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Resources Group, Inc.**

**Researching,
Analyzing & Explaining
the Competitive
Telecom Last Mile**

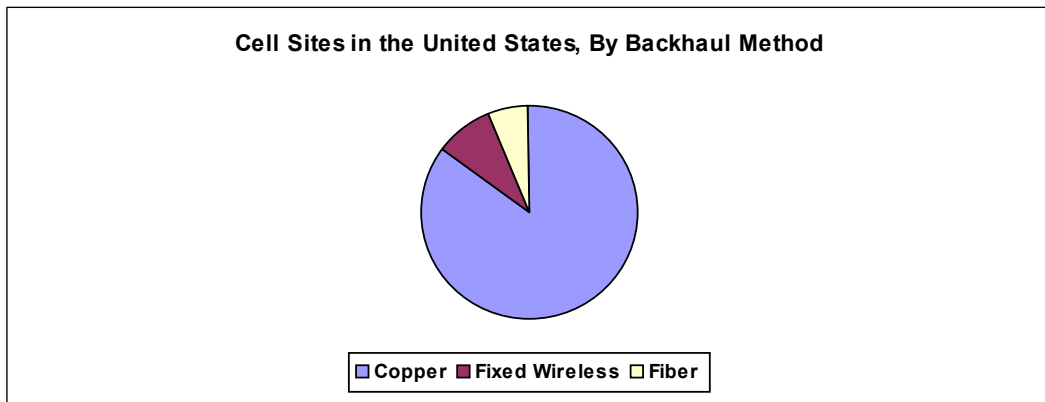


NEW PARADIGM RESOURCES

COMPETITIVE TELECOM ADVISOR

As Cellular Backhaul Outgrows Copper's Capabilities... It's Bonded Copper to the Rescue!

At least 85% of all domestic cell sites are served solely by the incumbent local exchange carriers' copper plant. Soon, very very soon, the deluge of data and video traffic from new cell phone applications is expected to push cellular providers' backhaul demands beyond the current limits of those copper connections. This is already driving cellular carriers to seek backhaul alternatives. Fiber is too expensive to run to all of those cell towers, and the fixed wireless industry is hungrily eyeing the cellular backhaul opportunity.



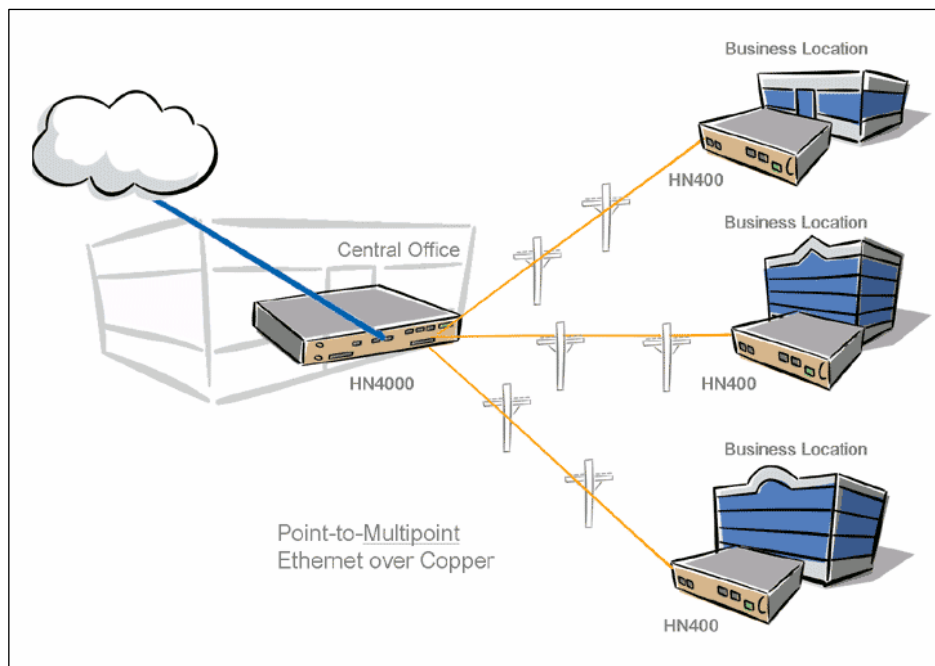
SOURCE: New Paradigm Resources Group, Inc., Fixed Wireless Carriers Report™

But not so fast! As NPRG noted in the *Fixed Wireless Carriers Report™*, bonded copper solutions can extend the life of many existing copper loops by extending their capacity by three to seven times. Sure, there will be some additional fiber builds—in fact, that trend has begun. And yes, fixed wireless will increase its market share dramatically. But bonded copper has arrived just in time to allow the ILECs to forestall the replacement of copper plant with alternate technologies. While many cell sites are served by enough copper to provide about 18 T-1s, bonded copper can extend that copper to typically serve 50 Mbps, even 50 T-1s in some cases.

The Ethernet Advantage?

Bonded copper solutions also include what may be referred to as the “Ethernet Advantage.” Indeed, if a copper pair providing service via ATM fails, the connection is lost. If a copper pair fails as part of a bonded copper Ethernet solution, only a portion of the overall bandwidth is lost; the connection remains operational.

Bonded copper is just now beginning to achieve widespread use in Metro Ethernet applications. Hatteras Networks supplies equipment that makes this possible. For example, Hatteras’ HN400 customer premise platforms connect to its HN4000 platforms at the central office.



SOURCE: Hatteras Networks, Inc.

One of Hatteras Networks' customers in the United States, competitive carrier Expedient Communications, is using Hatteras' equipment to replace T1s with Ethernet over copper loops as part of its "Ethernet Anywhere" product offering.

Canadian carrier MTS Allstream also uses Hatteras' bonded copper solutions—HN400 customer premise platforms and HN4000 central office platforms—to provide metro Ethernet service in many of its markets.

Cellular Backhaul—The Next Frontier For Bonded Copper

Bonded copper, however, is not limited to serving metro Ethernet deployments. As noted above, it is being used to extend the life of copper connections to cell sites. To wit, MTS Allstream is deploying copper-based HN400s at cell tower sites to connect to the existing HN4000s that had been installed at its central offices to serve metro Ethernet customers.

In addition to the additional bandwidth available via bonded copper, the Layer 2 switching functionality allows MTS Allstream to segregate and manage 1xEV-DO cellular traffic separately from its metro Ethernet traffic.

Another instance of cellular backhaul via bonded copper was announced by equipment vendor Aktino last October. Alaska's Matanuska Telephone Association (MTA) is providing cellular backhaul using Aktino's bonded copper solution.

Clearly, with at least 85% of the cell towers currently served by only copper loops, there is significant market opportunity for Ethernet to utilize bonded copper as the flag-bearer for copper-based competition to fiber and fixed wireless in the cellular backhaul market.

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