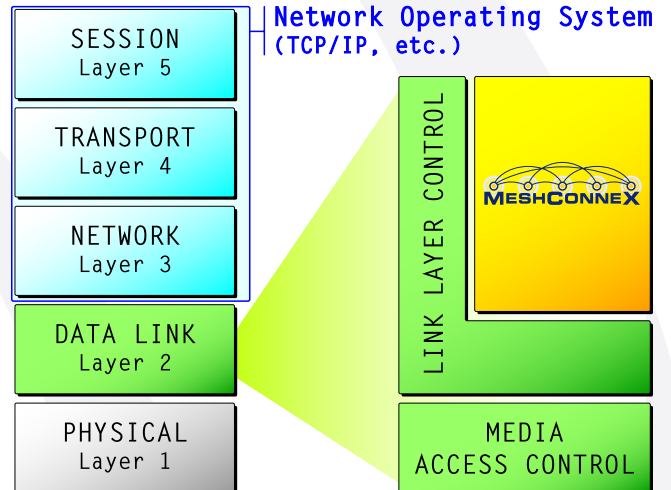
Products using MeshConnex software deliver many benefits that, when taken together, achieve greater brand loyalty and higher sales than their competition.

Simplified Deployment

MeshConnex-enabled networks are easy to set up, install and maintain due to their ability to self-form without requiring user configuration. Networks will automatically reconfigure as devices are added and removed.

Range Extension & Lower OPEX

Each MeshConnex-enabled device extends the range of the network to previously inaccessible areas. Simply stated: If power is available, so is wireless connectivity. With this level of flexibility, cable runs and recurring backhaul costs practically disappear.



Enhanced Network Robustness

The MeshConnex software library delivers greater network robustness due to its self-healing nature. If a wireless device fails, this technology will maintain session continuity by immediately routing around the disruption on the very next packet. Network throughput is constantly monitored and optimized.

Increased System Capacity

By leveraging the Multi-Hopping aspects of MeshConnex software, devices can transmit at lower power while maintaining higher end-to-end data rates. Lower transmitter power causes less interference, while higher data rates mean devices spend less time on the shared radio channel. Increased radio channel availability increases throughput for the entire network.

Improved System-Wide Throughput

A single distant client can degrade network performance for all users. Clients transmitting at low data rates over marginal links effectively shut down all other nodes while they repeatedly try to send data. The MeshConnex software library solves this problem. To achieve higher data rates, remote clients can multi-hop through other nodes. Two hops at 11 Mbps gives higher performance and fewer dropped packets than a marginal connection at 1 Mbps, while freeing up the shared resource for all users.

high performance wi-fi mesh networking



FEATURES & BENEFITS

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WHAT IS MESHCONNEX?

The MeshConnex package is comprised of software libraries that directly integrate into the device driver of any Wi-Fi chipset.

Layer 2 integration, an approach pioneered by MeshNetworks, gives MeshConnex software the ability to closely monitor the radio environment. Failing link indicators, like corrupted packets, error corrections, fading signal levels, etc., are hidden from higher layer implementations. Failure to rapidly adjust to these conditions results in unacceptable performance for latency sensitive applications, such as VoIP or Video.

Tightly coupled with the OEM's radio, this technology detects potential link failures before they occur, leading to the real-time rerouting of packets.

MORE THAN JUST ROUTING

The MeshConnex mesh networking library is more than a routing algorithm. It contains all of the essential capabilities required to deliver a complete, high performance, mesh networking solution.

Quality of Service (QoS) Management

"Fairness" - not just between two devices, but across the entire network - is a significant challenge for Wi-Fi mesh networks. Distant nodes are penalized because devices nearer to central nodes are able to disproportionately consume resources. Without mesh-aware QoS, central nodes (access points) will be the source of packet loss and diminished throughput for all devices using them.

By using the features made available in recent standards (e.g. 802.11e), MeshConnex QoS ensures that all nodes are cooperating to provide the best overall performance for the entire network.

Mesh-Aware Data Rate Control

MeshConnex data rate control maintains the highest completion rate possible between devices. It determines the optimal transmit data rate on a packet-by-packet basis. Rate selection is based on radio channel conditions that only Layer 2 approaches can monitor. Mesh-aware data rate control results in fewer lost packets, less interference and reduced retries. This allows MeshConnex-enabled devices to keep a failing link stable while they find the best alternate route.

Layer 2 Transparency

Today's Wi-Fi access points have the ability to pass all common types of native networking protocols (IP, IPX, NetBIOS, etc). The MeshConnex software library allows all networking protocols to transparently traverse across the mesh fabric, unlike Layer 3 approaches. Layer 2 transparency also means that existing security protocols operate without disruption. From VPNs to WPA, MeshConnex software acts as a bridge, and is transparent to these protocols.

Proxy Routing for Edge Devices

The MeshConnex software library can proxy traffic for devices that are not MeshConnex enabled. Ethernet and native Wi-Fi clients can be bridged onto the mesh automatically. These devices can take advantage of all the benefits this technology offers, even though they are not MeshConnex-enabled themselves.

SPECIFICATIONS

Dynamic Memory Size	Tunable by OEM
Code Memory Size	< 120K
Reference Platform	Atheros products
Operating Systems Supported	VXWorks (additional OS options available)

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