
simoco
wireless solutions
KEEPING THE LIGHTS ON FOR UTILITY COMPANIES WITH ROBUST AND RESILIENT PRIVATE COMMUNICATION SYSTEMS

INTRODUCTION

Utility companies are constantly challenged to keep the lights on 24/7, 365 days a year. They are facing stricter regulation and higher fines as the demand for utilities rise. As the demand rises for utilities, so too the problems and issues. Many utility companies are behind with their communication infrastructure growing extremely outdated compared to their current needs and requirements. This leads to more service outages, particularly in the aftermath of storms such as those that the UK experienced earlier this year (2022) that creates additional stress on a weakened communication system.

One of the largest fines recently was given to a major energy provider which came to an astronomical sum of £18m. That fine was a result of failings that are thought to have stemmed from issues with IT systems. Additionally, three energy firms were ordered to pay a sum of £10.5m for failings over the blackouts in August 2020 that left more than 1 million customers in the dark and led to travel problems across large parts of the UK.

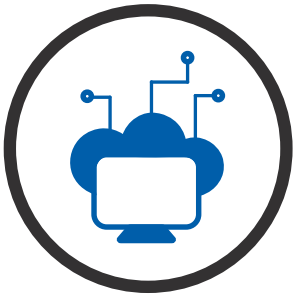
In their nature, utility companies are deemed mission critical and ultimately the communication infrastructure system too must be mission critical. Utility companies cannot inherently rely on public cellular networks since there is no guarantee of service if the network goes down as a result of a weather event or cyber security threat. Lack of Long Term Evolution (LTE) spectrum availability is also a major issue for utility organisations and therefore the possibility of deploying a private LTE network may not be possible for some time. At Simoco Wireless Solutions, we have been deploying mission critical networks in the utilities industry for the last eight decades. Our customers have been using state of the art communication technology for well over a decade and the technology has proven to be reliable and resilient, even during severe weather events.

WHAT COMMUNICATION INFRASTRUCTURE DOES THE UTILITY INDUSTRY NEED TO ADDRESS THESE PROBLEMS?

Cyber security

Private communication system

Smart telemetry



Unified communications

LTE over DMR

Cyber security measures

The UK's energy sector was the target of 24% of all cybersecurity incidents in the country last year (2021) from new research that IBM security found. This makes the energy sector the most targeted industry. With the frequency and intensity of the attacks growing, governments and security experts across the world are seeking assurances from utilities providers that networks are protected from outside threats. The problem is that many organisations continue to operate legacy systems or a mix of public and private networks. Connecting legacy equipment that was built without Internet connectivity in mind is especially challenging for security and each new device opens a door that requires closing. The benefits of a private network are also particularly important here. When compared to public alternatives, such as cellular networks for example, private networks such as Simoco Xd typically offer higher levels of encryption such as on control channels and user authentication, as well as greater resilience and access control for devices and users.

Private communication system using Simoco Xd

Voice communications remain essential to any critical infrastructure organisation. However, technology has advanced to include a range of different applications and devices. The key elements remain to be mission-critical voice, full-duplex voice systems, emergency alerting and audio quality. By deploying a private wireless network, utility companies can combine both voice and data communications across a single communications infrastructure, ensuring reliable mission critical voice and data is always passed through.

The Simoco Xd network, which is based on Digital Mobile Radio (DMR) technology is an example of voice and data communications that can be combined, and its unique distributed architecture means that the network also functions as a gateway to other devices and services, such as LTE. Simoco Xd provides the utility industry an exceptional communication system which can be scaled to thousands of devices on the network. When compared to public cellular services, it delivers improved coverage, reliability and resilience, contention, security, group communications and performance. Mission critical systems in sectors such as energy, need to adapt to the ever changing regulatory and market demands, while guaranteeing 24/7 availability. By unifying new smart technologies with existing capabilities through a single, private network, organisations can improve security, address compliance requirements, and get critical information in near real time.

simocoXd

Smart Telemetry using Simoco Pulse

The use of telemetry systems for the collection and distribution of data linked network performance is nothing new. Over the years this technology has seen many deployments as the hardware has become smaller and the ways to view and manage the data has vastly increased. Simoco Pulse provides utility companies a smart telemetry solution fit for replacing legacy Supervisory Control And Data Acquisition (SCADA) systems.

Rather than using a range of technologies for telemetry communications (cellular, unlicensed radio, WLAN) which all have their drawbacks, Simoco Pulse provides enhanced reliability, resilience, greater scalability, improved coverage, reduced operating costs and easier integration as a result of the Simoco Xd solution, a single, private network based on DMR technology.

A Simoco Pulse network can also be used as a gateway to the growing number of Internet of Things (IoT) devices found across the grid, enabling smarter asset management through one unified network. This gives utility providers greater insight and control over network performance. The benefits of the Simoco Xd network include enhanced coverage across vast operational regions and the ability to quickly scale the solution to add tens of thousands of devices to the network. When compared to public cellular services, it delivers improved coverage, reliability and resilience, contention, security, group communications and performance.

simoco PULSE

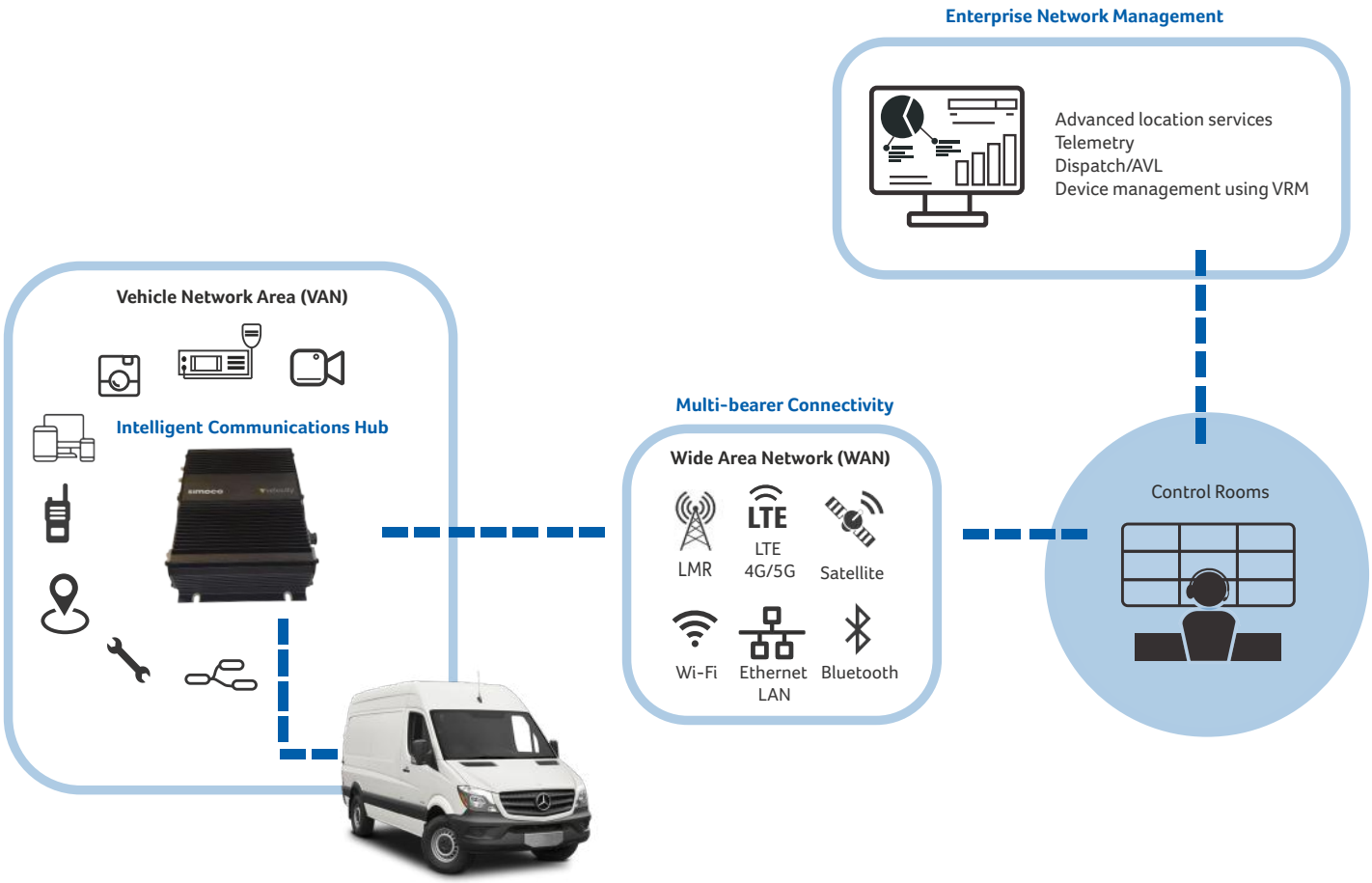
Unifying communications using Velocity

Velocity provides the utility industry a hybrid network utilising professional mobile radio for mission critical voice and data as well as LTE networks for critical communications. Edge computing which is at the heart of the Velocity product allows utility companies to continue leading the digital transformation of its communication network business. This technology allows the distribution of advanced computing capabilities onto different nodes of the grid representing a significant step in the digitalisation of the distribution grid and the ability to meet customers' new requirements, integrate new distributed resources, and support the increasing electrification of the economy, thereby promoting the energy transition.

velocity

Vehicle area networks

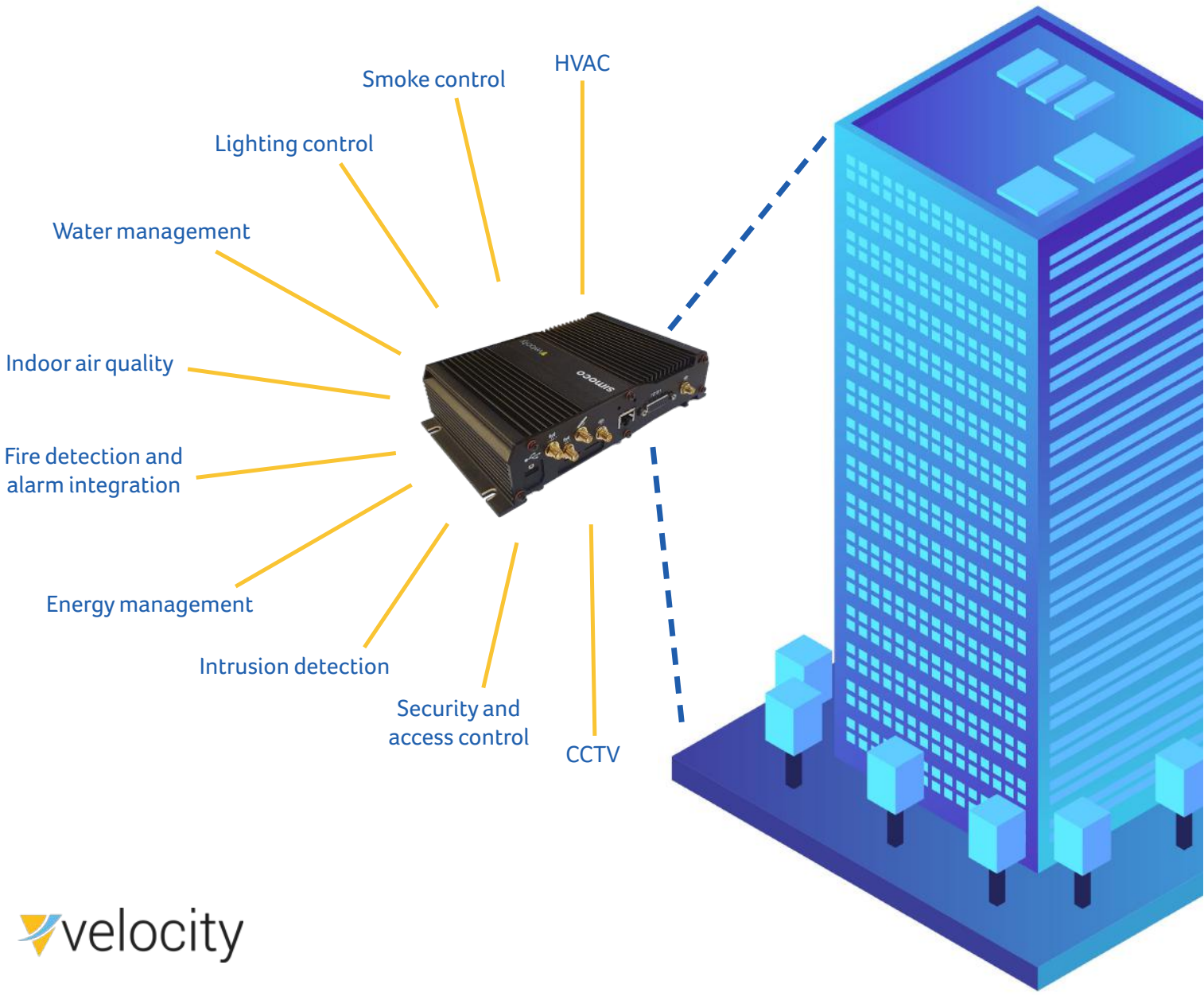
Utility companies typically account for hundreds if not thousands of vehicles in their fleet. Imagine turning that vehicle into a vehicle area network which provides driver communication using either Land Mobile Radio (LMR) or LTE, Wi-Fi hotspot in the vehicle as standard and much more, Velocity does exactly that.



velocity

Building Management

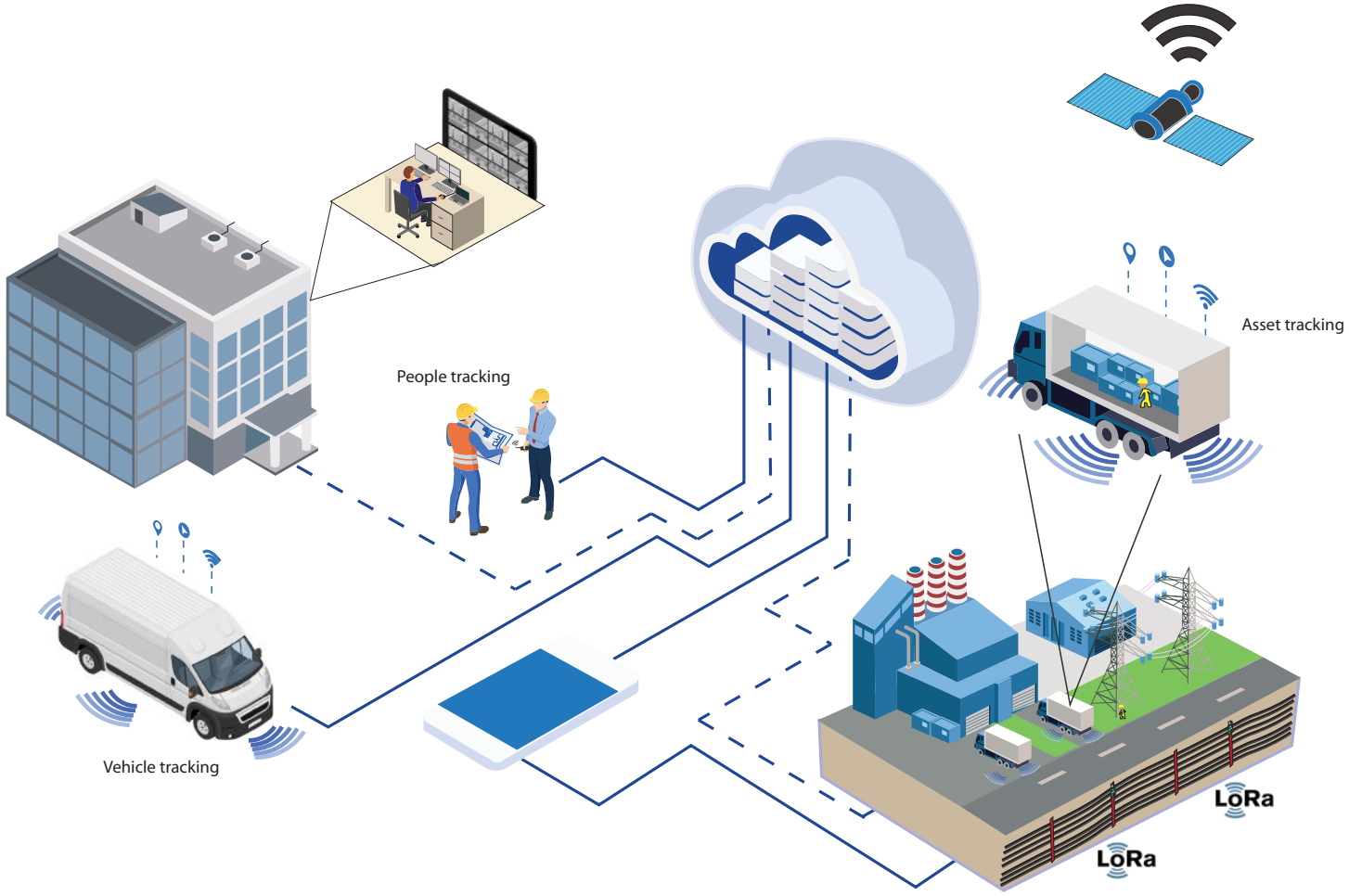
From monitoring Heating, ventilation, air conditioning (HVAC) to fire detection and alarm integration to name just a few examples, Velocity can work in your fixed environments such as buildings or sub-stations to provide a one stop intelligent communications platform



velocity

Asset management, vehicle and people tracking

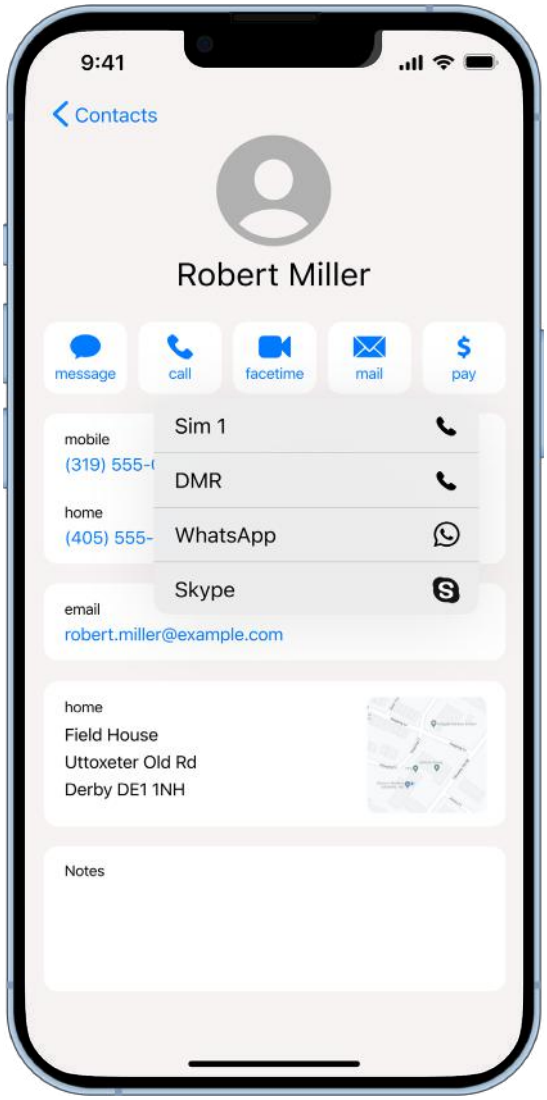
Worried how to manage your fixed and mobile assets and on what bearer? Velocity provides utility companies a range of technologies ranging from LoRa to satellite, Wi-Fi, GPS, LMR and LTE providing a comprehensive way of managing and tracking assets precisely. Want to track people to ensure their well-being and safety? Using Velocity provides a platform to manage all your assets and people wherever they might be.



velocity

Communicating with your teams regardless of network

Talk instantly with your individuals and teams by making calls through either the cellular network or LMR network. This provides the added resilience utility operators require in the event of the public cellular network going down. Your users can make telephone style calls using a mixture of either smart phones and land mobile radios, regardless of network or location.



EXPERIENCED GLOBALLY IN DELIVERING COMMUNICATIONS SOLUTIONS IN THE UTILITIES INDUSTRY

Western Power Distribution (WPD)

WPD provide electricity to around 7.8 million customers across 55,300 square kilometre service area which covers the Midlands, South West England and South Wales. The network consists of 220,000 km of overhead lines and underground cables, and 185,000 transformers. Simoco Wireless Solutions has worked with WPD over the last 15 years providing and deploying scalable mission critical networks including what was regarded as the industry leading analogue LMR choice, Xfin. In the last few years, Simoco developed a solution that uses a DMR network to transmit mission critical low-band-data. Simoco Pulse uses a fully integrated IP network to connect information from data modems or Remote Telemetry Units (RTUs) to SCADA masters. This functionality allows the solution to be easily scalable providing a practical way of managing a large and complex amount of information, with operators and maintenance teams having constant insight into grid performance and any locations where issues have occurred.

"Simoco Wireless Solutions has been a long-standing supplier of WPD for well over a decade. Their mission critical technology is world leading and has proven to be reliable and resilient even in the most challenging of conditions most notably during the severe storms the UK faced such as Storm Dennis and Eunice. What we like about Simoco is how they customise our solutions to fit the requirements of our business. We look forward to working alongside Simoco for many years ahead."

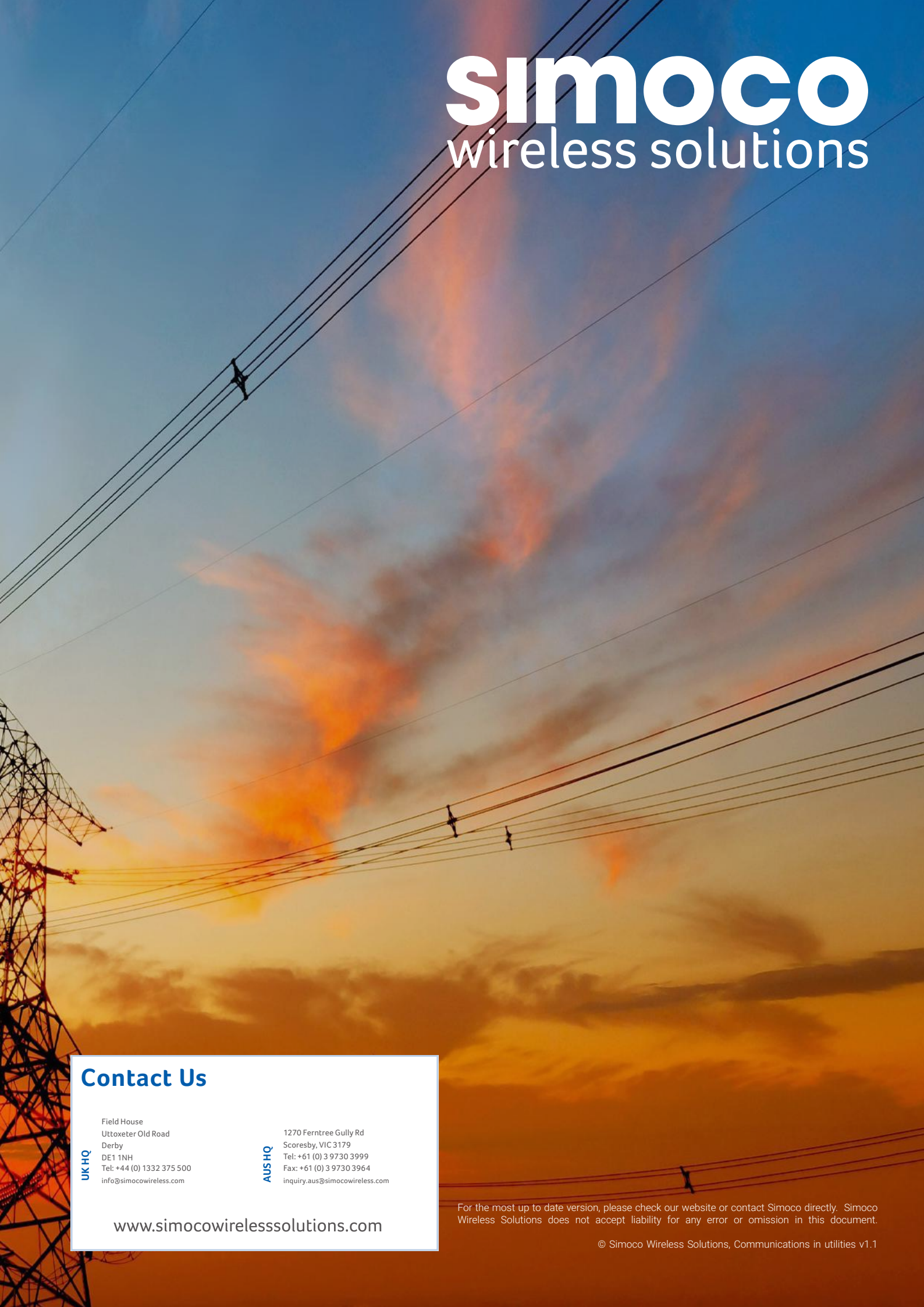
Phil Rigden, Operations Manager, WPD

Scottish and Southern Energy (SSE)

SSE powers around 4 million homes and business across the north of Scotland and central southern England. SSE has a number of subsidiaries including SSEN, SSE Renewables & SSE Thermal. Simoco is a longstanding supplier to SSE providing mission critical networks including Simoco's MPT1327 system - Xfin. Simoco is currently working with SSER deploying DMR for their on-shore windfarm estate.

Shenandoah Valley Electric Cooperative (SVEC)

SVEC maintains nearly 8,00 miles of electric lines and serves over 97,000 metres in the counties of Augusta, Clarke, Frederick, Highland, Page, Rockingham, Shenandoah and Warren in Virginia, and the city of Winchester. SVEC was the first electric cooperative chartered in Virginia. Simoco Wireless Solutions have deployed an 11 site DMR Tier III network which replaced an ageing MPT1327 system. SVEC are now embarking in deploying Velocity and utilising DMR over LTE.



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Contact Us

UK HQ

Field House
Uttoxeter Old Road
Derby
DE1 1NH
Tel: +44 (0) 1332 375 500
info@simocowireless.com

AUS HQ

1270 Ferntree Gully Rd
Scoresby, VIC 3179
Tel: +61 (0) 3 9730 3999
Fax: +61 (0) 3 9730 3964
inquiry.aus@simocowireless.com

www.simocowirelesssolutions.com