PL

TRANSFORMING GOVERNMENT USING BLOCKCHAIN

WITH:

TNS Total Network Services

THE BACKBONE OF MASSIVE IOT

FEATURING:

&+ everynet

THE NEW SPACE RACE

IOT DEVICE SECURITY

MAKING IOT SMART

ROBOT AS A SERVICE FOR SMART AG

THREATS TO ENTERPRISE IOT

FUELING IOT MOMENTUM

PROTECTING A PRECIOUS RESOURCE

PRIVATE APN FOR IOT

*

CEO THOMAS CARTER & SVP KEVIN L. JACKSON, TNS

THE DEVICE REVOLUTION

LoRaWAN: The Backbone of Massive IoT

By Lawrence Latham - CEO, Everynet BV

Digital transformation is growing exponentially, on track to reach **$2.8 trillion by 2025**. Nowhere is this more evident than in the United States, where public and private sector enterprises are looking for reliable, economical, and sustainable methods of enabling digital transformation across a range of applications—from smart cities and utilities to asset tracking and beyond.

What is the best technology to enable the collection and transmission of massive amounts of small data required in our increasingly connected world? LoRaWAN.

Evolving the connected world

Wireless communications are moving toward higher bandwidths to support the necessary data transmission volumes needed for next-generation AI systems. But most sensors don't require enormous throughput. In fact, billions of everyday devices, such as water and energy meters, pallet and roll cage trackers, predictive maintenance sensors, and many others, only need to report a very small amount of data. High throughput connectivity is also costly due to network build and maintenance expenses. The result is a gap between market needs and available connectivity technologies—a gap growing wider with the sunset of 2G and 3G networks.

LoRaWAN, the globally adopted, open-standard technology for enabling long range wide area wireless IoT connectivity, closes the gap by offering significantly lower device and connectivity costs. It also offers optimal data usage, sustainable battery life and indoor-outdoor coverage.

Scalable and ultra-low cost, the technology empowers public and private sector enterprises to rapidly implement IoT services, without having to bear high investments and infrastructure complexity. In addition, IoT services promote sustainability. Specifically, the sensors and devices used to transmit data in LoRaWAN networks require very little power to operate. For example, a sensor using a standard AAA battery might last several years given the incredibly low energy needs required of these sensors; and there's no use of SIM cards—both factors that reduce costs and eliminate excessive waste.

LoRaWAN in action: evolving our world

As **LPWAN technology**, and specifically LoRaWAN, is more readily available in the United States and abroad, its adoption rate is increasing, as are the benefits to public and private sector enterprises.

Utilities get smart with LoRaWAN

Water is our world's most precious resource. Accordingly, studies show that the **global market size** for smart water management will reach $23.5 billion by 2027. This growth is explained by how companies and authorities increasingly understand they must be proactive in managing distribution channels, upgrading operations, and increasing consumer awareness on water conservation among other topics.

LoRaWAN specifically has emerged as the go-to connectivity and IoT technology providing the most adaptable solutions and is revolutionizing the supply chain...

The best way to do this is by integrating smart water technologies and once again, the numbers reflect this. The **global market size** for IoT technology integration by utilities is expected to reach $53.8 billion by 2024—up from $28.6 billion in 2019. In fact, gas and water utilities are credited as being forerunners in implementing advanced metering technologies into their operations.

As both suppliers and consumers become more digitally savvy and demand accurate, real-time data on water usage, there has been a major shift from analog to automatic metering systems. More specifically, the US market is transitioning from Automatic Meter Reading (AMR) systems—reliant on employees to conduct manual field readings—to Advanced Metering Infrastructure (AMI)—a fully automated infrastructure that dramatically saves time and reduces manual intervention, resulting in a significant drop in maintenance and labor costs.

LoRaWAN specifically has emerged as the go-to connectivity and IoT technology providing the most adaptable solutions and is revolutionizing the supply chain, benefiting cities, utilities, suppliers and consumers alike. It operates within an open-standard network, providing various deployment options and ownership opportunities. Anyone can join the open standards-based network that provides a wide variety of choices available in the marketplace of applications and devices.

In addition to allowing the network features mentioned above, it **offers long-range device connectivity** ideal for urban environments, long device battery life (autonomous for up to 10 years), low-cost chipsets, and networks that transmit small packet data communications at massive volume.

Benefits of LoRaWAN connectivity throughout the supply chain

When it comes to the supply chain and logistics industries, IoT and LoRaWAN solutions can address three essential issues to transform shipping: Where is the cargo? What condition is it in? And how can this technology lower capital and operational costs?

Real-time tracking and monitoring of cargo conditions at any location while in transit reduces loss, dramatically saving time for personnel and enabling instant alerts and quick reaction to any compromising

Using LoRaWAN technology and networks, public and private sector enterprises alike can realize operational efficiency, reduce expenses, and improve their environmental footprint.

factors, such as dangerous temperature changes. The information provided by these solutions can be so precise as to indicate, for example, the exact timeframe where a particular frozen product thawed out at a specific loading dock or when and where a fragile load was damaged due to excessive vibrations. This precision and clarity significantly reduce the time spent settling disputes around who broke certain terms and conditions of deliveries as well as helping teams streamline and improve operations and processes.

Growing market for smart building solutions

Currently, the development of smart buildings most often occurs in cities that are historically known for technological innovation, such as Seattle, San Francisco, Portland and Boston, to name just a handful from the US alone. The reality is, however, that any building stakeholder driven by a proper data-centered framework can start integrating smart solutions into their current or non-existent systems infrastructure and almost immediately start gaining valuable insights to optimize their properties.

In fact, when examining the market options for smart solutions, LoRaWAN stands out. LoRaWAN-based installed connections are estimated to have grown 61 percent from 2018-19 with up to 125 million connected devices, which are estimated to surpass 1 billion by 2025.3

It's easy to understand why property managers have increasingly turned to LoRaWAN as it offers essential coverage, battery life, deployment ease and cost efficiencies.There is no substantial hurdle when integrating LoRaWAN's network of sensors; whether for properties in development or retrofitting old buildings, there is an established ecosystem of solutions integrators and devices ready to serve this market.

Beyond the building, coverage can include exterior locations such as parking, irrigation, water management systems and more. Visibility into these critical areas enables property managers to create a safe environment for tenants, while also managing revenue and meeting ESG (Environment, Social, Governance) KPIs.

LoRaWAN security: a safe IoT ecosystem

As the IoT market expands geographically and across verticals, so too do concerns related to technology security and potential cyberattacks. it's important to note that LoRaWAN technology has been designed from the start with security in mind. It has a strong authentication

process and is resistant to interferences, jammers and other threats, in addition to implementing end-to-end cryptography.

The reason for this is simple: the system, which integrates LPWAN networks, is structured to work as a low-energy, low-cost, easy to implement, highly scalable solution. And, since several devices are installed "in-field" for long periods of time—in some cases, for decades—network components have always been developed with a view toward security today and well into the future.

To answer these challenges, the technology has adopted security processes such as mutual authentication, which is established between a LoRaWAN end device and the LoRaWAN network, as part of the network joining procedure, which guarantees only genuine and authorized devices will be joined into the network.

In addition, LoRaWAN MAC (Media Access Control) and application messages are authenticated at the source and go through end-to-end cryptography. These resources, when combined, prevent network traffic from being altered, captured or reproduced by cyber criminals.

IoT connectivity that matters

Massive IoT and effective data capture are the cornerstones of digital transformation in our connected world. Using LoRaWAN technology and networks, public and private sector enterprises alike can realize operational efficiency, reduce expenses, and improve their environmental footprint.

The worldwide leader in LoRaWAN networks is Everynet, a global neutral host network provider with a disruptive model that solves potential bottlenecks in infrastructure implementation and operations. In the last three years, the company has launched networks in Brazil, Indonesia, Spain, Italy, United Kingdom, Ireland, Andorra, Iceland, and the United States including Puerto Rico. This enables a resilient, carrier-grade network that provides customers with high added value and low-cost economics.

The top uses for the Everynet network include:

- **Utilities.** Applications to remotely monitor, maintain and gather data on water systems, substations, smart grid reclosers, transformers, LPG gas and residential and commercial metering.

- **Supply Chain Logistics.** Tracking and monitoring critical assets such as pallets, containers and goods. By managing the geo-location, cold-chain monitoring, humidity and shock, enterprises can effectively receive real-time data on the movement, condition and arrival of assets through the complete supply chain.

- Smart Infrastructure. Applications to check air quality and monitor status of buildings and infrastructure such as lighting, HVAC, water utilization and leak detection, CO2, occupancy sensors and work safety – all critical components to a safe return to work in a post-pandemic world.

To learn more about Evernet, visit **www.everynet.com**. ▯

About the Author

Lawrence Latham is CEO of Everynet BV. He is a recognized thought leader in the Internet of Things (IoT) space, having helped build some of the world's leading IoT companies. Lawrence has helped multiple companies build their brands, products, and services into IoT leaders by crafting visionary strategic positioning, messaging, and go-to-market strategies. His immersive approach includes rolling up his sleeves, personally landing beachhead accounts and developing powerful strategic partnerships. He brings extensive M&A experience to his role as Everynet CEO, having helped numerous IoT companies achieve successful exits. Connect with Lawrence on LinkedIn by **clicking here**.

About Everynet

Everynet is a global LoRaWAN® network operator and provides carrier-grade networks in Asia, EMEA and the Americas. Everynet's Neutral Host Network model enables Mobile Network Operators (MNOs), Mobile Virtual Network Operators (MVNOs) and global Managed Service Providers (MSPs) to offer ultra-low-cost IoT immediately and profitability with ZERO upfront capital expenditure. Everynet makes IoT accessible across any industry to enable enterprise-grade solutions and is deployed using LoRaWAN® technology, the globally adopted open standard for IoT connectivity. For more information visit **www.everynet.com**

ε+ everynet

Everynet
sales@everynet.com
www.everynet.com