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Smart metering systems

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Agenda

1. Smart Static Meter technologies
2. Communication technologies
3. Case studies
4. Q&A

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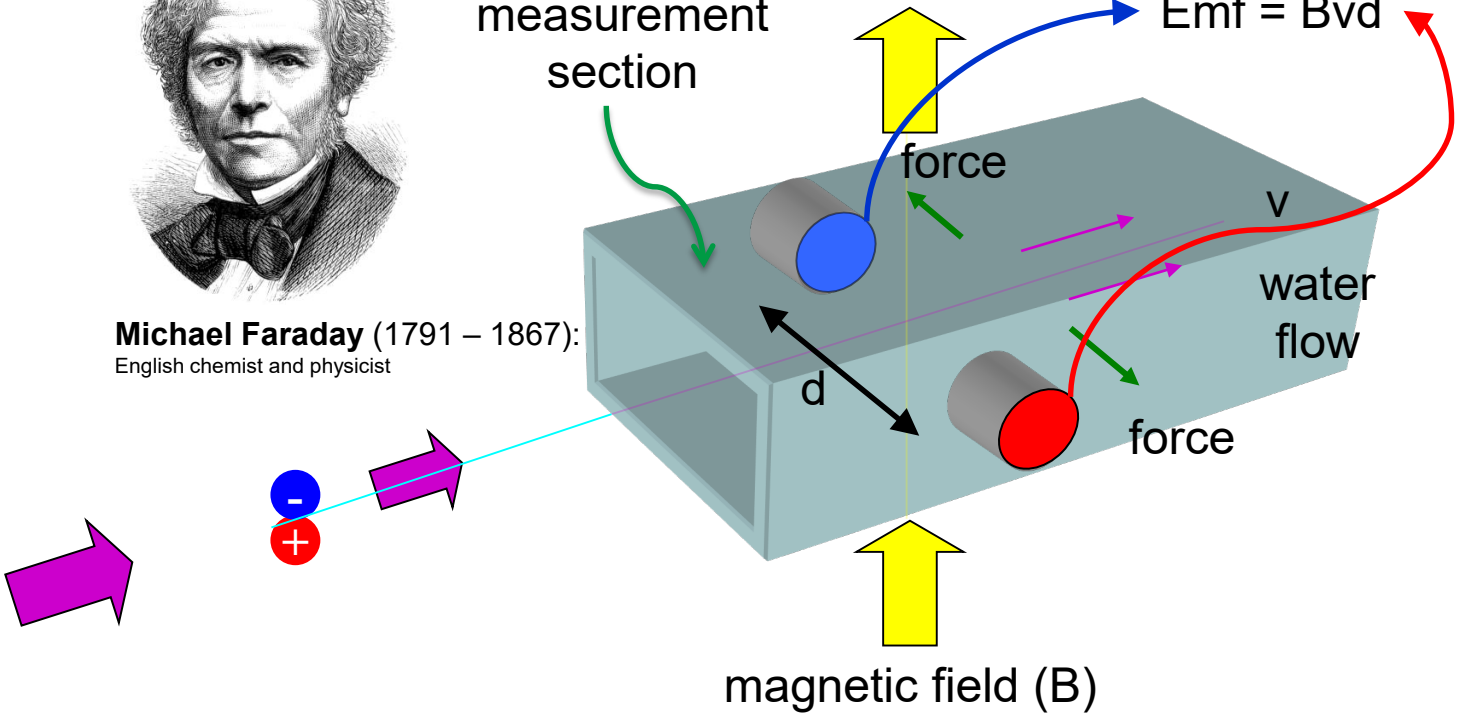
1

Smart Static Meter Technologies

Smart Residential Static Meter - Electro-magnetic Principle

Michael Faraday (1791 – 1867):
English chemist and physicist



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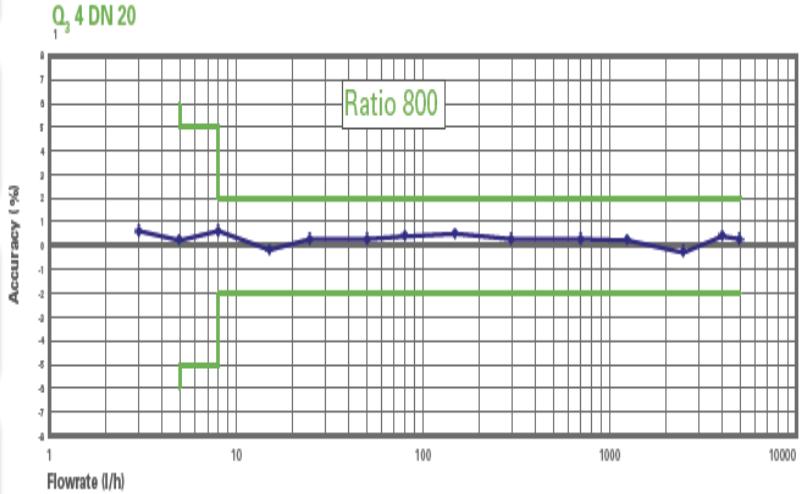
Smart Residential Static Meter – Full Life Time Value

- R800 metrology across all sizes (DN15-40)
- Linear accuracy and very low starting flow at around 1 l/h
- Every drop of water is counted - captures all volumes even at lowest flow rates
- Unchanged metrology curve during its whole life time
- 15 years battery life



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Smart Residential Static Meter – Resistant to any water type

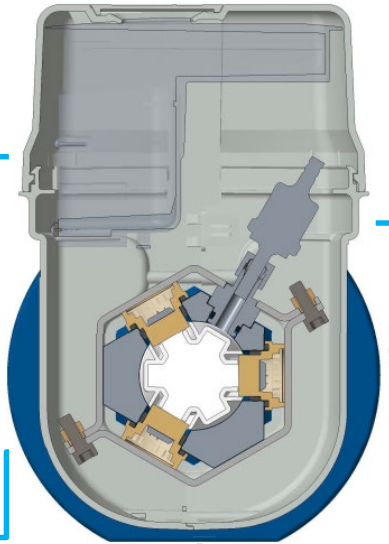
Sensus has tested iPERL extensively to withstand a variety of water conditions

- Bio slime
- Lime scale
- Fertilizers
- Sand particles
- Extensive testing over more than 2 years
- No impact on metrology

iPERL can deal with air/water mixtures

- Magnetic inductive technology counts (water) ions instead of measuring speed (of sound)

Smart C&I Static Meter – Key Features



Unparalleled measurement accuracy irrespective of water quality or contamination

Flat parabolic fin (FPF) technology ensures all the water flowing through the meter is measured

20 year lifetime with consistent fault-free accuracy throughout

20 YEARS

12l/h

12l/h starting flow detection permits even the smallest consumption to be detected

R1000 turndown ratio means precision is maintained irrespective of water flow variation

128-bit AES cryptography on all data transmissions for strong security

128-bit AES

U0D0 capability for simpler installation

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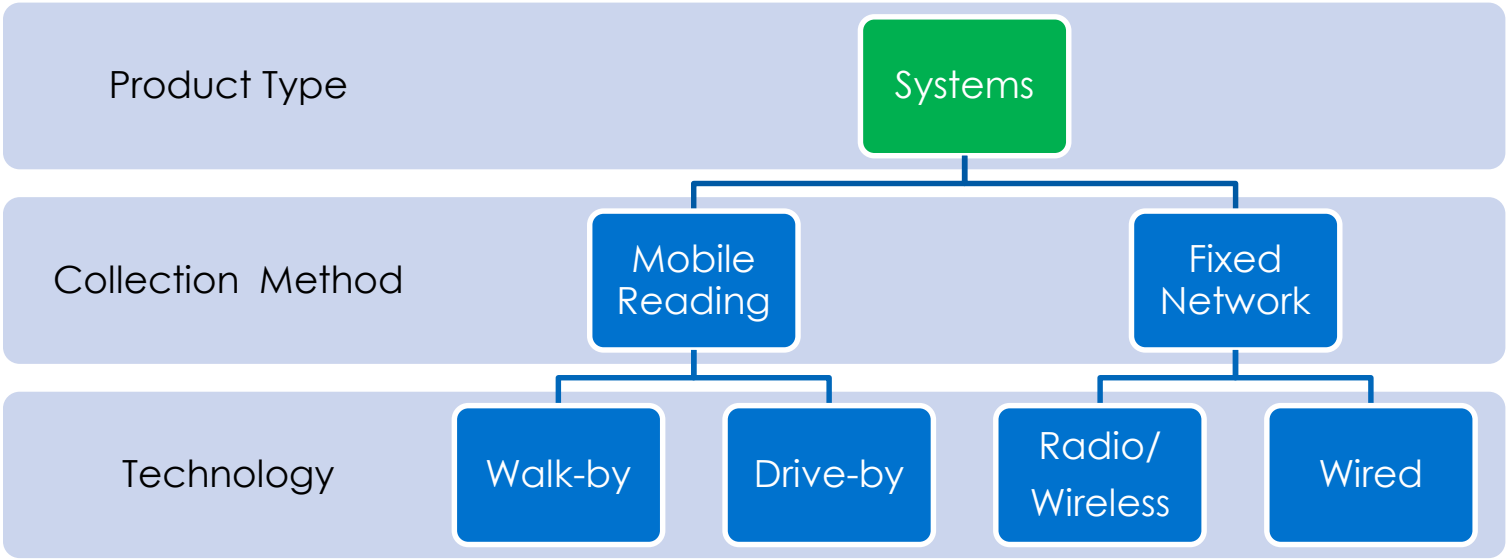
2

Communication Technologies

Data Collection Segments



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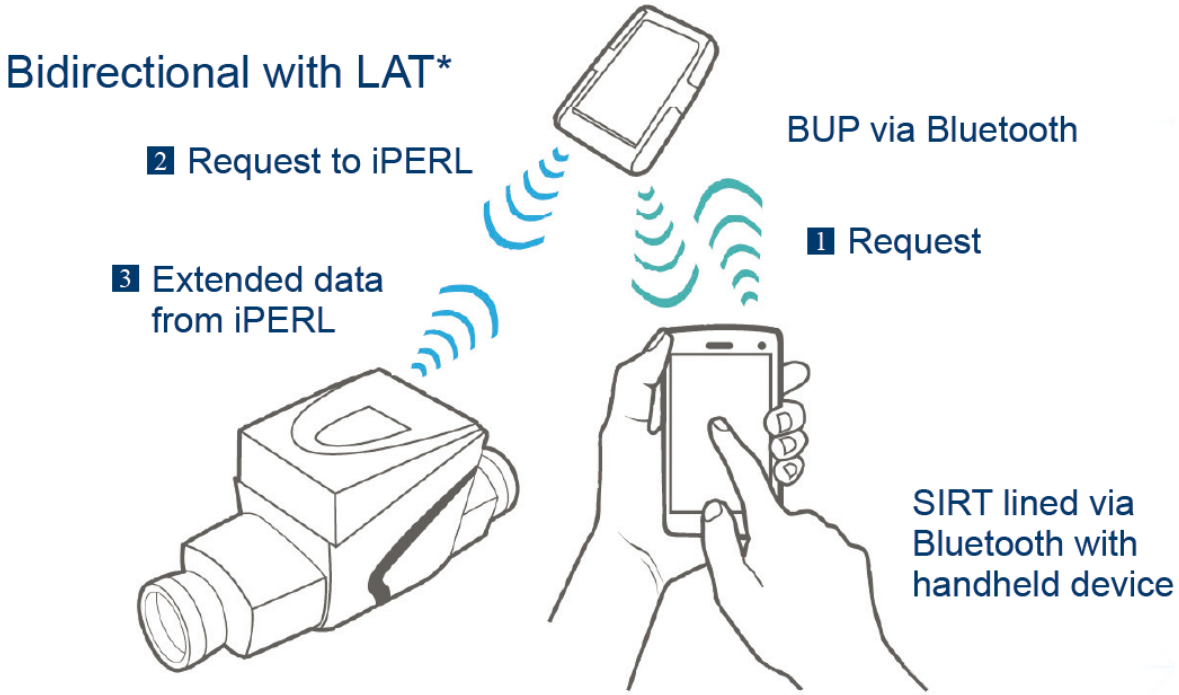
Meter Data Communications: Radio (Metering and Monitoring Data)



Radio Modules for Water Meters

Clip-on Module

Integrated Radio Module
with electronic display

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Types of Metering & Monitoring Data Available via Radio

BUP data

- Meter ID
- Meter Index
- Alarm flags
- Signal level*
- Time stamp*

*via receiving device

SEMI data

- Meter type
- Current flow
- Min/Max flow value and time
- Backward volume
- Leak start/end
- Magnet tamper start/end
- Backflow start/end
- Broken pipe start/end
- BUP interval
- LAT interval
- OMS status
- OMS interval
- Data logger settings
- Alarm activation
- Broken pipe detection parameters
- Remaining battery
- Time since low battery detected

- Data logger information
(historical data of 2-13 chosen data parameters)

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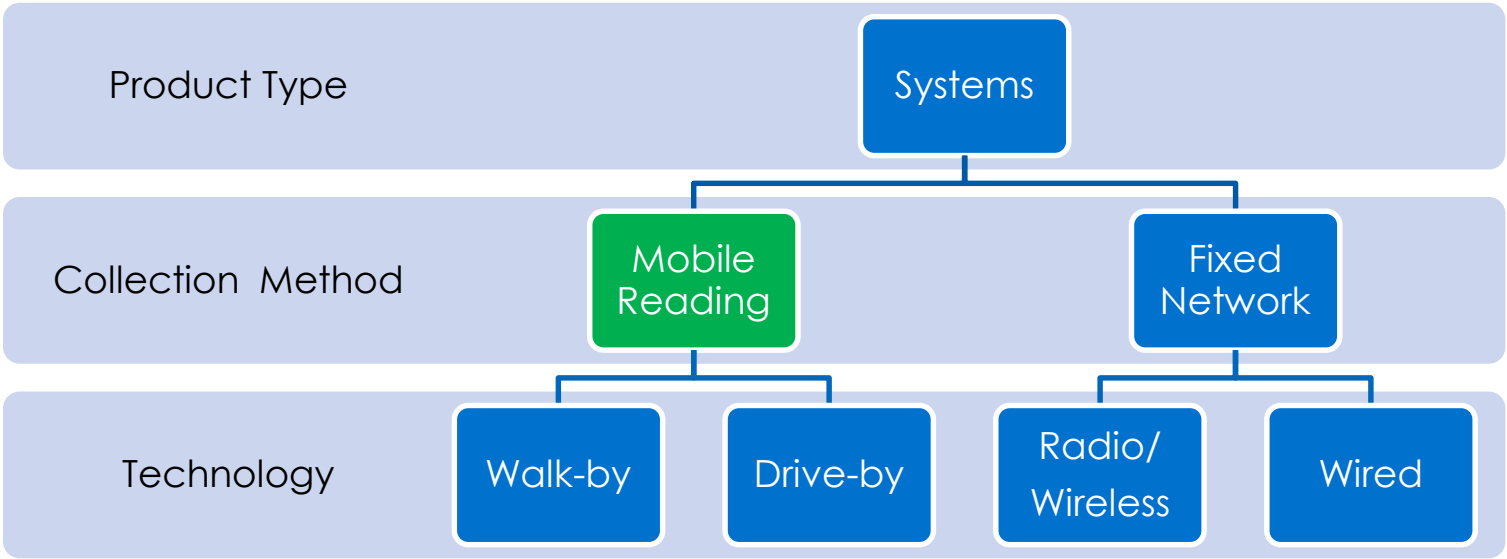
Data Collection Segments



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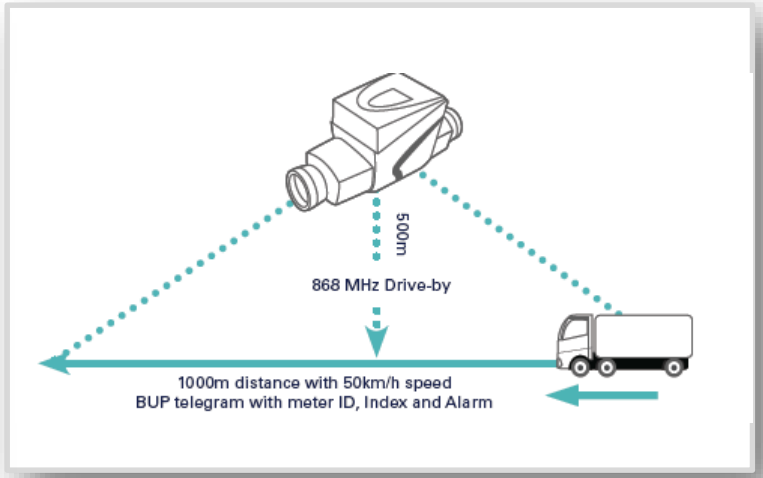
SensusRF Radio / wMBUS (License free spectrum)

Walk-by meter reading



Drive-by meter reading

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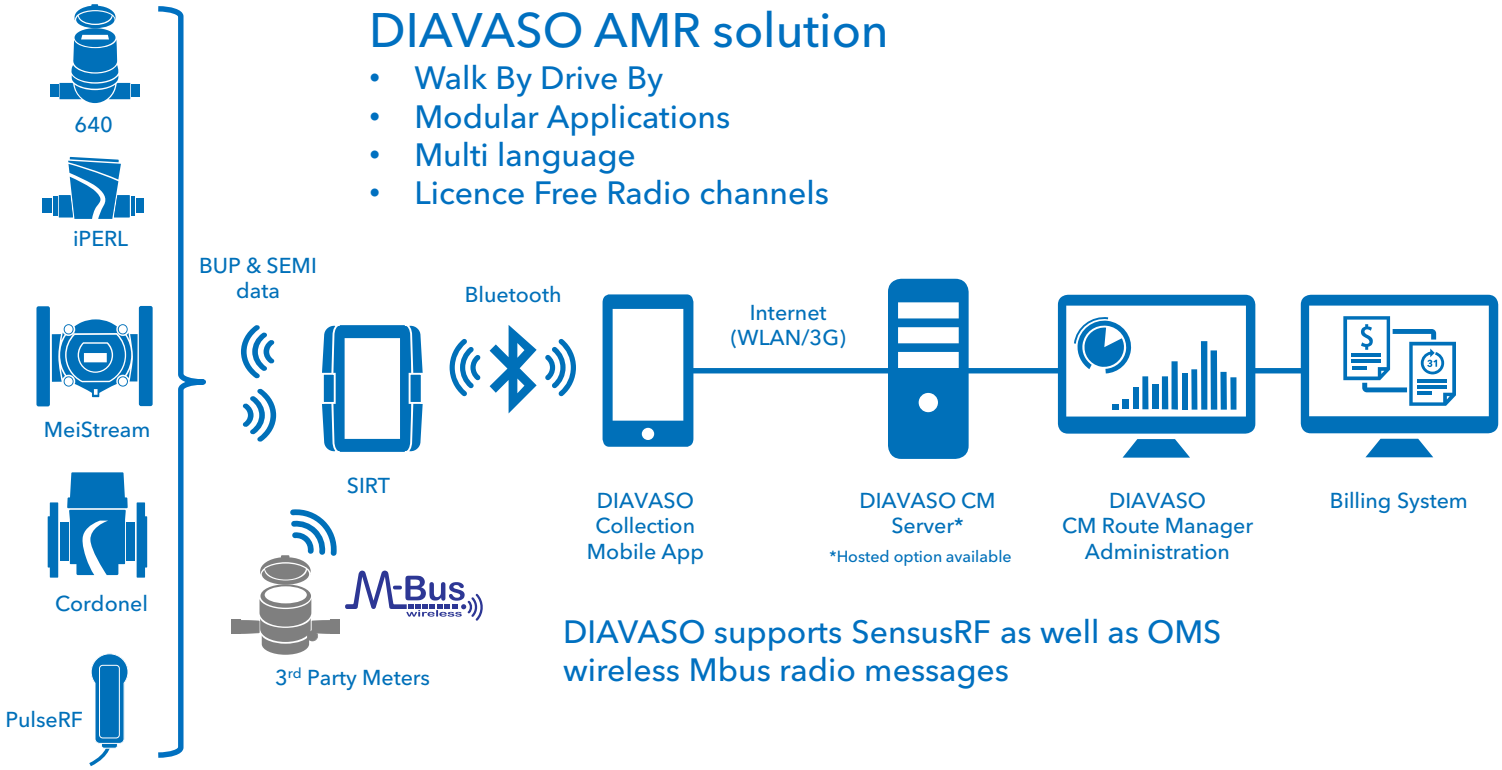
DIAVASO Application Suite for Sensus RF / wMBUS



DIAVASO AMR solution

- Walk By Drive By
- Modular Applications
- Multi language
- Licence Free Radio channels

DIAVASO supports SensusRF as well as OMS wireless Mbus radio messages

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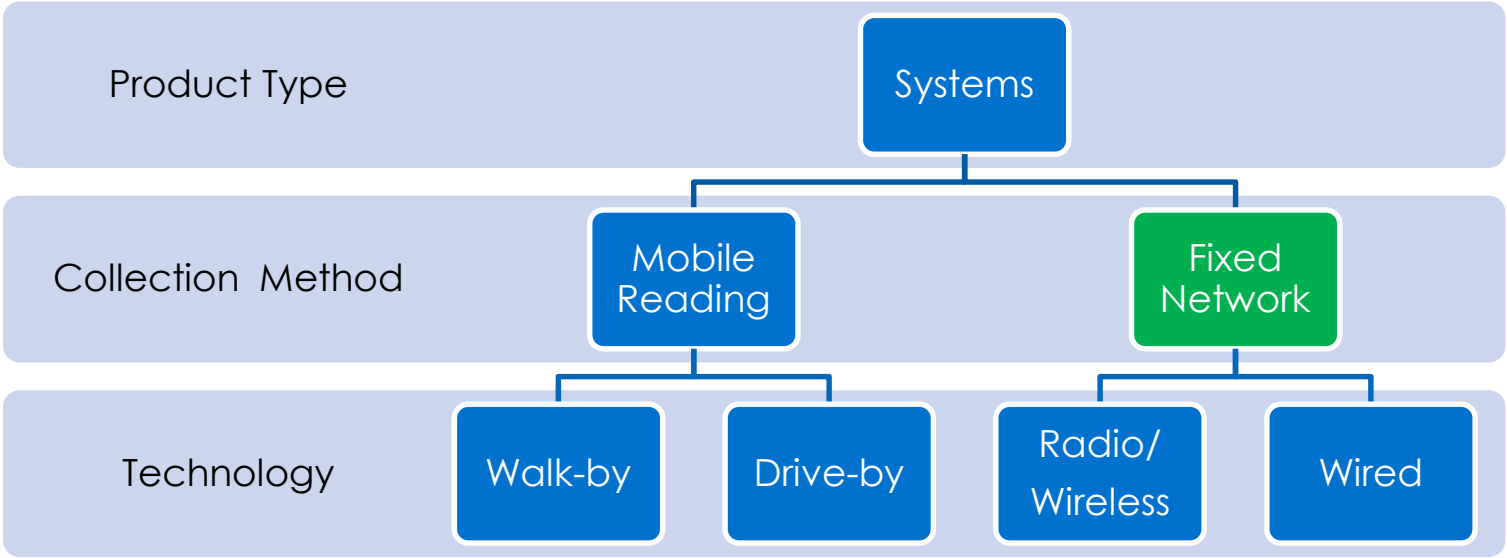
Data Collection Segments



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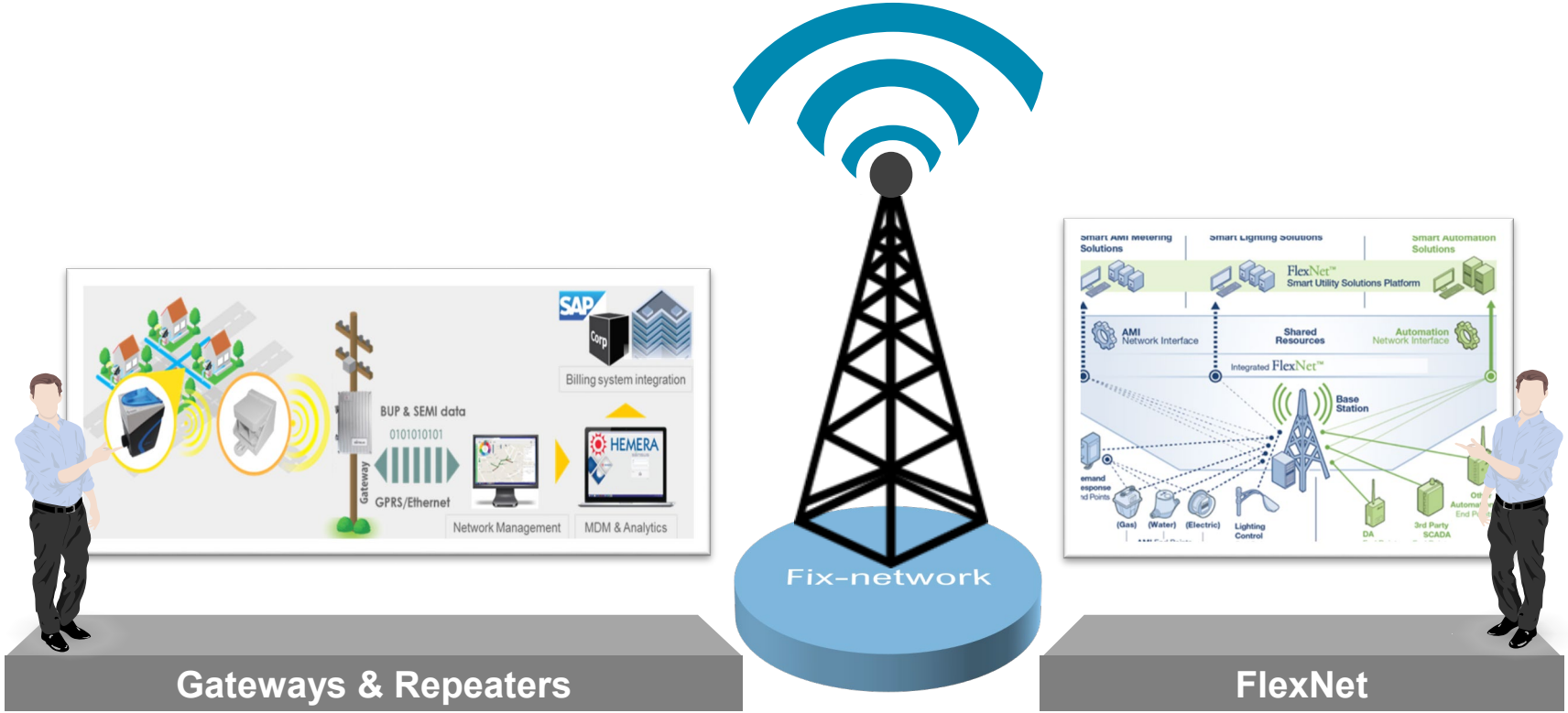
Integrated Systems – Fixed-Network



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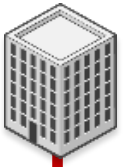
Fixed Networks



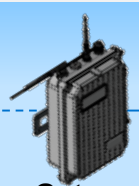
Water Utility

sensus
NETWORK MANAGEMENT
& ANALYTICS

Water MDM

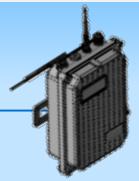
sensus
SensusRF
FIXED NETWORK

Repeater



Gateway

GPRS/Ethernet



Gateway

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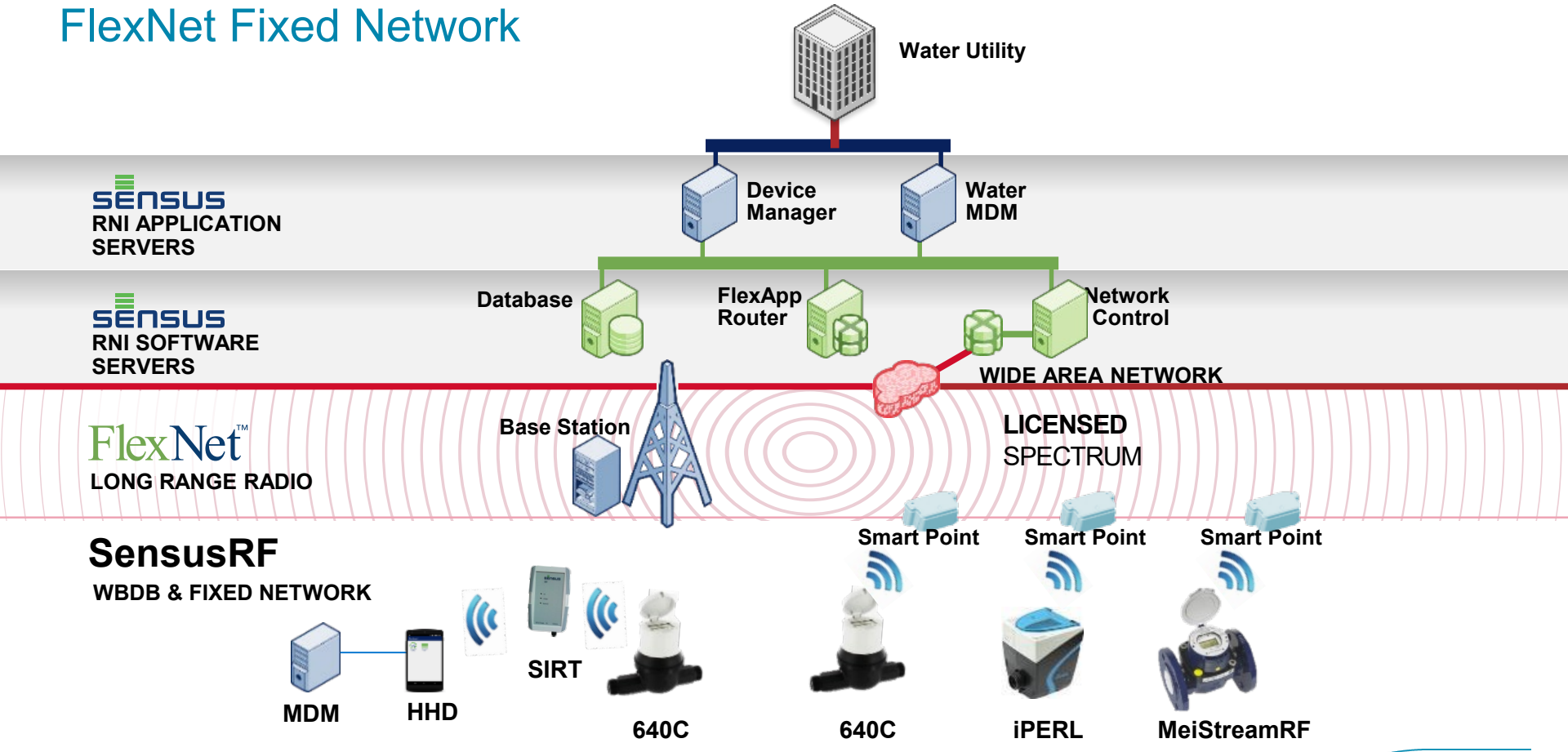
FlexNet Fixed Network



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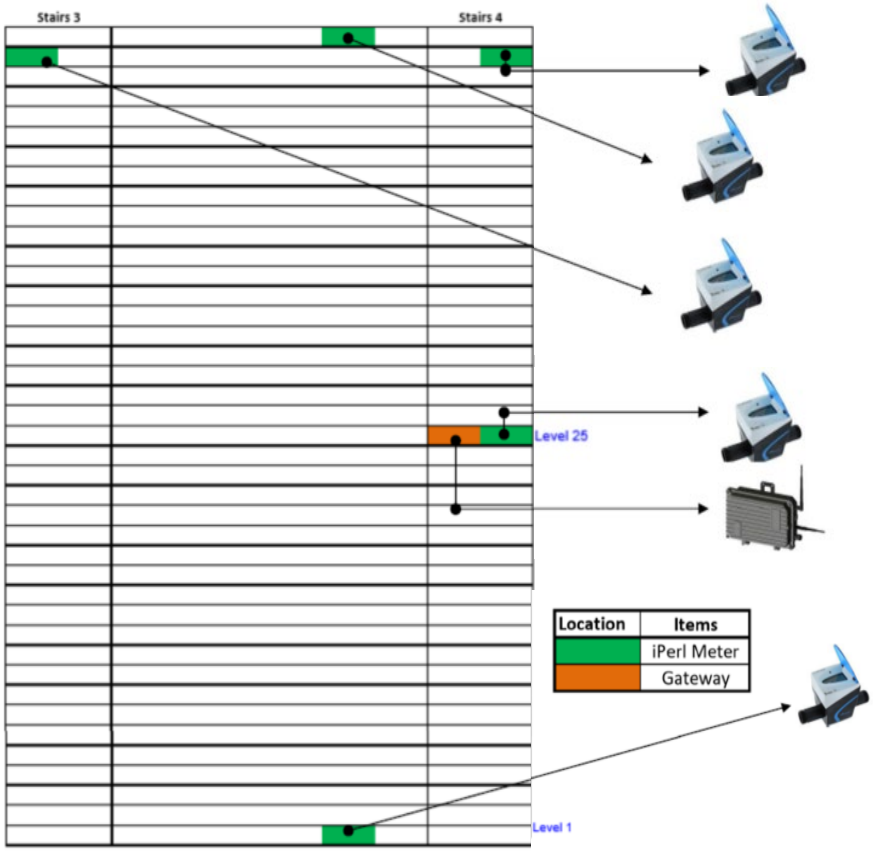
Case Studies

Case Study 1 – Smart metering Fixed Network for high rise building



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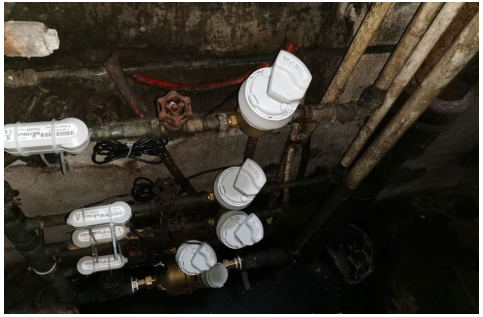
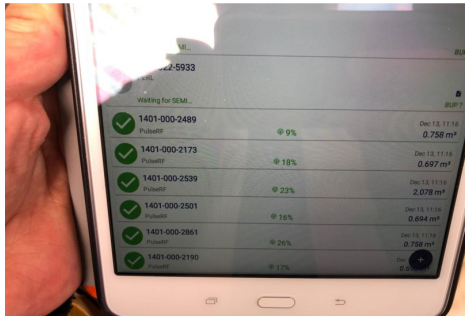
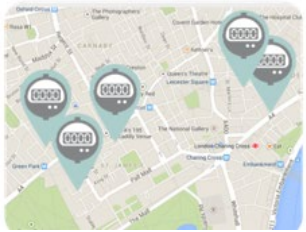
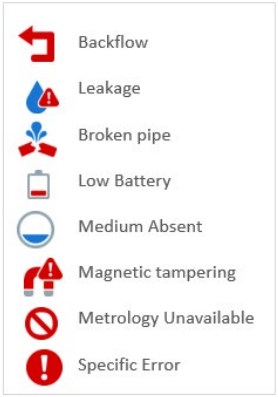
Case Study 2 – Walk By / Drive By (AMR) for inaccessible meter read









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Case Study 3 – Pune Smart Meters Deployment
Experience of Indian Water Utilities for Metering

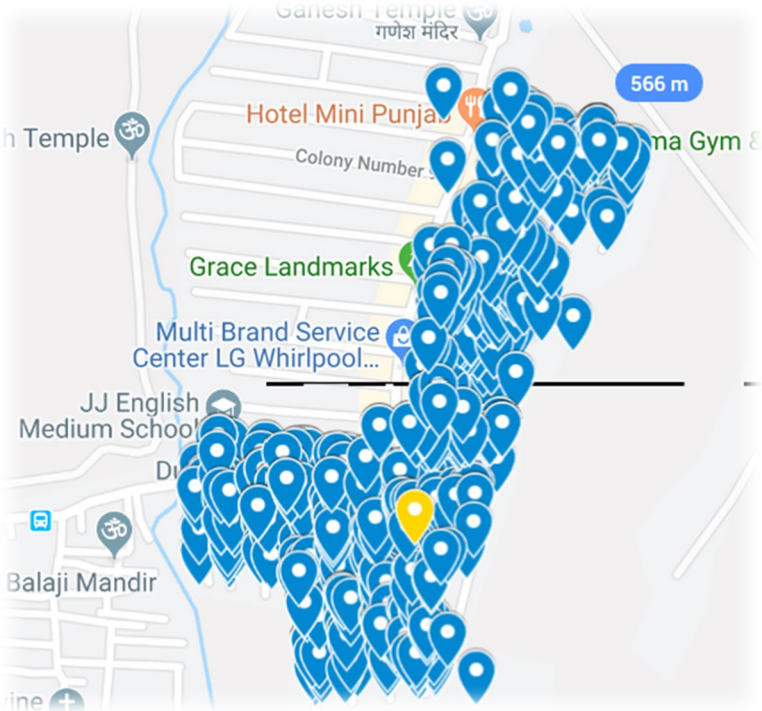
SITE CHALLENGES:-

- Space constraint at Installation- Electromechanical Meters need to be Installed in Horizontal direction – Any change in Installation angle leads to inaccuracy in measurement.
- Drift in accuracy over period of time due to wear/tear of moving parts.
- Meters stop recording due to obstacles /dirt in meter.
- Meter tampering- Reverse connection, Magnetic Tamper.
- Starting flow rate –30 l/hr (R-80 metrology)
- Air flow measurement- Intermediate water supply
- Stealing of Meter- High scrap value of Brass

Resulting in……
Increase in Non-Revenue Water, Increase Site visits, Increase Maintenance, Customer Complaints

Case Study 3 - SensusRF AMI Pilot at Pune

- Gateway based system
- 662 meters polled at a interval of 15 minutes
- Above ground & in pit meter installation
- Covering the meters in a DMA
- Without Repeaters
- Fully automated.



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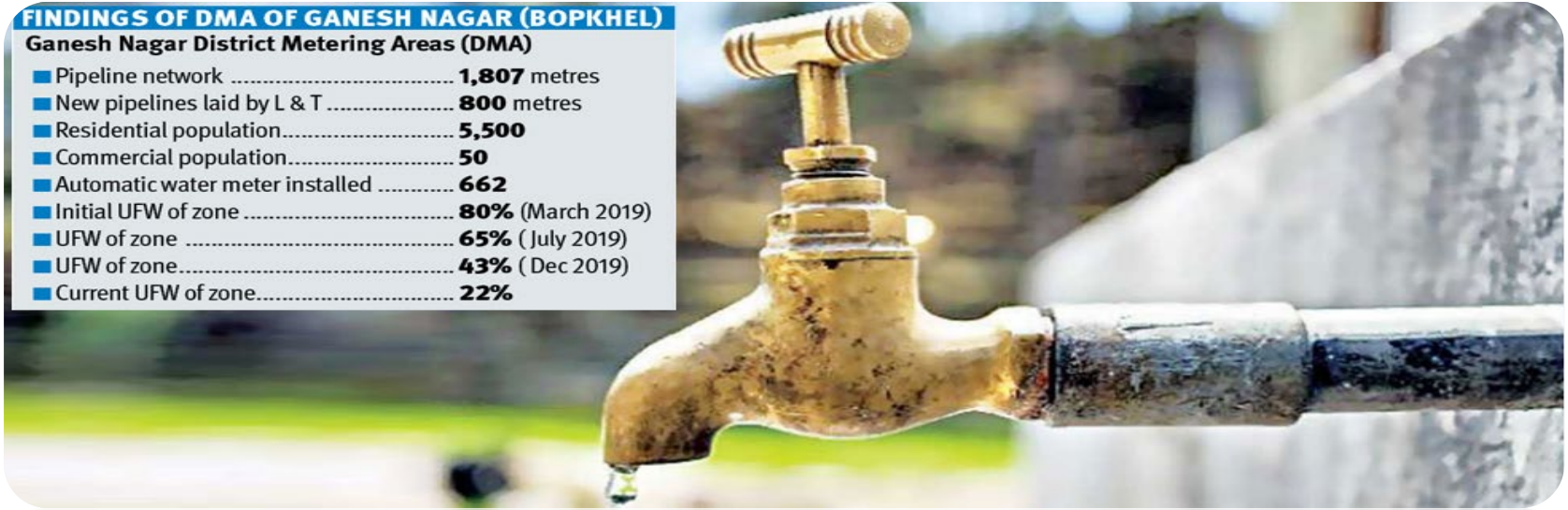
Case Study 3 - SensusRF AMI Pilot at Pune



- Pune Municipal Corporation (PMC) was earlier supplying 10 lakh litres of water per day in Ganesh Nagar DMA
- This number has reduced to 7.80 lakh litres
- Unaccounted for water (UFW) has reduced from 80% to 22%

https://www.sakaltimes.com/pune/water-supply-improved-24x7-project-pmc-46080

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Q&A

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