



**MESA NETWORKS BRIDGES THE
CONTINENTAL DIVIDE WITH
THE CANOPY™ FIXED WIRELESS
BROADBAND PLATFORM**

By Trish Cusack

November 20, 2002

CASE STUDY

MESA NETWORKS BRIDGES THE CONTINENTAL DIVIDE WITH THE CANOPY™ FIXED WIRELESS BROADBAND PLATFORM

SYNOPSIS

Mesa Networks, a Wireless Internet Service Provider (WISP) located in Frederick, Colorado was founded by a group of telecommunications professionals who saw, first hand, that traditional Internet service providers were unable (difficult terrain and legacy infrastructure issues), or often times uninterested (exorbitant subscriber costs), in serving the needs of businesses and communities in the outlying regions of Northern Colorado. Recognizing these underserved markets as an enormous business opportunity, the founders launched Mesa Networks in 2000 and began the business of providing wireless broadband Internet service.

COMPANY PROFILE

Mesa Networks, an innovator in providing wireless broadband Internet services, offers a low-cost, high-speed Internet offering to small-medium businesses, SOHO and residential users. Mesa Networks has been leading the charge in the Northern Colorado region for almost three years. Their mission is to eliminate the digital divide in the underserved areas of Northern Colorado and provide service to those customers left behind by the traditional cable and DSL service providers.

Contact Information:
Mesa Networks
8105 W. I-25 Frontage
Road, Unit 9
Frederick, CO 80516
www.mesanetworks.net

Initially focused on the business market, the company quickly shifted their business model after discovering that the streamlined business community was typically conservative and slow to adopt new technologies while the consumer and Small Office/Home Office (SOHO) customers were literally begging them for service. General consumers were much more willing to invest in a wireless delivery scheme than traditional businesses. This change in their initial market focus, forced Mesa Networks to discover a technological solution that provided the high caliber of service their customers would demand at affordable prices.

The company spent the next two years, wading through the wireless broadband product menagerie. They evaluated nearly every wireless broadband product, most of which consisted of modified Wireless Local Area Network (WLAN) products, and were continually disappointed with the results. Finally, after a great deal of trial and error, Mesa Networks discovered the Motorola Canopy™ fixed wireless solution that actually met their service requirements at price points their customers could afford.

IDENTIFYING THE PROBLEM

Mesa Networks services customers in the North Central portion of Colorado, covering portions of Boulder, Weld, and Larimer Counties. The region is an outdoor oasis with over 300 days of sunshine and an extremely diverse terrain of mountains, hills and open space. This type of terrain presents an interesting RF challenge when planning a wireless system.

Boulder County, Colorado boasts one of the highest per capita percentages of high tech workers in the nation. High Tech companies with significant operations in the area include IBM, Sun, Level 3, Agilent, HP, Seagate, and Maxtor to name a few. Statistics show that for every large company in the region, there are roughly 10 local suppliers to those companies. Many of the Mesa Networks potential customers are located in the outlying regions of Boulder and did not have access to the traditional cable and DSL services. These customers were left with only one option – a dial-up connection - that was woefully inadequate for serving their needs. In addition, because of their technology perspective, most of these customers had very high bandwidth usage requirements that could not be served adequately by dial-up connections.

**MESA NETWORKS:
A COMPANY BUILT ON A
STRONG PHILOSOPHICAL
FOUNDATION**

“The Internet is no longer just a novelty. It has become a core business tool as well as an enhancement to our quality of life. Some have called the Internet an ‘equalizer’ in that it can enable small businesses to effectively compete with large corporations. However, the “equalizer” can become a ‘disabler’ for those that live and work in areas that cannot take full advantage of all that the Internet has to offer. Taking advantage of the full power of the Internet requires a high-speed, always on, two-way connection to the Internet that is reasonably priced. Unfortunately, in many areas of the U.S. this type of service is not available or is so expensive that only large corporations can afford it. Mesa Networks is changing this in the Northern Colorado region.”

President and CEO,
Mesa Networks,
Todd Bergstrom.

Mesa Networks entered into the wireless ISP business category, and faced overcoming several significant obstacles to achieving long-term success. The foremost challenge was on the technology front. Mesa Networks had to find a technology solution that was dependable and offered a high-speed, always on, two-way connection to the Internet that was reasonably priced. Since the company did not own any spectrum, they were searching for products in the Unlicensed National Information Infrastructure (U-NII) band and were deeply concerned about interference issues.

Secondly, the geographic area that Mesa Networks serves contains a wide-range of topographical challenges that includes heavily treed areas, hills as well as sprawling open areas. Located at the base of the Rocky Mountains at an elevation of 5,353 feet, the area presents interesting RF challenges for the team at Mesa Networks.

Finally, Mesa Networks had to prepare themselves for increased competition as new market entrants launched competitive service offerings. From the company’s inception, they realized that they had to provide a very high level of service and commitment to their customers to sustain long-term growth for the company.

CONQUERING THE BEAST

Mesa Networks is a privately held company that received its early stage funding from an angel investor. According to Todd Bergstrom, president and CEO of Mesa Networks, “We are a start-up company focused on the WISP space. Initially, we didn’t have the luxury of having an existing revenue stream from ISP customers.” Bergstrom continued, “We were in a situation where we had to make it work or we would go out of business. We must be extremely frugal. Many companies who started in this business before us got a bunch of money and blew it on the wrong equipment. We couldn’t afford to make that kind of mistake.”

The First Experiment

In October 2000, the company installed its first of three different sets of equipment. As one of the first multi-point products in the U-NII band, the technology seemed to work well for the business market but its price points were just too high for the residential and small business communities that Mesa Networks was attempting to serve. Over time, the supplier’s support started to wane and they eventually filed for bankruptcy. Bergstrom said, “We became very concerned about the supplier’s future and extremely sensitive about anything going wrong with our equipment. Who would fix it? What about warranty?” Another company eventually purchased the supplier, but Mesa Networks believed that it was in the company’s long-term interest to evaluate alternative suppliers to support their long-term growth requirements.

The Land of Wireless Local Area Networks (WLANs)

Mesa Networks next technology adventure took them into the land of Wireless Local Area Networks (WLANs). “We tried to create a product using technology which is basically just a wireless LAN,” said Bergstrom. “We didn’t get very far into the deployment – maybe 10 or 12 customers – when we found a rather significant problem and determined that the equipment just wasn’t going to work.” Apparently, Mesa Networks had encountered a driver issue that was probably solvable but according to Bergstrom, “We saw how vulnerable we were to lots of things because no one owned the problem. So we switched to another company’s product - again, a modified wireless LAN.”

"When we first started to work with the second set of equipment, it worked great," said Bergstrom. "But, as we started to load the system up with subscribers, we started encountering new problems. He continued, "It just didn't scale. We seemed to have problems with anything more than about 15 customers per radio, maybe 20 and we are limited to three radios per tower – that is 50 to 60 customers per tower! With inexpensive tower space a rarity, that's just not good enough."

Mesa Networks also encountered a great deal of interference with the wireless LAN equipment at 2.4 GHz. Bergstrom acknowledged, "When we installed our first radios, the noise level was minimal, but we have seen that number continue to creep-up over time. When we first started a few years ago, no one had wireless LANs and now everyone has a wireless LAN in their home or business."

When wireless LANs are modified beyond their intended use for outdoor applications, they can wreak havoc on many customers' cordless phones. "We had to actually tell some customers, you can't use your cordless phone and Internet service at the same time. You can't imagine what it is like to have to say that to a customer," said Bergstrom. At the same time, competition started to heat-up and the traditional providers started extending service to those outlying areas. He continued, "If a cable modem or DSL service was available and they were giving everything away free to sign-up, we would lose customers."

Third Time is a Charm

"We found ourselves in a situation where we had a network that was not working. We had new tower sights and were looking for something new to go on them – that's when we found the Canopy product," Bergstrom stated. Mesa Networks began installing the Motorola Canopy product in January of 2002. As one of the first customers for Canopy, Mesa Networks spent the first couple of months learning about the product, its capabilities as well as its limitations. He continued, "There was a bit of a learning curve for us, coming from the wireless LAN environment – certain expectations/assumptions because of our experience, but, we have been delighted with Motorola's Canopy product."

In a short period-of-time, Mesa Networks has added over 600 customers to the Canopy system with approximately 90 percent consisting of residential users. Bergstrom highlighted, "We are able to do this, because our costs are finally affordable for the residential user." "One of the things that we like about the Canopy system is that the small size of the antennas allows us to place more of them on a particular sight which hopefully translates into lower real estate costs. This represents a huge cost-savings benefit for Mesa Networks."

With the Canopy system installed, Mesa Network has not encountered the type of interference problems that they had experienced with the earlier equipment. "One of the key reasons that we like Motorola is that the Canopy system is designed to be immune to interference issues," stated Bergstrom. "The results have been amazing."

Win Them With Service

"When we first started the company, we were going to fill customers' needs where no other services were available," stated Bergstrom. "And, we will continue to do that, but we also have a vision beyond that – a focus on what makes us different than say the cable company or the phone company." Estimates indicate that already over 20 percent of

the potential customers in Mesa Networks' service area have access to DSL. He continued, "We're focused on high-end residential and small to medium sized businesses. The big service providers – no matter how hard they try – cannot provide great service to these customers. It just isn't cost effective for them." Bergstrom said, "In the end, it is really all about service and who people like to do business with and we want to be sure that it is Mesa Networks."

Bergstrom then cited a customer story to illustrate his point. One of Mesa Networks early customers, prior to the implementation of the Canopy system was an employee who worked from his home. When his Internet connection was down, and unfortunately, that was quite often, he was forced to go into the office to connect to the Internet. "We were having some performance problems with the old equipment and when we tried to fix them, they actually caused some additional problems to occur. Unfortunately, some of these problems were self-induced and he (*the customer*) got frustrated and said, 'You know, I'm going to switch to DSL' and I said, I understand," said Bergstrom. "And, I didn't hear from him for a while. About a month later, he calls and asks, 'Can I get a second e-mail account and do you think one of your guys could come out and, for a fee, wire up my wife's computer.' I said, I thought that you were canceling."

The customer then detailed his experience with the local DSL provider. He explained, " I signed-up for DSL service and got the run around and I realized even though you guys are down, I call you and you tell me 'It will be up in five minutes,' and then you actually call me back in five minutes and say it's up. I cannot even get them to tell me when they can install my DSL service. I can't imagine how they would treat me once I was a customer." Now, that Mesa Networks has installed the Canopy product, their service has improved immensely. "That customer says that there is no way that he is going to change now," exclaimed Bergstrom!

Trish Cusack is a freelance writer located in the Chicago metropolitan area.