
Connecting Your Cows – Reliable Networks for Farms

Aurora Organic Dairy (AOD) is a leading producer and processor of private brand organic milk and butter for U.S retailers. As a leading producer, what could possibly be wrong with their communications at the dairies? **Cammie Muller**, CFO and **Ana Rodriguez**, Director Program Office, gave us their input on how **KNS** helped turn AOD's lagging communications on the farm into fields of technological opportunity.

The Problem

As an organic dairy located in two states, operating over a wide swath of real estate, AOD requires information to manage their operations. Applications that manage everything from cow health, to feed mix, to pregnancy generate data to be analyzed. That information requires a robust network to efficiently transport it to the appropriate users. Adding complexity to the problem, the amount of data is often large. The combination of an increasing demand for data, limited throughput and questionable reliability had AOD seek out KNS.

The inefficiency of a slow, unreliable and limited network was apparent as workers sought work alternatives to using the network. Ana often heard workers comment, **"It would be easier to walk data over on a thumb drive"** in terms of sending information to other workers on the farm.

So what did this faulty network look like?

Their existing network consisted of each individual site having a satellite wireless internet link. This means that for each site to talk to another site they would have to go over the internet back to the satellite's central office



and then back out to the site they were trying to reach. Round trip time for a 100 Mb file could take over 20 minutes depending on which sites were trying to communicate.

The Solution

With options on the table, Ana wasn't satisfied with bids she was receiving. The IT Director at AOD had heard about KNS and suggested that Ana contact them. "I don't usually give vendors a chance to bid late" said Ana, but the quality and thoroughness evident in the first memo she saw from KNS changed her mind. With very little information and time, KNS submitted a winning bid based on a well-planned design,

competitive price, and flexibility regarding the solutions they could choose. As Ana said,

“The amount of information [KNS] gave us and their knowledge - they know what they are doing and, they are tailoring the solution to our specific needs.”



AOD needed a high capacity, low latency backbone installed between all of the sites. Using a combination of licensed Exalt and Siklu microwaves, KNS was able to create a backbone ring providing 1 Gbps of throughput. For the sites requiring less throughput, KNS used unlicensed cambium radios with a throughput of 450 Mbps. The network was designed in a ring topology so if any one link or site fails the network will remain operational. During throughput testing conducted after completion of the project,

AOD was able to move the same 100MB files between sites in ***less than 10 seconds***. Their previous number? ***Over 20 minutes***.

The Benefits

Not only was time a major beneficiary in this project but also network stability and security. “We have been getting feedback that response times dramatically improved and we have more stability in the applications,” said Cammie.

The successful completion of AOD’s wireless upgrade has given them the capability to upgrade and expand other technology at the dairy. Technology is no longer a “limiting factor for growth” as Ana says.

“This project has given us the infrastructure on which we can add additional applications to enhance farm operations...It’s really the platform that allows us to use the technology that’s out there that we haven’t been able to take advantage of until now.” - Cammie

AOD can add to, and upgrade their camera network, implement new solutions to improve their efficiency, and use their existing technology to its fullest potential. All of which will add efficiency and boost profitability. “Now that software is no longer limited by the network... we are able to optimize other software and tools that we use.” Cammie recounted. AOD’s future as the leading producer and processor of organic milk and butter is as reliable as their new network.

The Project

As previously mentioned KNS was a “late bidder” for the project. So how did it go?

"I have worked with lots of vendors over the course of my career, there are a handful of vendors I would want to do business with again, KNS is at the top of the list. They are the most professional, competent group of people I have worked with for over 30 years. To put it into terms, they are the 'Cream of the Crop'. Honest, professional, and clearly skilled at their jobs." - Ana

About KNS

KNS has been in business for 37 years focusing on outdoor wireless solutions including, microwave, mesh, SCADA and two-way radio. It has earned a reputation for quality in key industries including mining, agriculture, utilities, local government and education. "Our focus is on creating outdoor wireless ecosystems supporting the multitude of applications running over the outdoor network," said Will Sumners, COO of KNS. "We focus on engineering for the outdoor environment which presents a unique set of challenges compared to the indoor world".



"RadioWaves was excited to team with KNS Communications and Aurora Organic Dairy for a custom antenna solution ...AOD prioritized creation of a "cow-friendly" antenna form factor. Any custom project is clearly a group effort and the open communication and collaboration provided by KNS and AOD enabled RadioWaves to quickly put our custom design experience to best use. The resulting high performing yet "cow-friendly" antennas were recently delivered and successfully installed." Erik Org, Project Manager, RadioWaves

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