



Wireless Networks

Wireless network technology has moved forwards at a rapid pace over the last 10 years, speeds have risen from 11Mbps (reality of around 6Mbps for data transfer) to around 300Mbps (200Mbps for data) today and standards are already in place for the next generation wireless to achieve around 600Mbps (400Mbps for data).

We have moved from wireless networks made up of many individual access points, to “managed” or controller based solutions where the configuration and client connections are managed by an intelligent operating system on the controller. However there are still a number of specific limitations, almost all wireless networks suffer badly from:

- **Contention for shared medium.** Many clients fighting for a share of the available wireless bandwidth.
- **Support for legacy devices 802.11b/g.** The slowest client dictates speed, downgrading the wireless network performance for everyone.
- **Co-channel interference.** Wireless access points conflicting with one another cause the wireless signal to be degraded, creating holes in the wireless coverage, and massive losses in wireless performance.
- **Client control association.** Wireless clients connect to the nearest access point (strongest signal) rather than the one with the least number of connections, or least busy in terms of processing network traffic. Also clients don't roam, staying connected to the access point until it has lost connection altogether.

Education Environment - the wireless challenge

The education environment is a specific challenge for wireless networking simply because of the typical numbers of wireless clients all connecting within a small area, the classroom, all trying to perform bandwidth hungry actions at the same time, typically under instruction by a teacher, “OK class, log on and open your spreadsheet that you should have saved on your personal share in our last lesson”. This specific environment and sequence of events puts an excessive peak load on the available wireless bandwidth, often with undesirable results such as slow logons and numbers of machines simply losing connection for periods of time.

Wireless Network Problems in Education!
What's so Different about Meru Wireless Networks?

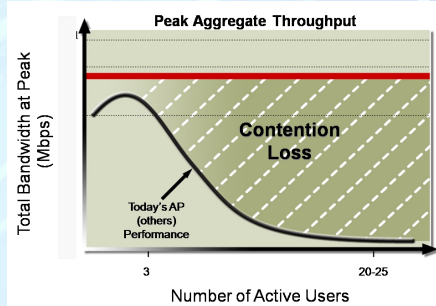
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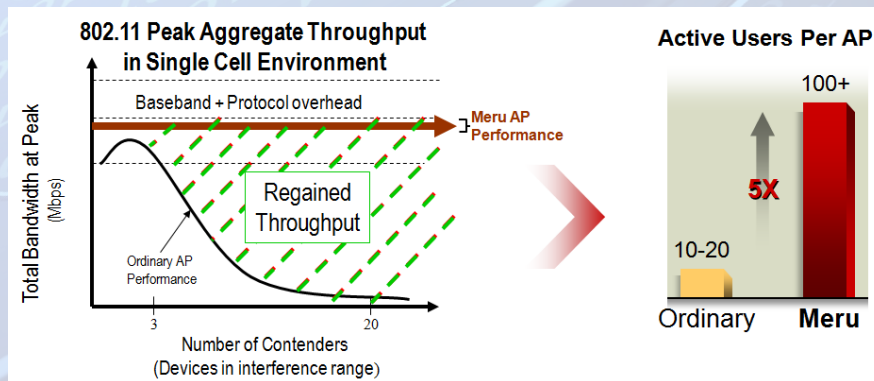
Wireless traffic in this scenario can be equated to a single voice being heard above the crowd, with more than a few users most wireless networks are incredibly inefficient, as demonstrated in the graphic below.



What's so different about Meru Wireless?

Meru are the only wireless vendor, we at EAC Network Solutions are currently aware of, that have solved each of the traditional limitations of wireless networks, which cause many of the known wireless problems. More specifically Meru has solved the problems with providing a reliable wireless network infrastructure within an education environment. Meru has two specific features that make it the wireless network of choice, especially in dense client deployments like education:

Air Traffic Control, Meru operates a fair air time policy for all wireless clients, the controller allocates each wireless client the same amount of wireless bandwidth in an orderly fashion by simply passing a "token" to each client when it is their turn to transmit on the wireless. This technology recovers a huge proportion of wireless bandwidth (about 90%) that is otherwise lost in other wireless networking technologies that use the traditional packet collision and resend methods to regulate traffic flow.



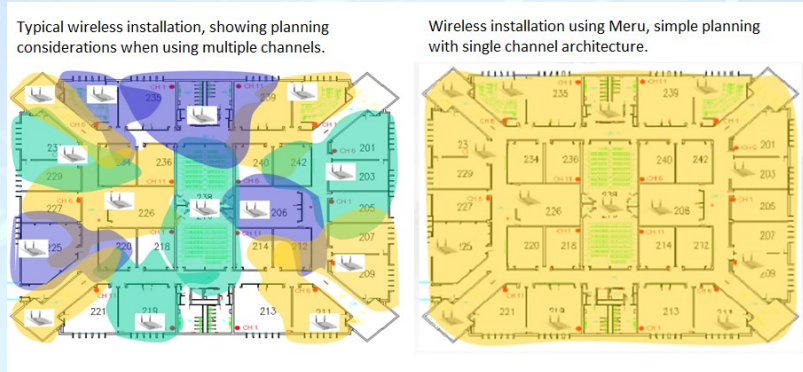
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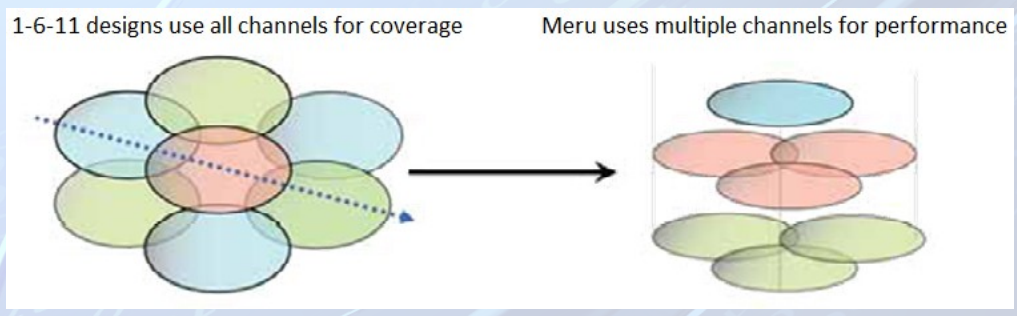
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Virtualised WLAN - Single Channel Architecture, Meru wireless networks operate a single channel architecture, which allows access points to be positioned closer together without fear of conflict. This allows a Meru wireless network to provide a higher level of wireless bandwidth within a more compact location, Access points should be positioned no closer than 18 metres apart to guarantee maximum available wireless performance.



Because of Meru's single channel architecture it is also possible to create layers of wireless bandwidth on top of one another, simply by adding more access points and configuring multiple radio profiles for the known non-conflicting channels, adding the potential to provide between 3 and 10 times more wireless bandwidth on top of a solution that is already way ahead of the competition in the specific circumstances you often find within educational wireless deployments.



To summarise, Meru created their wireless networking product from the ground up, challenging and overcoming each of the traditional wireless limitations. It is because of this approach that Meru is the first wireless networking platform that offers itself as a real alternative to installing a hard wired network. Meru have achieved a Service Level Agreement of 99.99% wireless uptime, by using its virtualized WLAN architecture, Air traffic Control technology, and its Service Assurance Manager Software, tested on over 2700 sites.

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Enabling World-Class Education

Educational institutions worldwide choose Meru Networks for individual schools and district-wide deployments. It's easy to see why. Mobile computing initiatives are changing the way children learn in all levels of education. Laptop carts, video learning and one-to-one computing programs have combined with small IT staffs and shrinking budgets to drive the need for a reliable and intelligent wireless network.

A reliable network can mean the difference between wasted class time and a session that rapidly engages students in a rich educational experience. Meru Networks makes wireless networks that simply work, enabling teachers to teach instead of dealing with IT issues.

Meru Technical Demonstration Suite

30 Netbooks, logging onto a Windows domain, downloading 6Mb mandatory roaming profiles within 1 minute 20 seconds. All streaming video across the wireless network simultaneously, and full integration with wireless voice over IP telephone handsets, and all from just one access point. Too good to be true? Not at all!

EAC Network Solutions would be delighted to arrange a personal demonstration of the Meru Wireless Network Solution for you and your colleagues, either at our Basingstoke demonstration suite, or at a road show event more local to you, depending on timescales and availability.

If you would like more information or to arrange a demonstration, please call Mike Papworth on 01844 21 50 50, or email mike.papworth@eac-ns.co.uk



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