

# Comprehensive Advanced Metering Solutions



Trilliant helps utilities and energy retailers successfully deploy a broad set of smart grid initiatives – from advanced metering to distribution automation to consumer applications such as demand response and distributed energy resources. The breadth and depth of the Trilliant Connected Energy Platform deliver the flexible and proven smart grid solutions needed for utilities and energy retailers to deploy mission-critical applications to achieve their business goals.

Trilliant offers the [SecureMesh™ Neighborhood Area Network \(NAN\)](#) and [UnitySuite™ Metering](#) wireless mesh communications technology and headend software that allows a utility to fully realize the operational benefits of Advanced Metering Infrastructure (AMI).

Trilliant's advanced metering solution enables both on-demand and scheduled reads and makes load profiling possible using programmable intervals to support time-of-use (TOU) pricing, real-time pricing (RTP), and critical peak pricing (CPP) options. Both electric and gas meters are supported, with each meter acting as a communications node to create a self-forming, self-balancing, and self-healing SecureMesh wireless network.

## A Complete Range of Meters

Trilliant offers a variety of advanced and C&I meters as well as basic residential electric meters from major manufacturers such as GE, Itron, and Landis+Gyr. Each meter is available in a wide range of ANSI forms, voltages, and meter class ratings and is equipped with a factory-installed, under-glass SecureMesh communications module. The SecureMesh module adds intelligence to the meter so that even a basic residential meter can provide many of the functions of an advanced meter and support interval metering and TOU billing. Each SecureMesh electric meter can report a power outage or restoration event to the headend in real time, and each meter can detect tampering by reporting changes in energy flow direction or a reverse flow after an outage. Additionally, Trilliant supports meters with integrated service disconnect switches to allow remote disconnect/connect.

Trilliant also offers SecureMesh gas meter modules that can easily retrofit the most commonly deployed small- and large-diaphragm gas meters from manufacturers such as American, Rockwell, and Sprague. A battery-powered SecureMesh gas meter module provides operational life greater than 20 years.

### Advanced Metering Capabilities

- On-demand and scheduled reads
- Load profiling using programmable intervals
- Flexible TOU scheduling; multiple rate plans, rate plan groups, and multiple calendars
- Real-time power outage and restoration reporting

### Choice of Meters and Vendors

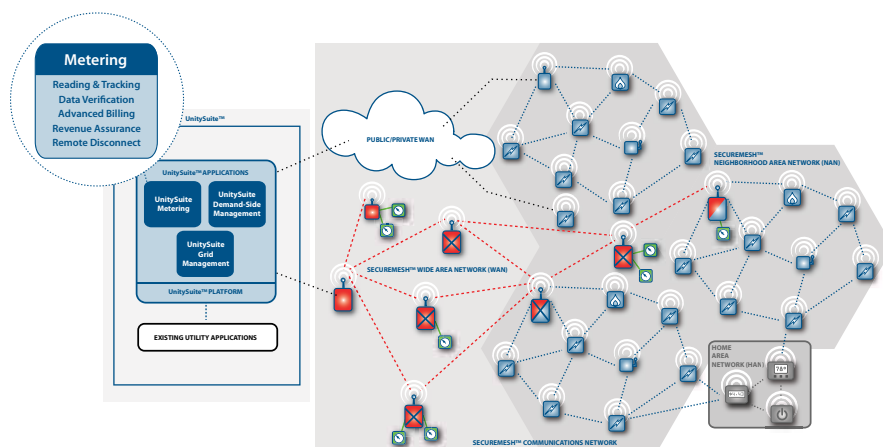
- SecureMesh-enabled electric meters (factory-installed)
  - Basic and advanced residential meters
  - C&I meters
  - Manufacturers include GE, Itron, and Landis+Gyr
- SecureMesh-enabled gas meters (retrofit modules)
  - Small and large diaphragm meters
  - Manufacturers include American, Rockwell, and Sprague

### A Trusted Solution Partner

- End-to-end services and support
- Proven – over 1 million deployed SecureMesh meters

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Unlike many systems, a gas-only network of SecureMesh-enabled meters is possible, as well as a mixed network of SecureMesh electric and gas meters. Because Trilliant supports both electric and gas metering applications, a utility can employ the same SecureMesh NAN and infrastructure investment across both lines of business.



## Easy Integration and Interoperability

UnitySuite's SOAP-based API facilitates easy integration with existing Enterprise Resource Planning (ERP), Customer Information System (CIS), Meter Data Management (MDM), and Outage Management System (OMS) applications.

## A Single Investment, Multiple Applications

The SecureMesh NAN is one tier of the multi-tier SecureMesh Communications Network – the optional SecureMesh Wide Area Network provides a private backhaul network for the NAN and additionally supports Smart Grid devices directly. A SecureMesh and UnitySuite investment can then be leveraged for demand-side management as well as for tomorrow's Smart Grid initiatives.

## Comprehensive Advanced Metering From Trilliant: Solution Overview

Trilliant offers a complete set of capabilities that enable a utility to deploy, manage, and optimize advanced metering throughout their service area. These capabilities are easily deployed end-to-end from the UnitySuite Metering application at the utility headend to each residential and C&I electric and gas meter via the SecureMesh Communications Network and its Neighborhood Area Network tier.



A few of the electric and gas meters currently supported by Trilliant

## Network Planning, Deployment, and Operations

- **Meter Selection:** Trilliant supports residential and C&I electric meters as well as gas meters from a wide variety of manufacturers, including General Electric, Itron, and Landis+Gyr for electric meters and American Meter Co., Equimeter, Invensys, Rockwell, Sensus, and Sprague for gas meters, allowing an optimal mix of meters to meet a utility's specific requirements
- **Software Integration and Configuration:** UnitySuite's SOAP API facilitates its integration into existing utility systems and processes
- **Field Upgradeable:** Firmware for all SecureMesh devices is upgradeable over-the-air, eliminating unnecessary truck rolls
- **Choice of Backhaul Communications:** Backhaul of meter data from the SecureMesh Neighborhood Area Network to the utility headend can be supported by a variety of Wide Area Network technologies, including fiber, cable, cellular data services, and private wireless networks such as the SecureMesh Wide Area Network tier.

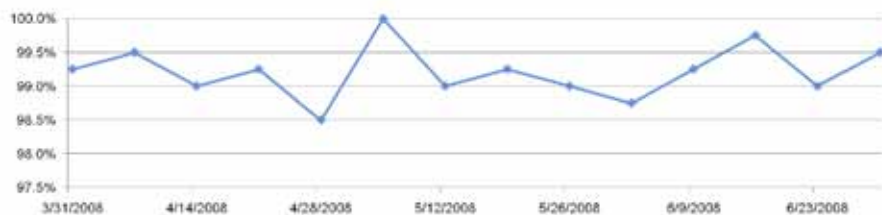
## Meter Reading and Tracking

- **Scheduled or On-Demand Meter Reading:** Meter reads can be scheduled system-wide or by any defined sub-group (e.g., zip/postal code, billing type, sub-station, etc.); any meter or group of meters can be read according to a configurable schedule or on-demand as needed to support customer service inquiries
- **Remote Configuration:** Meter intervals and reporting schedules can be configured as needed via the SecureMesh Communications Network

## Meter Data Verification

- **Data Buffering:** All meter data is stored locally both at the SecureMesh module in the meter and at each SecureMesh Gateway, ensuring billing integrity
- **Data Verification:** Routine meter data verification ensures data is accurate and detects fraudulent activity
- **Exception Reporting:** Extensive exception reporting keeps a utility aware of

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Trilliant successfully delivers meter data to meet its Service Level Assurance goals

issues with meter reads and highlights trends that may indicate tampering or network problems

## Advanced Billing

- Interval Data: Each SecureMesh-enabled meter captures detailed interval data, configurable as needed from 1 to 255 minutes
- Rate Plan Support: The detailed metering data captured by each meter supports a wide variety of rate plans, including time-of-use, critical peak pricing, and multiple-tier rate plans

## Customer Service

- On Demand Meter Reading & Usage Reporting: usage reports are available per meter, and any meter can be read on demand to answer billing questions
- Prepayment Program Support: For meters supporting remote disconnect, the SecureMesh/UnitySuite solution permits a variety of possible prepayment programs to be deployed
- Virtual Connect / Disconnect: For meters that do not support remote disconnect, Trilliant can flag specific meter usage patterns, enabling customer service representatives to virtually connect or disconnect meters

## Reporting

- Summary Reports: Overall metering status reporting, including reports on overall success, gaps, late reports, etc.
- Detailed Reports: Usage and trends by individual, arbitrary groups, or system-wide
- Interfaces: Standard interfaces for common billing and CIS systems; custom views and feeds for utility analysis



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