Mobile Networks of the Future (5G, 6G) - our research offer

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Our mission:
To become global provider of software-defined 4G, 5G and 6G mobile networks supporting more users with better performance at lower cost by applying cutting edge proprietary technologies

Introduction (who we are?)

Commercial launch

Readiness of 4G/5G Networks. Work with early adopters: demos / trials. Customizations

’21

Start R&D on 5G

Start of the first FP7 R&D project focused on 5G. 13 such projects were realized since then

’12

IS-Wireless founded

Design and implementation of a military broadband wireless system for Polish MoD

’06

SNS JU 6G projects

~’23

Starting six 6G projects - 6G-SANDBOX, 6G-BRICKS, Empower-6G, Sunrise-6G, FNS (Dutch), ORIGAMI, NATWORK

First funding round

’17

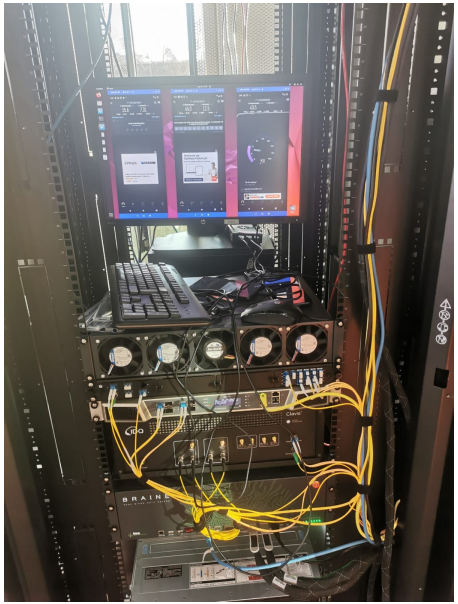
Acquisition of funding on design of 5G networks.

LTE eNB software

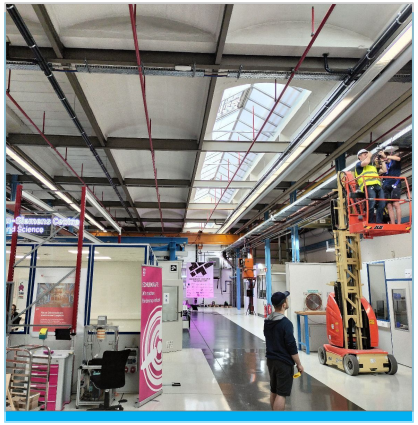
’10

Implementation of the first LTE-compliant product group: software libraries

Introduction (sample deployments of 5G)



BRAINE project demo at TUE/NL: full 5G with RIC, xApps + QKD + EMDC (Nov'23)

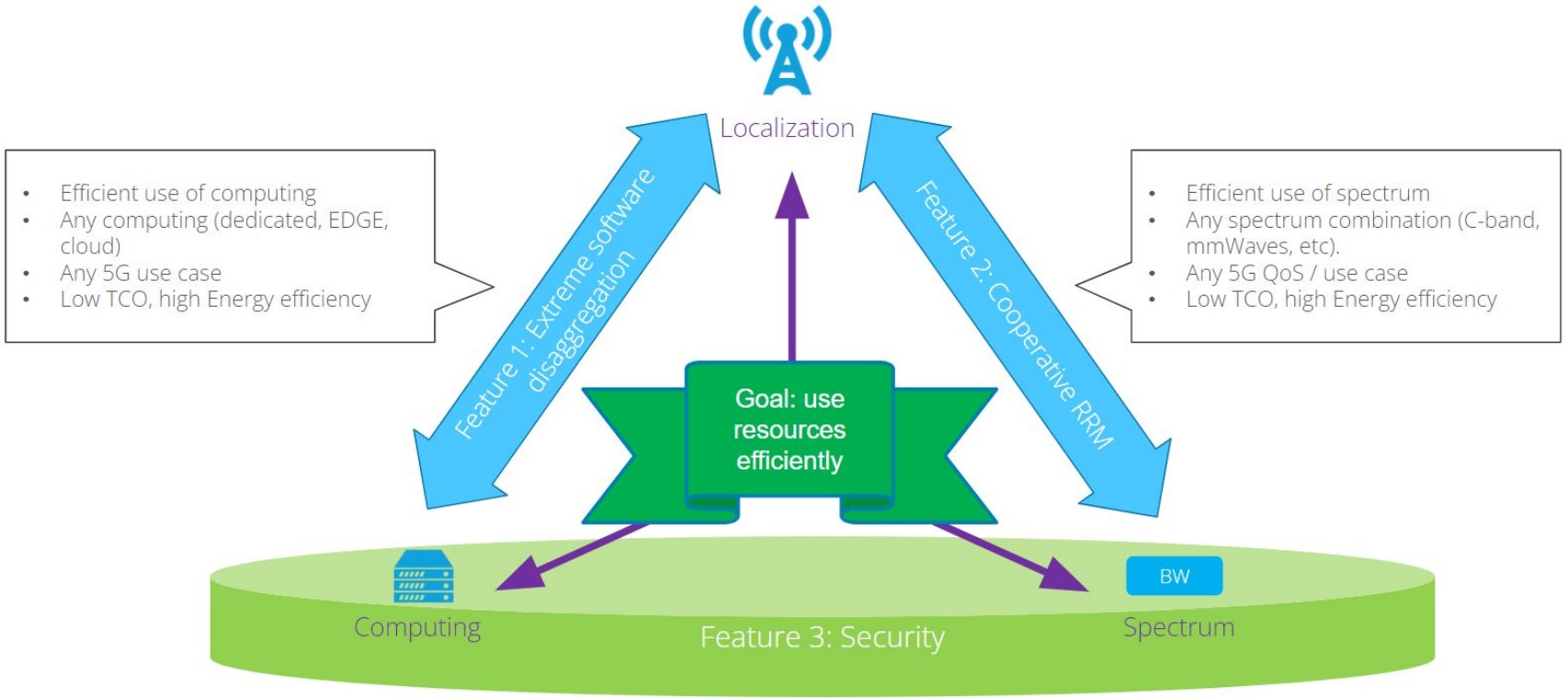


Berlin CampusDynA consortium (OSRAM, T-Systems, Gestalt Robotics, Fraunhofer): 5G SA 3.6 GHz RAN+Core+xAPPs, control of robots

Complete 4G or 5G network in a box (RAN+Core) with MC applications (e.g., PTT)

5G RAN including RIC tested under various interoperability conditions in Sonic Lab, London

Introduction (research directions)



- Efficient use of computing
- Any computing (dedicated, EDGE, cloud)
- Any 5G use case
- Low TCO, high Energy efficiency

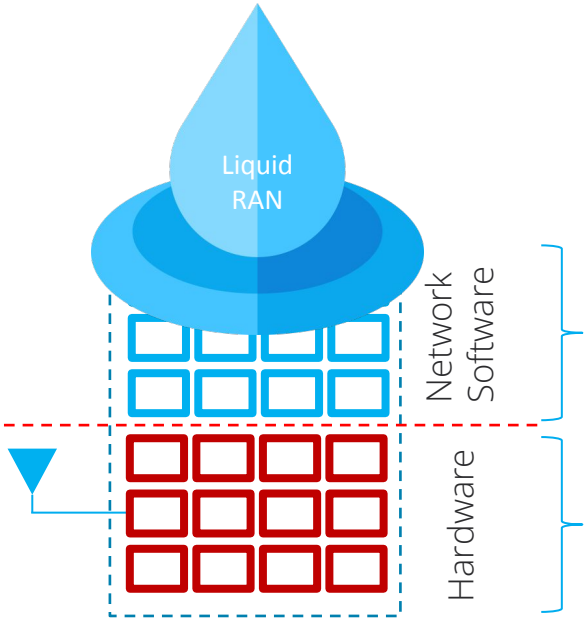
- Efficient use of spectrum
- Any spectrum combination (C-band, mmWaves, etc).
- Any 5G QoS / use case
- Low TCO, high Energy efficiency

- Standard 3GPP, ETSI, O-RAN security mechanisms
- Selection of MNO MoU requirements*
- Security mechanisms for multi-provider environment

RRM: Radio Resource Management

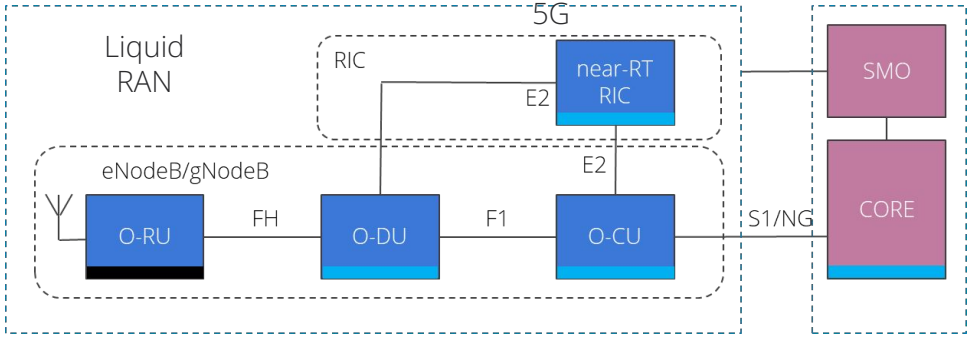
* „Open RAN MoU progress update on maturity, security and Energy efficiency" March 2023

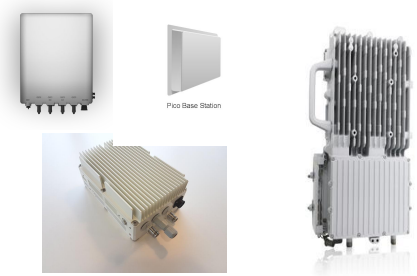
Liquid RAN – all software-defined network functionality



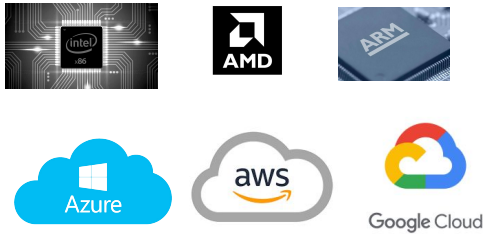
We expect 40%+ further cost savings when compared to Open RAN thanks to efficient use of computing and spectrum in **Liquid RAN**

All software-defined network functionality: 4G and 5G





RU **hardware** (various form factors, bands, bandwidths, TX power)

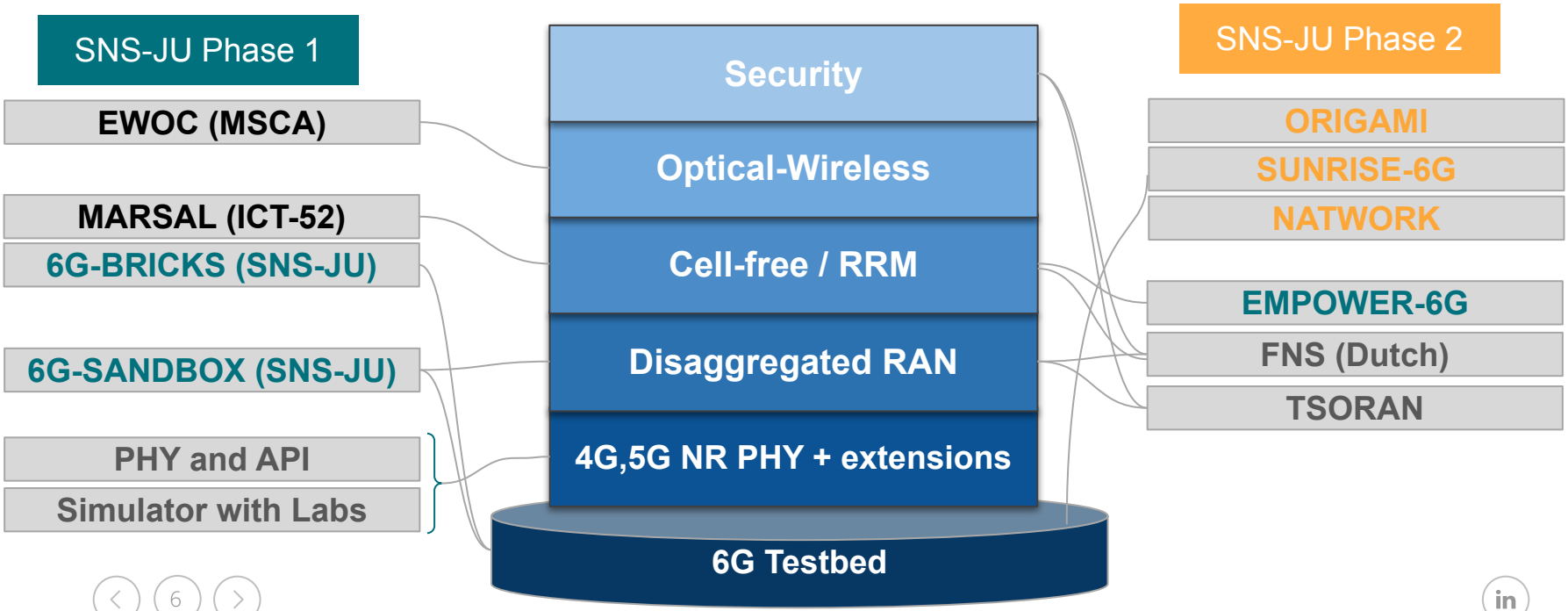


Computing **hardware** (various chipsets) / shared resources (cloud/EDGE) / accelerators

All COTS hardware

25 R&D projects (2012-today)
+ recently acquired 6G-projects

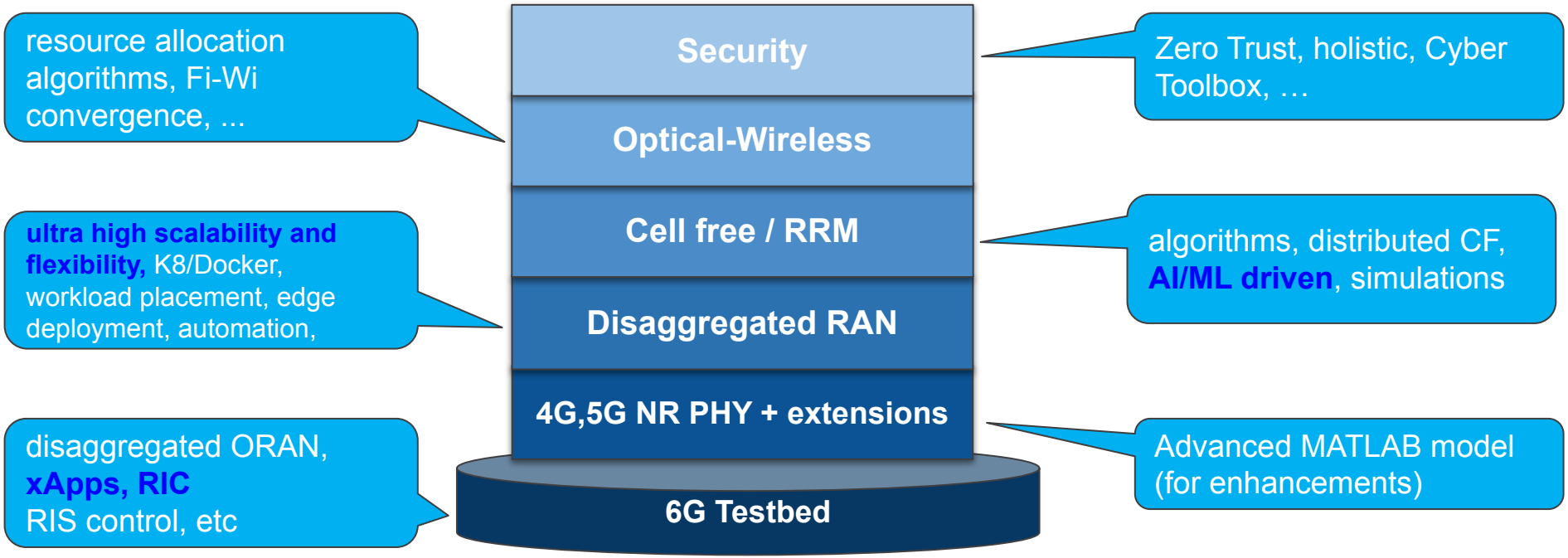
Current research project involvement related to 5G/6G



IS-Wireless **competences** for SNS JU calls

Our interest in SNS:

- **Stream B** - all topics
- **Stream C**
- **Stream D**
- **TRL2-5+ (PoC)**



Potential contributions in SNS JU/2024 (1/2)

Call ID	Call title	Our interests and PoC options
SNS-B-01-01	**System Architecture - Standardisation and Follow-up/PoCs**	1. New design approaches for 6G system architecture systems 2. Native and trustworthy integration of AI for telecommunications 3. Flexible RAN architecture towards Service Based Architecture (SBA) /serverless 4. …and more… 5. PoC focus related to **vertical integration with Architecture**
SNS-B-01-02	**Wireless Communication Technologies and Signal Processing – Standardisation and Follow-up/PoC**	1. Cell-free and exploitations of MIMO technologies including RIS 2. Seamless integration of multiple frequency bands 3. Machine learning empowered PHY layer evolutions 4. …and more… 5. PoC focus related to **CF MIMO/RIS/JCS**
SNS-B-01-03	**Communication Infrastructure Technologies and Devices – Standardisation and Follow-up/PoCs**	1. Ultra-high energy efficiency in optical networks 2. Integration of optical and wireless technologies (**Flexible Xhaul split design**) 3. Machine learning empowered PHY layer evolutions 4. …and more… 5. PoC related to **Xhaul Design and Optimization**
SNS-B-01-04	**Reliable Services and Smart Security– Standardisation and Follow-up/PoCs**	1.Integration of secured 6G communications via **Quantum key distribution** and PQC 2. Timing sensitive, and time responsive software and related hardware technologies for distributed, multi-stakeholder multi-system service provision 3. Zero-touch integrated security deployment 4. …and more… 5. PoC related to future **5G/B5G/6G network deployment with QKD**
SNS-B-01-05 **SNS-B-01-06**	**International collaboration - EU-JP** **International collaboration - EU-ROK**	Various topics based on suitability of competences

Potential contributions in SNS JU/2024 (2/2)

Call ID	Call title	Our interests and PoC options
SNS-B-01-07	**6G Lighthouse project on 6G Sustainability**	1. Use of Energy Sustainability (WPT, SWIPT, ...) 2. Reliability, resiliency 3. …
SNS-C-01-01	**SNS Microelectronics Lighthouse**	1. Advanced baseband capabilities 2. Integration of the THz communications technology 3. System validation in relevant Stream-C platforms 4. …

We are open to collaborate to deliver winning 6G projects

1. SME with strong track-record of **25 EU funded** projects (since 2012)
2. EU leading SME, **ORAN 5G vendor**
3. 5G/beyond **PoC and testbed** provider (also as product, as a service)
4. Always aiming to deliver unique value added in **Beyond SOTA** (based on disaggregated RAN, RRM, security…)
    a. Motivated and dedicated team of PhDs
    b. Regularly presenting results at e.g. IEEE Globecom, WCNC, PIMRC
5. **Active inventor** (and patent holder) in topics related to **cell-free, energy efficient RRM, disaggregated RAN**
6. Product oriented research with SW house on board

www.is-wireless.com/research

Contact us

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