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Alternative wireless connections

In certain instances it is not possible to connect network components utilised in industry with a fibre connection. Therefore alternative wireless connections must be made available.

"When wireless connections are needed for the inter-networking of devices ie. the Internet of Things (IoT), there are two key options to choose from, namely narrow-band IoT (NB-IoT) and broadband IoT", states Bradley Hemphill, Director, EES Live (Pty) Ltd.

EES Live is an ISO 9001:2008 compliant company, which provides network, electronics and electrical services and solutions. It specialises in the integration of multiple system infrastructure including ICT, data centres, security, audio visual, building automation systems and special systems coordination.

"NB-IoT is a low power wide area network (LPWAN) technology that has been designed for devices which require small amounts of data to be sent over long periods and for indoor coverage. It is also used for mass connections of devices," Hemphill explains.

"Broadband IoT is characterised by its high throughput and low latency. The technology has been designed to ensure anti-interference as well as have a 200% performance increase over Wi-Fi."

The technology developed for NB-IoT is eLTE-IoT and for broadband IoT is eLTE-U. They are both based on an unlicensed spectrum which is frequency bands that have been set aside for industrial, scientific or medical applications.

The eLTE solution is suitable when it is not feasible to install last mile access fibre and network connectivity is needed.

"eLTE-IoT devices are lightweight and easily deployable, and also able to connect to existing application platforms which are in accordance with standards and protocols, such as smart meters. This makes it an ideal solution for enterprises to set up their own private narrowband IoT networks," says Hemphill.

"eLTE-U technology provides reliable and stable connections on an unlicensed band. Wireless modules can easily be integrated into video surveillance cameras, wildlife protection cameras, and a multitude of third-party devices for eLTE-U data backhaul."

Which system for which technology?

Each type of network structure has different strengths and weaknesses. The following are examples of fibre access network rollouts for different systems.

CCTV: As CCTV cameras are found in external environments, the recommended system would be the eLTE-U. Due to the high frequency and unlicensed spectrum, an entity is able to place the cameras a distance from one another (3km) and not need a frequency spectrum license. Also, the system has low latency and high anti-interference technology, and therefore would be the most useful for CCTV cameras.

Private networking: eLTE-IoT is a good option for entities wanting to create their own private networks. This is due to the large number of connections and large radius it is able to cover.

Metering: For most metering systems, such as electricity, water, gas metering, the eLTE-IoT system is recommended. This is due to its low power consumption, large area coverage, large number of connections, and easy deployment.

Parking systems: The eLTE-IoT system is recommended due to the large number of connections needed and the low power consumption.

Rapid deployment network: If a system needs to be rapidly deployed for instances where public network infrastructure is not operational, a network can be created through eLTE-IoT. The network has a deployment time of 15 minutes, with high performance of 100 users and 40 groups with a six kilometre radius.

Each IoT system has its own attributes. As both are on an unlicensed spectrum, they can easily be installed. Both technologies meet third generation partner project (3GPP) standards. The 3GPP unites telecommunications standard development organizations known as Organizational Partners.

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EES Live company profile:

Established in 2001, EES Live (Pty) Ltd provides network, electronics and electrical services and solutions. As an ISO 9001:2008 compliant company, its vision is to become Africa's professional service provider of choice in these areas of expertise. It specialises in the integration of multiple system infrastructure including ICT, Data Centres, Security, Audio Visual, Building Management Systems (BMS) and Special Systems Co-ordination.

The EES Live Value Proposition focuses on translating technology into tangible deliverables for clients through the experience of a talented team of Engineering and ICT Consultants and Project Managers. Its head office is in Stellenbosch, and it has a partner in Lagos, Nigeria, and offices in Gaborone, Botswana.

EES Live operates predominantly in the Financial Services, Hospitality, Infrastructure, Mining, Oil & Gas, Renewable Energy, Retail, Telecoms and Utilities sectors.

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