

CONVEGNO SMART UTILITY OPEN METER Roma, 20 Gennaio 2015

MeterNet® by MeterLinq:
the innovative solution for
Industrial Internet of Things and smart grid.

MeterLinq is system integrator and service provider of **Industrial Internet of Things (IIoT)** with a focus on **smart city services** such as Advanced Metering Infrastructure.

- Designs and deploys dedicated wireless and wired IIoT networking infrastructures.
- Develops and deliver IIoT application services for its customers.
- Provides management and security services for IioT service customers.

Why a dedicated network?

● Flexibility and custom coverage

- Below street level assets and rural areas
- Metallic cabinets
- Constant configuration and performances and SLA (>10 years)

● Different data traffic patterns

- Uplink/downlink asymmetry
- Small data payload transfer optimization

● IIoT peculiar requirements set (Oct 2014- GSMA Guidelines)

- Local issues within the mobile network, such as cell congestion.
- Capacity and performance problems
- Increased power consumption of the IoT devices due to communication error handling may reduce device lifetime.

MeterNet: MeterLinq IIoT Network

MeterNet is a purpose designed network including wireless edge features and wireline integration.

Driving factors and requirements:

- Deep coverage
- High network capacity
- Low power
- Fault tolerant
- Low TCO
- Intrinsic security (end-to-end)
- Worldwide license free

MeterNet competitive advantages

● Multi-service, ad-hoc infrastructure

- Intrinsically secure: hard to eavesdrop, AES crypted
- Modular scalability: deployed only where is needed
- Optimized for uplink, lower cost per node
- Multiple services: not just metering, a real WSN

● Low CAPEX

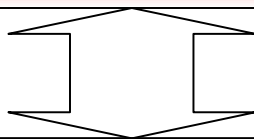
- License free, operates in WiFi spectrum
- High coverage with low power, lowering AP number
- Many endpoints per Access Point, no collisions lower cost per endpoint

● Low OPEX

- Minimal energy usage, supporting battery operated endpoints (>10 years)
- High availability (failover, failback)
- Reduced maintenance

MeterNet Architecture

SAC – Custom applications



Network Back End

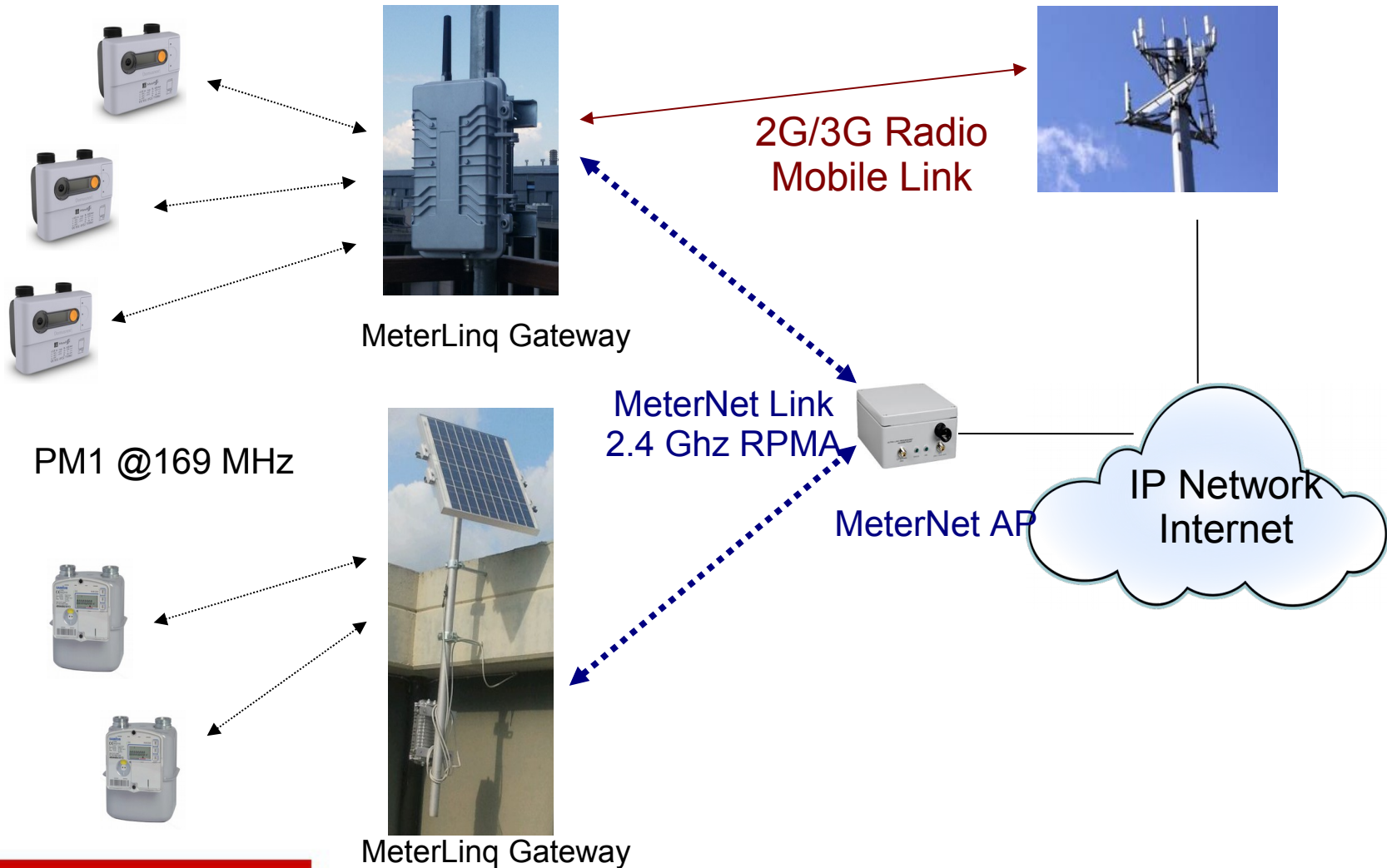
2G/3G/4G Mobile Network – Internet – xDSL

MeterNet Access Points

Gateways – Concentrators
MeterNet/3G

Meters (PM1 @169 MHz)
Gas, Water, other sensors

MeterNet Local Loop



Gateways installation

Using a combination of statistic predictive models, tuned by MeterLinq, and environmental measures to find out the optimal gateways/data concentrators number e location with respect to actual smart meters location (optimal coverage)



MeterLinq 169 MHz field testing backpack

MeterLinq DCD gateway

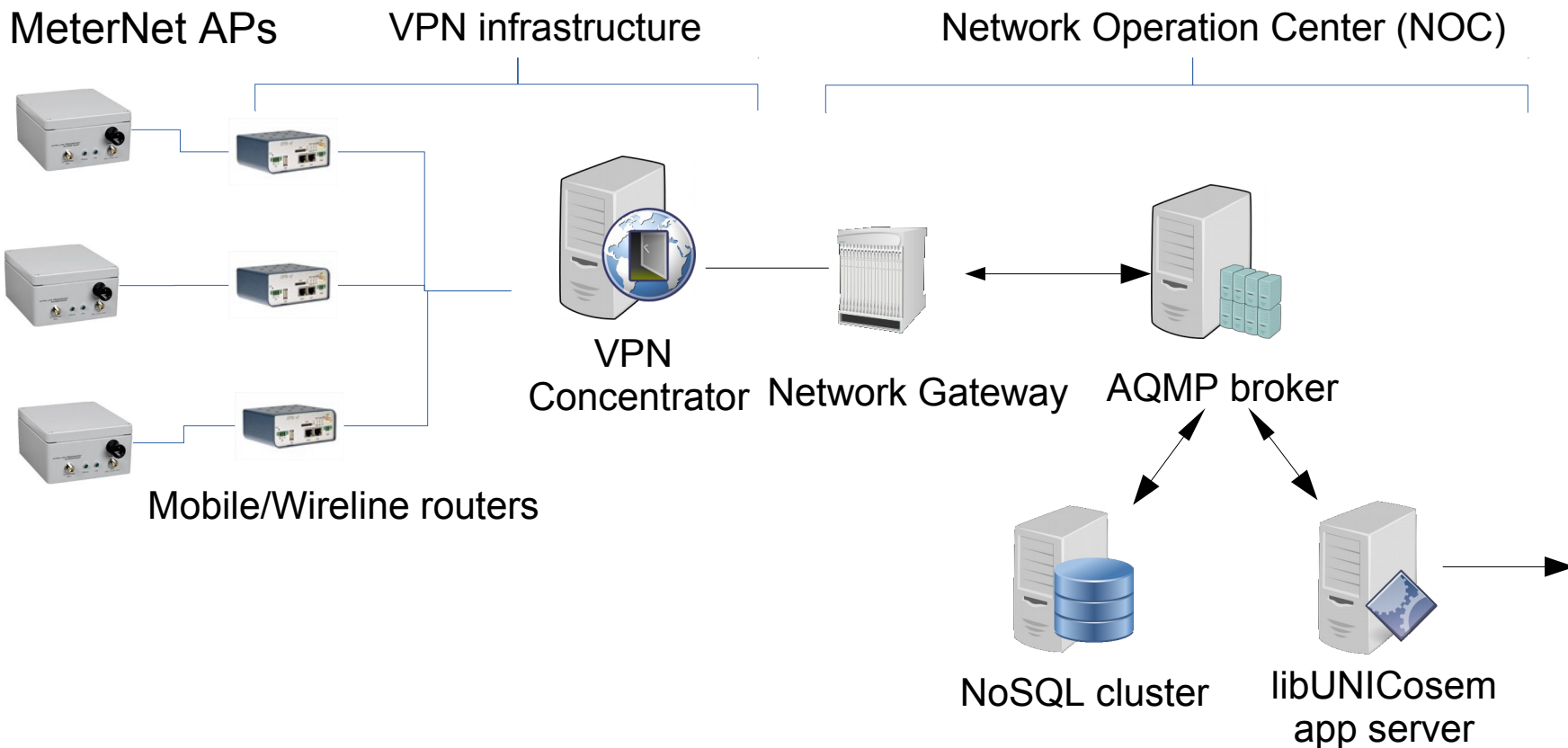


Patent Pending
N. VI2014A000310

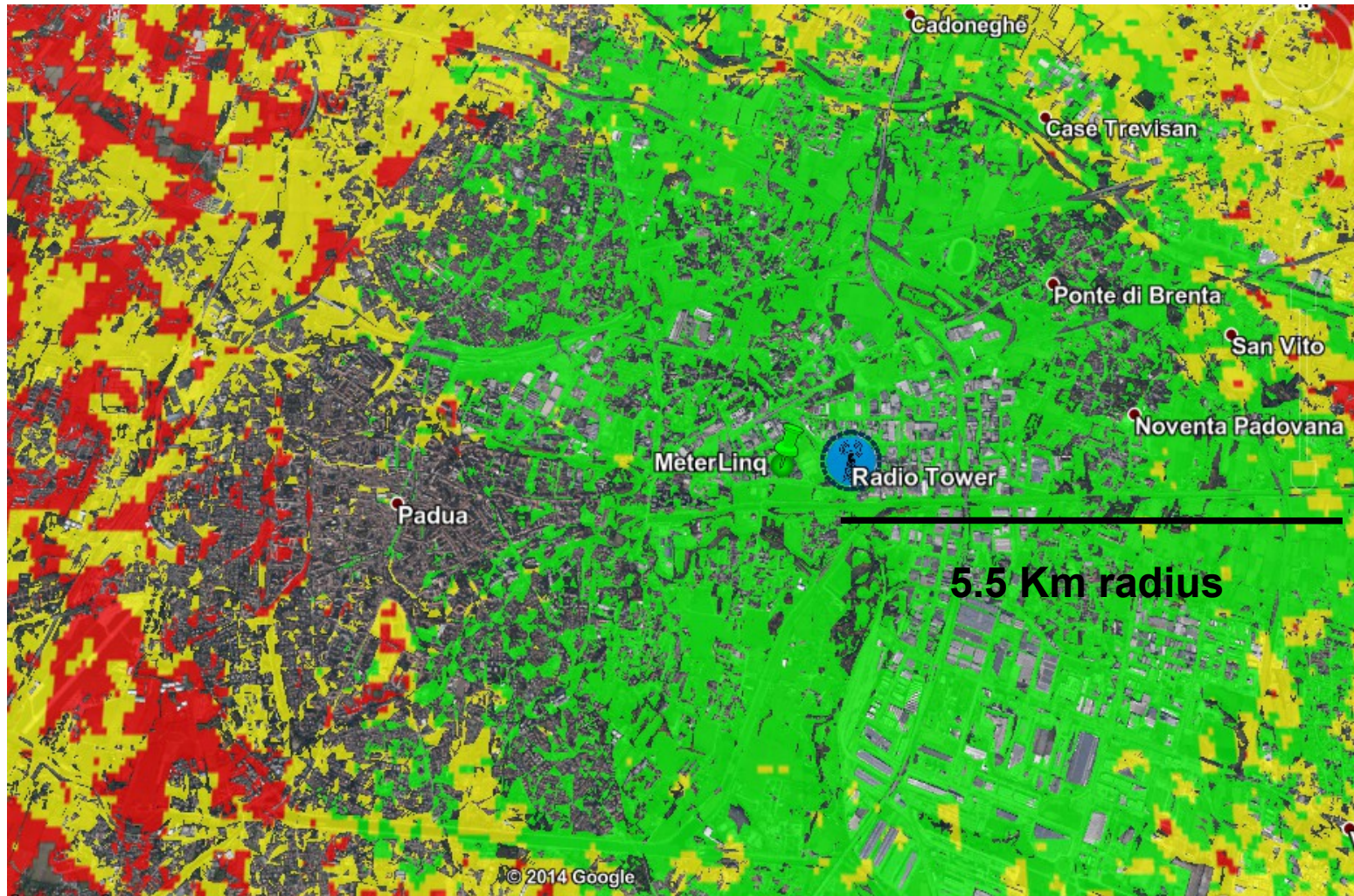


CPU	ARM Cortex M4 32bit 168MHz
Internal Memory Storage	Working storage 256 MB; Mass storage 4 GB up to 32 GB
Radio meter-side	169 MHz 2-GFSK modulation (max EIRP +27 dBm)
MeterNet back-haul	2.4 GHz RPMA DSSS modulation with antenna diversity (max EIRP +10 dBm)
GPRS-3G	Integrated engine
Expansions	2 open source MeterBus slots
USB	1 port
Serial port	1 RS-485 port
Power supply	12 VDC
Average power req.	1.5 Watt
Battery	LiPO 7.2V 1000mAh
Case Size	287 x 188 x 132 mm
Weight	3 kg
Temperature Range	-40°C +85°C
Env. Protection	IP65
Antenna connectors	4 N-male type (2 x 2.4GHZ, 1 x 169 MHz, 1 x GPRS/3G)
Local loop protocol	Native Wireless M-BUS mode-N

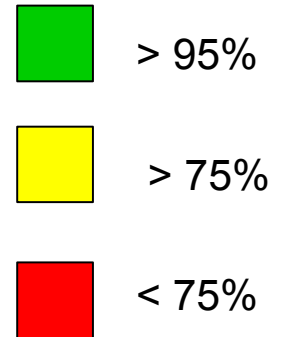
Backend Architecture



Single AP Coverage



Probability



Gas Smart Meters interoperability

- MeterLinq is actively cooperating with several gas and water meter manufacturers addressing network level interoperability as required by UNI TS 11291
- MeterLinq was the only company to showcase smart gas meter interoperability at EUW 2014 in Amsterdam (MeterSit, SamGas – Pietro Fiorentini)
- MeterLinq developed vGdM, the virtual gas smart meter used as a software reference model for NMi UNI TS 11291 gas smart meter certification system.
- MeterLinq is partnering with NMi for the development of the first testing and certification system (UNI-MCT) according to the UNI TS 11291-11-6 standard.

Status

- MeterLinq MeterNet has been awarded the “Innovation Technology 2014” prize by a distinguished expert panel at H2O Event in Bologna on October, 2014
- MeterNet is currently in field trial for the gas smart metering with a gas distribution operator.
- MeterLinq DCD is shipping (multiple versions).
- MeterLinq Smart Water module @169 MHz is shipping.
- MeterLinq released libUNICOSEM, an open source implementation of the DLMS/Cosem protocol, fully compliant with UNI TS 11291-11-2 for gas smart metering.

**That's all!
(for now)**

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