

GÉANT Project Symposium 2023

MONTPELLIER, FRANCE

12 - 14 December

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GÉANT Project Symposium 2023



Network Infrastructure and Services Roadmap

December 14 2023

**Bram Peeters, Mian Usman (GÉANT)
Ivana Golub (PSNC), Pavle Vuletić (UoB)**

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Network Infrastructure and Services Roadmap - Agenda

10' Introduction

30' Network Infrastructure and Services Roadmap

20' Q&A

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Mian Usman, Bram Peeters (GÉANT)

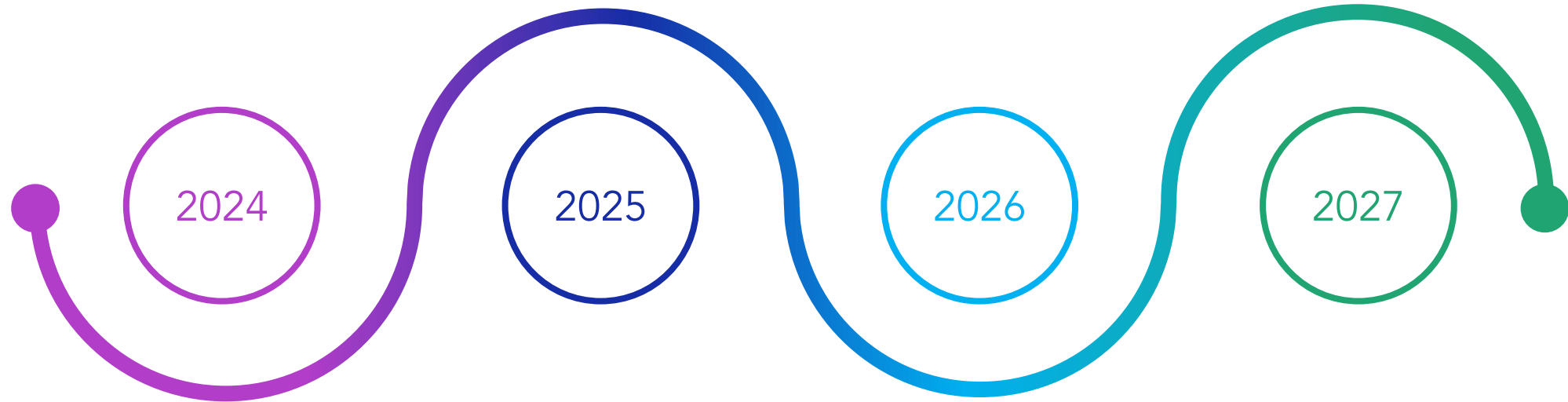
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NETWORK INFRASTRUCTURE AND EMERGING TECH



Assessment

Connectivity post GN4-3N and GN5-IC1. EAP inclusion

Assessment of non-data services and industry trends

Inventory of long-term infrastructure contracts

Sustainability

Expansion and Pilot Projects

Address gaps in connectivity (budget permitting)

Non-Data (T&F) Services Pilot and trials

Monitoring of Energy Usage

Cross-Border Testing

Cross-border testing of non-data services

Develop Reference System and Models for Community Use

Technology Scanning

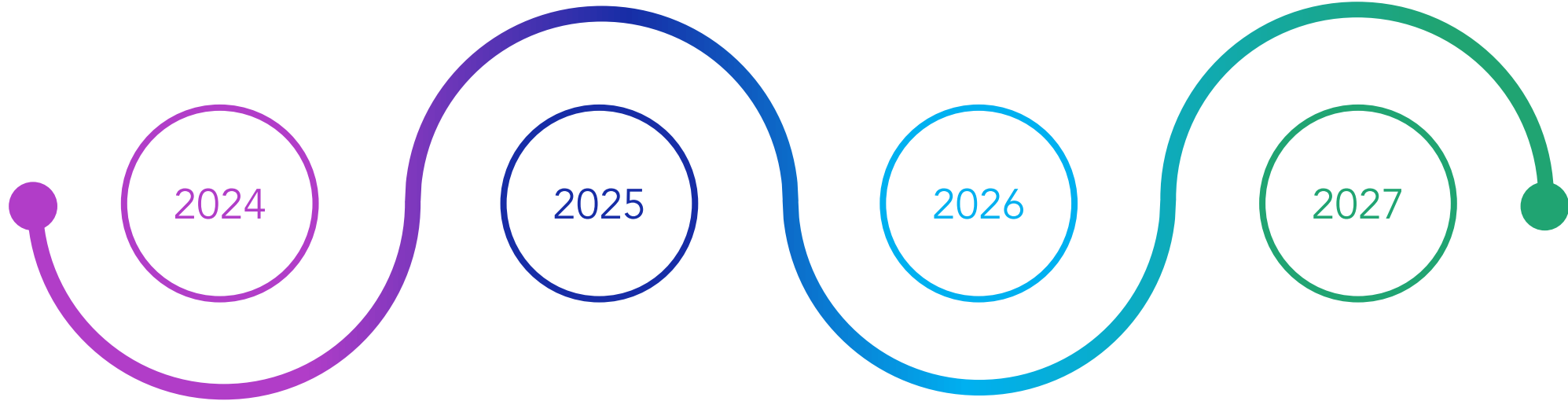
Future-Proofing

Integrate successful technologies and services into the network

Integrate and optimise network expansions and improvements

Plans for future network expansion, upgrades and technology integration

NETWORK MANAGEMENT



Automated Packet Layer

Complete configuration automation for packet layer migration

Create repository of knowledge, best practices and resources for automation

Operational Data Sharing

Evaluate the need for unified approach to data collection

Defined data model, formats and access rules to standardise data collection and sharing

Automation Starter Kit

Make vendor-agnostic starter-kit available to NRENs.

If feasible, deploy telemetry at all layers of Networks to gather operational data.

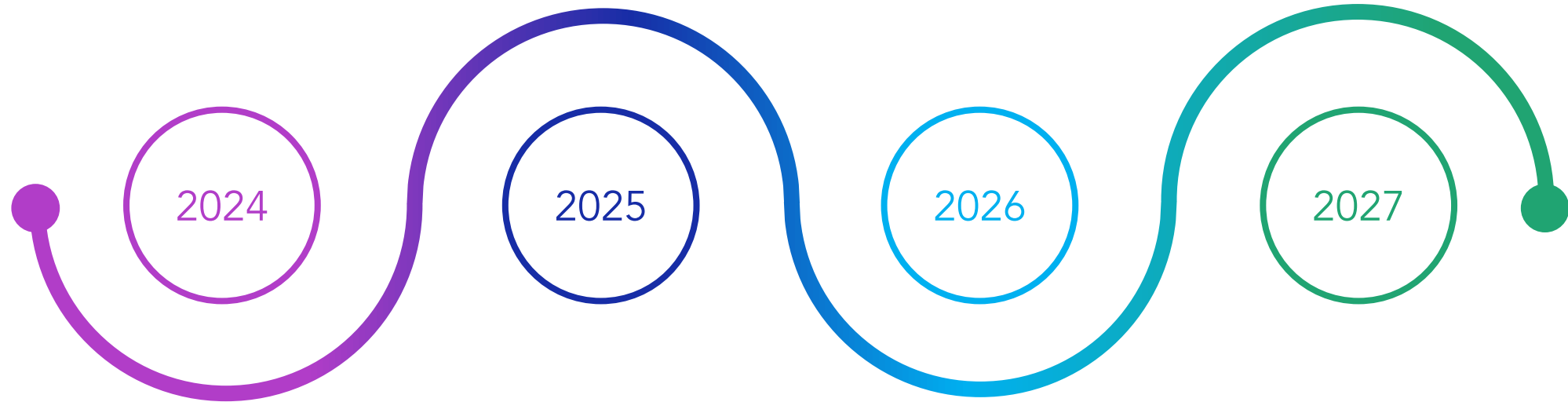
Future-Proofing

All services delivered using automated processes.

Vendor-Agnostic Network Management

Framework for GEANT and NRENs to deliver multidomain/federated services through a single entity, including the development of unified reporting system.

VENDOR ENGAGEMENT AND KNOWLEDGE SHARING



Information Gathering

Gather information from NRENs about vendors they use for different layers and likely re-procurement time frame and share with procurement team.

Create a vendor engagement plan.

Central Information Repository

Develop a centralized and accessible repository for vendor equipment testing data that NRENs and GEANT can contribute to and utilise.

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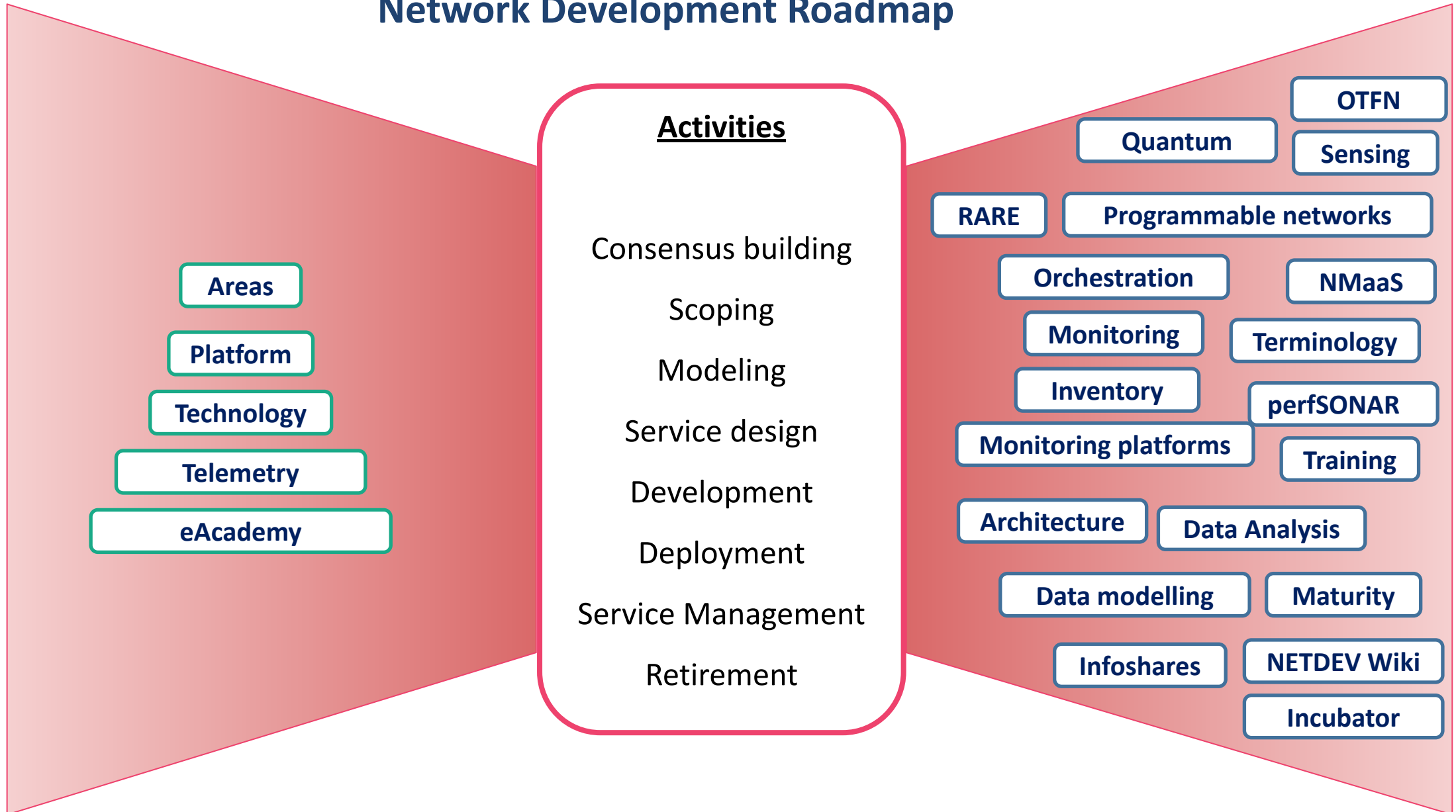
Network Development in the GÉANT Project

Network Development will undertake **technology evaluation, testing, prototyping and development** in the areas of **network infrastructure, services, monitoring and management.**

It will also **provide and support existing production services,** and work towards **the continued evolution of the GÉANT community's network infrastructures** by **defining, developing and implementing new functionalities and services** to improve the quality, flexibility and cost-effectiveness of end-user orientated services

Technology
Platforms
Monitoring
eAcademy

Network Development Roadmap





Easier
adoption of
emerging
technologies
cross-domain

Technologies

2024 - 2027 Roadmap - Technologies

	Quantum Technologies	Time and Frequency	Sensing
2024	Scoping, Consensus building	Consensus building, Scoping of potential additional work	Scoping, Consensus building
2025	Service design / Retirement	Service design / Retirement	Service design / Retirement
2026	Development	Development	Development
2027	Development towards roll-out	Development towards roll-out	Development towards roll-out



Platforms

2024 - 2027 Roadmap - Platforms

Programmable networks

Production platforms

2024

Development: Supporting existing and exploring new: hardware, software, use cases

Platform management and operations
New use cases

2025

Modeling: Platform (federated, automated) management and operations
Review/New use cases

Platform management and operations
Review/New use cases

2026

Modeling: Platform (federated, automated) management and operations
Review/New use cases

Platform management and operations
Review/New use cases

2027

Development: Towards self* networks

Platform management and operations
Review/New use cases



Full, AI-supported,
network and service
visibility through a
converged set of tools

Telemetry

2024 - 2027 Roadmap - Telemetry

	Monitoring	Data Analysis
2024	Service management Scoping: tools, network / service visibility, data models, use cases	Scoping: data sources, user stories
2025	Service management Consensus building: data sources, data models, use cases, tools	Consensus building: data models, use cases
2026	Service management; Development: Context-aware monitoring and predictions	Development: AI for decision making
2027	Service management; Towards Integrated converged automated monitoring portfolio	Development: Towards analytics for automated decision making



*Optimised
community-based
knowledge-building
toolbox aligned with
the NETDEV
strategies*

eAcademy

2024 - 2027 Roadmap - eAcademy

	eAcademy
2024	Building capacities: architecture analysis, maturity assessment, training, terminology
2025	Awareness: Data models, tools, processes, solutions, systems
2026	Collaboration: information, tools, processes, models, solutions, systems
2027	Sharing: contribute, re-use, federate, integrate

Forthcoming Events

January

- 18th GÉANT Infoshare - NETDEV Incubator - please register: <https://events.geant.org/event/1587/>
- 31st Infoshare: PTP operational issues - please register: <https://events.geant.org/event/1581/>

February

- 14th - Network Performance and Monitoring - please register: <https://events.geant.org/event/1588/>
- GNA-G Community VCs
- GNA-G Side meeting @ SCAsia 2024

March

- 5th GNA-G presentation @ Internet2 Community Exchange
- 6th Network Development in the GÉANT Project @ Internet2 Community Exchange

April

- 18th Digital Architecture Analysis Workshop, Brussels

tbd

- perfSONAR User Workshop

More to come - look at the GÉANT events page

Thank you
Any questions

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