données et algo

pour une ville intelligen

NGN TEAM

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Thématiques et objectifs

Next Generation Networks (NGN)

During the 80s and 90s, the three themes of networks, telecommunications and systems were totally independent and watertight. With the arrival of GPRS (2.5G) in the mid-90s, an IP network was grafted onto the cellular core network. As a result, two heterogeneous domains coexist: Packet Switching (PS) for data and Circuit Switching (CS) for voice. The convergence of networks and telecommunications began and ended in 2010 with the deployment of 4G, whose core network is full IP (elimination of the CS domain). At the same time, from 2010 onwards, with the widespread deployment of cloud solutions (SaaS, PaaS, IaaS), system virtualization technology gained in maturity, and even turned its attention to the virtualization of network functions (NFV/SDN), no longer limited to traditional operating systems. The 5th generation of cellular networks (5G), developed within the framework of 3GPP, takes advantage of this high-level, reliable virtualization, enabling the convergence of networks, telecommunications and systems. This is the new generation of networks commonly referred to as Softwarized networks. The NGN team's focus, developed since 2018, is in line with this 3GPP roadmap for improving QoS/QoE

performance of flows in a virtualized and therefore more complex network environment. In a 5G network, three broad categories of use cases emerge with different throughput and latency requirements: enhanced mobile broadband (eMBB), ultra-reliable low-latency communications (URLLC) and massive machine-type communications (mMTC).eMBB is proposed for data-intensive applications and requires high throughputs of several gigabits per second with moderate latency of a few milliseconds. URLLC supports ultra-reliable, low-latency communications of the order of 1 millisecond. mMTC supports smart cities and logistics applications with high connection density and energy efficiency.

The team's main focuses are :

- Network
- Mobile Edge Computing (MEC)
- Vehicle networks (V2X)
- Internet of Things (IoT)
- Wireline networks (DCN/WAN)

Les domaines d’applications :

- Telemetry
- e-Health
- Connected vehicles
- Industry 4.0

Project (financing)

- **GoGreen ROUTES** – H2020
- **MASTER** – H2020
- **i-RECORDS** – Era PerMed
- **RHU RECORDS** – ANR
- **IHU PROMETHEUS** – ANR

- **ACOMI** – ANR
- **Collaborations BPCE & SAFRAN** – ANRT
- **AI4IDF** – Région Île-de-France
- **FL4Mobility** – Labex DIGICOSME – ESIEA
- **CLEMI** – MSH – ParisSaclay

Partners

- **INRIA**
- **ICS-FORT**
- **HPC Lab, ISTI, CNR**
- **Universidade Federal do Ceará**
- **ESIEA**
- **BPCE**
- **Safran**

NGN Team news

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Seminars and orals

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Upcoming news

Previous news

Soutenance de thèse de Saeed ALSABBAGH
December 19, 2025

Soutenance de thèse de Hamza KCHOK
December 15, 2025