Network Technologies and Services Development Workshop

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Tim Chown (Jisc)
Pavle Vuletić (UoB/AMRES)

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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- Production
- Research and Development
- Completed

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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
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

https://events.geant.org/
Find out more about the WP6 work

https://wiki.geant.org/displayNETDEV

NETDEV Home
Created by Linda Ness, last modified by Susanne Naegle-Jackson on May 28, 2021

Data-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.

White Papers
OAV Community Portal
Code repositories

Deliverables and Milestones
OAV Training
Digital Architecture Mapping
## NETDEV Workshop Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Title / Description</th>
<th>Presenter/Moderator</th>
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<tbody>
<tr>
<td>9:00-9:10</td>
<td>10 min</td>
<td>Introduction</td>
<td>Ivana</td>
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<tr>
<td>9:10-10:20</td>
<td>(70 min)</td>
<td><strong>Existing services</strong></td>
<td>Moderator: Ivana</td>
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<td>10</td>
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<td>Service Provider Architecture</td>
<td>Roman - remotely</td>
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<td>perfSONAR</td>
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<td>NMaaS</td>
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<td>WiFiMon</td>
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<td>Argus</td>
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<td>Q&amp;A</td>
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<td>10:20-10:40</td>
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<td>Break</td>
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<tr>
<td>10:40-11:50</td>
<td>(70 min)</td>
<td><strong>New services</strong></td>
<td>Moderator: Pavle</td>
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<td>TimeMap</td>
<td>Xavier</td>
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<td>NeA</td>
<td>Maria Isabel</td>
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<td>RARE</td>
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<td>Frederic, remotely</td>
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<td>30</td>
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<td>Q&amp;A</td>
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<td>11:50-12:00</td>
<td>10</td>
<td>Wrap-up and closure</td>
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Thank you

Any questions?

Email: netdev@lists.geant.org

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