5G-GOVSATCOM

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- *Sitges, 26-28 February 2025.*
- *Speaker: Miguel Ángel Vázquez (CTTC), Project coordinator.*

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Outline

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5G-GOVSATCOM Concept

Enabling technologies

Demos

Context

What is EU-GOVSATCOM?

- One of the 5+1 pilar of EU Space Program:
  - Copernicus (EO), Galileo (N&P), EGNOS (N&P), SST (space surveillance), **GOVSATCOM**.
  - New: IRIS^2
- Deliver robust, resilient and with some security aspects satellite communication to authorized EU actors
- It is not commercial SatCom: it should rely on strong service level agreements.
- It is not military SatCom: it does not require to work in contested scenarios with NOC in exclusion zones.
- Key concept: Govsatcom-HUB as a broker of European satellite resources for authorized users.

Why EU-GOVSATCOM?

- European non-dependency with third-countries
- Current European humanitarian organizations depend on
  - expensive
  - non-European
- Satellite connectivity. This has a strong impact:
  - Starlink (i.e. US based company) decided not to offer capacity close to Gaza: no connectivity available.
  - Close to the Ukraine border in Poland, terrestrial connectivity fails and the network maybe compromised.

Why EU-GOVSATCOM?

What is IRIS²?

- Regulation (EU) 2023/588:
  - The provision of the IRIS² governmental services shall complement and integrate the GOVSATCOM component into the secure connectivity system.
  - IRIS² shall complement and integrate the existing and future capacities used in the framework of the GOVSATCOM component including the GOVSATCOM ground segment infrastructure, which is to be scaled up, in particular the GOVSATCOM Hub.
  - One of the main driver: *Enable governmental user terminals (…) at an affordable cost through the use of open standards and non proprietary solutions, including **5G Non-Terrestrial Network***.

5G-GOVSATCOM

Why 5G in EU-GOVSATCOM?

- 3GPP decided to start supporting satellite architectures coined 'Non-terrestrial Networks' in Rel. 17.
- We **do not need** 5G-NTN because it offers a better performance compared to DVB or proprietary solutions.
- We **need it** because:
  - 3GPP fosters a consolidated development of air interfaces, promoting competition between vendors.
  - Satellite operators do not need to be linked to a specific vendor and ground and terminals segments can be interoperable.
  - Due to market size, the solution will become more cost-effective compared to other proprietary solutions.
  - **It can enable a truly market place for EU satellite resources.**

5G-GOVSATCOM Goals

- Contribute to the development of 3GPP NTN solutions for the EU-GOVSATCOM pillar.
- Demonstrate an end-to-end solution supported via 5G NTN for a competent EU-GOVSATCOM user.
- Develop enabling technologies necessary for the end-to-end solution.
- Raise awareness of EU-GOVSATCOM to the citizens.

5G-GOVSATCOM Team

https://www.cttc.cat/

https://www.hisdesat.es/

Public Safety and Security - Airbus (securelandcommunications.com)

https://www.gruppotim.it/en.html

https://grupooesia.com/inster/

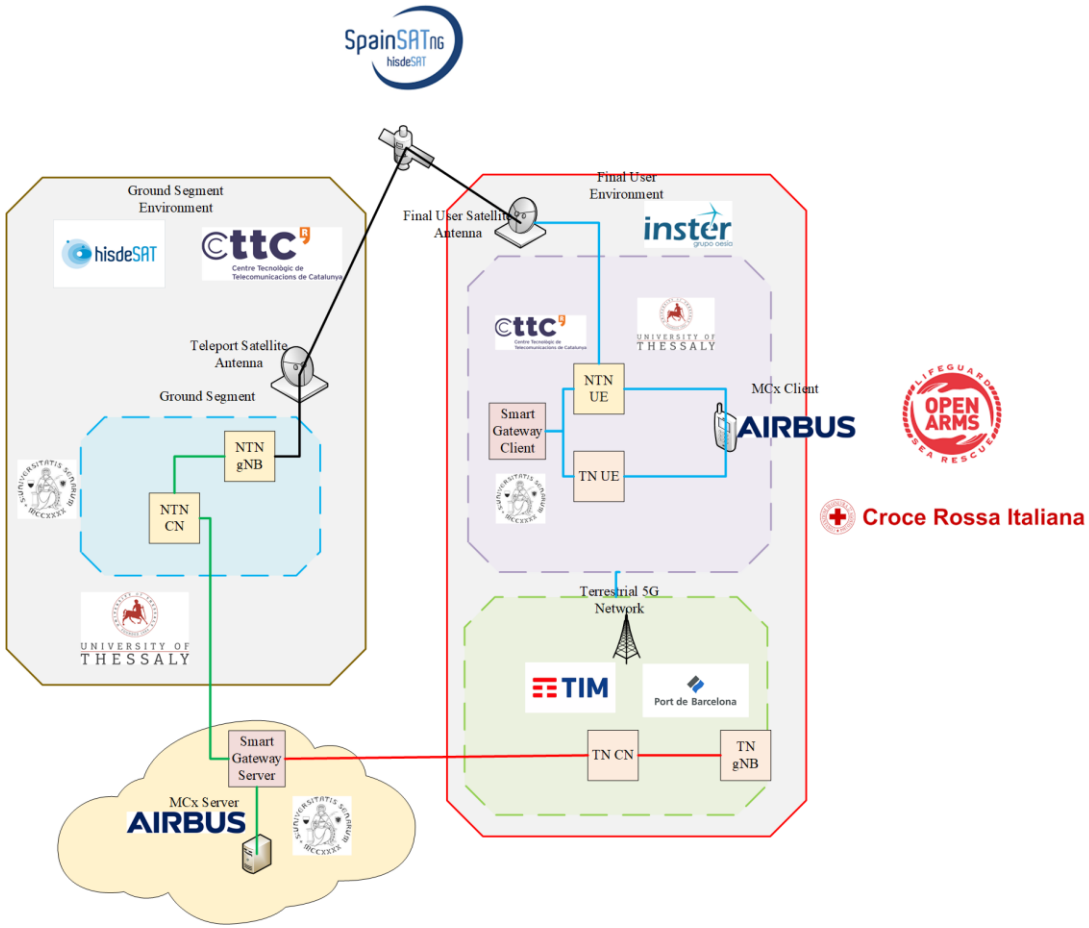
https://www.unidformazione.com/unisi-universita-di-siena/

https://www.uth.gr/

https://www.openarms.es/

https://cri.it/

5G-GOVSATCOM Concept



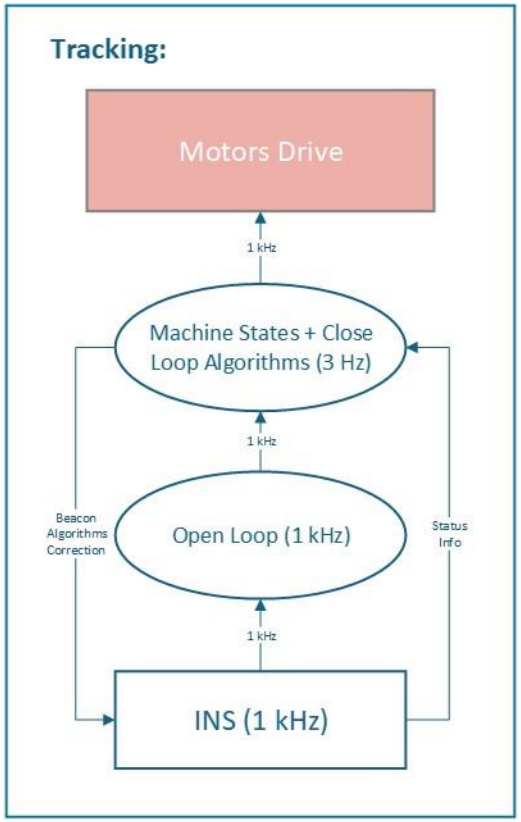
Enabling Technologies

3GPP NTN Radio Component

- Update the Rel. 17 solution to work on the reserved X-band.
- Provide an interface between the UE and the antenna solution.
- Enhance the solution of GOVSATCOM scenarios (maritime, MCx,…).

Terminal Antenna

- X-band on-the-move for maritime applications.
- Close-loop tracking with 5G signals.



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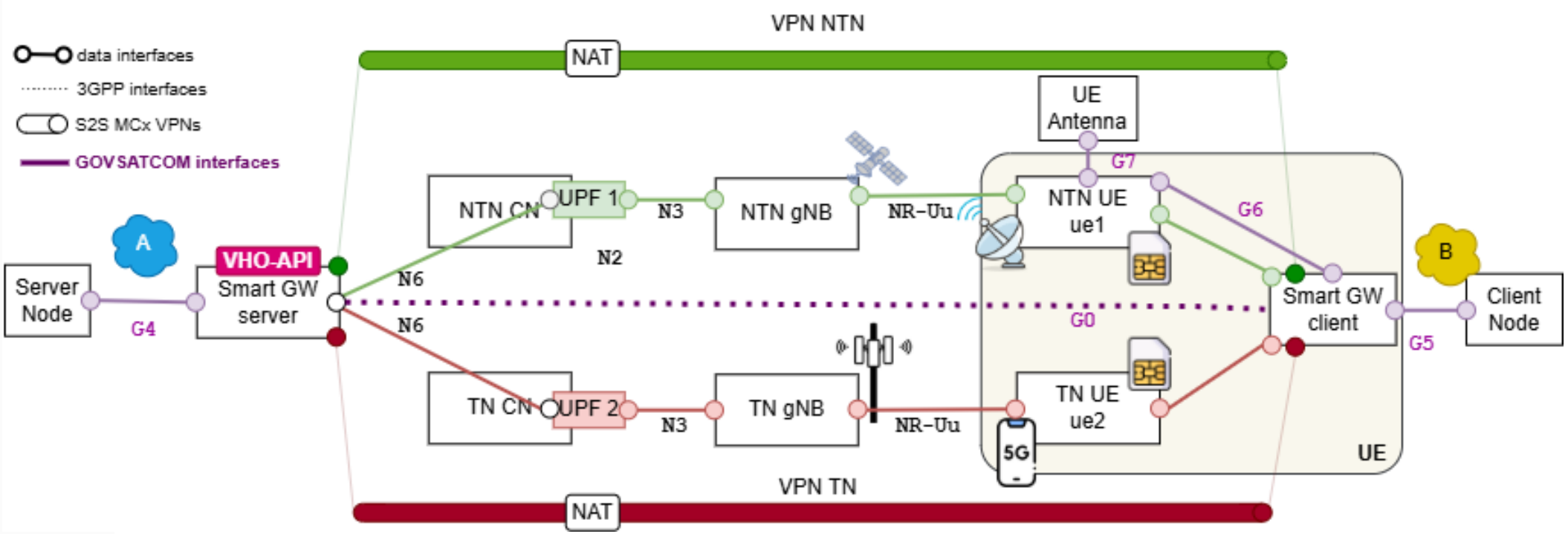
Architecture



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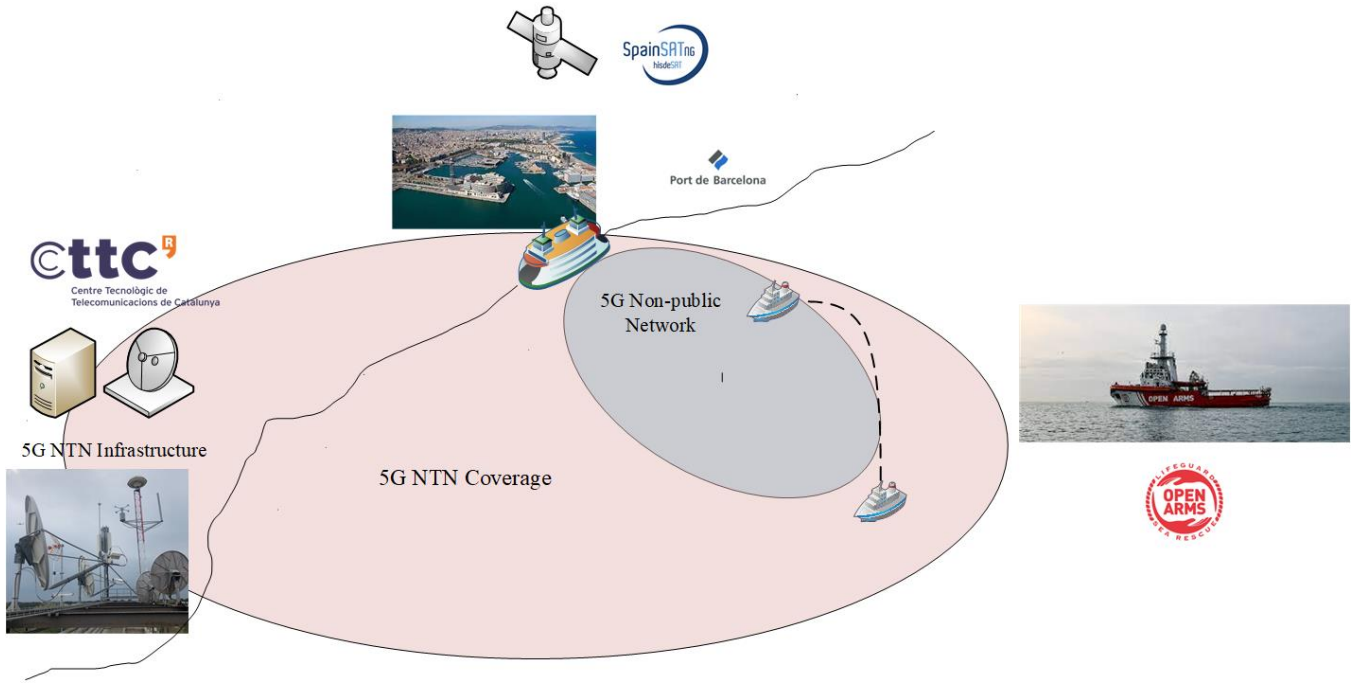
Demos

Ubiquitous 5G Maritime Medical Support



Connectivity Bubble

Daughter Project

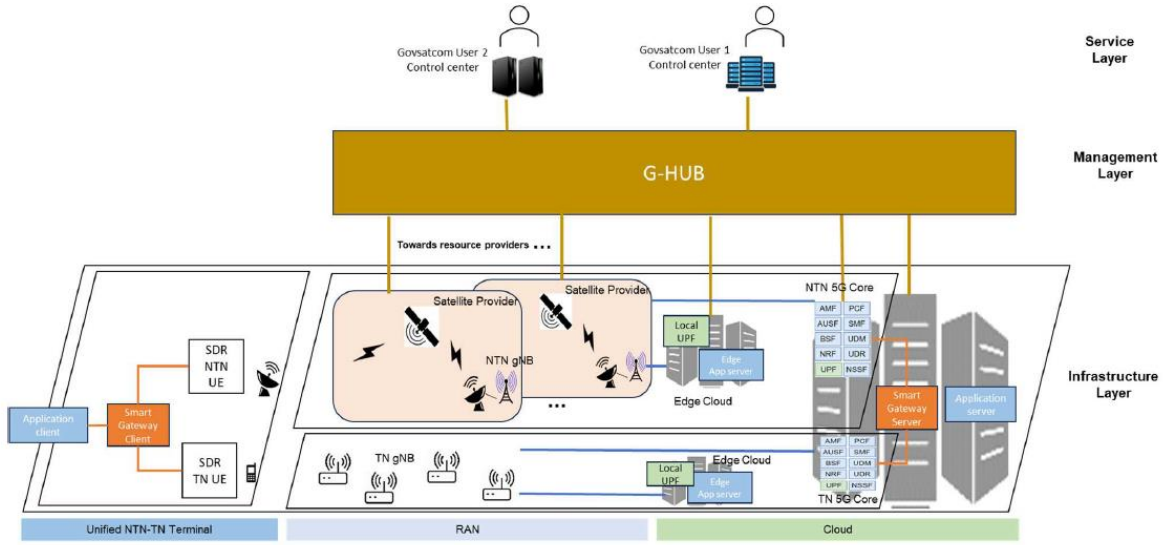


Figure 2 Overall concept of 5G-HUB

5G Hub
FIFTH GENERATION SERVICES HUB

Thank You

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