GÉANT Infoshares: White Box in NREN context

Network Technology Evolution task

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GÉANT Infoshares, 8 Dec. 2021

Public

www.geant.org

gn4-3-wp6-t1-wb@lists.geant.org

GÉANT Infoshares are intended to create a space to engage, improve knowledge sharing and discussion about services and strategic topics, and to build a human network across the Research and Education community.

Co-organised by Network Technologies and Services Development Work package (WP6), together with GÉANT Partner Relations Team, within the Community Programme

Public Infoshares are on Wednesdays and are recorded

Other Infoshares will be ‘invitation only’ events on other weekdays

Go to the main Infoshares Wiki page to suggest future topics

Recordings are available in the e-Academy, GLAD website and on Wiki pages after the event

Questions: partner-relations@GÉANT.org

WP6 – White Box for Research & Education

- Evaluate whether white box technology is a real opportunity for the R&E community?

- Use-case focused approach:
  - Technical validation – switch and routing features, management features (monitoring, etc.) including security
  - Management (maintenance, integration in the NREN router estate, …)
  - Business model: License model and Total Cost of Ownership
  - Strategic aspect: independence, relationship with vendor, NREN strategic plan
  - Validation of the use case
  - Feedback on the deployment

- Use case studied: Small CPE, large CPE, Programmable CPE (RARE), Provider Router (P), data centre fabric, GIX

WP6 – White Box for Research & Education

- The studies, assessments and production reports are available on
  - our WIKI: https://wiki.geant.org/display/NETDEV/WB
  - Deliverable D6.7 Network Technology Evolution Update

- Contact us at gn4-3-wp6-t1-wb@lists.geant.org

- Alain bidaud (SYVIK)
- Bojan. Jakovljevic (AMRES)
- Jani Myyry (FUNET)
- Maxime Wisslé (RENATER)
- Tomasz Szewczyk (PSNC)
- Theodore Vasilopoulos (GRNET)
- Xavier Jeannin , task leader

- Ivana Golub, Work Package Leader
- Tim Chown, Work Package Leader

White Box (WB)

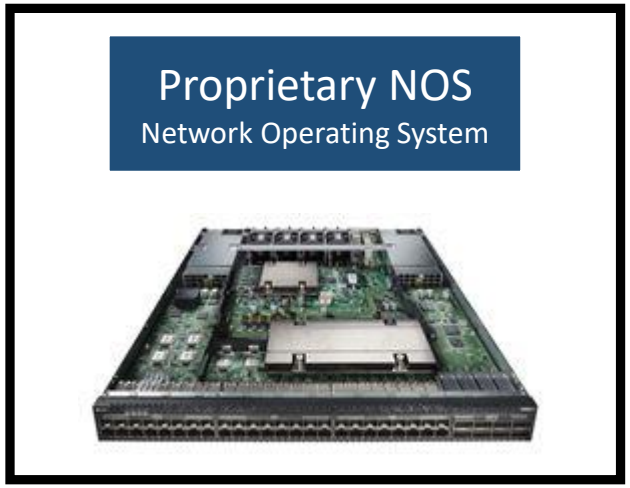
- A white box is a switch or router manufactured from commodity components that allows different Network Operating Systems (NOSs) to be run on the same hardware, decoupling the NOS software from the hardware.

Proprietary design

- **Business model**
  1. Proprietary hardware design
  2. Proprietary NOS
  3. Hardware maintenance
  4. NOS maintenance

- **Dependence from your providers**

- **Vendor lock-in**



White box design

- **Business model**
  1. Proprietary ardware design with the maintenance
  2. Proprietary NOS with the maintenance

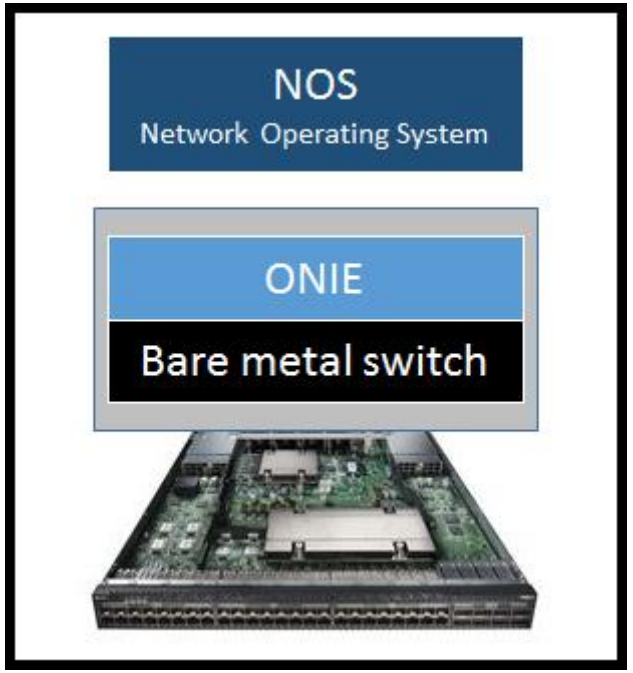
- **Based on commodity components**

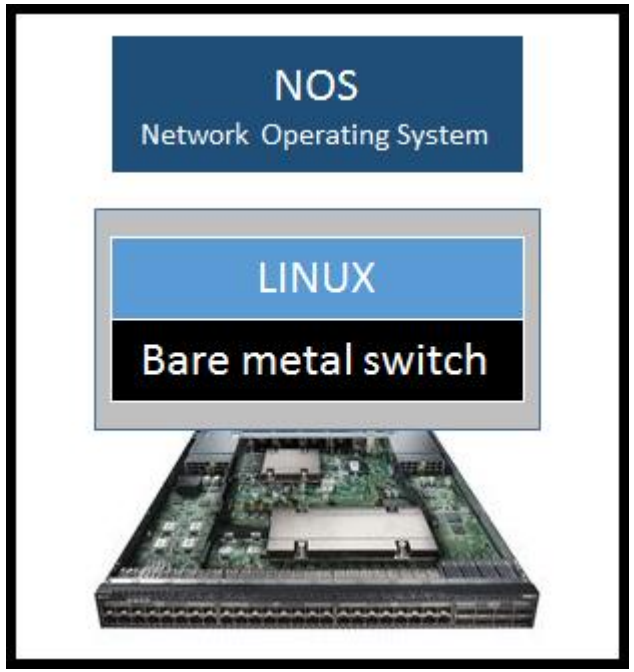
- **Independence from your providers**

- **Avoid vendor lock-in effect**

NOS installation on a white-box

- Open Network Install Environment (ONIE)
- Based on a Linux system





Agenda

- Introduction
- RENATER GIX – Maxime Wisslé (RENATER)
- CPE, Normandy regional network – Alain Bidaud & Sébastien Vigneron (SYVIK)
- CPE FUNET - Jani Myyry (FUNET)
- *15:15 - Break*
- Data Center - Theodore Vasilopoulos (GRNET)
- CPE based on programmable white box - Jordi Ortiz (University of Murcia)
- Network device validation - Tomasz Szewczyk (PSNC)
- Wrap-up and discussion

Coffee Break

Any questions?

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The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 856726 (GN4-3).

Next Network Technologies and Services Development WIKI

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

WP6 Production Services

- WiFiMon
- NMaaS
- perfSONAR
- Performance Measurement Platform (PMP)

WP6 Production Software

- Service Provider Architecture (SPA)

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
- GÉANT P4 LAB (GP4L)
- Data Plane Programming (DPP)
- DTN - Data Transfer Nodes
- White Boxing
- Multicast Testing
- 100G Network Monitoring & Performance Testing
- Timemap

Discussion

- We will ask few question thanks to Mentimeter
  - Please, Go to **www.menti.com** and use the code **8084 0170**

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Thank you

Any questions?

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