



DEFENCE AND SPACE

Comunicazioni radio per la sicurezza

Il punto sulle reti Mission Critical

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Polimi 8 Aprile 2019

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Reti Mission Critical – Il Punto

Trends nelle reti di Pubblica Sicurezza esistenti:

- Uso delle esistenti reti dedicate alla PS per servizi mission critical voce e dati narrowband fino al 2025 / 2030.
- Complemento con applicazioni broadband tramite reti commerciali
- Alcuni casi di spettro LTE dedicato ai servizi di pubblica sicurezza

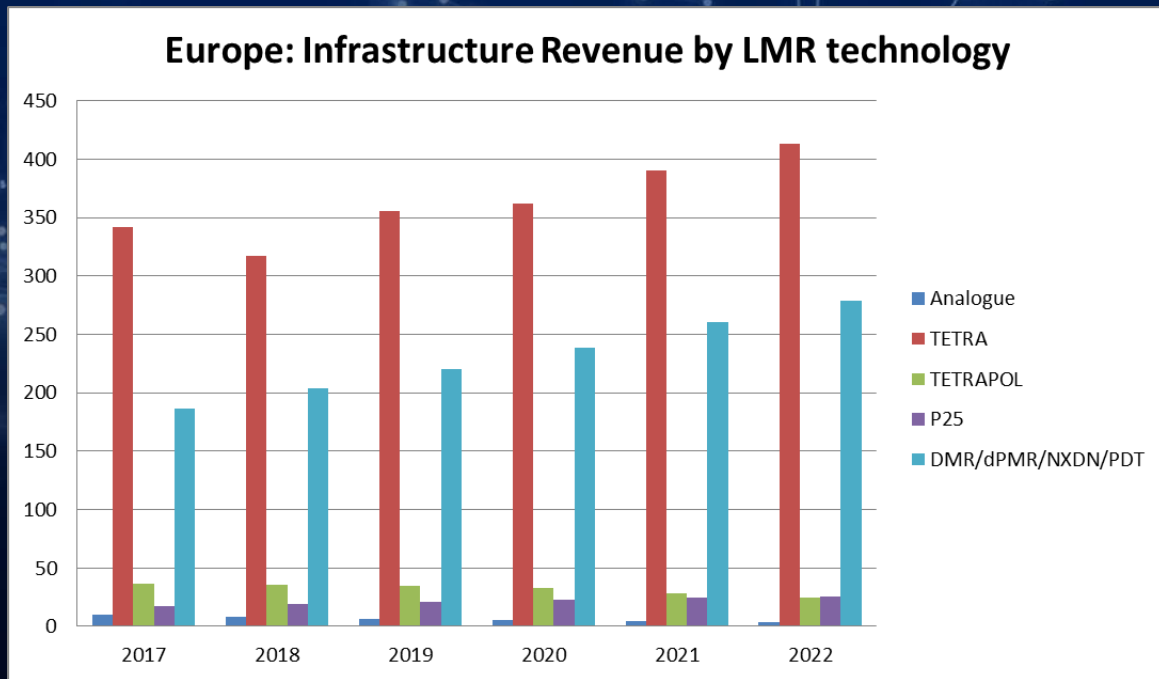
Standardizzazione LTE per il Mission Critical non ancora completata

- USA: P25 ancora largamente in uso – Rete LTE in pianificazione
- UK: TETRA-Airwave ancora in uso – Funzionalità LTE dall'operatore E2 in attesa di introduzione

Razionali:

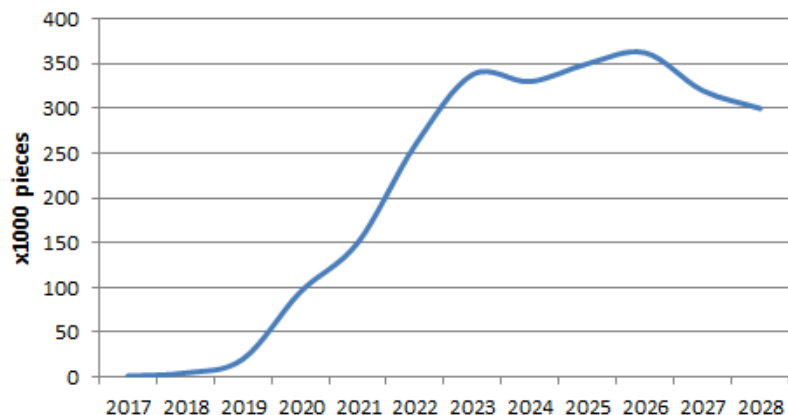
- Standardizzazione non ancora completa, test d'interoperabilità non ancora definiti (2020)
- Mancanza di spettro dedicato a garantire i servizi mission critical
- Sicurezza delle infrastrutture terze che forniscono servizi mission critical
- Maggiori investimenti dovuti al maggior numero di siti richiesto dalla copertura LTE
- Dubbi se investire su LTE o attendere il 5G che offre prestazioni migliori e minore latenza

Tendenze delle tecnologie narrowband in Europa

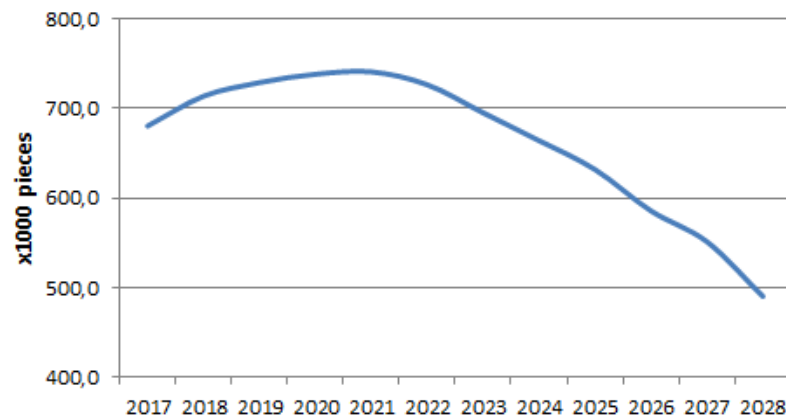


Il mercato dei Terminali – Stime indicative

TETRA-4G/5G Dual Terminals Shipments



TETRA Terminals Shipments, adjusted



- I terminali Ibridi rappresentano chiaramente un nuovo segmento di mercato
- Crescita dei volumi a parziale discapito dei Terminali TETRA tradizionali

Necessita' di Soluzioni Dual Technology

Co-esistenza tra narrowband e 4G/5G

- Reti
- Terminali
- Gestione dispositivi e apps

Mission Critical 4G/5G

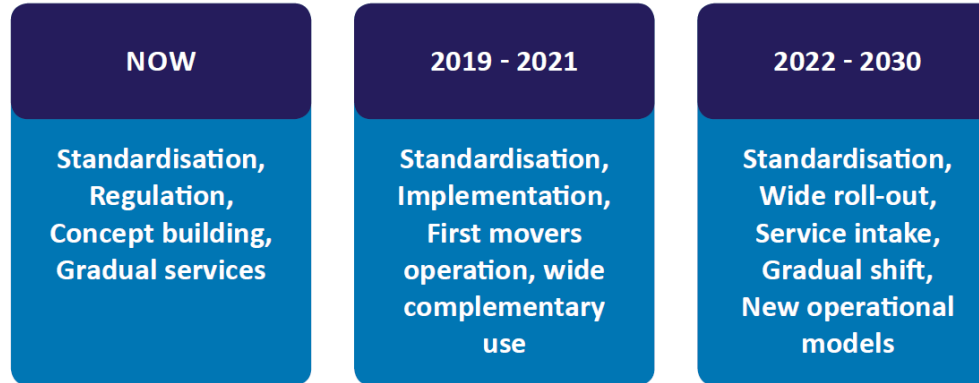
TETRA / Tetrapol / P25

Advanced Situational Awareness

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TCCA White Paper - evoluzione da LMR/PMR a 4G/5G

Top level PPDR Broadband roadmap



Up until now the community has added specific mission critical features and functions to the LTE standard. With Release 15 from 3GPP we consider the majority of TETRA functionality to be standardised, but work will continue - also after 2021.

- Assisteremo a un significativo periodo dove tutte le tecnologie narrowband LMR/PMR/TETRA/P25 e quelle broadband opereranno in parallelo.
- Un completamento dello standard per consentire l'interworking e' in atto nelle Release 15 e 16 del 3GPP

ONE SOLUTION,
THREE VARIANTS

Agnnet 900

Mission critical

- Tetrapol installed
- Green field
- **Go To Market: On premises**

Agnnet 800

Mission critical

- TETRA installed base
- **Go To Market: On premises**

Agnnet 500

Business critical

- Transport
- Industry
- Utilities
- **Go To Market: Software as a Service (SaaS), On premises**
- **SaaS Though MNOs**

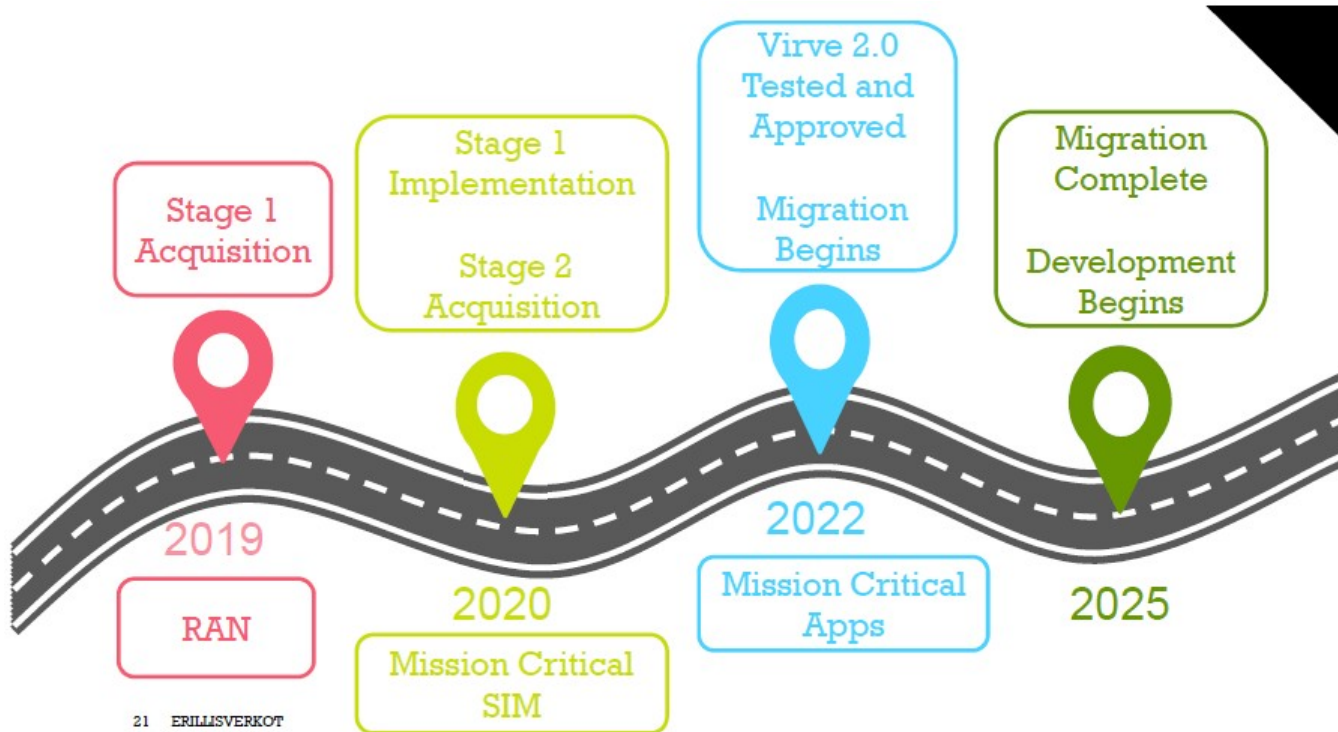
Virve 2.0 Background and the Overall Setup

- **Long political discussion** between key involved parties: Ministry of Interior, Ministry of Finance, regulator, mobile network operators, State Security Networks, industry etc.
- No dedicated frequencies allocated for Public Safety, **solution to be based on commercial networks**
- **VIRVE 2.0 project approved at governmental level**
- **ERVE selected as the Service Operator**
- **Required legislative changes done**



Source : <https://www.erillisverkot.fi/>

Virve 2.0 Roadmap



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Hybrid Network Solution

Belgium Astrid Governmental Shared Network



Airbus TETRA network together

- more than 70.000 radio subscribers
- more than 350 base stations
- Multi organization deployment

Complementary LTE – called "*Blue Light Mobile*"

- Commercial LTE network service
- MVNO in use for DATA since 2014
- Agnet in Pilot Phase

	Yesterday	Today	Tomorrow
TETRA	✓	✓	✓
BLM <i>voice</i> (complementary)	No	Yes • Priority & Pre-emption • First priority	Yes
BLM <i>data</i> (complementary)	Yes • Priority on access • traffic channel	Yes • Priority on Access • Traffic Channel	Yes

China Guangzhou Government Shared Hybrid Network



Hybrid network solution with

- **Commercial 4G network and**
- **Airbus TETRA network together**
 - more than 45.000 radio subscribers
 - More than 1.000 Agnet (LTE) users
 - more than 55 base stations

Multi-agency Service

- **Police**
- **First responder**
- **Metro Lines**
- **Rescue team**
- **Municipal**
- **International Airport**
- **Private Security Org.**

Proved under strong conditions during “Fortune Global Forum” Event

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