Success Story

Automated Utility Meter Reading Improving Service in Anderson, Indiana

Customer Highlights

Challenges

- 15 percent of utility bills were estimated because meters could not be accessed by meter readers, leading to customer complaints
- Response time to electrical outages was often lengthy as the utility company relied on customers to report problems

Solution

- AMR/AMI provides accurate, up-to-the-minute access to customers' meters
- Cost-effective wireless broadbank network for multiple applications

Result

- City expects a net savings of $18.7 million over a 15-year period
- Improved customer service and lower operating costs
- Utility operations can pinpoint problems immediately — power outages location(s), potential water leaks
- Wireless broadband infrastructure that can be leveraged for other municipal and public access services

Systems and Services

- Tropos Networks MetroMesh 5210 routers
- Hexagram STAR Fixed-Network AMR

Anderson, the ninth largest city in Indiana, is located approximately 37 miles northeast of Indianapolis. Situated on the West Fork of the White River and surrounded by fertile farmland, Anderson functions as a regional center for transportation and manufacturing. It is the seat of government for Madison County and the home of Purdue University Statewide Technology Center, Anderson University and Ivy Tech State College Anderson. In 2007, Anderson was recognized by Forbes[1] magazine as one of the 100 Best Places for Businesses among Smaller U.S. Metro areas. The city has an estimated population of approximately 58,000 and covers just over 40 square miles.

The Challenge

Checking water and power meters by hand, using service personnel to physically view and record the displayed numbers, is inefficient, resource intensive and hence is a contributor to poor customer service. In Anderson, customers had to endure estimated bills when locked gates, pets, or inclement weather prevented meter readers from getting access to meters – in one month, 15 percent of the utility bills were estimated rather than actual. Some customers were unpleasantly surprised when the corrected bill arrived – and complained to the mayor or city council.

In addition, like virtually all utility providers, Anderson Municipal Power and Light depended on customers to report when there was a problem with service. Power outages due to ice storms or high winds can knock out neighborhoods – or whole sections of the city. Because the utility relied solely upon customers to report problems, response for repairs was not optimal. Often crews would go out to fix a problem, only to return again later to the same neighborhood as another customer – having recently returned home – discovered they had no power.

Results

Anderson Municipal Power and Light determined that automated meter reading/advanced meter infrastructure (AMR/AMI) could help solve both of these problems.

The State of Indiana recently enabled a new funding method that supports municipal utility conservation programs, and Anderson was selected to participate. The program provided money for automated water and electrical meters, and for the network to link them together. The city expects a net savings of $18.7 million over a 15-year period. Additional benefits are vastly improved meter reading and billing accuracy, immediate electric outage detection enabling pinpointing of affected areas, and more efficient restoration service [2].

1 http://www.forbes.com/lists/2007/5/07bestplaces_Anderson-IN_INAnd.html
2 http://www.cityofanderson.com/newsletter_view.aspx?id=122

Success Story

> "Now, if a house loses power, we don't have to wait for a customer to call us, …"
>
> Darren Grile
> Network Supervisor
> Anderson Municipal Power and Light

Anderson selected an AMR/AMI solution from Hexagram. The system is deployed using meter transmission units (MTUs), which are small, permanently sealed modules that are integrated into both electric and water meters. MTUs read the meter and forward the data wirelessly to a data collection unit, and ultimately to a back-end system at the central office. The AMR/AMI system provides the central office with real-time status as well as power and water usage for each customer. In addition to accurate and timely meter reading, Anderson's AMR/AMI system improves customer service. The AMR/AMI system has the ability to detect water leaks, so repairs can be quickly, reducing waste and other potential problems.

"When there's a problem, the dispatcher can see at a glance which customers are affected", says Darren Grile, network supervisor for Anderson Municipal Power and Light. "This helps us determine the root cause. When repair crews have completed their work in the field, they can verify the job is done by checking with the dispatcher. If there are green lights across the board, we know the job is done."

Tropos Solution

Anderson decided to connect the data collectors with the utility department offices using a wireless network backhauled into the city's existing fiber optic network. "We looked at all the different wireless router vendors," say Grile. "Ultimately the decision was based on a range of things, including strength in the marketplace and how well they worked for us. We chose the Tropos MetroMesh 5210 routers. They give us the most bang for the buck."

The Tropos network provides the wireless connection that enables the data collectors to transmit usage data from each automated meter to the back-end system. A relatively small number of Tropos routers are required, approximately one every square mile. Grile reports that the routers were easy to install on existing light poles, and easy to integrate with the data collectors. The wireless network is managed by the city's IT department.

Future Applications

Now that the Wi-Fi network for the AMR/AMI system is in place, Anderson is letting demand for specific applications drive expansion of the network. They have started a number of small pilot projects:

- **Video Surveillance** – The police department requested a surveillance camera for a city park. "The camera works well," says Grile, "even though the router is a ½-mile away. The police department is evaluating the benefits of this camera for use in other parts of the city.
- **Public Access** – Free public access at 300Kbps near business parks is now available and demand is being monitored. Under consideration is expansion of the network to cover downtown and deliver access to consumers, businesses and city mobile workers.
- **Mobile Public Safety** – The city is testing Tropos 4210 Mobile MetroMesh routers, for in-vehicle applications, in both police and fire department units. Broadband network access enables public safety personnel to directly access to more information out in the community where they need it, including criminal records, photographs, and building plans.

Additional application being considered:

- **Real Time Vehicle Location** – The ability to identify the location of the city's police and emergency response vehicles can improve public safety and service response times.