Stage set for compromise on IEEE high-speed wireless

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ATLANTA - The IEEE task group charged with creating a 100M bit/sec wireless LAN standard has set the stage for a compromise between the two remaining factions.

Members of the TGn Sync and World Wide Spectrum Efficiency (WWiSE) organizations might be ready to negotiate on a proposal that could win 75% of the votes at the next meeting of 802.11n task group. That's the number needed for a proposal to be adopted as a draft standard. Otherwise, the group will take a step backward and begin to reconsider proposals that had been eliminated.

The group's job is to create a wireless-LAN standard that will deliver actual throughput of more than 100M bit/sec, a quantum leap above the 20M bit/sec for today's 802.11g and 11a WLANs. The current 802.11 standard eats up more than half of the 54M bit/sec data rate for 802.11g and 11a. The higher, though still shared, bandwidth will rival that of many wired networks and support demanding applications such as several video and audio streams at once, huge image files and simulations.

"Both sides realize that a standard has to come as quickly as possible," says Jack Winters, chief scientist at Motia, a Pasadena, Calif., fabless semiconductor company designing radio chips that integrate with smart antennas. Winter is a member of the 802.11n task group but is not affiliated with TGn Sync or WWiSE. "Delays or deadlocks will result in both groups failing," he says.

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Last week in Atlanta, members of the 802.11n task group continued winnowing proposals. They voted by a slender majority in favor of one proposal from a group of vendors called TGn Sync. But the next day, in the confirmation vote, that proposal fell far short of the 75% majority it needed to be adopted as the draft 802.11n standard.

The members of TGn Sync include chip makers such as Atheros, Intel and Marvel, network equipment makers such as Cisco and Nortel, and consumer products companies such as Panasonic, Samsung and Sony. WWiSE members include Airgo Networks, Broadcom, Connexant, Motorola and Texas Instruments, along with Buffalo Technology, Hughes Network Systems, France Telecom, Nokia and NTT.

Both proposals (see more details) make use of technology called multiple input/multiple output (MIMO) to dramatically boost the amount of data that can be sent over a radio connection. MIMO-based WLAN products already are on the market based on Airgo's chipset, which is the only one shipping in volume.

"Neither one has the votes for 75% right now, unless there's an official compromise," says Greg Raleigh, CEO of Airgo, and author of one of the earliest academic papers on MIMO. "We're not even at Draft 1.0 yet. And after that, you have to design [a standard] that you can actually build [products] to, and interoperate."

There already has been compromise, Motia's Winters says, as both groups have made changes in their proposals. TGn Sync dropped a requirement to use 40-MHz channels instead of the conventional 20 MHz; now the bigger channel is an option. WWiSE added support for transmit beam forming, which is a technique for boosting performance by using antenna arrays that in effect focus radio signals.