SIEMENS

Project

Remote SCADA and DA WiMAX

Cuming County PPD deploys licensed 3.65 GHz point-multipoint connectivity

Client:
Cuming County Public Power District

Start of Project:
December 2010

Completion Date:
June 2011

Reference:
Cuming County PPD
Elwood Moore, General Manager
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Project Budget:
$1.1M Phases 1-3

Project Manager:
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CCPPD is a public power district in North-east Nebraska. Today the District provides non-profit retail electrical energy to nearly 4,000 meters. Customers include the rural areas in and around Cuming County and the Villages of Bancroft, Beemer and Dodge.

System upgrades required

Latency in gathering data from remote substations was forcing CCPPD to over-compensate in balancing its grid loads, impacting customers and costs. The challenge was to find a way to connect remote substations and Distribution Automation (DA) devices so they could provide details in real-time, on what was happening in the electric grid.

Proposed approach to design

Substation and DA devices in the CCPPD service area are not only remote, but subject to harsh environmental conditions including the not so rare tornado. Siemens proposed an end-to-end system solution using our wireline and WIN WiMAX based wireless devices, as well as our Professional Services, to bring data from the remote locations back though the CCPPD microwave backhaul ring to the main office data center.

Network architecture

WIN 5200 Subscriber units are installed in 12 remote substations, each providing up to 5Mbps of throughput over a 3.65 GHz WiMAX network. Also, at each substation is a RUGGEDCOM RSG2100 19-port fully managed fast/gigabit Ethernet switch to interconnect all the substation's various network devices. The substations feed into a microwave backhaul ring, formed by five towers outfitted with WIN 7200 Base Stations. The ring is linked to each CCPPD substation and the main office data center with an RX1500-series integrated Layer 2 and Layer 3 switch and router.

End-to-end solution provider

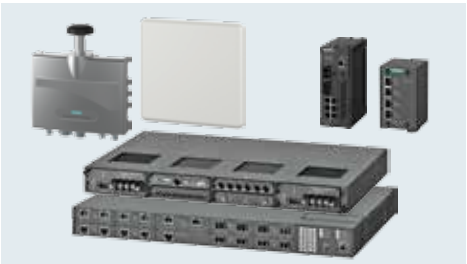
The overall project required management of the communications implementation. This important role was provided by Siemens RUGGEDCOM Professional Services. Our services team provided site survey work, the RF propagation study, RF channel planning, system design, physical implementation, RUGGEDCOM NMS implementation, and one year priority support to satisfy customer requirements.

Conclusion

The net result is new connectivity to remote locations that far exceeded the previous technology, providing greater network visibility, improved latency, labor and power cost-savings, and greater lineman safety. Expansion of the system is in the planning stage and the higher bandwidth provided by the WiMAX system will allow for additional applications such as WiFi hotspots, video surveillance, and linemen/technician communication access.

Bill of Materials:

- RSG2100 Layer 2 managed Ethernet switches
- RX1500 Layer 2/Layer 3 switch/routers
- RUGGEDCOM WIN 7237 3.65 GHz base station radios
- RUGGEDCOM WIN 5237 3.65 GHz subscriber radios
- RS900 Layer 2 managed Ethernet switches
- RMC40 Layer 2 unmanaged Ethernet switches
- RP100 Rugged POE injectors
- RUGGEDCOM NMS Network Management Software



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