



Smart Energy

Smart Metering and Smart Grid for Smarter Businesses

SOLUTION BRIEF

Trilliant helps utilities and energy retailers successfully deploy a broad range of smart grid initiatives – from smart metering to smart distribution and smart consumer capabilities. The breadth and depth of the Trilliant Communications Platform delivers the flexible and proven smart grid solutions needed for utilities and energy retailers to deploy mission-critical applications to achieve their business goals and deliver consumers the best energy experience possible.

The Trilliant Platform

- Designed for Smart Energy Communications
- Secure, Scalable, Proven
- Supports advanced Smart Meter and Smart Grid functions
- End-to-end architecture

UnitySuite Head End System

- Communications Device Management
- Network Element Management
- Customer Engagement Management
- Metering Management

Full range support for Smart Meter & Grid Communications Networks

- Home Area Networks
- Neighbourhood Area Networks
- Wide Area Networks

Industry leading choice of Meters

- Multi-vendor Electric Meter support
- Multi-vendor Gas

Communications Hardware

- In-home Communications Hub
- SecureMesh Network
- DDX technology

Proven Delivery

The Trilliant Platform has been deployed globally. Our customers include some of the biggest energy companies. We count millions of endpoints. Deploying a Smart Meter system is a complex, lengthy process. It touches every element of your business from customer service to settlements. Done correctly, it can streamline the way you deal with customers, partners and suppliers dramatically. Trilliant brings the detail and the know-how to help you make the smart decisions on the right technologies and investments. From meter-to-bill processes and beyond towards integration into the grid, our products and services enable you to make bold decisions and deliver against them.

Communications Expertise

Trilliant are the smart energy communications experts. We supply intelligent communications network equipment, software and services to some of the largest energy companies in the world. Our innovative products and services are driving engagement of the next generation of energy consumer and supplier. We are comfortable working with multiple communications technologies, and achieving the best fit for your business.

Trilliant sits right in the sweet spot between meter supplier, energy company and consumer. We are dedicated to providing secure, scalable communications solutions that enable smart energy projects and programmes. We work with a wide range of industry partners to ensure interoperability and pain-free implementations.

Our expertise covers the whole range of communications networks, from local to national.

Home Area Networks – Trilliant is a member of the Zigbee Alliance, and can deliver expertise on a wide range of HAN's – Zigbee, WMBus, local power loop and more.

Neighbourhood Area Networks – Trilliant’s SecureMesh is ideally suited for NAN environments, operating at 2.4Ghz, it offers the right balance between bandwidth and range.

Wide Area Networks – Trilliant is experienced in offering communications solutions based on numerous WAN bearers – GPRS, Long Range Radio, fixed line communications networks.

Communications Management

The Trilliant Platform consists of multiple elements designed to provide the bridge between back-office metering systems, the communications network and smart meter equipment deployed in the field.

Trilliant Unity Suite

Trilliant’s UnitySuite™ Head-End System (HES) enables utilities to operate and control their Smart Meter and Smart Grid network infrastructure. The UnitySuite HES is capable of communicating with, supporting and controlling millions of endpoints, including multiple device types from thermostats to meters, over varying communications networks.

The UnitySuite HES provides a secure management platform that acts as a control plane for all device interactions. The platform supports features including:

- meter commissioning
- firmware upgrades
- pre-payment mechanisms
- demand side management
- remote connect and disconnect
- time of use tariffs and so on

UnitySuite has been built from the ground up to support integration with other applications in the ecosystem via a robust set of interfaces for virtually all data maintained by the UnitySuite HES.

Trilliant’s secure, scalable Head-end System gives you a single dashboard to monitor and control all of your smart meter and smart grid assets. Integrated demand response functionality allows a common interface to pricing and demand events, regardless of the specific devices in the field. It is split into 4 functional areas:

Communications Device Management System

- Management of communications devices
- Optimising connectivity and routing between devices
- Security

Network Element Management System

- Network monitoring and alerts
- Visualisation of network nodes, links and link quality
- Security and SLA management

Customer Engagement Management System

- Premise information
- Management of in-home devices
- Tariff management
- ToU pricing and Load Control

Metering Management System

- Multi-vendor meter management
- Smart Metering process management
- Reports data directly from the meter
- Real time alarms

Trilliant’s industry expertise has allowed us to build an end to end optimised solution made possible through a highly efficient, yet extensible, data model, unique batch processing and resource optimising algorithms. UnitySuite HES can be scaled to support the largest smart meter implementations.

- Fully supports clustered application and database environments.
- All communications and processing operations are organised as separate tasks that can be dynamically allocated to specified resources as they become available for processing.
- Additional application server resources can be incrementally added as performance and scale requirements are added over time.

UnitySuite has proven experience in supporting real networks with millions of devices online in a single instance of the software. This figure is increasing daily as more and more smart devices are deployed worldwide.

Interoperability

Trilliant is driving Interoperability in the Industry through our partnerships and standards work. We aim to ensure that smart meter rollouts are easier and more cost effective to achieve, as key components of the system are pre-integrated, regardless of product supplier chosen by the energy supplier. This means faster rollout times and lower integration costs. The consumer also benefits as they are able to select from a range of products for the home.

Security & Privacy

Privacy and information security is one of the most critical topics that smart meter rollouts need to address. Strict restrictions on how data is controlled and accessed will need to be put in place. Trilliant's solutions are designed to handle these requirements, and we put the security of our products at the heart of their design. We have chosen protocols and communications technologies that are inherently secure, and by providing an end-to-end solution, we can maintain information security throughout.

Communications equipment

Trilliant is a provider of communications equipment, and there are a number of products designed to provide full end-to-end communications service in the field.

Communications Hub

The Trilliant Communications Hub offers both WAN and HAN connectivity in a single, integrated package. It supports Zigbee Smart Energy Profile, ensuring that interoperability with a multitude of Zigbee enabled devices is simple to achieve.

The Communications Hub allows energy suppliers to deliver their smart services into households, offering transparency to the consumer on energy cost and usage, allowing them to make smarter decisions about their energy use.

The hub compiles metering data from multiple devices, including electricity meters, gas meters, energy displays and other smart devices, and reports the data back to the Head-End software via the integrated WAN components. The Communication Hub's completely secure, stand-alone architecture means that flexibility and interoperability are maintained. Deployed together with Trilliant's UnitySuite Head-End System, a full end-to-end solution can be delivered.

SecureMesh

Trilliant's SecureMesh Network—an RF mesh network and part of the Trilliant Communications Platform— provides a state-of-the-art, two-way communications infrastructure that enables various Smart Grid applications to improve the efficiency and reliability of power delivery. The full monitoring and control capabilities enabled by the SecureMesh network support both Smart Metering and Smart Grid. Critical functions enabled by the mesh, such as Distribution Automation, Demand Side Management, disconnect switch control and load controls are all made available. For smart metering applications, metering and diagnostic data are sent over the SecureMesh network back to the command centre where the Trilliant's UnitySuite™ Head-End Software resides. From here, the system is completely configurable, from meter configuration through to remote diagnostics options.

SecureMesh is a true mesh network where endpoints (meters and other devices in the network) communicate in a peer-to-peer manner. As more endpoints are added, the network reliability improves and coverage expands. Operating at 2.4Ghz, the network offers the best compromise between bandwidth and range – it is high bandwidth, low latency and suited to a range of use cases from WAN to HAN.

The network is self-forming, self-balancing, and selfhealing. Endpoints in the network will autonomously form a mesh and exchange messages with neighbouring endpoints. Endpoints will determine the optimal path back to the Gateway. In the event of interference, be it a temporary event (failure or noise) or permanent (foliage or construction), the network will self-heal as endpoints will discover a new route back to the Gateway.

The network consists of three main system components: the meter, the Extender Bridge, and the Gateway. The products use multi-channel communications architecture to ensure the highest possible reliability. Extender Bridges communicate directly with the meters while the Gateway is capable of supporting up to 100,000 meters.



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