



Air Advantage Partners with Baicells Technologies Using FiSci Technologies' LTEaaS Program to Bring Affordable High-Speed Internet to Rural Michigan

The Situation

The Great Lakes Bay and Thumb Region of Michigan are home to more than half a million residents, from bustling cities to quiet agricultural communities. The mission of the Great Lakes Bay Regional Alliance is to improve the economic vitality and quality of life in the region. The economy is supported by large clusters of chemical, manufacturing, and agricultural businesses.

There is growing demand from both residential and business customers, as well as visitors, for high-speed internet; however, the terrain in this area is dense with trees and other foliage, and these non-line-of-sight (NLOS) conditions make wireless very challenging.

Air Advantage operates a high-speed internet network in this region. The network infrastructure they already have in place utilizes WiMAX technology that, while capable of tackling dense environments, never took off after the first few years of commercial deployment.

WiMAX as a technology has become dated, so the speeds offered can no longer meet the market demand. WiMAX development ended several years ago, so there is no forward technology path. "That meant we could not grow our network. That is where LTE came in and became that promise. LTE is truly a standards-based platform which uses outdoor technology just like cell phones, so it is widely adopted and there are no proprietary chipsets required. The evolution of 3G, 4G, and now 5G means LTE is here to stay," stated Scott Zimmer, CEO of Air Advantage.

Having already begun an extensive network upgrade to LTE, Air Advantage needed a way to reach customers in its rural geographies at a more reasonable cost than macrocells. It was looking for an eNodeB capable of running LTE but at lower power levels and cost to reach those customers in mostly dense environments.

The Solution

Air Advantage knew their success would focus on LTE, and that they needed to keep the deployments simple enough to manage across the vast expanse of rural territory. "The WiMAX deployment had been very expensive; the result did not justify the cost. We tried other companies' LTE/WiMAX solutions and even though the trial lasted for over a year, the network just did not perform. We also tried TV whitespace equipment, and it never went anywhere," per Zimmer.

"The fact that Baicells was launched by several industry leading experts gave us faith in their LTE product from the start. The cost allowed us to make an educated gamble as we tried our first eNodeB. If it was a mistake, it was a few dollars lost but not the end of the world. The Baicells plug-and-play story with easy cloud management was just what we were looking for. Combining the high gain outdoor 19.5dBi user equipment and the 1Watt eNodeB was the right solution."

Additionally, Zimmer states that with the success they have seen in non-line-of-sight and near line-of-sight applications on the Baicells equipment, Air Advantage expects that the LTE equipment will also replace the low bandwidth 900 MHz equipment they also have in their network due to heavy foliage. Moving low bandwidth 900 MHz customers on to the high capacity LTE equipment will help Air Advantage meet consumers' expectations.

Baicells specializes in the research, design, and manufacture of broadband wireless access solutions. Its engineers rewrote and simplified the LTE code that had evolved over many years so that they could "connect the unconnected" and make "LTE Easy as Wi-Fi." Its products are FCC and IC authorized and standards-compliant. "With Baicells it becomes much easier to provide wireless internet within everyone's reach at a very low cost. We try to make it easy to transition from WiMAX, Wi-Fi, and other technologies to LTE," per Patrick Leary, President of Baicells North America.

Baicells introduced Air Advantage to FiSci Technologies, who offers LTE as a Service (LTEaaS). This enabled Air Advantage to acquire Baicells LTE equipment on a unique subscription basis. The LTEaaS program finances fixed wireless LTE network infrastructure buildouts and provides support and deployment training, making it possible for rural and urban operators to move from a CAPEX business to an OPEX model and reach ROI more quickly.

When FiSci's LTEaaS package was introduced to Air Advantage - containing financing and equipment upgrades that protect their purchase into the future - they were excited to join the program.

"We signed up with the LTEaaS program to help us roll out Baicells's products to our entire service area much faster and more affordably. We really like the idea of only paying for the product as you grow with revenue generating subscribers," said Scott Zimmer. "The refresh of technology and the 4-year warranty were also key areas that we focused on during the decision-making process that made the LTEaaS program very attractive to Air Advantage."

"We are incredibly excited to be working with Air Advantage," said the General Manager of FiSci and VP of Baicells Engineering, Jesse Raasch. "FiSci and Baicells share a common goal to enable internet providers to expand their services to get broadband to underserved individuals. Working with Air Advantage to accomplish this goal is a major step towards proving that it is possible to connect communities with high-speed wireless broadband without breaking the bank. Our LTEaaS program makes it extremely affordable for all parties involved. Air Advantage's network expansion is particularly eye-catching due to the scope of the project and the number of people that we plan on connecting. We can't wait to see their network grow."

The Results & Benefits

Today Air Advantage has deployed 45+ Baicells LTE eNodeBs on 11 towers. They have transitioned or gained 350+ customers in 8 months and with the help of FiSci's LTEaaS program they are expecting an additional 350-400 customers on the LTE network in the near future. "We will be deploying 10 more eNodeBs in the next few weeks, and then 8-16 more are planned immediately after that, with an extensive rollout planned for the rest of 2018," per Zimmer.

The biggest indication that the Baicells solution is working is, the customers not yet upgraded to LTE are calling and asking for the new service. "That's a sign it's working. Average Revenue per User (ARPU) is up significantly, on average \$10 more per user than previously," stated Zimmer.

Air Advantage is offering 5, 10, 15, and 20 Mbps downlink packages, and a number of the customers are taking the larger 15 and 20 Mbps packages. With WiMAX, the highest package they could offer was 5 Mbps.

"In areas where we have deployed Baicells LTE we have stopped failing customers and have noted a positive ROI. Our installers are now out staying productive all day long! We have very happy customers - it just works," stated Zimmer.

The Most Beneficial Baicells Features Used in This Deployment:

- Standard, certified LTE products
- Excellent NLOS performance
- High capacity
- Easy GUI network management
- Each eNodeB Serves up to 96 users
- Easy plug-and-play install
- Low power consumption
- Small form factor user equipment:
 - Each UE serves multiple devices at the same time
 - Up to 100 Mbps downlink
 - User-friendly LEDs