



Network Technologies and Services Development Workshop

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27th Service and Technology Forum

20 October 2022

Zurich, Switzerland

www.geant.org

Network Technologies and Services Work Package (WP6)

- Structure
- Topics
- Achievements
- Upcoming Events
- Production Services
- Production-ready Services



Network Technologies and Services Development (WP6) Topics

Task 1: Network Technology Evolution

- TimeMap latency and jitter monitoring tool
- Optical Time and Frequency Networking (OTFN)
- Quantum Key Distribution (QKD)
- In-band Network Telemetry (INT) using Data Plane Programming (DPP)
- Router for Academia, Research and Education (RARE)
- GÉANT P4 Lab
- White box

Task 2: Network Services Evolution and Development

- Service Provider Architecture Platform (SPA)
- Network Automation eAcademy
 - Orchestration, Automation and Virtualisation (OAV) training
 - Architecture and ODA mapping
 - Wiki with the Community Portal
 - OAV Terminology
 - OAV Maturity Model
- Campus Network Management as a Service (CNaaS)
- Data Transfer Nodes

Task 3: Monitoring and Management

- perfSONAR
- Performance Measurement Platform (PMP)
- Network Management as a Service (NMaaS)
- WiFiMon
- Argus
- Network Telemetry
 - 100G monitoring/measurement
 - P4-based flow monitoring

<https://wiki.geant.org/display/NETDEV>

NETDEV

NETDEV In Numbers

- 30+ Topics Explored
- 3 New Production services
- 7 Production services in total
- 9 Deliverables
- 10 Milestones
- 24 White Papers
- 3 Scientific Papers
- 270+ Presentations
- 20 Events Organised by WP6
- 25 Learning Units Published
- 6,2+ mil EUR budget in 4 years
- 33 Participating Organisations
- 23 Participating Countries
- 88 Team Members

NETDEV Team

WP6 Leaders:

Tim Chown (Jisc), Ivana Golub
(PSNC)

Task Leaders:

T1: Xavier Jeannin (Renater)
T2: Roman Lapacz (PSNC),
Maria Isabel Gandia Carriedo
(CSUC/RedIRIS)
T3: Pavle Vuletić (UoB)

Network Technologies and Services Development (WP6)

T1: Network Technology Evolution

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T2: Network Services Evolution and Development

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 - OAV Maturity Model **NEW!**
- Campus Network Management as a Service (CNaaS)
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T3: Monitoring and Management

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● Production

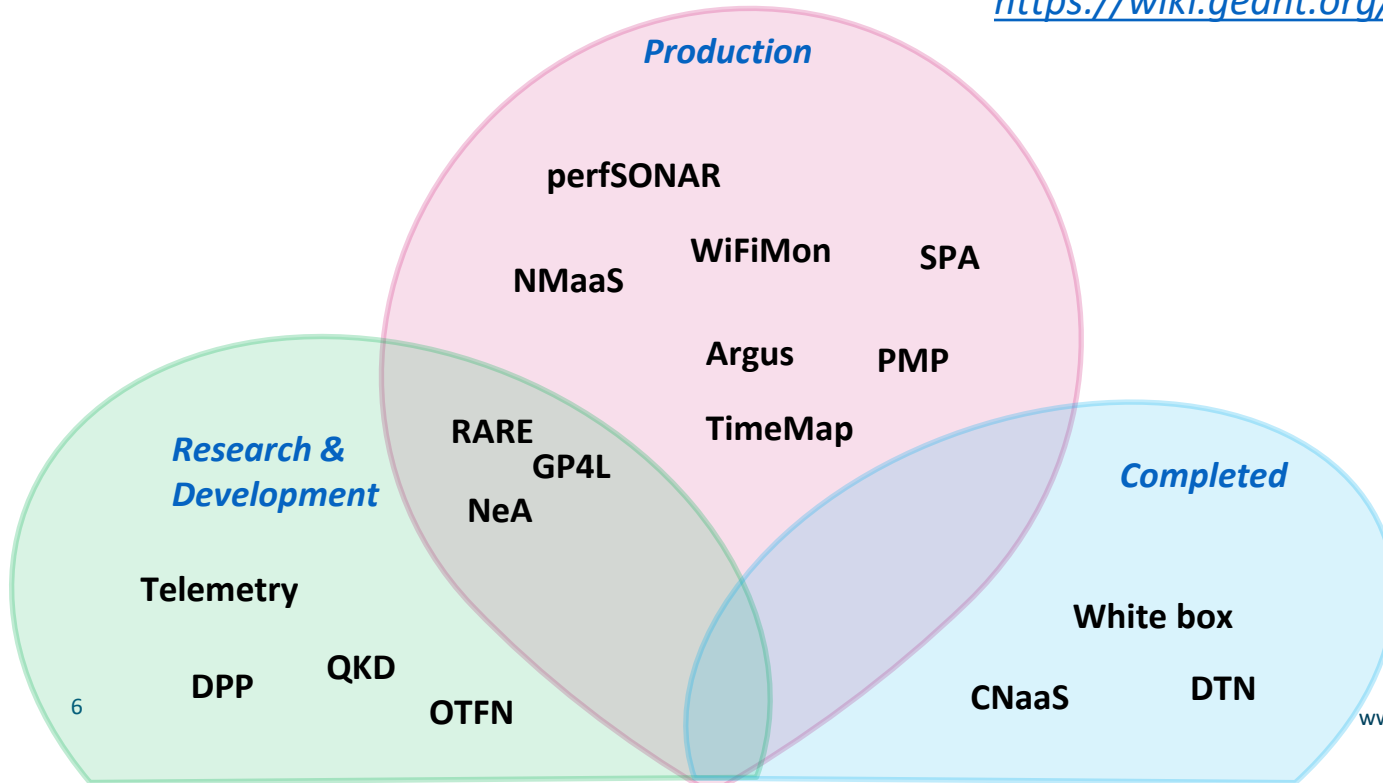
● Research and Development

● Completed

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Network Technologies and Services Development (WP6)

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Production Services

A production service passes a serious list of independent evaluations and checks:

- ✓ **Used in an operational environment**
- ✓ **Code security and quality checked**
- ✓ **Intellectual Property Rights checked**
- ✓ **GDPR checked**
- ✓ **Service Definition completed**
- ✓ **Cost Benefit Analysis in place**
- ✓ **Business development and roadmap defined**

NETDEV Production Services

perfSONAR

Performance
Measurement
Platform



WiFiMon

SPA *Service Provider
Architecture*

NMaas

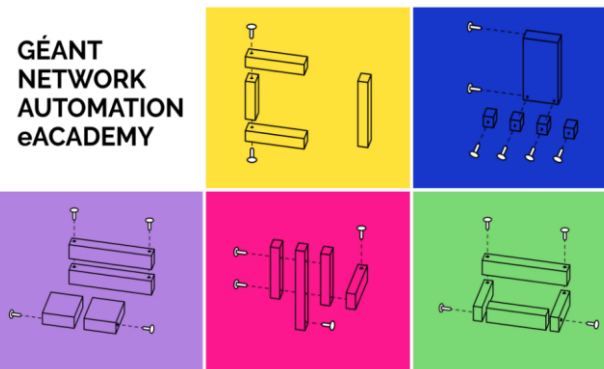
ARGUS

TimeMap

Production-ready Services

Undergoing preparation and evaluation for production

- Network eAcademy
- RARE - Router for Academia Research and Education
- GÉANT P4 Lab – GP4L



More about our work @ upcoming events

2022

- **21 October** [Maturity Model for Orchestration, Automation and Virtualisation](#)
- **16-17 November** [17th SIG-NOC: “Kilowatt hour per Gigabyte - How hungry is your network?”](#)
- **23 November** [GNA-G Community VC \(6-8 am UTC & 8-10 pm UTC\)](#)
- **24 November** [In-band Network Telemetry infoshare](#)
- **25 November** [Quantum Key Distribution Deployments infoshare](#)
- **28 November** [Argus](#)
- **1-2 December** [Quantum Internet Hackathon](#)
- **8 December** [I2 TechEx:](#)
 - * Time and Frequency Services in NREN Networks
 - * Monitoring the Hidden: TimeMap
 - * Network Automation eAcademy

2023

- **14 April** [Celebrating The World Quantum Day](#)

Find out more about the WP6 work

<https://wiki.geant.org/display/NETDEV>

White Papers

OAV Community Portal

Code repositories

NETDEV Home

Created by Linda Ness, last modified by Susanne Naegele-Jackson on May 28, 2021

GN4-3-WP6: Network Technologies and Services Development

This work package is mainly oriented towards prototyping and piloting new network services. It undertakes evaluation of new and promising network technology in the areas of network infrastructures and network services innovation. In addition, it is responsible for Network Management and Monitoring services and their evolution (provision of operational services).

Objectives

- Enhancements to the existing and/or creation of new services/products/tools through the assessment, validation and implementation of relevant network technologies and services.
- Building and maintaining consensus in the GÉANT community on a future direction for architectures for orchestrating and automating deployment of network services, and on the necessary monitoring and management platforms to support both the services and their underlying network infrastructure(s).
- Promoting wider adoption of general service orchestration and automation principles within the NREN community through consensus building discussions, workshops and dissemination activities.
- Enhancing GÉANT and NREN knowledge transfer through a variety of dissemination activities related to network technologies and services, and network monitoring and management and to build communities of interest around those services and technologies.

Deliverables and Milestones

OAV Training

Digital Architecture Mapping



WP6 Production Services	
WiFiMon	
NMaaS	
perfSONAR	
Performance Measurement Platform (PMP)	
WP6 Production Software	
SPA Service Provider Architecture	Service Provider Architecture (SPA)

Production services

Development

Presentations

Recordings

Digital Architecture & Automation	
OAV Architectures	
Orchestration, Automation and Virtualisation (OAV)	
OAV Training Portal	
Applied Automation	
Campus Network Management-as-a-Service	
OAV Community Portal	

Research & Development	
Optical Time and Frequency Networks (OTFN)	
Quantum Key Distribution (QKD)	
RARE - Router for Academia Research and Education	
In-Band Network Telemetry (INT)	
DTN - Data Transfer Nodes	
White Box	White Boxing

NETDEV Workshop Agenda

Time	Duration	Title / Description	Presenter/Moderator
9:00-9:10	10 min	Introduction	Ivana
9:10-10:20	(70 min)	Existing services	Moderator: Ivana
	10	Service Provider Architecture	Roman - remotely
	10	perfSONAR	Szymon
	10	PMP	Szymon
	10	NMaaS	Lukasz
	10	WiFiMon	Pavle
	10	Argus	Vidar
	10	Q&A	
10:20-10:40	20	Break	
10:40-11:50	(70 min)	New services	Moderator: Pavle
	10	TimeMap	Xavier
	10	NeA	Maria Isabel
	10	RARE	Frederic, remotely
	10	GP4L	Frederic, remotely
	30	Q&A	
11:50-12:00	10	Wrap-up and closure	

Thank you

Any questions?

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