

Gigabit Wireless Solutions Play Important Role in WiMAX & Next-Generation 4G Networks

Although offering shorter distances than more traditional microwave links, high data-rate 60 GHz and 80 GHz point-to-point solutions are becoming an important part of a network operator's toolkit. Interview with Paul E. Obsitnik, Sr. Vice President, Business Development for Bridgewave Communications.

While faster wireless technologies such as WiMAX and 4G networks promise to provide a true internet experience, these technologies are only as fast as the backhaul connection from the access point or cell tower to the operator's high-speed network backbone. With the growth in demand of wireless data and the increase in access points and cell sites, running fiber to each location is often either not feasible or is cost prohibitive.

Helping to solve this problem, traditional microwave point-to-point radios in the 6 GHz - 38 GHz range have been used for years to provide data-rates up to 500 Mbps at distances up to 30 miles (48 kilometers). These solutions are an essential part of telecommunications networks, offering cost-effective connectivity without the need for digging or having to utilize expensive T1s. But what if shorter distances with higher data-rates are needed?

Enter millimeter wave microwave - solutions that operate in radio spectrum higher than 30 GHz. Based on the laws of physics, radios operating in these frequencies are able to offer higher data-rates, but at a trade-off of distance between the radios.

Leading this space is Bridgewave Communications, which has 70% of the market on short distance, high-bandwidth microwave radio solutions. The company, founded in 1998, got its start in the wireless cable LMDS market. Following the telecom bust, the company reorganized its efforts in 2003 to focus exclusively on the point-to-point millimeter wave of the 60GHz and 80GHz (71-86 GHz) markets.

For gigabit data-rates less than 2 miles (3 kilometers), millimeter wave radios in the 60 GHz and 80 GHz range typically offer the best value. "Assuming the distances work, for data-rates greater than 500 Mbps, millimeter solutions are the way to go," says Paul E. Obsitnik with Bridgewave Communications.

Within this band, the first decision is between 60GHz license-free links and 80GHz lightly-licensed links. 60GHz links offer the best value on the market for customers who prefer license-free operation and require link distances that are generally less than one mile. If greater distances are needed, 80GHz links can support applications beyond a mile and offer an alternative for customers who prefer licensed-band operation.

Even the license cost in the 80 GHz band can offer significant savings over the license costs of links in the lower microwave bands. For example, the cost of a 1 year license for a 80 GHz solution (depending on the area) can cost approximately \$100 USD, compared to over \$1,000 for a 1 year license for a 23 GHz link.



Bridgewave's FlexPort™

With their high capacity and cost value, Bridgewave solutions have been used by several WiMAX operators, including Jordanian based Kulacom who launched its network in April 2009. Located in Bahrain and Jordan, Kulacom provides voice, internet and data hosting services to emerging markets. Bridgewave also has other "large WiMAX" operators that they are working with, but has not disclosed them at this time. The company has an agreement with Alcatel-Lucent in which that company re-sells Bridgewave products and is working on agreements with other partners as well.

"Just 3-4 years ago, data requirements for wireless networks were so low, there was less need for the capacity of our radios," says Obsitnik. "But with the growth of 3G and 4G networks, we saw an opportunity to build a solution for mobile carriers with our FlexPort product and see that as a big growth area."

Bridgewave Communications will be showcasing their products this week at the Mobile World Congress in Barcelona (Hall 2, booth 2E46).



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