SNS JU Brokerage Event

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IRT Saint Exupéry

Who Are We ?

- A collaborative **Technological Research Institute** bridging the public research to the industrial one.
- A private research foundation supported by the French State funding projects in proportion to industrial contribution.
- An essential player in the French and the international aerospace industry.
- Technologies that are developed answer to industrial needs, benefiting of the academic researches.

RESEARCH IRT

€39 M Annual budget

59 On going projects *including*

8 European projects

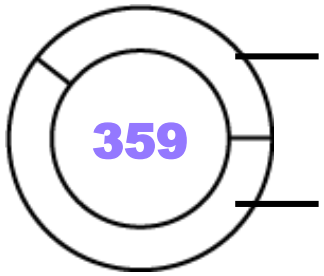
3 Start-ups created

382 Publications & communications

367 Patents & technology transfers

11 Platforms

PEOPLE



139 Secondment employees

220 IRT employees *including*

18 PhD Students

SITES

2 800m² Bordeaux

10 900m² Toulouse

200m² Sophia Antipolis

1 Platform in Tarbes (Primes)

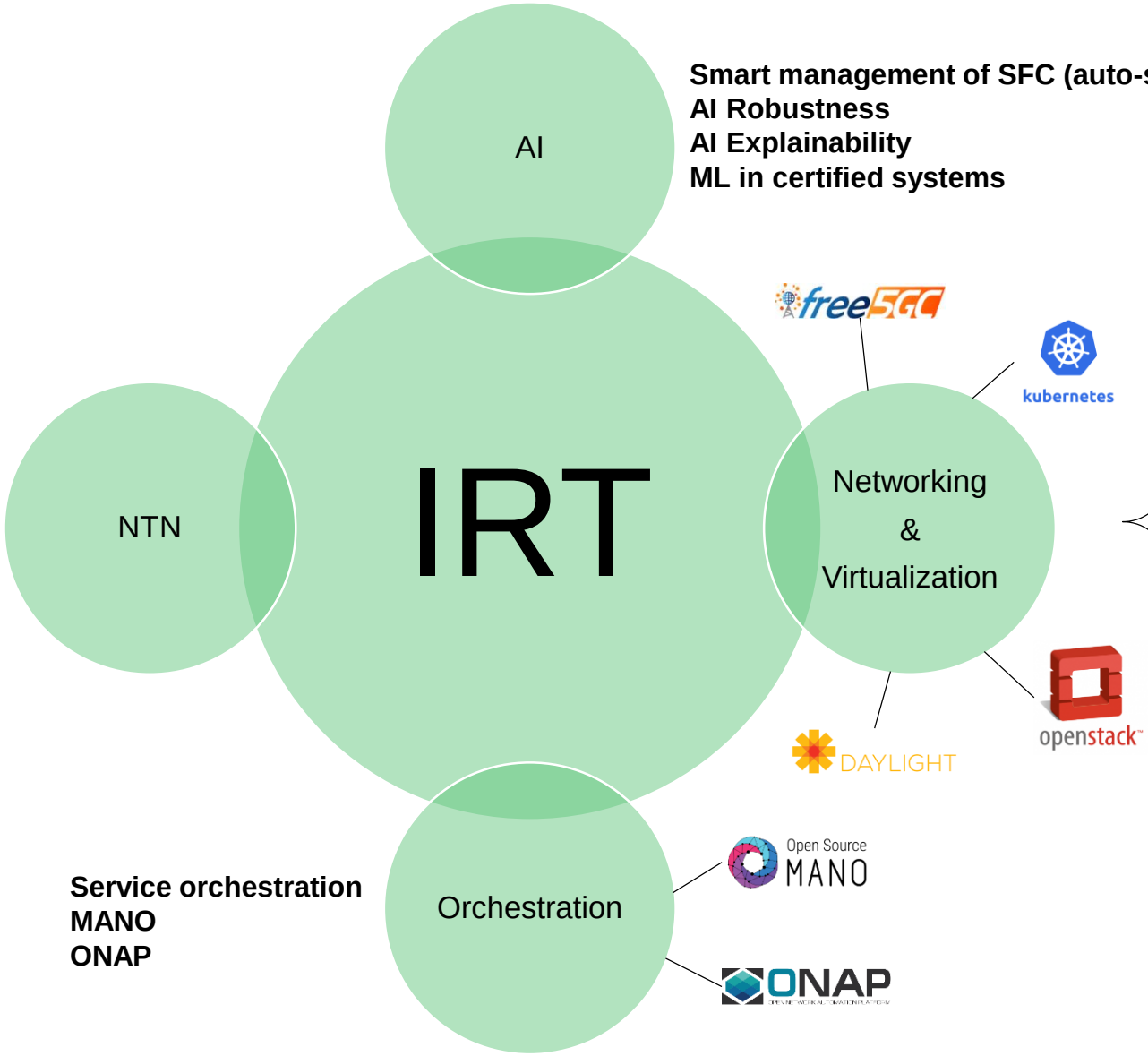
FRENCH INSTITUTES OF TECHNOLOGY

Accelerate science, technology research & transfers to industry

IRT SAINT EXUPÉRY 10 years

Expertise

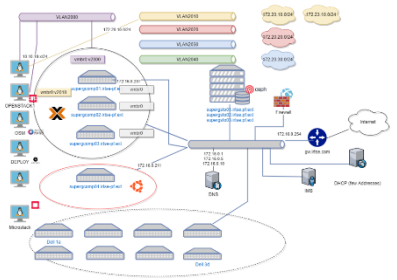
Our Domain of Expertise



Smart management of SFC (auto-scaling)
AI Robustness
AI Explainability
ML in certified systems

Hybrid 5G / Sat connectivity
5G / Sat backhauling
Network slicing applied to sat

Service orchestration
MANO
ONAP



Cloud Infrastructure

- Compute servers
- Storage servers
- 10 Gbit/s network infrastructure

S/W tools / Functions

- Network virtualization
- SDN
- VNF
- Edge computing
- Open source 5G CN

Smart Connectivity & Sensing: Research Areas

Connectivity

- Non Terrestrial Networks: Satellite, HAPS, LAPS (drone) for integration in 6G
- Cloud technologies for connectivity: SDN, NFV, Orchestration
- Radio and photonics
- Machine learning applied to connectivity issues
- **Application domains: Space** (Satcom, 6G), **Telecom** (5G & 6G private networks)

SUPER-G: Towards Network Virtualization in Satcom

Objective: contribute to the integration of satellite segment in 5G networks

- Architecture for the integration of 5G Core Network with satellites
- Network Slicing SDN/NFV
- Orchestration frameworks
- Concept of « Slice Classifier »

5GMED: 5G Mediterranean Automotive and Railway Corridor

Objective: demonstrate advanced Cooperative Connected and Automated Mobility and Railway Communications services along the border corridor between Spain and France

- Definition of use cases and tests cases
- QoS prediction AI module for Vehicle teleoperation on the motorway
- Satellite Backhauling of a gNB inside the TGV with continuity of the slices

ELLIOT: Satellite Internet of Things

Objective: demonstrate the feasibility of a cheap IoT connectivity system via satellite

- Propose modifications to terrestrial IoT standards (discontinuous service, poor link budget, large density of terminals), validation through simulation
- End-to-end performance validation
- Lab demonstrator for IoT service by satellite
- New IRT protocol (on-going patent)

FRENCH INSTITUTES OF TECHNOLOGY

Our interests and proposed contributions

❑ Target topics:

- HORIZON-JU-SNS-2024-STREAM-B-01-03: Communication Infrastructure Technologies and Devices
- HORIZON-JU-SNS-2023-STREAM-B-01-01: System Architecture
- HORIZON-JU-SNS-2023-STREAM-B-01-08: Reliable AI for 6G Communications Systems and Services

❑ Potential contributions

- Full control of the Non Terrestrial Network components
- 5G advanced and 6G End-to-end lab and real testbed based on open architecture, cybersecurity, AI/orchestration & Edge computing, Slicing and QoS management
- Integrated terrestrial and non-terrestrial access
- End-to-end value chain covering services/applications, devices, ground and in-orbit network components
- Innovative use cases from the aerospace and automotive industries
- Administration and Network Management Systems such as zero-touch and automated (AI based) operation with security measures