

# How LPWAN addresses the evolving network requirements of the Internet of Things

While cellular networks have become faster and faster in recent years, the Internet of Things (IoT), and more specifically machine-to-machine (M2M) communications, now has different requirements concerning data connections.

# CONNECTIVITY

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Entering the era of the “Internet of Everything” (IoE), many M2M use cases are now part of what we call the “Internet of Things”. All of these use cases need to transfer very small amounts of data over long distances autonomously. Characteristics of these IoT applications are the need for low data rates and long battery lives. This is why “LPWAN”\* – Low Power, Wide Area Network, sometimes written as just “LPWA – technology has been developed and is now being deployed. According to analyst firms Analysys Mason, Machina Research and Strategy Analytics there will be 2.7 billion LPWA connections by 2022. As many IoT use cases send only a very small amount of data, they do not need the (costly) high speed and huge capacity of mobile networks. Time is not critical, and only small packets of data have to be sent. With LPWAN, this can be done in an economical way. However, LPWAN networks have less security. This is fine for some applications. But there are use cases where security is a must: for example, assisted and medical living, hazard materials or fluids storage, systems’ integrity acknowledgement, and use cases involving governments, defense or automotive solutions.

This is where Morpho comes into play. As a specialist in digital security we have been delivering SIM cards for M2M use cases for over 15 years. As M2M industry requirements have become more sophisticated, the products Morpho develops for this industry have as well, with SIM cards addressing extreme environments, longer life spans and new form factors.

In the non-cellular (i.e. not utilizing 2G, 3G or 4G mobile networks) part of the IoT industry, LPWAN today does not require a SIM by default, nor a Secure Element (SE). Morpho believes that there are use cases and industry segments where it will become important to ensure security of the data transmitted, as well as integrity of the device endpoints with LPWAN. Morpho’s product experts are already working on this and assessing how SEs and related secure administration platforms can be adapted to meet the specific needs of LPWAN use cases. Among the various markets and verticals, some such as assisted living, medical systems, critical infrastructures and automotive-related infrastructures must have a constant 24/7 survey of the devices’ integrity. Such activity can only be performed thanks to a combination between tamper-proof storage of credentials (identity keys) along with a secure remote device administration layer. This combination is then able to assess device integrity, trust of the secure session and authentication acknowledgement, for instance.

Morpho is working with partners across the LPWAN and IoT sectors to explore how SE and IoT device secure remote administration can assist them in meeting ever changing security needs and to develop new markets. Cyril Caillaud, Secure Mobile Transactions Manager, represents Morpho in the GSMA LPWAN initiatives, where together with other leading industry experts the group will provide analysis, feedback and best practices to the IoT and telecom industry in order to understand the various options and solutions available for market segments.

*LPWAN is not a new technology, but its use in the IoT is expanding rapidly. Thanks to*

*Morpho's Secure Elements and related secure personalization solutions, we are ready to help existing and new customers benefit from the advantages which LPWAN delivers to them without compromising on the security of the data they are sending.*

*Cyril Caillaud, Morpho Secure Mobile Transactions Manager*

To find out more about the work Morpho is doing with LPWAN, or request the white paper, please email us.

\* Low-power WAN (LPWAN) is a wireless wide area network technology that is specialized for interconnecting devices with low-bandwidth connectivity, focusing on range and power efficiency.