



Frank Spiller reviews peer to peer wireless mobility with MeshNetworks

WIRELESS NETWORKING technology promises to transform how we communicate and interact with data on the go. One issue, though, is that wireless technology, as it exists today, carries a host of problems currently not properly addressed either by the unregulated 80211.b frequency or by commercial 3G standards.

In addition to performance issues, security and cost are major factors currently impeding industry growth and wide-scale adoption.

called multi-hopping. Multi-hopping is unique in the sense that the network “self-forms” and “self-heals”, both of tremendous value in wireless networking.

MeshNetworks technology creates networks wherever Mesh-enabled devices converge. Data or communication devices (mobile phone, PDA, laptop) become Mesh-enabled with the use of a MeshNetworks PC cards or with a VMM (Vehicle Mounted Modem).

deploy and maintain than 3G solutions, with comparable connection speeds.

Drawbacks

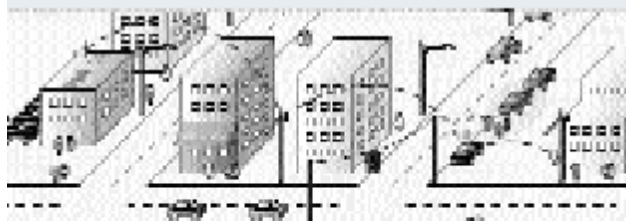
Mesh networks require a number of users, each with a MeshNetworks wireless card with the company’s proprietary QDMA chip. If there is only an insignificant number of users present, a substantial mesh network cannot form.

What do MeshNetworks PC Cards mean for telematics

MeshNetworks opens up new opportunities to telematics “user experience” by addressing three key issues: position location, mobility and drop out reduction.

How does it work?

“Mesh networking” is a wireless networking technique already in existence. How MeshNetworks differs is in its approach to networking. MeshNetworks enables each user’s device subtly to become a peer-to-peer router repeater. In essence, the wireless reception hops across and between devices to detect the best network connection. This phenomenon, patented by MeshNetworks, is



Mesh-Enabled networking allows mobile users and devices to instantly connect

Key benefits

MeshNetworks is unique in the sense that the technology directly addresses current weaknesses in popular 802.11b deployments. While current in-vehicle Wi-Fi technology uses GPS to maintain the connection, MeshNetworks uses “intelligent access points” and other users’ devices to triangulate the user’s position. The key benefit is a guaranteed high speed connection that is difficult to lose, delivering geolocation superior to GPS. Furthermore, data, voice and streaming audio and video travelling in a moving vehicle at 70 mph can reach between 2-6 mbps, faster than a cable modem at top speeds. Today, public safety agencies, such as Orlando, Florida’s Orange County Fire Department, are co-developing the technology with MeshNetworks to improve their geolocation capabilities. Portsmouth City Council in the UK is using the technology to improve its public transportation network’s real-time passenger information system.

in-car experiences?

MeshNetworks will remove the nightmares that broadband wireless on wheels brings, specifically with regard to security, drop outs in service and peer-to-peer communication across vehicles. As OEMs progressively embed MeshNetworks technology into the vehicle through a MEA card or with a vehicle-mounted modem, automotive users will gain the equivalent of a personal fibre optic cable on the road. The possibilities for leveraging peer-to-peer communications with self-forming mesh networks are endless: fleet operations, rear seat entertainment applications and emergency and safety management are set to gain from the advantages MeshNetworks enables over current systems offered in the unregulated 802.11b spectrum. For the past two years Delphi Automotive Systems has already been using MeshNetworks in its development platform, and even IBM Global Services has tested the system in a Hong Kong subway.

with each other and to the telephone network, Internet and private data networks. High-speed voice, video and data can be sent to and from every Mesh-Enabled application.

A further economic advantage likely to make mesh networks popular is spectrum reuse. MeshNetworks offers spectrum reuse in the unregulated 802.11b frequency, making it less cost to

With so many potential applications, the development and commercialisation of mesh networking technologies presents an exciting range of possibilities for the telematics market going forward. ■