

ENTERPRISE WIRELESS VOICE: READY FOR REAL TIME



Many enterprises are turning to Voice over IP (VoIP) for cost-effective telephony and communication services, first over wired networks and now over wireless LANs. Industry analysts estimate that by 2013, 40% of enterprise knowledge workers will abandon their desk phones. However, the unique characteristics of voice make it difficult for legacy wireless networks to assure the quality of service (QoS) and reliability needed for a satisfactory user experience.

Meru Networks virtualized wireless LANs were designed from the ground up for voice, to overcome the quality, roaming, and scalability challenges associated with delivering voice over legacy wireless networks. Only Meru allows you to deliver toll-quality voice calls with service assurance, as well as mission-critical applications—all with industry-standard Wi-Fi client devices.

The Unique Challenges of Voice

Voice traffic cannot tolerate bursty network conditions without significantly affecting the user's experience, unlike data and application traffic. Although each voice call does not require high bandwidth, it does require constant, reliable network utilization and availability.

WHY DELIVER VOICE OVER YOUR WIRELESS LAN?

- ⚡ Provide enhanced mobility for users
- ⚡ Integrate with mission-critical applications
- ⚡ Help achieve productivity, revenue, and customer satisfaction goals
- ⚡ Increase return on investment in wireless LAN infrastructure
- ⚡ Provide coverage in areas where cell service cannot reach
- ⚡ Reduce operational costs, compared to cell phone service
- ⚡ Simplify and reduce cost of moves, adds, and changes

- **Voice must be toll quality:** Users will forgive a few extra seconds of file download time but not call disconnects and poor voice quality. Legacy wireless LANs depend on existing wireless standards, such as 802.11e and WiFi Multimedia (WMM), but do not support QoS per application, truly seamless roaming, continuous strong security, and high scalability in the number of WiFi phones. A mission-critical wireless LAN must do all of these things without compromising call quality.
- **Wireless voice requires a stronger signal:** Voice traffic requires a higher signal-to-noise ratio than data, and the wireless signal typically needs to reach over a broader area, such as stairwells and break rooms, to provide seamless coverage and to avoid choppy audio and dropped calls. Legacy wireless LANs were usually deployed and optimized for data traffic delivery, not voice. Even if an existing legacy wireless LAN is reconfigured to cover the same area with voice traffic, it would still need to be reconfigured for voice QoS.
- **Seamless roaming is essential:** The reason for delivering voice over the wireless LAN is to support mobility. With legacy solutions, users often put tape on the floor to mark a known good coverage area or return calls from a landline phone, limiting the effectiveness of mobility initiatives and return on investment.
- **Scalability has been limited:** As more people and wireless devices use legacy wireless LANs, scalability becomes an issue. Adding simultaneous users and peaks in traffic volumes often result in poor audio quality and dropped calls. Legacy wireless networks that rely on WMM are affected more because voice calls contending for the same airspace collide more often than data, because of how the 802.11 standard works. A wireless LAN must smoothly hand off calls from one coverage area to another as users move through the enterprise without requiring you to continuously re-engineer the network. Because coverage and capacity are linked in legacy wireless LANs, once deployed, a legacy wireless LAN would require costly reconfiguration to accommodate more callers in the same coverage area.

If It's Voice, It Runs on Meru

With a Meru virtualized wireless LAN, voice is built in, not added on. All Meru wireless LANs include the capabilities required to deliver wireless voice with the QoS, coverage, and scalability you need.

Virtual Cell Architecture Assures Predictability

Resources from multiple access points are pooled together to create a Virtual Cell on a single RF channel. On a Meru wireless LAN, the network manages client connectivity, roaming, load balancing and QoS, thereby eliminating problems associated with sticky or promiscuous client devices.

Virtual Port Technology Delivers Airtime Fairness

Meru wireless LANs assign a Virtual Port—a unique identifier and dedicated virtual link—to each connected device. The Virtual Port allocates the appropriate network resources to each device, optimizing throughput, even when slower 802.11b/g clients share the network with 802.11n clients. Each user's dedicated connection helps ensure an optimal experience, even if nearby wireless users are downloading email, viewing streaming video, printing documents, or using other bursty data traffic applications.

Toll Quality for Every Call

Meru's Air Traffic Control technology controls client access to the air, virtually eliminating client contention and co-channel interference. The result is predictably low latency, jitter, and packet loss, so users experience toll-quality voice calls every time. This approach also enables a Meru wireless LAN to support high density—up to 30 simultaneous voice calls on a single 802.11b access point. Call Admission Control features limit the number of phones connected to each radio, shifting new calls to alternate access points or channels to assure continuous high call quality for all users.

Stay Connected

No longer must users sacrifice mobility just to stay connected. Meru Access Points provide zero handoff delay and continuously balance traffic across access points so that voice communication continues uninterrupted. In enterprises with Meru wireless LANs, users no longer experience dropped calls or dead zones as they roam, leading to improved user satisfaction.

High Scalability

Meru wireless LANs uniquely decouple capacity and coverage. Because each Virtual Cell requires only one radio channel, other channels are free for expanding capacity. One high-strength channel is available across the entire network; multiple high-strength channels can be layered as needed in specific locations or throughout a facility. Scaling the network is as easy as adding an access point to create a new channel layer, either locally for a congested spot or network-wide. This innovative approach eliminates RF channel planning.

For more information about Meru wireless LAN voice solutions, visit our website for the following resources:

White Paper: The Enterprise is Ready for Wireless VoIP (www.merunetworks.com/pdf/whitepapers/Enterprise_VoIP_WP2-0705.pdf) | Webinar: Best Practices for Wireless IP Telephony (www.merunetworks.com/documents/webinars.php) | Case Study: Distributor Banks on Meru to Assure No Missed Phone Calls (www.merunetworks.com/pdf/casestudies/CS_Marano_0608_v1.pdf)

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Simplified Troubleshooting and Management

With Meru's unique Service Assurance Manager, you can proactively monitor your network's capability to support toll-quality voice wherever it is needed. In addition, troubleshooting problems becomes much easier with Meru. Meru E(z)RF Network Manager software gives you over-the-air performance metrics. You can also recreate a wireless station's state—rewinding and replaying what occurred on that station—for accelerating troubleshooting and providing helpdesk support.

Reduced Cost of Ownership

Meru wireless LANs deliver lower cost of ownership than legacy wireless LANs or wired network infrastructures. Virtual Cell architecture allows you to deploy radios at full power, which can reduce the number of access points needed by up to 30%. Your organization can also reduce or eliminate reliance on cell phones while increasing the return on your investment in your Meru wireless LAN. And with simple deployment and built-in management capabilities, your staff can focus on other, more interesting projects.

Partner Voice Solutions

Meru wireless LANs support solutions from vendors including Aastra, Avaya, Cisco, and ShoreTel. We also partner with companies that provide solutions for unified communications, mobile voice, and fixed-mobile convergence to deliver comprehensive voice solutions that meet customers' needs:



Aastra
Ascom
Cisco

Polycom
Motorola

T*Mobile
Vocera

For More Information

Meru wireless LANs can help you deploy superior voice capabilities with toll quality, seamless coverage, and scalability while simplifying management and greatly reducing the total cost of ownership. No worries. No complexity. Just total confidence.



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