

First Class Rural Connectivity



“Providing customers a reliable connection and continuously improving speeds are the keys to success. Managing the upgrade of an existing network to transition to new technology is much riskier than a fresh installation. Customer satisfaction is vital and broadband outages are not tolerated. Cambium technical support and technology enabled us to accomplish all of the above requirements while keeping the customers happy.”

-GIANFRANCO TURCO, NETWORK MANAGER, TELEMAR

Challenge

Businesses and residential customers in the Vicenza province in rural Italy wanted broadband connectivity, but were forced to wait for service while large service providers focused on urban areas. Telemar (www.telemar.it) saw the opportunity to bring Internet connectivity to the region in 1995, and they set out to provide high technology and superior customer service. Once deployed, customer satisfaction with the performance and service was good, word spread that Telemar had made the Internet available, and demand grew.

Demand for connectivity expanded to include business, public administration and residential broadband access. The network was originally designed using Alvarion equipment and extended with Mikrotik equipment. As Telemar’s customer base grew it was recognized that their current solution could not scale. They were limited to no more than 30-40 customers per Access Point before the network could not maintain Quality of Service (QoS).

When Telemar decided it was time to upgrade their network with next generation technology, both Alvarion and Mikrotik were ruled out as viable solutions. Cambium Networks demonstrated technology that would meet their current needs and easily scale to meet future network demands.

Telemar needed a solution that combined high reliability with high performance and also included provisioning and management capabilities that enabled them to design the network for success.



SM with passive reflector for long range connectivity



Business connectivity



Image Source: Wikipedia

APPLICATIONS

- Leased Line Replacement for government and businesses
- Video surveillance communications infrastructure
- Residential access
- Industrial connectivity and surveillance

Requirements

The solution needed to meet the following requirements:

- Provide consistently reliable Voice over IP (VoIP) services for business and residential customers
- Provide the ability to provision bandwidth on a per user basis to prioritize traffic and meet QoS guarantees
- Perform reliably in areas where there are high levels of RF interference
- Provide a development roadmap that extends the technology and demand for bandwidth continues to grow



Collecting measurements and monitoring at a solar farm

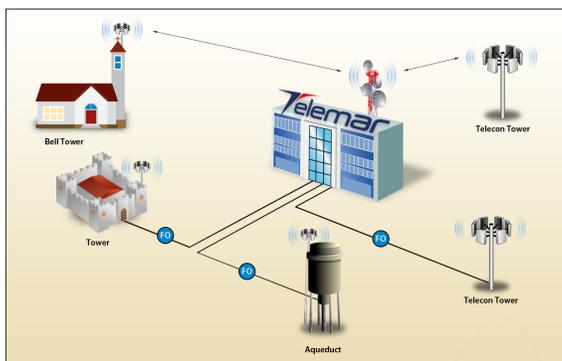
Solution

Telemar selected the PMP 450 wireless access network solution from Cambium Networks to replace their legacy network. The PMP 450 was selected for the following reasons:

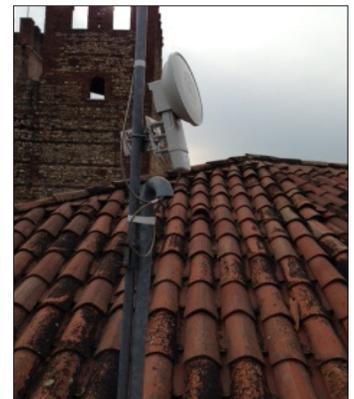
- Low latency of 3 - 5 milliseconds for consistently clear voice and video applications
- Provisioning capabilities to set performance thresholds on a per user basis so that customer satisfaction is high, and customers select the level of service based on their needs
- Industry leading interference tolerance to provide the best signal even in noisy RF environments
- GPS Synchronization to allow for channel re-use and scalability so that performance remains consistently high as new users are added to the network

PMP 450 WIRELESS ACCESS NETWORK

- Available in 3 GHz in addition to 2.4 GHz and 5 GHz bands
- 125 Mbps of throughput per AP
- Dynamic Adaptive Modulation – Up to 256 QAM
- GPS Synchronization for scalability
- Low latency to support video and VoIP applications



“We tested the Cambium PMP 450 in the actual network where our customers were using the service at full capacity,” said Gianfranco Turco, Network Manager, Telemar. “Installation was easy and we were quickly able to configure network performance exactly the way we wanted.”

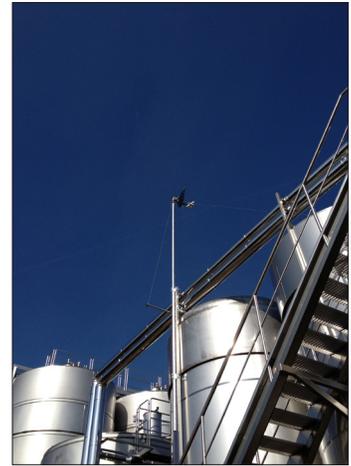


SM Installed to connect a library

Like any business, Telemar is closely monitoring costs. “The lower cost equipment was not satisfying our customers, and that costs us a lot of money,” says Mr. Gianfanco. “We evaluated the performance, the speed and the cost of the PMP 450, and the speed and performance showed an attractive return on our investment.”

With the PMP 450 network, Telemar was able to offer higher connection speeds. Customers were pleased with the faster connections. The decision was made to expand the deployment of PMP 450 technology.

To replace the legacy network, Telemar started with 40 PMP 450 Access Points (AP) and 1,000 Subscriber Modules (SM). Now being able to manage the network more closely, they are able to have better frequency usage and require less RF frequency while providing significantly more total bandwidth.



Industrial connectivity



SM providing video surveillance at a business location

Next Steps

Telemar plans to continue deploying the PMP 450 and upgrade the entire existing network while continuing to add new customers, increasing the total number of subscribers as the coverage area expands.