THE THINGS NETWORK

Switzerland community





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THE THINGS NETWORK

crowd-sourced loT network.

A global community, building open source software and hardware to operate a

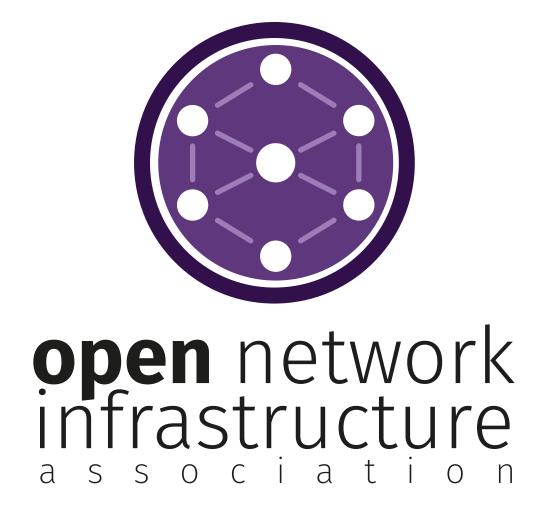




IN SWITZERLAND

THE THINGS NETWORK SWITZERLAND





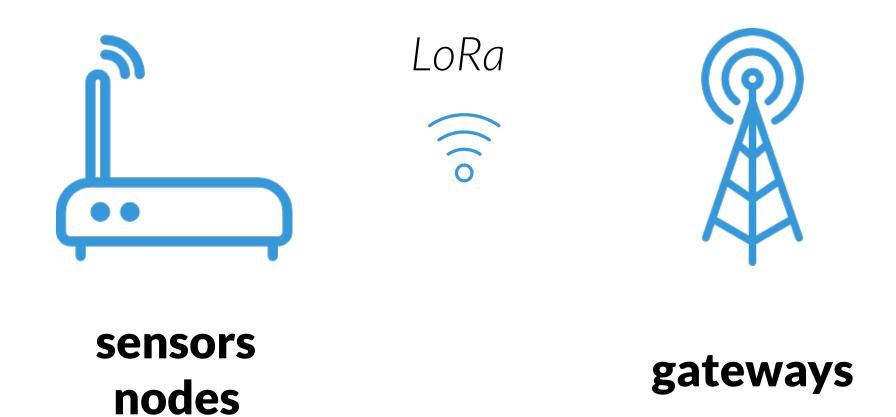


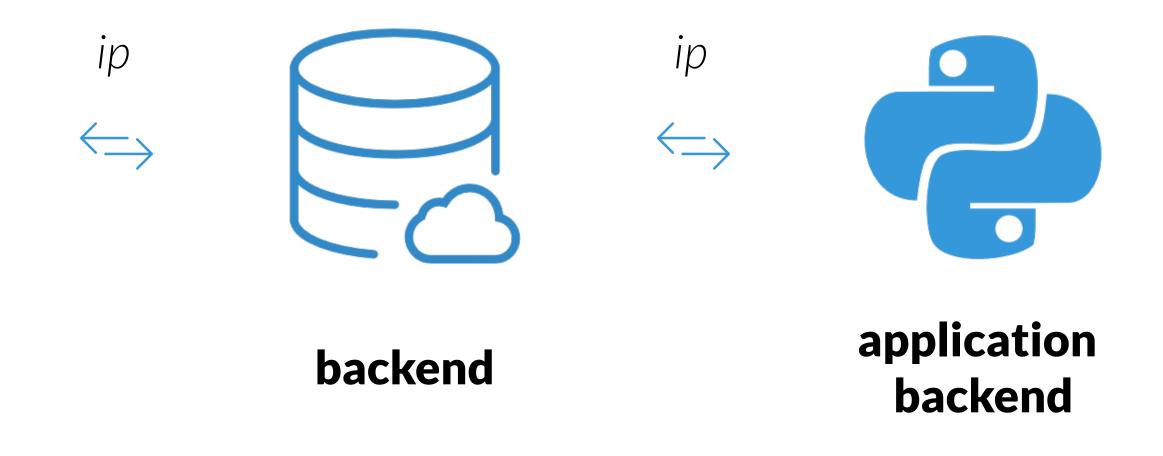






- LoRa (Long Range): Radio modulation technique
- LoRaWAN: MAC protocol for Wide Area Networks (OSI Layer 2 and 3)









10 km range 3 * 10 **10 USD/node 10 years battery life**



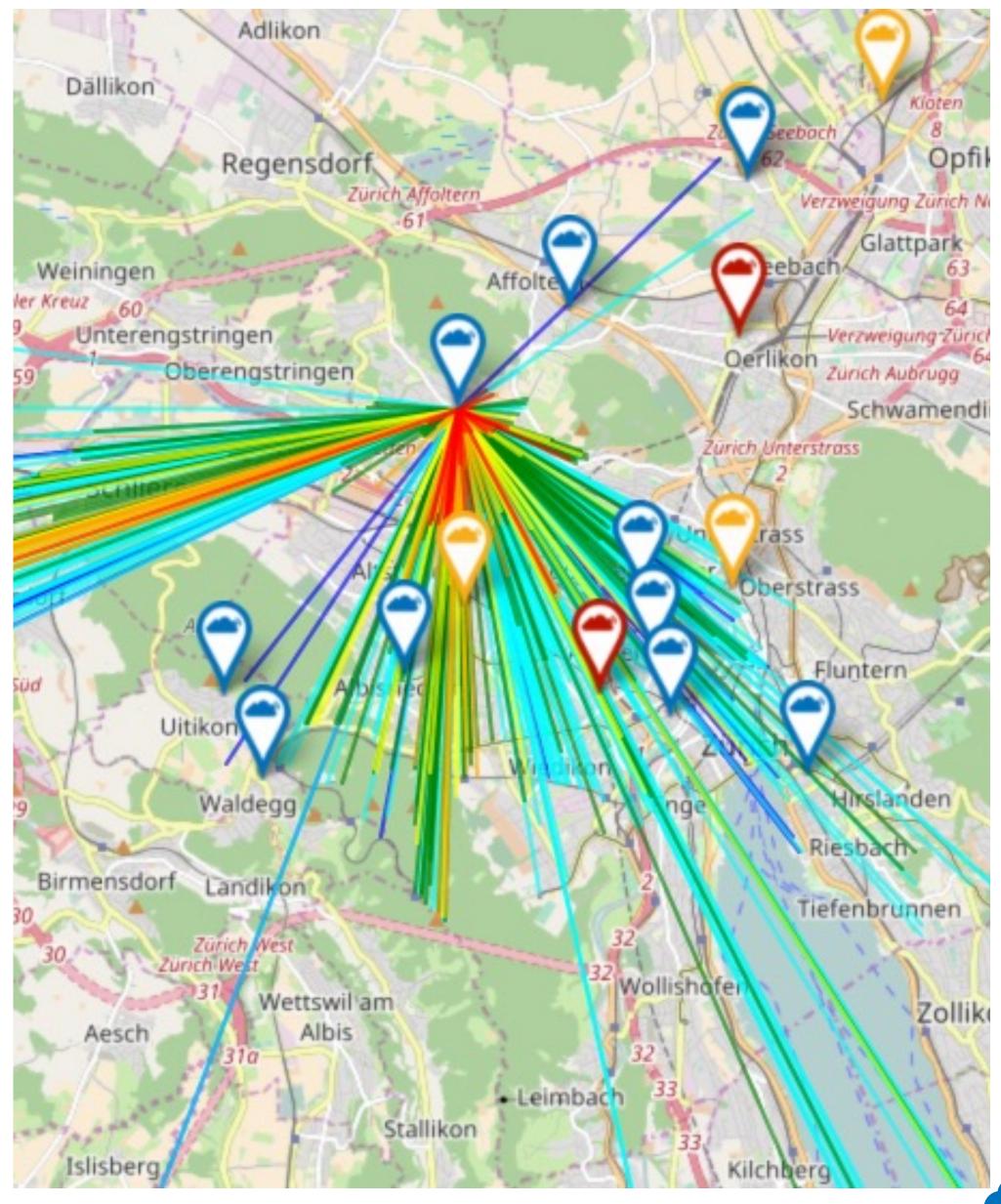


LONG RANGE

2km - 5km in urban setting

40km+ in rural setting

© <u>ttnmapper.org</u>, Open Street Map





INSANELY LONG RANGE

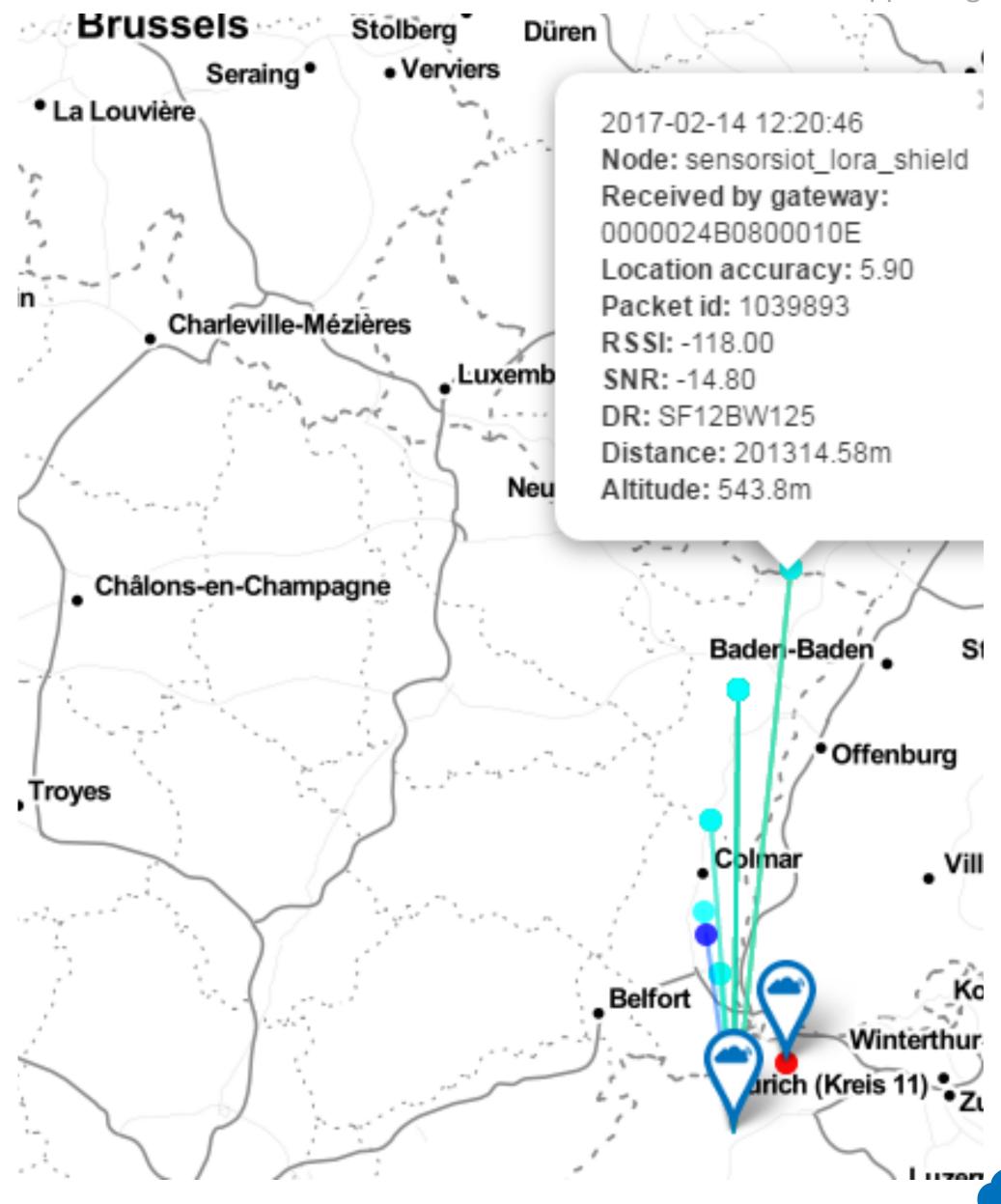
(under extreme conditions)

201 km ground-to-ground

by Andreas Spiess, TTN Basel

http://www.sensorsiot.org/

© ttnmapper.org





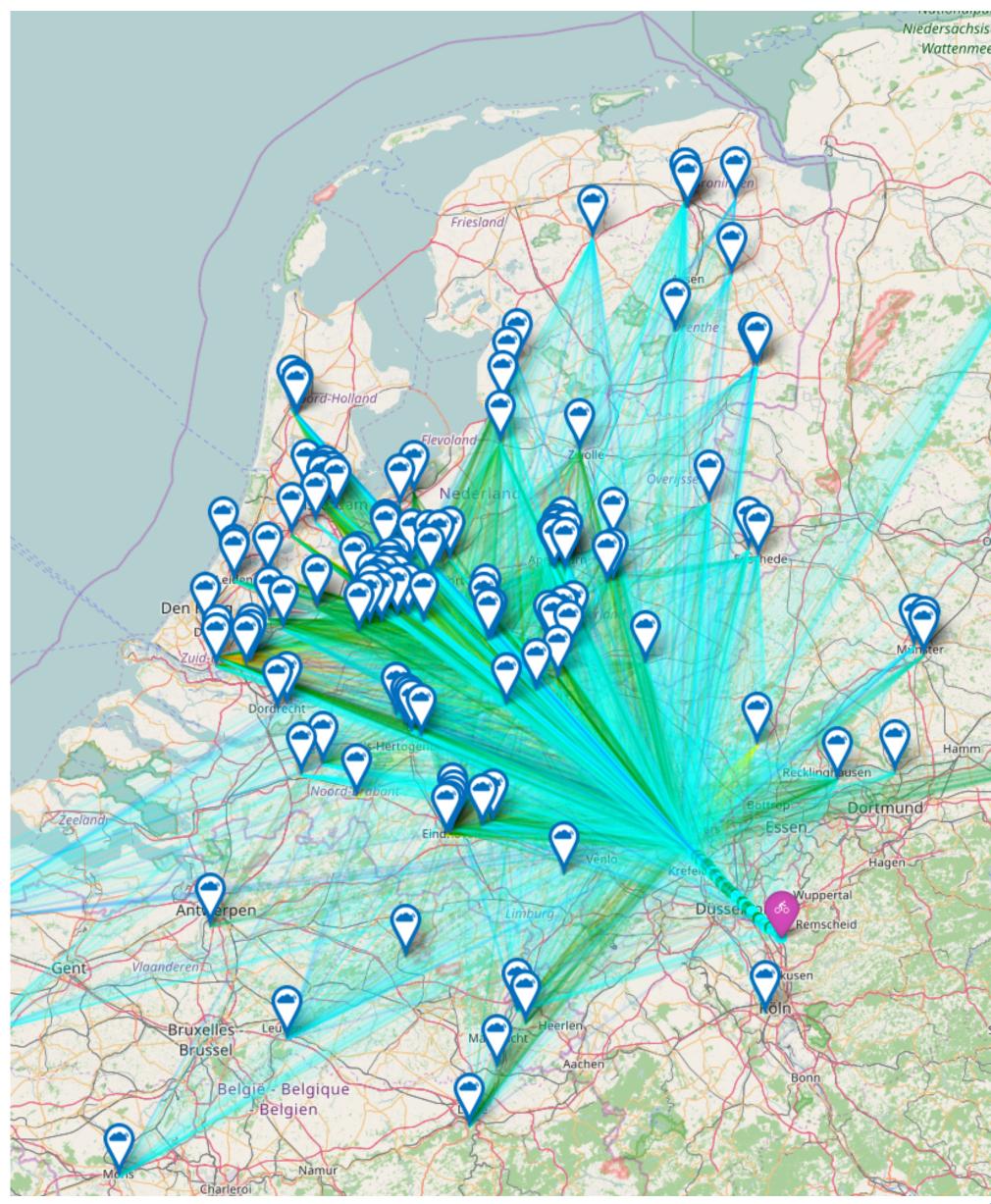
INSANELY LONG RANGE

(under extreme conditions)

333 km air-to-ground (helium balloon)

by @telkamp (mapping @jpmeijers)

© ttnmapper.org





LOW COST

☑ Node/transceiver: CHF 8.5

- Gateway: ~CHF 250 (indoor)
- ✓ Open source stack + ISM bands
- Low CAPEX, almost negligible OPEX

Photos by @gnz, CC-BY-SA







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OPEN SOURCE BACKEND

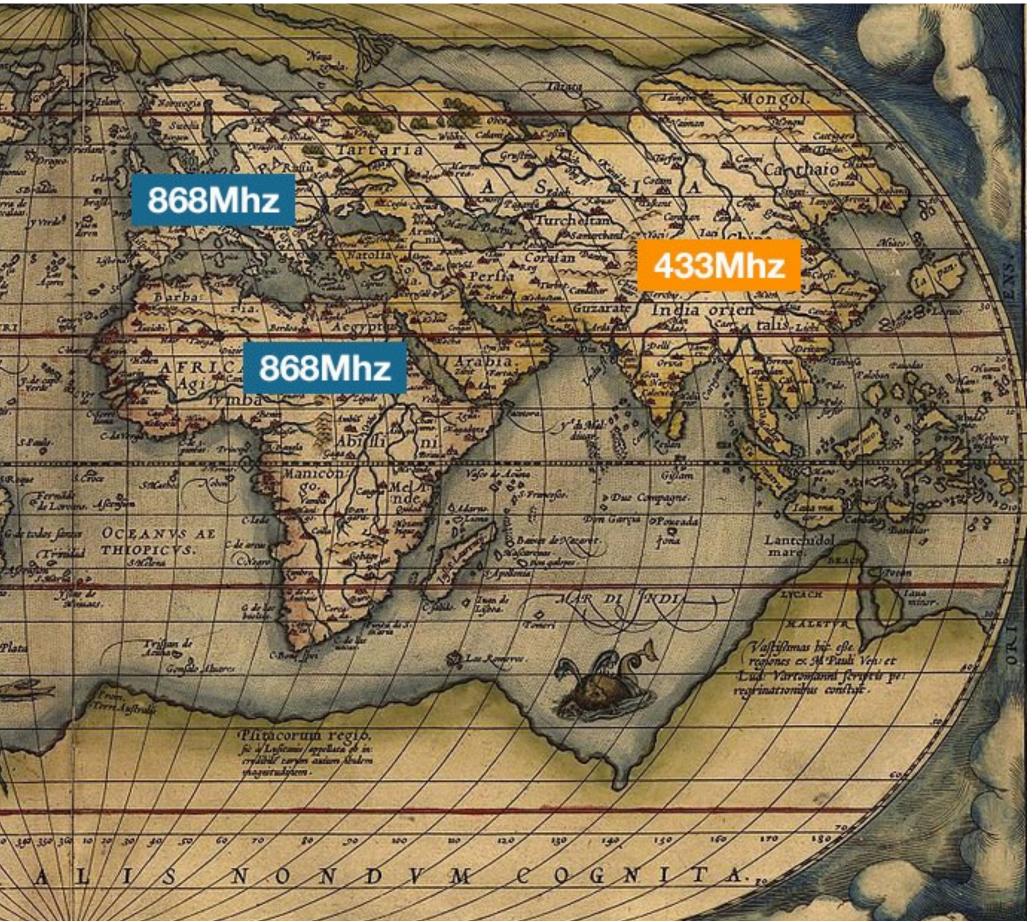




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UNLICENSED SPECTRUM

Anyone can deploy a LoRaWAN network!





LOW POWER

Class A

Always send, receive after send.

Up to 10 years.

Deep sleep: ~10 µA TX ~40 mA RX ~14 mA

Time-synchronized receive windows.

Not supported



Class B

Class C

Always-on receive mode.

Support not ready, but planned







Bandwidth

Payload size

Regulatory limits

Fair usage policy

0.3 bps to 50 kbps

51 bytes (DR0) 222 bytes (DR4)

1% Duty Cycle

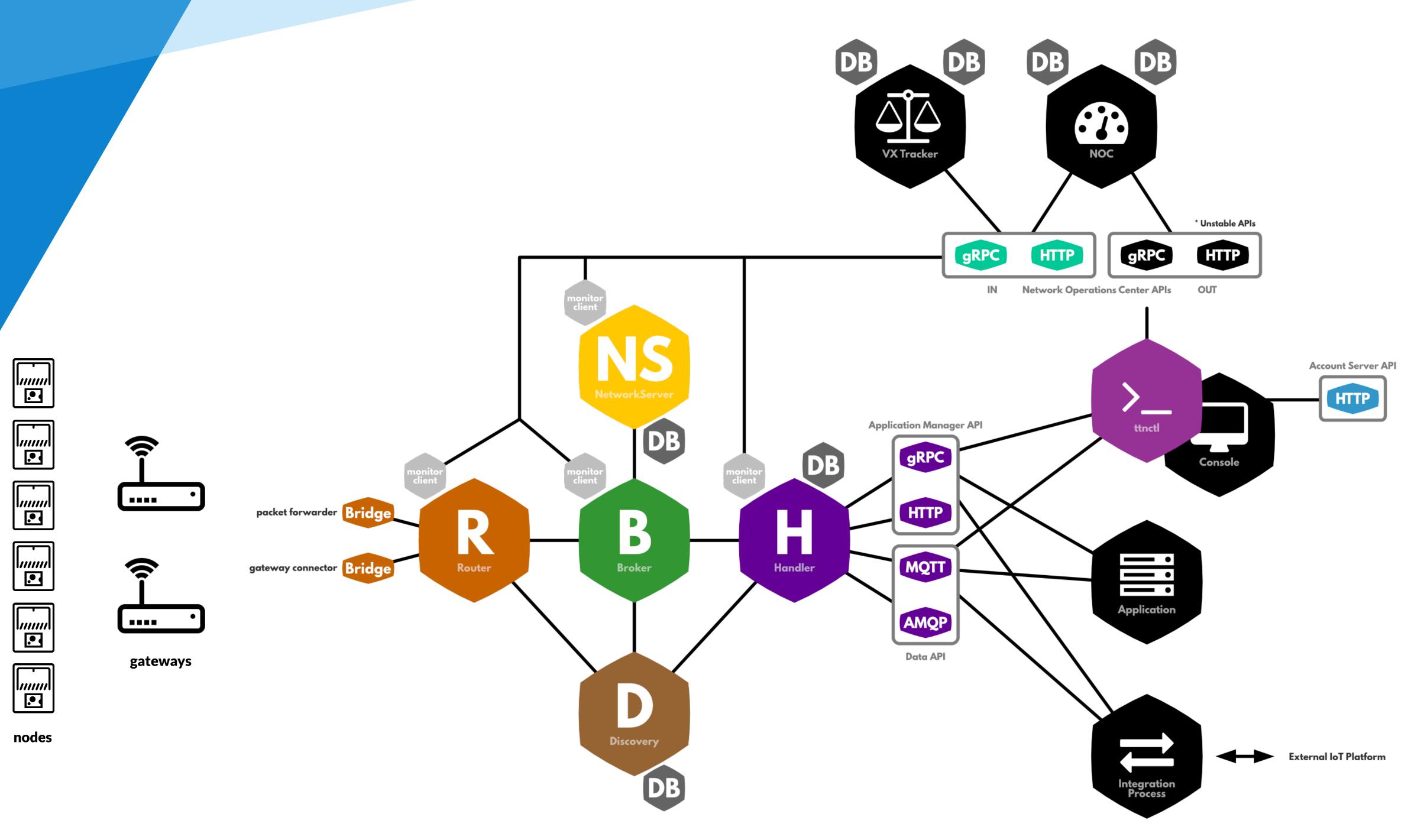
30 seconds/day airtime 10 downlinks/day

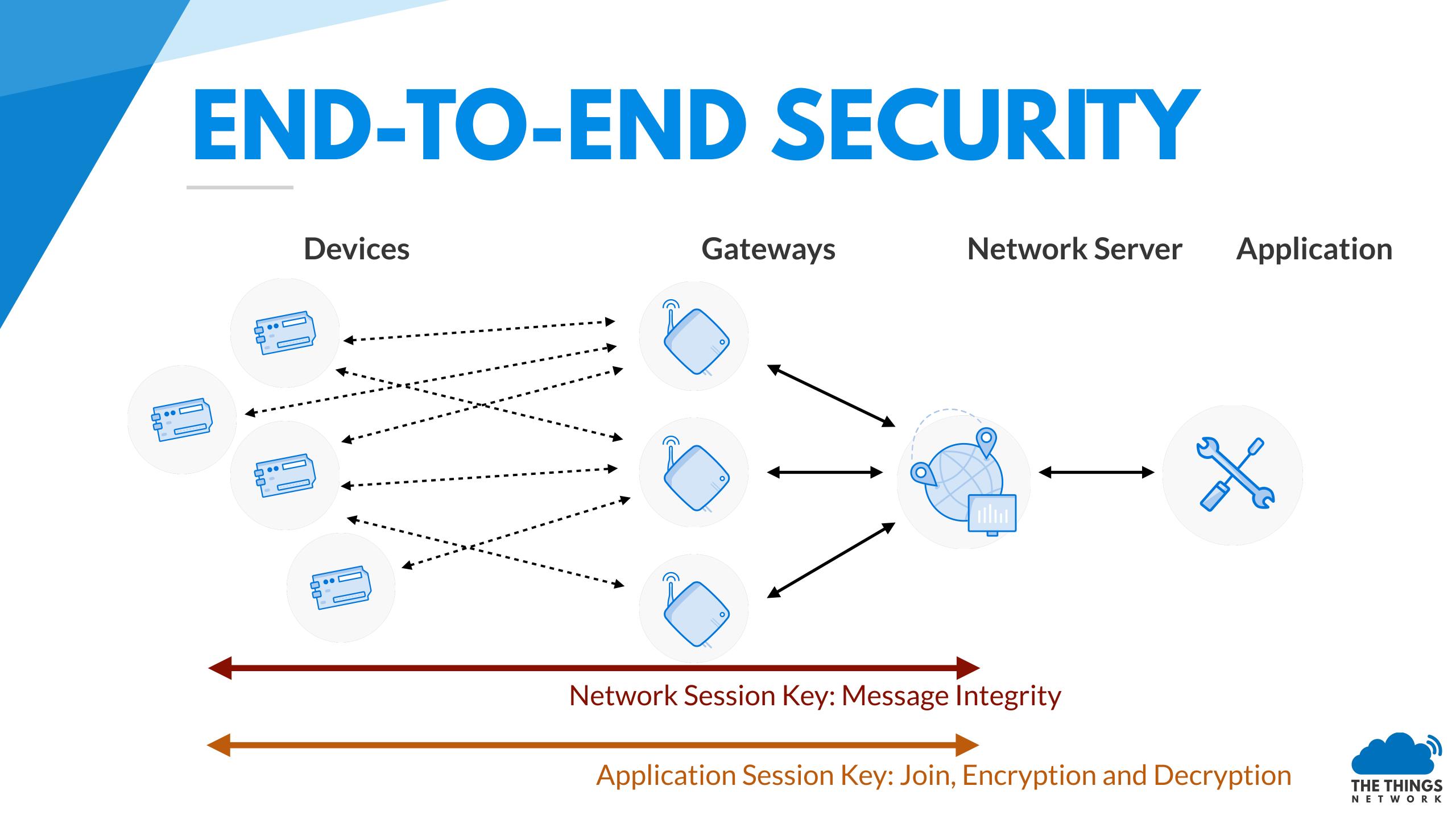














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