

IoT Congress Oulu

5. June 2018



Markus Piippola
Area Manager
Embedded Systems & IoT

Network solutions for industry
- LoRa and proprietary 4G

ETTEPLAN

- One of the largest engineering services companies in the Northern Europe.
- Listed in Nasdaq Helsinki Ltd
- Established in 1983
- Revenue in 2017: 214 million EUR
- Personnel: over 3 000
 - Located in ten countries.
 - E.g. total 300 engineers in China (Beijing, Jiangsu, Kunschan, Shanghai, Suzhou, Xi'an).
- **Engineering Services** support customer's product development and machine manufacturing.
- **Technical Documentation** services improve the efficiency of the service business of equipment manufacturers.
- **Embedded Systems and IoT** (Internet of Things) bring intelligence to machines and equipment and enable their networking.

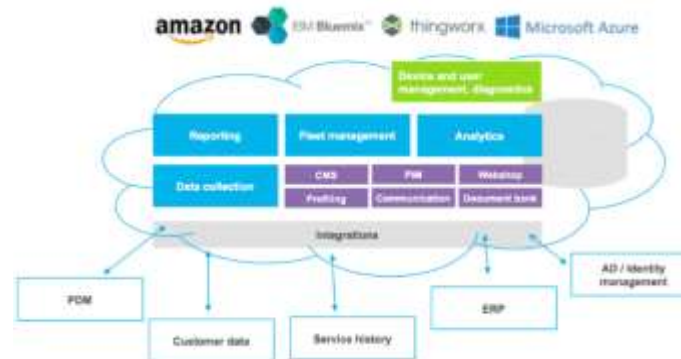
Embedded Products and Solutions



Connectivity



IoT Cloud Services



Added Value Applications and User Interfaces



Industrial Internet Networks

















Etteplan

WiFi, Private, Public?



WiFi



Private



Public

Private LoRaWAN vs Private 4G (NB-IoT)

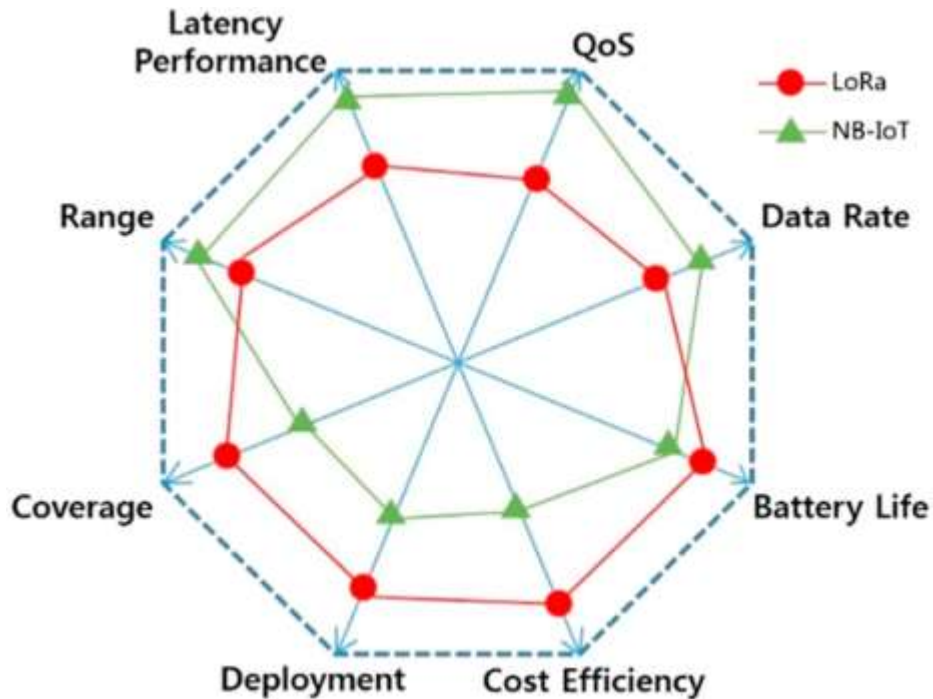


Image: A survey on LPWA technology: LoRa and NB-IoT
Rashmi Sharan Sinha, Yiqiao Wei, Seung-Hoon Hwang

Parameters	LoRaWAN	NB-IoT	Source
Deployment	Very easy	Difficult	Etteplan
Standardization	De-facto Standard, LoRa Alliance	3GPP Organization	Etteplan
Proprietary technology	Partly proprietary (PHY), mostly open	Full proprietary	(4
Ecosystem	Very good	Poor	Etteplan
Range in urban area	5-10 km	10-15 km	(2
Interference immunity	Very high	Low	(2
Latency	Up to 30sec	1.6sec – 10sec	(5
Data throughput	Very low (1kbps)	Low (235kbps)	(1, (4
Power consumption	1x	2x	Etteplan
Energy efficiency	>10 years battery life of devices	>10 years battery life of devices	(2
Simple sensor product price	\$5-10	\$20-30	Etteplan
Band Spectrum	Unlicensed	Licensed LTE bandwidth	(3
Network& Deployment cost	\$100-\$1000/gateway	\$20 000/basestation	(2
Security	Medium	High	Etteplan

Sources:

(1 LoRaWAN optimization for battery powered sensor network, Peura Ukko-Pekka

(2 A survey on LPWA technology: LoRa and NB-IoT, Rashmi Sharan Sinha, Yiqiao Wei, Seung-Hoon Hwang

(3 <https://www.amihotechnology.com/lora-vs-nbiot/>

(4 <https://www.postscapes.com/long-range-wireless-iot-protocol-lora/>

(5 https://en.wikipedia.org/wiki/Narrowband_IoT

Home / Press / Releases / Konecranes, Nokia and Ukkoverkot to cooperate - smart cranes depart on the 5G journey

KONECRANES, NOKIA AND UKKOVERKOT TO COOPERATE - SMART CRANES DEPART ON THE 5G JOURNEY

REQUEST INFO

Share 10

17.01.2018 - 13:05

Konecranes has signed a three-year cooperation agreement with data operator Ukkoverkot and Nokia for a private LTE mobile network leveraging 5G concepts and a global digital automation platform for research and product development purposes.

“With this advanced network, Konecranes has the immediate possibility to utilize future technology and develop 5G capabilities. We believe that better communication capacity, reduced latency and computing power provided in the network infrastructure will enhance our current offering or create something completely new. The new mobile network technology has the potential to bring machine-to-machine communications, IIoT security and machine learning to the next level, which would benefit ports and large manufacturing operations.” says Juha Pankakoski, Executive Vice President, Technologies at Konecranes.

The private mobile broadband, to be built on Konecranes premises in Hyvinkää, will accelerate the research and product development in the field of Industrial Internet of Things and business-critical broadband connectivity.

“This cooperation agreement is very attractive for Ukkoverkot and supports our company’s strategy and technology-pioneering outlook as the provider of micro-operator networks,” says Jouko Tuppurainen, Vice President, Industry Sales at Ukkoverkot.



Image: Konecranes

Thank You

