

Utility Meter Reading



An Advanced Metering Infrastructure (AMI) enables centralized monitoring and control of smart utility meters. This includes collecting data from water, gas, or electric meters and transferring that data to a central database for billing and analysis. By enabling real-time communications with meters, a utility company can reduce operating expenses, offer better customer service, and more closely manage valuable resources.

BENEFITS

- ❖ Real-time access to meter data increases billing accuracy
- ❖ Centralized monitoring enables quick detection of problems reducing time for service restoration
- ❖ Centralized ability to turn service on/off reduces truck rolls, saving operating costs
- ❖ Improves conservation of resources with the ability to more accurately monitor and analyze usage

Increasing Resource Conservation with AMI

AMI provides real-time bidirectional communication between meters and a centralized management site, improving meter reading accuracy, reducing operational costs, increasing revenue, and improving resource conservation efforts. With meters being read centrally, meter reading accuracy and therefore billing accuracy is increased while customer calls related to billing disputes go down. Operational costs are also reduced by eliminating the need for and maintenance of handheld meter reading equipment. With the ability to remotely disconnect service, delinquent account balances are reduced and timely payment for service increased. In addition, revenue loss due to meter under-registration of use is virtually eliminated. With the ability to monitor usage in real-time, utility customers can be kept informed frequently of their own usage so they can better manage it and help meet conservation goals.

Benefits of an Automated Utility Meter Infrastructure using a wireless broadband network

- ❖ Enables customers to view resource usage, both in real-time and historical, increasing awareness of usage and encouraging conservation
- ❖ Centralized monitoring and control increases operational effectiveness with fewer workers required in the field and less money spent on vehicles (including gas, maintenance, insurance)
- ❖ Outage or other problems can be pinpointed and a service unit dispatched quickly, thereby reducing downtime, increasing customer satisfaction, and improving conservation
- ❖ Utility vehicles in the field can utilize network access for scheduling, access/sending to information, improving field worker productivity and efficiency as well as customer satisfaction

“Approximately 40,000 meters have been converted to date. Customers with upgraded meters and infrastructure are very pleased with the improved accuracy, reduction of estimated reads, and responsiveness to inquiries from customer service representatives.”

Leonard Scott
Wireless Program Manager, Corpus Christi



Tropos MetroMesh Solution

Partners

- ❖ **Aclara**
- ❖ **BadgerMeter**
- ❖ **Echelon**
- ❖ **Elster**
- ❖ **Hexagram**
- ❖ **Neptune Technologies**
- ❖ **SmartSynch**

Tropos Technology Differentiators

- ❖ Reliability – Patented dynamic routing; automatic band and channel management; per packet power control; intelligent congestion management
- ❖ Security – Layered, military-grade encryption throughout the mesh; full VPN support
- ❖ Mobility – Seamless roaming across entire cities
- ❖ Management – Most comprehensive analysis and control tools
- ❖ Efficient – Ability to power peripherals such as collectors
- ❖ Multi-use Network Support for multiple classes of service

Multi-use Network

Tropos' unique MetroMesh network solutions deliver scalable bandwidth and flexibility to securely support multiple simultaneous applications on the same wireless infrastructure. In addition to the primary utility meter reading applications, a single network can also support a range of municipal services.

- ❖ Mobile public safety — Enabling police, fire and emergency service personnel to effectively communicate and obtain information from the field
- ❖ Intelligent transportation systems — Replaces leased lines to traffic signals for centralized management and can also support video for traffic and red light runner monitoring
- ❖ Mobile city workforce — Allows fast, easy access to records and filing of reports from anywhere around town, improving worker efficiency and productivity

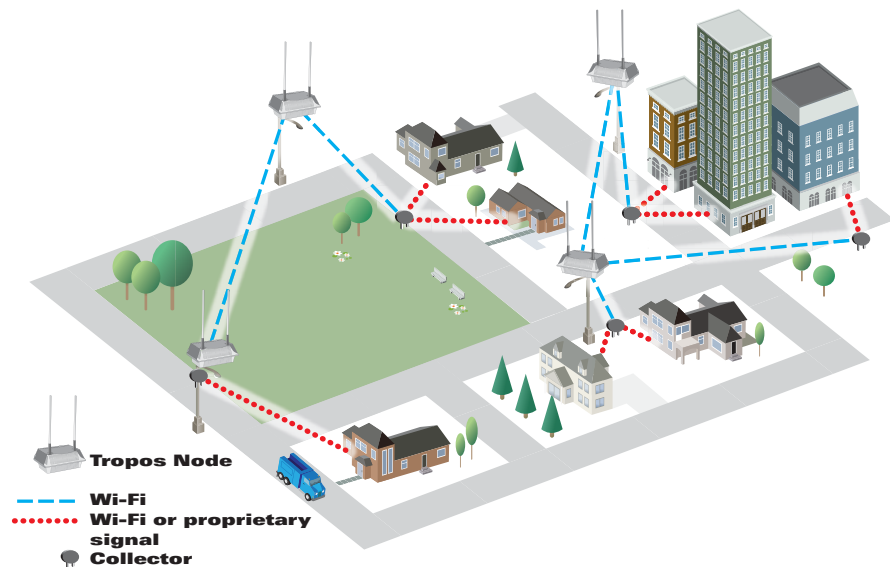
Utility Meter Reading Infrastructure Building Blocks

An AMI solution includes smart utility meters communicating with data collector units which operate over the multi-use Wi-Fi network. Meters communicate to collectors which in turn send information over a Tropos network to a central server that collects the data and integrates with the utility's billing system. Usage data can also be used to analyze usage and can help quickly pinpoint problems such as leaks or unusual activity.

Additionally, the Tropos mobile router solution offers the ability to outfit line trucks with Wi-Fi capability enabling communication with substations and meters directly, reducing central office visits and increasing worker productivity.

Customers using Tropos MetroMesh networks today to automate utility meter reading include: Corpus Christi, TX; Burbank, CA; Rockhill, SC

Tropos Metro-Scale Automated Utility Meter Reading Network



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