

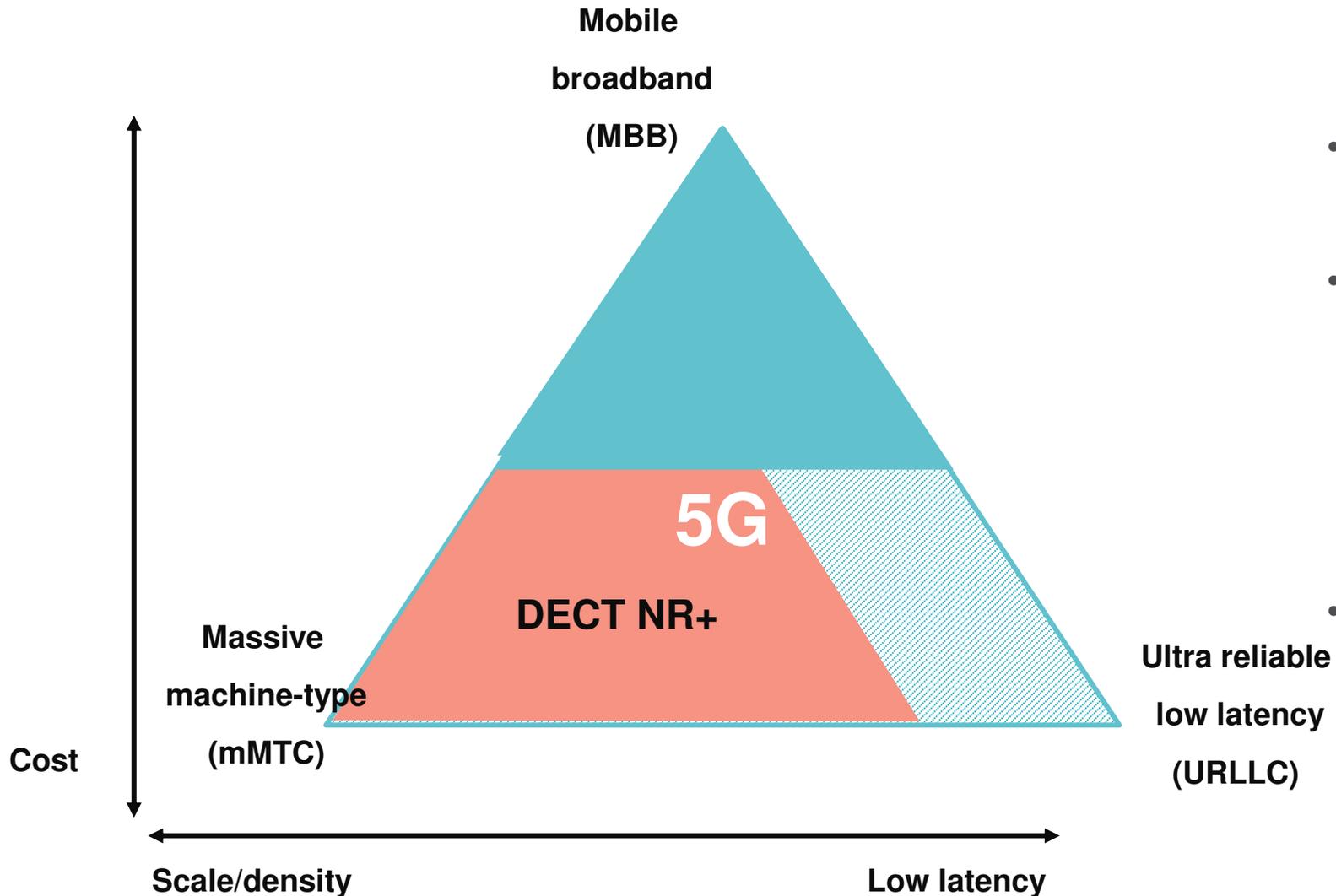
# **DECT-2020 NR for industrial use**

**- Local area autonomous wireless technology**

**Jussi Numminen, Wirepas**



# DECT NR+ is part of IMT-2020 technology



- ITU-R defines the mobile communication requirements for IMT frequencies.
- IMT-2020 technology is the official name for 5G
- DECT NR+ meets the massive Machine Type Communication (mMTC) and the Ultra-Reliable and Low Latency Communication (URLLC) service requirements set by ITU-R for 5G technology.
- DECT NR+ address both requirements with the ETSI TS 103 636 standards series.

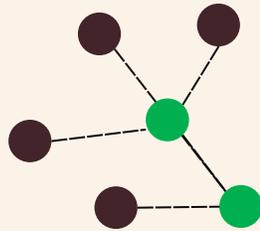




# DECT NR+ designed for scale and density

## LOCAL

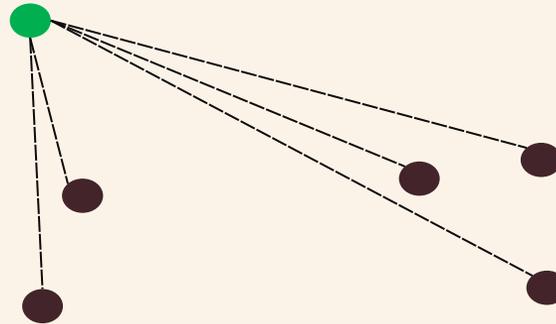
Local area and limited size of installations.  
(eg: Zigbee, Thread)



Centralized mesh

## WIDE AREA

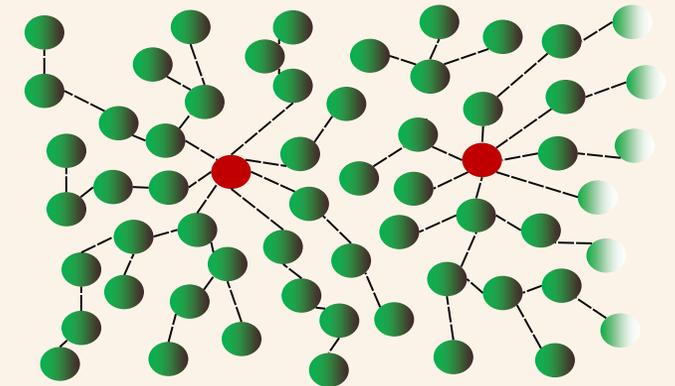
Wide area installations with limited bandwidth.  
Data subscription resulting high OPEX.  
(eg: NB-IoT, LTE-M)



Centralized point-to-point

## From HIGH DENSITY to WIDE AREA

Autonomous, any scale, density, and location.



De-centralized mesh

● Router function    
 ● End device function    
 ● Gateway function



# DECT NR+



- DECT NR+ is designed for shared spectrum use.
  - 1880 – 1900 MHz in .first product
- State of art OFDM physical layer with adaptive modulation, channel coding and HARQ support
- Support low latency operation. The standard enables less than 1ms radio layer latencies in a single link.
- -40 up to 23dBm transmit power.
- About 124 dB link budget @ 1,728 MHz channel
- Listen-Before-Talk for spectrum sensing and interference avoidance.





# DECT NR+



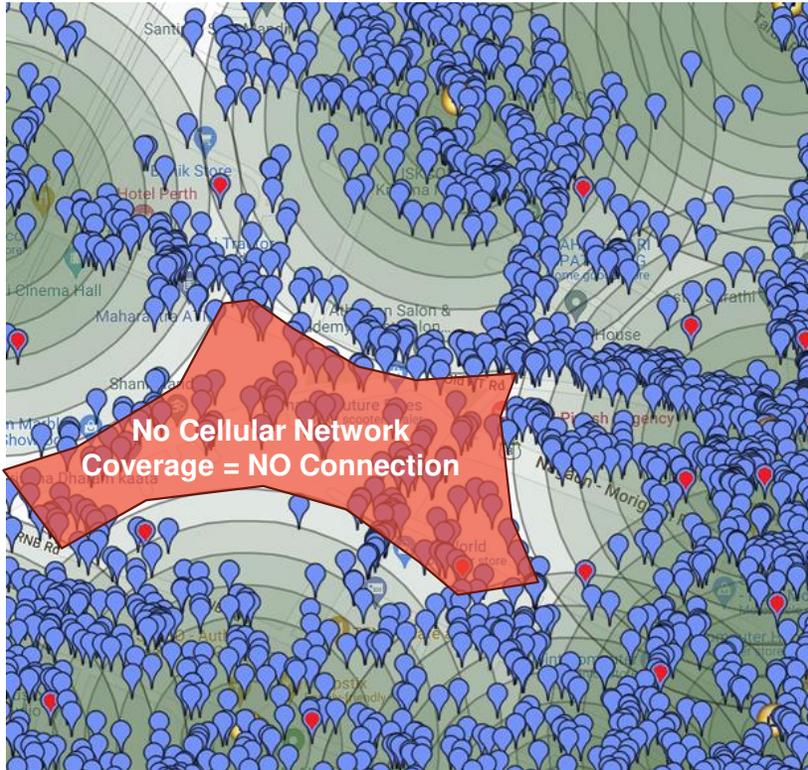
- Self-organizing – light radio planning as no subnets or deployment specific network configurations, nor roof top router installations.
- Fully autonomous and automatic maintenance to deal with any environment changes or adapting to new or incremental installations.
- Up to 4 B unique device ID
- Up to 16 M unique NW IDs.
- High density deployment thanks to autonomous operation



# Coverage and density

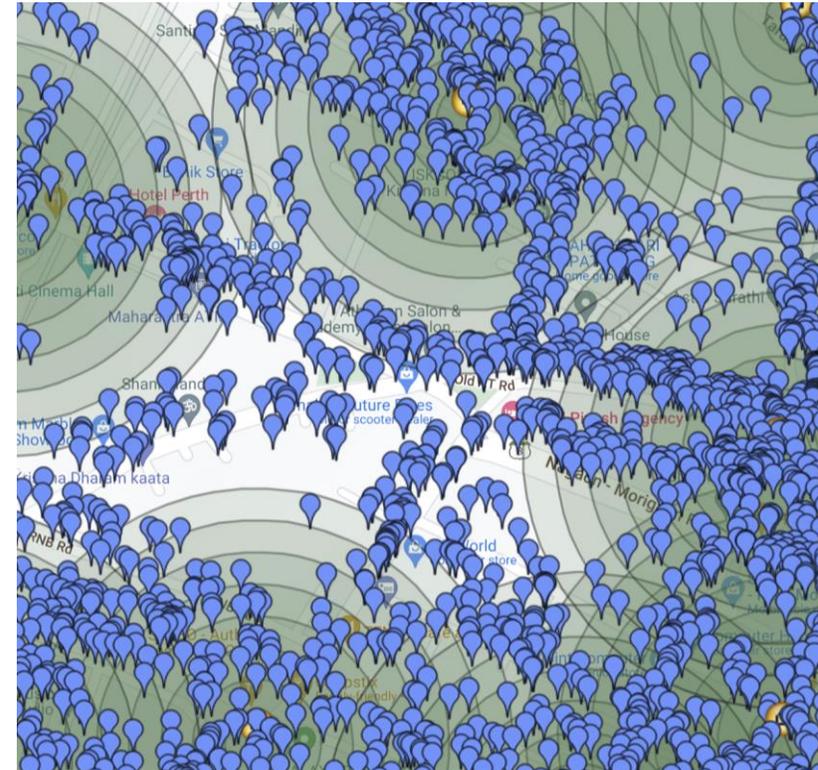
## Cellular

Some meters won't be able to connect due to the lack of cellular base stations coverage



## DECT NR+

Any meter can connect to any meter in its network coverage



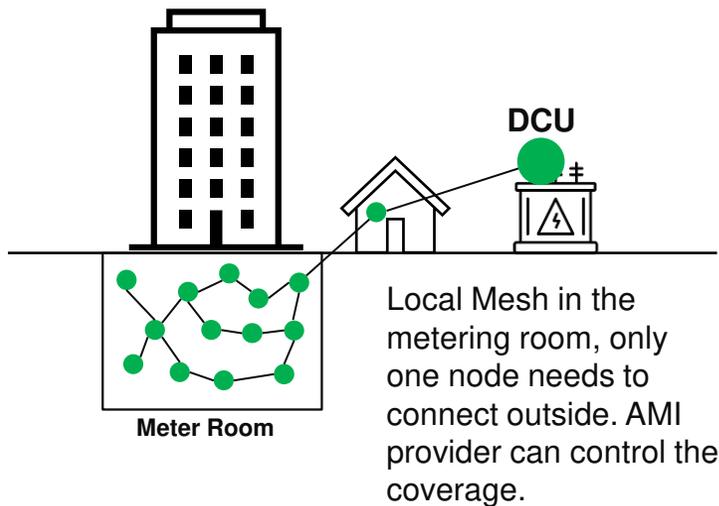
Mesh able to connect 99.99% of the meters in a reliable manner during the complete project duration

# Fit for smart metering

## - Metering room coverage challenge

### DECT NR+

Meters will create a mesh network in a metering room and only one meter needs to find a way out to next building.



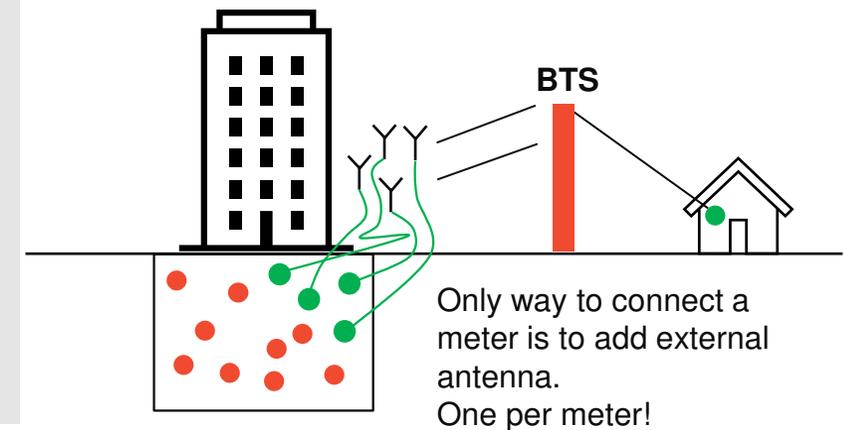
### Metering rooms Challenge

Metering room with several hundred meters are quite common. In addition to the high density, they are usually deep indoor in building basement.



### Cellular

Every meter requires an external antenna and cable outside of the metering room to connect cellular base station. In many countries external antennas are not allowed.



# Thank You



**Wirepas**



**Wirepas**