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Wireless Review

New technology bridges wireless, wireline

By Carol Wilson

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A form of home networking technology now on the market holds the potential to dramatically change the way wireless technology is used within a home or office.

Initially able to make WiFi networks much more robust within the home, this frequency shifting converts radio frequencies used for WiFi, cellular or WiMAX services, into intermediate frequencies that can travel over a wired medium such as two-wire phone lines, coax cable or powerlines. Companies such as SercoNet and AuraOne Systems are marketing the technology today to improve the performance of WiFi within homes or enterprises.

The technology also holds great promise for in-home cellular coverage and for broadband services, said industry analyst Daniel Briere, CEO of the TeleChoice consultancy. That promise is particularly great for service providers, both in helping avoid the problems they currently face trying to support home networks and longer term in helping them provide dual-mode voice services and robust sharing of broadband services within the home.

"Systems like SercoNet's WirePlus are essentially passive technologies – they have no active components which means no configuration, no firmware upgrades – you are freeing yourself from 99% of the complexity that is involved in deploying all these active components in the home today," Briere said.

In the bigger picture, however, the technology can be deployed in a router, at the NID or Network Interface Device, or even within the network itself, to provide better wireless service where today such service is often spotty, and to move service off the wireless spectrum and onto a wired medium.

Today's systems are small devices which customers plug into a telephone wire or coaxial cable in the room where a WiFi access point is deployed. The RF signal is then carried over the wired infrastructure to an end point where another unit takes the signal off the wired network and retransmits it wirelessly.

"We can do it with WiFi, or cellular, or WiMAX," said Ron Stein, CEO of SercoNet. "Because we operate at the PHY layer, we never handle the packet – we are shipping it along in its native state. There is no software, and no active components."

The boom in WiFi home networks has created a corresponding boom in service calls and complaints, many of which come into the broadband service providers who have begun bundling wireless routers with their broadband products. Because homes differ widely and there are many potential interferers, it is almost impossible for service providers to troubleshoot wireless home networks, Stein said.

SercoNet's WirePlus Broadband outlets improve the performance of WiFi within the home by traversing an existing wired infrastructure and only using wireless access at the end points.

The next logical step is to incorporate the technology into the router and then into the NID, Briere said.

"Then you can start putting things at the NID that you might not have been able to put at the router," he said. "You can put a cellular antenna in the NID and extend my cellular signal into the home. Companies are trying to do that today with dual mode phones but when you go multimode with WiFi, the service provider loses the stickiness of the service – it's anyone's WiFi network. This way, you stay with the cellular service and the service provider."

Motorola chose SercoNet to be part of its consumer field trials of voice over IP using WiFi within the home. The dual-mode phone detects whether a consumer is within reach of the WiFi network or needs to have calls routed to the cellular tower.

"The third level of abstraction is to put this into the card in the service gear at the CO," Briere said. "Let's suppose all these Optical Line Terminals had a card in there – one for cellular, one for WiFi – and would send your WiFi or cellular signal over optical cable to the home. If you start doing this, then you free up one of the scarcest things in the industry – spectrum. Any time I am in my home or in my office, I'm not using the tower, I'm picking up a landline cellular signal."

SercoNet is in discussions with service providers in both the U.S. and Europe, Stein said, and is also talking with equipment vendors. The company has 17 issued patents and 20 pending for its work in the area.



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