



HIGH SPEED—HIGH QUALITY—BROADBAND REACHES RURAL OHIO

INTELLIWAVE CHOOSES THE POINT-TO-MULTIPOINT 320 TO DELIVER SPEEDS UP TO 5 MBPS TO FAMILIES, BUSINESSES AND STUDENTS THROUGHOUT CENTRAL AND SOUTHEAST OHIO.



SITUATION

Founded in 2002 with the goal of delivering affordable Internet access to the rugged terrains of rural central and southeast Ohio, the wireless Internet service provider (WISP) Inteliwave wanted to grow its service area and offer a faster, more reliable Internet connection that could deliver broadband speeds.

Competing against high-priced—and highly unreliable—Internet service providers like satellite and carrier based cellular providers, Inteliwave started offering a Wi-Fi based, non-Canopy™, proprietary 900 MHz frequency as an affordable way for people to access the Internet. But soon the growing popularity and technological advancements of the Internet brought Inteliwave's network to maximum capacity, creating the need for a faster, more reliable solution. Determined to deliver higher bandwidth speeds to his customers, Inteliwave owner, Chris Cooper, knew he was going to have to compete against a much larger opponent—Mother Nature. “We were facing obstacles like 1,200 foot rolling hills, 70 percent foliage cover and a population density consisting of less than 30 homes per square mile in some areas.”

SOLUTION

Team with broadband channel partner, DoubleRadius, Inc., and create a flexible and robust network using Motorola's Point-to-Multipoint 320 (PMP 320). With the PMP 320, 802.16e technology with non-line-of-site (NLOS) coverage supports higher throughputs across challenging and hard-to-reach terrains.

“The geography presented some serious challenges that needed products that could do NLOS, and Motorola's PMP 320 was the best at tackling these issues,” says Jason Radford, Owner for DoubleRadius, Inc. “Chris specifically wanted to deliver up to 5 Mbps of bandwidth to each of his PMP 320 customers and use the 900 MHz system to fill in areas where higher frequencies couldn't penetrate the foliage and terrain.” Impressed with the initial performance of the PMP 320, Cooper explains why Inteliwave choose Motorola Solutions for its network. “We like the robustness and reliability of the PMP 320; it offers more bandwidth and we feel that it future proofs our network.”

CUSTOMER PROFILE

Company

- Inteliwave

Industry

- Wireless Internet Service Provider (WISP)

Location

- Athens, Ohio

Coverage Area

- Central and Southeast Ohio

Motorola Solution

- Point-to-Multipoint 320 licensed wireless broadband access solution

Solutions Features

- WiMAX 802.16e interoperability for reliable data, voice and video connectivity
- Optimized for long range, fixed, outdoor applications, connecting more business and residential customers with faster speeds
- Non-line-of-sight (NLOS) coverage in rugged, hard-to-reach terrain
- Low-cost, high performance from three different frequency ranges: 3.3-3.4 GHz, 3.4-3.6 GHz and 3.6-3.8 GHz
- NLOS

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RESULT

Since deploying the PMP 320 Canopy solution, Intellwave has been able to blanket coverage areas with broadband speeds ranging from 1-5 Mbps per user. “On top of the increased speed and customer satisfaction, our year-over-year revenue has improved 30 percent over the first two quarters since being installed,” according to Cooper.

The improved speed and reliability has given Intellwave’s customers more range to access the Internet according to Cooper. “Ohio University students can now access the school’s Blackboard website from home, instead of having to go to the library. We help Realtors sell houses—people won’t consider places that don’t have broadband. And being on the edge of more populated areas, people can now work from home.” Adding to the success of the highly rugged network, Radford gives his take on Intellwave’s success with the PMP 320. “Intellwave, businesses and people within the coverage area are all positioned for rapid growth because of the bandwidth coming in. They have access to the Information Highway, the ability to set up online businesses, and new business opportunities are everywhere because of this system.”

Long-range connectivity

The terrain of central and southeast Ohio created an obvious challenge for deploying a high-speed broadband Canopy network. The surrounding areas of dense foliage and steep hills forced Intellwave to find a solution that could not only penetrate the topographical obstacles, but also survive the harsh conditions of the region.

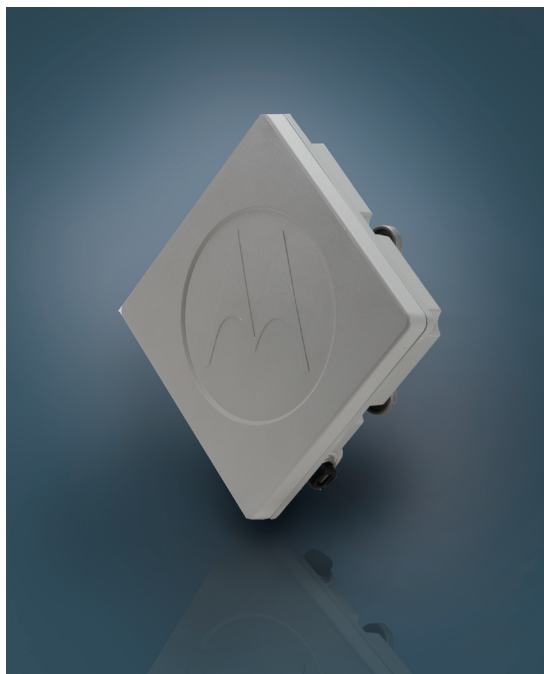
“We wanted to increase customer satisfaction, but decrease truck rolls for service related issues,” explains Cooper. “We want to be as efficient as possible when we send service people to fix equipment.” With the recommendation of the PMP 320 from DoubleRadius, Inc., Intellwave was equipping its network with a “robust solution in a semi-licensed frequency—free from interference,” says Radford. “Because of the NLOS and software upgrades, it can reach out pretty far to customers, while providing them higher throughputs than typical systems on the market.”

Intellwave originally estimated that each PMP 320 would broadcast its signal in a three-mile radius, but according to Cooper, “We were reaching distances up to eight miles in areas with less foliage.” The added range and durability built into the PMP 320 meant Intellwave could put more focus on tower placement, and not have to worry about making costly service visits in the near future. “We wanted a reliable network where we could set it and forget it, and we got that with the PMP 320.”

Broadcasting without towers

With the terrain challenges covered by the durable design and long-range capabilities of the PMP 320, Intellwave now faced another dilemma: where to install its units. Building its own base stations was out of the picture due to the high costs and time needed to construct towers. Intellwave ended up making a progressive decision on their installation approach: utilize existing structures within their service areas.

Instead of building costly towers, we worked with local agencies change to tower vendors to mount hardware on their buildings, change to structures,” says Cooper. The idea of using existing structures to carry Intellwave’s network proved to be a worthy catalyst for success, as Cooper explains. “We signed tower agreements with local businesses that were already positioned in great areas. By mounting the PMP 320 to existing structures and overlapping the signals, we were able to save a substantial amount of money, and use the savings to reinvest into our network’s overall performance, and future growth initiatives.”



Funding a high-speed investment

Securing the proper funds for a broadband network was going to be a challenge for Intellwave; its service area was surrounded by underserved counties that had very few Internet options to begin with. Before this project could launch, Intellwave needed to subsidize the proper funding to pay for a project of this size—and it accomplished the goal with help from the American Recovery and Reinvestment Act (ARRA).

Radford explains Cooper's vision for the people in central and southeast Ohio, and his plan to leverage funding. "Chris is an entrepreneur that wanted to help the underserved counties around him so people could access information via the Internet, and have the opportunity to prosper. He set forth a business plan that tackled the issues facing these counties, spent numerous hours calculating all of the information that went into the plan, and it was approved."

"Intellwave was awarded \$2.3 million for critical infrastructure development that the region didn't have, but needed to have," says Cooper. The funds were awarded to Intellwave based on its detailed plan of action to drive broadband penetration to areas that were underserved. "With the ARRA funding, we could now pay for capital expenditures such as equipment, vehicles and labor," says Cooper. "The government funding made the rollout process much easier to accomplish."

A trusted relationship

When the idea of deploying a high-speed broadband network first came to Chris Cooper's mind, he knew that he had to find a trustworthy technical solutions partner that could get the job done right; and he didn't have to look very far. "I remember getting an email from Jason Radford at DoubleRadius, Inc.," says Cooper. "Jason mentioned a rugged, high-speed wireless platform that was available to demo. He offered to come visit us in Athens, Ohio and do some real-life testing of equipment."

"Intellwave and DoubleRadius, Inc. have built a really strong relationship over the last five years," says Radford. "Chris looked at several different options. I recommended giving the Motorola solution a serious look because I had seen it perform in some really tough situations like the ones he was facing." The knowledge and inspiration given by DoubleRadius, Inc. led to the installation of the PMP 320—and the continuation of a strong relationship.

"Intellwave knew they needed a channel partner they could trust to successfully build out this huge network and turn to for future support," says Radford. "We both felt strongly that the Motorola solution was the best fit for the project."

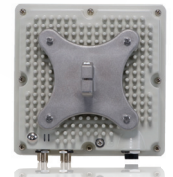
Positioned for the future

With the PMP 320 broadcasting high-speed Internet to customers, Intellwave is positioned for a successful future. "Right now, our services are available to nine counties in Ohio—two of which we had never been in before," says Cooper. "We're planning on expanding into eastern Ohio to connect other towns currently on the edge of our new broadband network."

"They're delivering high throughputs to all of their customers, and their subscribers are very stable," says Radford. "More customers are signing up, and new business opportunities are surfacing because they now have a broadband Internet option. You will start to see more businesses pop up in these counties because of this high-speed service."



PMP 320 front



PMP 320 back with bracket



PMP 320 side angle

The strong relationship with DoubleRadius, Inc. and Motorola products has given Intelliwave the freedom to focus on its future plans, which include voice capabilities and network expansion. "We want to expand our network capacity and grow our subscriber base," says Cooper. "We're already planning our expansion and negotiating future tower agreements; we're excited for the future of central and southeast Ohio, and we're happy to be a part of it."

A blueprint for other WISPs

Intelliwave's successes from the PMP 320 solution serve as a working example to other rural WISPs searching for a cost effective way to deliver high throughput in tough environments. "The PMP 320 is a viable option for rural WISPs," says Cooper, "it provides the options and features that other manufacturers don't."

To promote broadband access to its current customer base, Intelliwave created a variety of Internet packages that ranged in speed and price to satisfy customers on an individual level, letting them decide how much bandwidth they need. "When the tiered system was first deployed," says Cooper, "we thought most people would go for the cheapest package option. However, almost 100 percent of people are signing up for the most expensive package with the most bandwidth." With a promising influx of subscribers signing up to their highest broadband package, Intelliwave can now advertise popular consumer services like Hulu and Netflix, letting its customers experience the more entertaining perks of being connected to high-speed Internet.



Cooper gives his position on Intelliwave's new network, "There's always going to be competition out there, and we're always going to be looking over our shoulders. We think, however, that with the PMP 320 it gives us a lot more longevity in the marketplace."

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For more information on Motorola's PMP 320, and to see how its design meets the outdoors needs of residents, enterprises and municipal agencies please visit us on the web at www.motorolasolutions.com/pmp.

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