

PMc21

Project Management Convention for GN4-3 & GN4-3N



Network Technologies and Services Development - WP6 Current Status

Ivana Golub, WP6 Lead, PSNC
Tim Chown, WP6 Lead, Jisc



As part of the GÉANT 2020 Framework Partnership Agreement (FPA), the project receives funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 856726 (GN4-3).

Agenda

Current status of the WP6 activities

What went well

What can be improved



Network Technologies and Services Development

Work Areas



T1: Network Technology Evolution

- Low Latency networking (LoLa)
- Optical Time and Frequency Networking (OTFN)
- White box networking
 - CPE Normandy, RENATER
 - Internet Exchange Point (IXP), RENATER
 - CPE, FUNET
 - Data centre, GRNET
 - White box performance testing, PSNC
- Router for Academia, Research and Education (RARE)
- Data Plane Programming (DPP)
- Quantum Key Distribution (QKD)

WP6 umbrella page:

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

T2: Network Services Evolution and Development

- Service Management Platform
- Orchestration, Automation and Virtualisation (OAV)
 - Architecture
 - Training
 - Wiki with the Community Portal
 - Campus Network Management as a Service (CNaaS)
 - Data Transfer Node Infrastructures (DTN)
 - Terminology

T3: Monitoring and Management

- perfSONAR
- perfSONAR Consultancy
- Performance Measurement Platform (PMP)
- Network Management as a Service (NMaaS)
- WiFiMon
- Network Telemetry

Task 1: Network Technology Evolution

Task Leader: Xavier Jeannin (RENATER)



Low Latency Networking

LoLa

- GÉANT network jitter weather-map prototype: <https://timemap.geant.org/>
- User and uptake engagement in progress

Optical Time and
Frequency Networking

OTFN

- Testing in progress: in GÉANT, NREN interconnectivity
- White paper published; infoshare in preparation

White Box
for R&E networks

- RENATER CPE and IXP in production
- FUNET CPE and GRNET Data Centre solutions in deployment
- Performance testing in progress, white paper in preparation

Router for Research
and Academia

RARE

- Continued development: new features, new platform, the GÉANT P4 Lab
- Increase in interest continues – Connection with the international P4 testbed

Data Plane
Programming

DPP

- INT testing environment running across production NREN infrastructure
- Evaluation of the NRENs' interest in progress

Quantum Key
Distribution

QKD

- Collaboration and knowledge sharing – white paper, infoshares
- Technology evaluation; planned proof of concept with Toshiba

Task 2: Network Services Evolution and Development

Task Leader: Roman Lapacz (PSNC)



Service Provider Architecture SPA

- Continued development and support to the GCS service
- Service promotion – wiki, events
- Migrated to the new production and testing infrastructure



Orchestration, Automation, Virtualisation OAV

Led by Maria Isabel Gandia Carriedo (CSUC/RedIRIS)

OAV focus groups status:

- **Architecture** – NREN-ODA mapping in progress, more white papers to come
- **Training** – regularly publishing new modules
- **Wiki** – new content, updating, enhancing
- **Campus Network management as a Service (CNaaS)** – coordination and promotion of individual NRENs' efforts

Completed OAV focus groups:

- **Data Transfer Nodes (DTN)** – reported in a white paper and an infoshare
- **Terminology** – accepted by the GNA-G Automation WG, new version published

Task 3: Monitoring and Management

Task Leader: Pavle Vuletić (UoB/AMRES)



perfSONAR

- Continued development and support in the Global team; RNP – new partner
- 2nd European perfSONAR User Workshop preparation in progress



perfSONAR Consultancy

- Providing support to the GÉANT community
- RENATER, Jisc



Performance Measurement Platform PMP

- Continued maintenance and support
- Node replacements in preparation



Network Management as a Service NMaaS

- Continued development and maintenance: new features, new tools
- User support, uptake increase due to the collaboration with RARE



new!

WiFiMon

- New installations in preparation in RASH, GRENA, UoB
- Collaboration with eduroam initiated



Network Telemetry

- In-band Network Telemetry (INT) testing for network service monitoring
- New testbed is being built on GTS

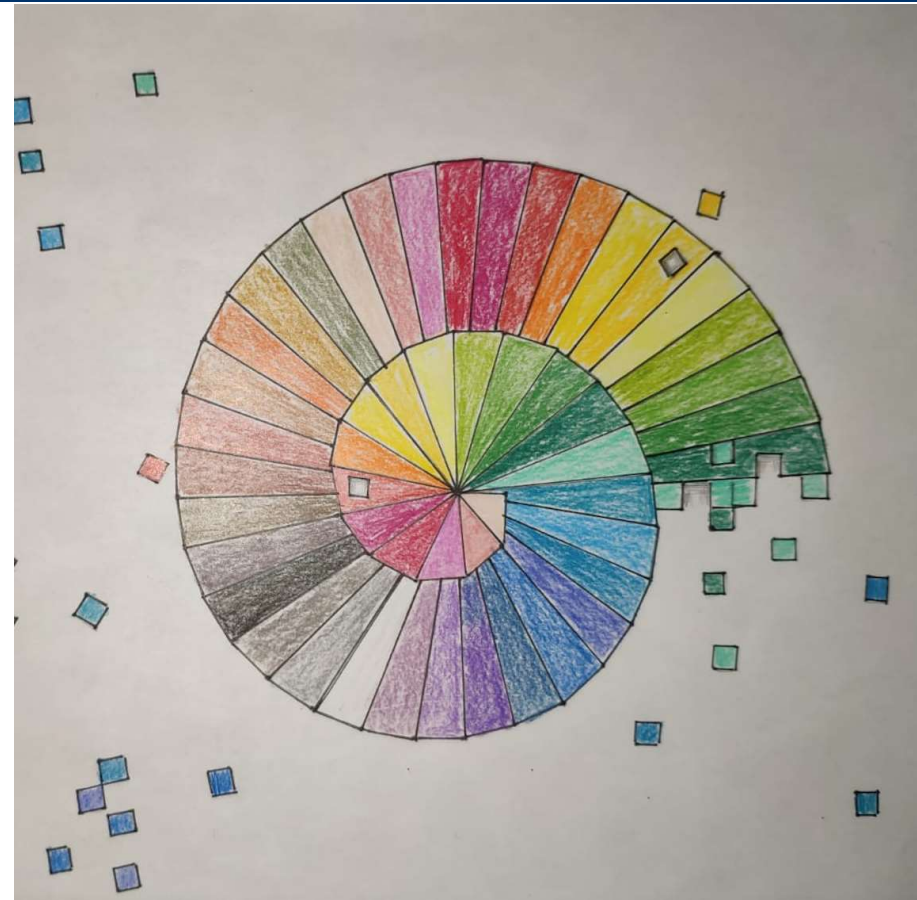
What went well

WP6 team members engagement and collaboration

- Positive approach and strong engagement of most of the team members:
82 persons, 34 organisations, 23 countries, 21 partner
- 6 Deliverables and 7 Milestones delivered on time
- (Mostly) Recovering from staff leaving
- All KPIs exceeded

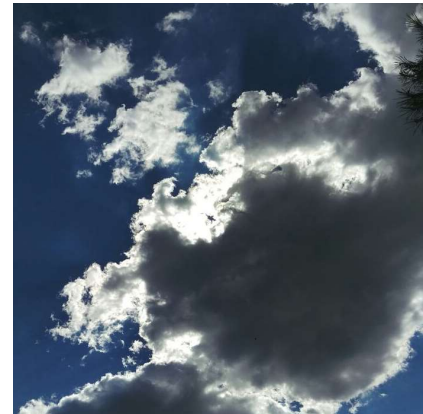
Dissemination:

- **12** white papers/documents published
- **46** events, out of which **20** are organised and **3** co-organised by WP6



- **Recovering NREN underspend - enabling agility in work items**
 - Total projected WP6 underspend estimated to be approx 500.000 EUR
 - BUT no or slow response from NRENs when contacted about the underspend
- **NREN engagement - improving uptake and increasing value**
 - Attendance at the infoshares is good, however
 - Solicitation for use cases and invitations for participation mostly end up with silence
 - Promotion to NREN institutions (user sites) and individuals; particularly for WiFiMon and NMaaS

Help needed!



Thank you

Any questions?



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Network Technologies and Services Development - WP6 Looking ahead 2021

Ivana Golub, WP6 Lead, PSNC
Tim Chown, WP6 Lead, Jisc



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Agenda

Y3 plans for the WP6 activities

What we need help with



Network Technologies and Services Development

Work Areas – Looking ahead



T1: Network Technology Evolution

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T2: Network Services Evolution and Development

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T3: Monitoring and Management

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- Network Telemetry

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Task 1: Network Technology Evolution

Task Leader: Xavier Jeannin (RENATER)



Low Latency networking **LoLa**

- Continue the work on the weather-map
- Working with GÉANT and NRENs for uptake in their environment

Optical Time and Frequency Networking **OTFN**

- Continue testing: in GÉANT, NREN interconnectivity
- More infoshares and collaboration

White Box

- White box evaluation and performance verification
- Finalising use cases (FUNET, GRNET, RENATER IX) and white papers; dissemination

Router for Research and Academia **RARE**

- Continued development: new features, new platform, the GÉANT P4 Lab
- User engagement and promotion

Data Plane Programming **DPP**

- Tests extended in scope: protocol, platform; release code publicly
- Evaluation of NREN interest to extend work

Quantum Key Distribution **QKD**

- Collaboration and knowledge sharing – white paper, infoshares
- Technology evaluation; proof of concept with Toshiba on GÉANT fibre

Task 2: Network Services Evolution and Development

Task Leader: Roman Lapacz (PSNC)



Service Provider Architecture SPA

- Continued development and support to the GCS service
- Service promotion – wiki, events
- Stand-alone software as a service



Orchestration, Automation, Virtualisation OAV

Led by Maria Isabel Gandia Carriedo (CSUC/RedIRIS)

OAV focus groups in Year 3:

- **Architecture** – continue NREN-ODA mapping, white papers
- **Training** – Complete two phases (by June 2021) and evaluate continuation
- **Wiki** – new content, updating, enhancing
- **Campus Network management as a Service (CNaaS)** – evaluate logging aggregation work (T3); determine FG's future

Start new FGs and/or re-activated completed if a clear need arises.

Task 3: Monitoring and Management

Task Leader: Pavle Vuletić (UoB/AMRES)



perfSONAR

- New major version; development and support in the Global team
- Ongoing engagement, including 2nd European perfSONAR User Workshop



perfSONAR Consultancy

- Continue to provide support to the GÉANT community



Performance Measurement Platform PMP

- Continued maintenance and support for the production PMP
- Evaluate additional measurement tools, use of AI for analysis



Network Management as a Service NMaaS

- Continued development and maintenance: new features, new tools
- User engagement; securing and onboarding new users



WiFiMon

- Continued development, maintenance and collaboration with eduroam
- User engagement; securing and onboarding new users



Network Telemetry

- Complete testbed deployment to support INT network service monitoring
- Follow up community interest in sharing large scale network telemetry data

We need help with



Licensing and IPR

Defining and aligning within the WP,
the project and with NRENs

Recovering underspend from NRENs

To support greater agility in extending /
starting new work items

User engagement

Confirming ongoing NREN commitment
to work items

Increasing uptake of production services

Thank you

Any questions?



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