Future Networks Research lab

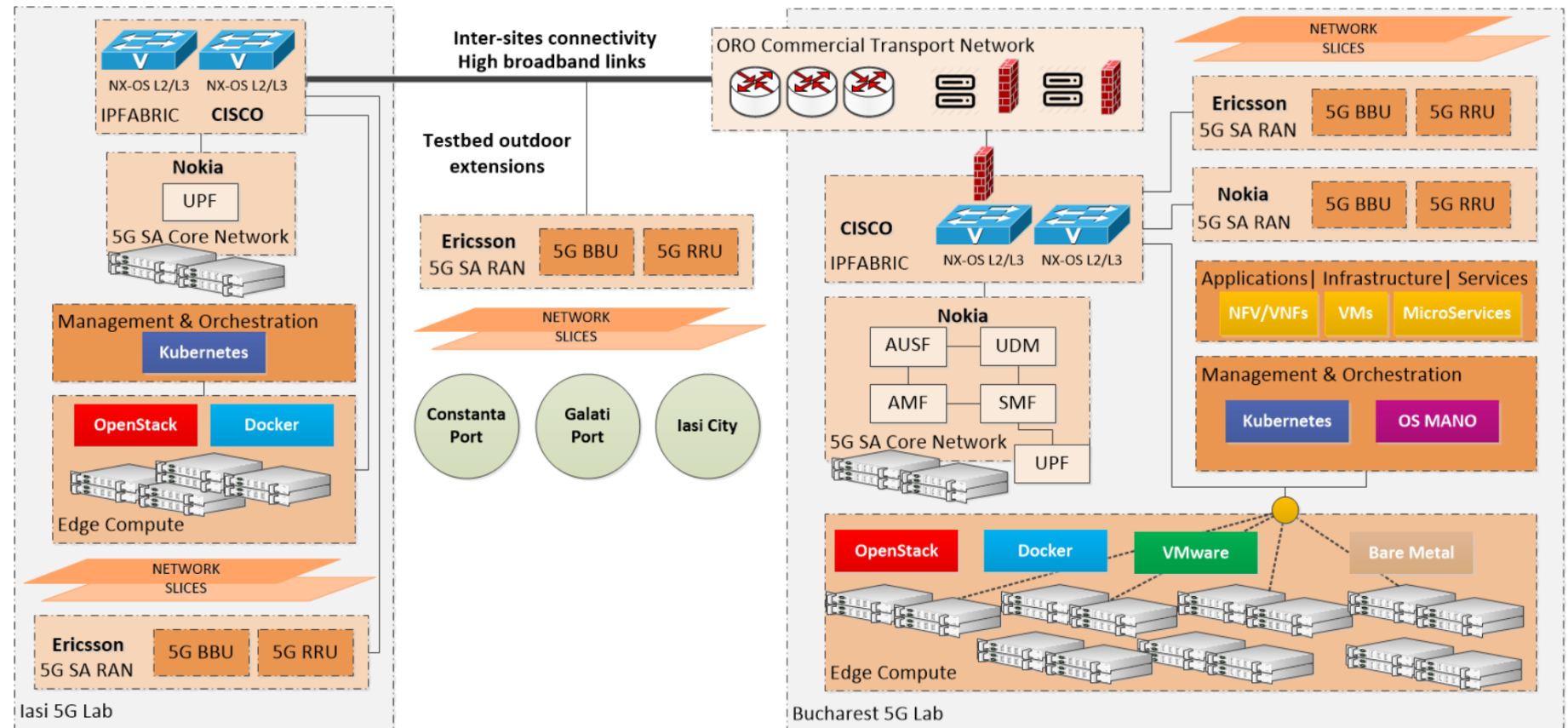## National University of Science and Technology POLITEHNICA Bucharest

Razvan Craciunescu – Vice Dean of School of Electronics, Telecom, IT
razvan.craciunescu@upb.ro
Razvan Mihai – Future Networks Lab Coordinator
marius_razvan.mihai@upb.ro

Private 5G SA Indoor Infra

5G NR Antenna

5G NR Antenna

UPB Campus

5G SA Indoor

Private 5G SA Outdoor Infra

Future Networks Research lab – main areas of research

5G and 6G Testbed Development, which includes creating and enhancing testbeds with cutting-edge software and hardware, including next-generation RAN and Core elements, and programmable Data Center solutions.

Implementation of **ISAC solution**.

Dynamic Network Slicing and Programmability, developing capabilities for efficient resource allocation and implementing programmability to support emerging use cases.

Automation and Orchestration, utilizing advanced systems to facilitate the deployment and management of network services, leveraging **AI for autonomous network management**.

Security and Resilience, performing security assessments and implementing solutions for intrusion detection, malware prevention, and robust threat response.

Designing and implementation of **Mission Critical** solutions.

Smart City and Climate Neutrality is a major area of interest, contributing to smart mobility, environmental monitoring, and **digital twin solutions** in the POLITEHNICA Bucharest Smart Campus to enable climate-neutral initiatives by 2050.

Future Networks Research lab – projects

5G Connect Danube Delta, CEF project 2024-2027

Research Collaboration and Mobility for **Beyond 5G Future Wireless Networks** (MSCA 2020-2025)

MObility and Training fOR **beyond 5G Ecosystems** (MSCA 2020-2025)

A Massive MIMO Enabled IoT Platform with Networking Slicing for **Beyond 5G IoV/V2X** and Maritime Services (Norway funds 2020-2023)

Defense System Against Drones Based on Software-Defined Radio Platforms (DroneEnd 2020-2022)

5G and LoRa R&D development (Industry Research Project 2022)

Testing **5G off-the shelf devices** (Industry Research Project 2023)

Testing operator's **LTE-m network for IoT devices** (Industry Research Project 2021)

Future Networks Research – part of…

Romanian National Quantum Communication Infrastructure

National Competence Centre and solutions for the development of Climate Neutral and Smart Cities" (NetZeRoCities)

Future Networks Research lab – other R&D groups

Sustainable Software and Services Lab (SSSL)

Advanced Signal Processing and Intelligent Reliable Engineering (ASPIRE)

Intelligent Robots, Autonomous and Adaptive Systems (IRAAS)

Applied Artificial Intelligence (AAI)

Intelligent Integrated Circuits and Computing for beyond-CMOS technologies (I2C-bCMOS)

Decision Systems and Sensor Data Analysis (DSSDA)

Future Networks Research lab – SNS contributions

WP leader, Task Leader for projects in

SNS B01-01, B01-02, B03-01, Stream – C and Stream D

Participant in

SNS B03-02, B04-01, B04-02, B05

Use cases of interest

Smart city, Digital twin, ISAC, Smart Agents, IoT, Automation , Smart Mobility and Transportation, AI for everything

We can bring a **lab spinoff SMEs** to the consortium,

We can bring Industry and public authorities partners.