# Improving Infrastructure, Service and Knowledge by "Campus Best Practices" Model

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* Some slides from UNINETT GN3/ NA3/T4 task members

# University of Belgrade – since 1808

- University has been constantly developing, thus turning into the biggest and oldest higher education institution in the region consisting of
    - 31 faculties,
    - 10 scientific research institutes,
    - University Library,
    - six University Centers,

    with almost

    - 80000 students and
    - 7000 professors, researchers and teaching associates, who comprise the major part of the educational and scientific potential of Serbia.

# University of Belgrade Computing Centre



- Technical department of UoB known as **RCUB** responsibilities
  - central infrastructure and operational node in NREN of Serbia
  - MAN in Belgrade
  - Campus area within Belgrade
- **IT staff in member institution (faculties and research institutes)** responsible
  - LAN and service in their buildings, i.e. campuses
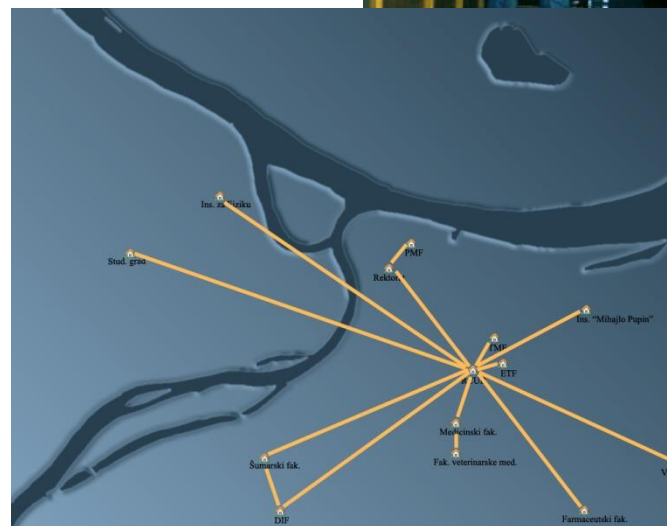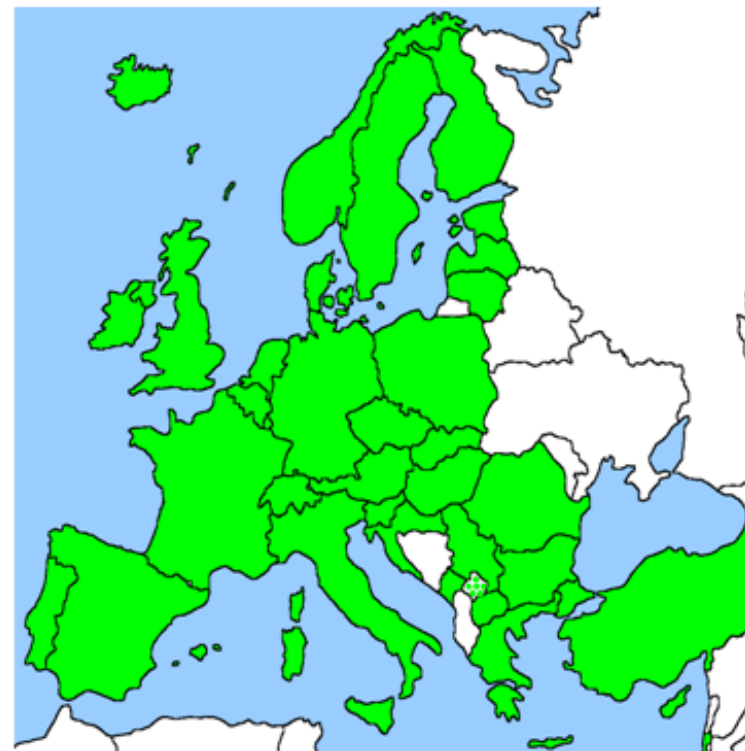
# The GÉANT projects
## GN3: 2009-2013   GN3+: 2013-2015

- 40 European countries
- 93 million Euro funding from EC
- Divided into 45 tasks

Objective

- Enable research communities across Europe to transform the way they collaborate
- Enhance networks and services
- Fight the "digital divide" across Europe

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# Campus Best Practices
# - continues in GN3+

- From April 2013 – nine countries:

  - Norway (UNINETT)
  - Finland (CSC/Funet)
  - The Czech Republic (CESNET)
  - Serbia (AMRES)
  - France (RENATER)
  - Portugal (FCCN)
  - Bulgaria (BREN)
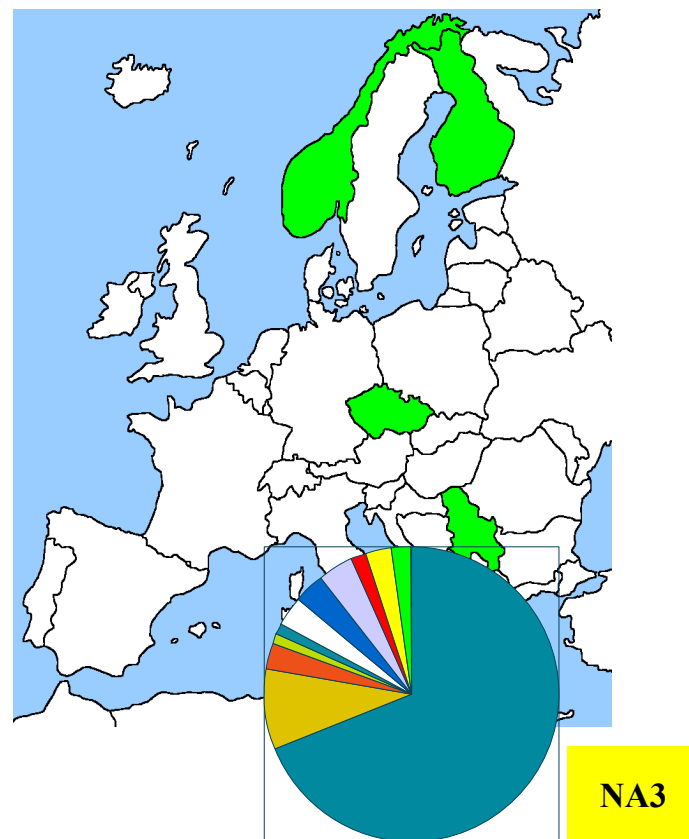  - Montenegro (MREN)
  - Macedonia (MARNET)

# Campus Best Practices
## - a task within GN3 project

- Four countries:
    - Norway (UNINETT)
    - Finland (CSC/Funet)
    - The Czech Republic (CESNET)
    - Serbia (AMRES)
- 3.5 man years per year

Objective
- Address key challenges for campus networks
- Organise working groups
- Provide best practices
- Disseminate results across Europe

NA3

# Motive - improve the deployment of key services in campuses

- Upgrade campus infrastructure, their services and its local IT expertise
  - NREN occasionally organize activities to help campuses

- Is there any **organizational model** such that
  - Continually carried out in NREN
  - Campuses can count on the support
  - Involves the campuses

- The need for such model increases
  - End-to end services
  - Synchronize the development of the network segments under the different scope of responsibilities - NREN and/or campuses
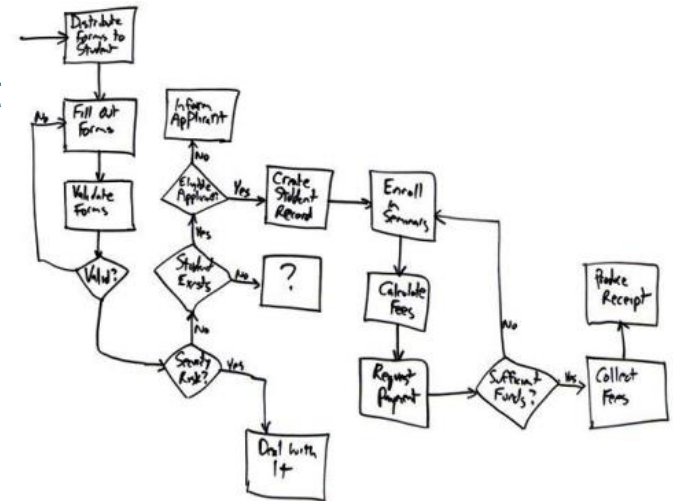
# Initial step - facilitate campus community to exchange experiences

- Key idea "community building"
  - It is not enough to connect networking dev
  - Encourage Cooperation between:

    *(not just) campus – NREN*

    *campus – campus (also)*

- Organize a **WORKSHOP**
  - Way to invite the widest range of people

    *from research and education institutions*

  - Explain basic concepts

    *working groups*

    *Campus Best Practice Documents*

  - Introduction to step 2 => Establish an inner core of contributors

**Community building takes time**

# An example of useful cooperation: eduroam

- Thousands of universities across Europe…
  - Same ICT challenges and questions (more or less)

- How do we set up eduroam?
  - Radio planning
  - Wireless controller setup
  - Security
  - Encryption (802.1X)
  - Radius setup
  - User database integration (AD/LDAP/other)
  - Certificates (CA)
  - Supporting smart phones / tablets
  - Monitoring
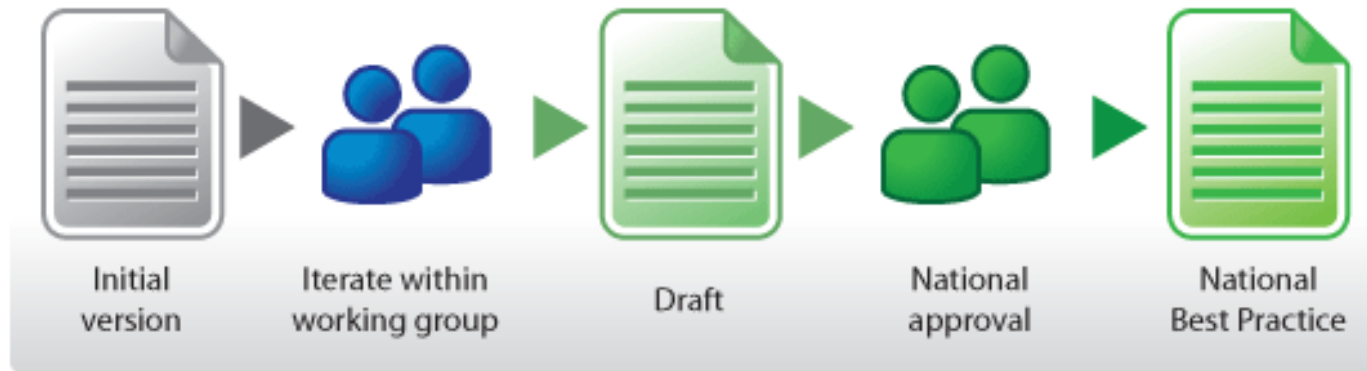  - etc, etc

- Can we learn from others?

# Campus Best Practices
# Working groups

- Provide an arena for people working with similar technical <u>campus</u> challenges

- Present and discuss challenges and solutions (in local language)

- Six areas of focus:
  - Physical infrastructure
  - Campus networking
    - *IPv6, ligthpaths*
  - Wireless infrastructure
  - Network monitoring
  - Security
  - Real-time communications

- Discuss best (and worst) practices

  - Input for Best Practice Documents

# Best Practice Documents



| Initial version | Iterate within working group | Draft | National approval | National Best Practice |

How are they produced?

- Initial draft  - facilitate by NREN
- Iteration until rough consensus in working groups
- Open hearing period (of minimum 4 weeks)
- Approved by IT director at University

- Best Practice Documents are the most visible results of Campus Best Practice Model
- GEANT focus - on the three blue levels
- There are  …
  - … more steps
  - … another results

3    Make own national best practices

2    Working groups discuss best practices

1    Workshops to share experiences
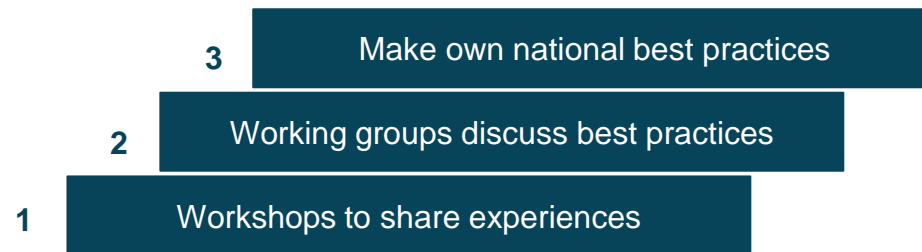
- If intend to set up a national activity
  - Follow the Campus Best Practice 6 step Staircase
- Move to the next level when ready for
  - budget support
  - mature community

| | |
|---|---|
| 6 | Assist implementations on campus |
| 5 | Active counselling on campus |
| 4 | Common national procurements |
| 3 | Make own national best practices |
| 2 | Working groups discuss best practices |
| 1 | Workshops to share experiences |

# Campus Best Practice Activities in Serbia

- Before GN3/NA3/T4
  - 4 of 6 step carried out occasionally
  - campuses can not rely on continuous NREN activity
  - no experiences with two key activities – no joint effort on production of BPDs in NREN of Serbia
- Initial Challenges:
  - Explaining idea of WG and BPD to community
    - *Use solutions that fit to own situation*
  - Selecting area of interest and subjects of first BPDs

# Selecting area of interest

- Criteria – needs, experience, interest for
  - Physical Infrastructure:
    - *Urgent and/or continual improvements needed (in parts of NREN network)*
    - *Benefit from UNINETT experience:*
      - *Cabling, Requirements for data centers and network rooms, Cooling and Powering*
  - NMS
    - *NMS tools & Previous Effort in Campuses*
  - Security
    - *Raise the common level of security within the network*
    - *Wide area of topic (firewalls, CERT, AAI)*

# Selecting the subject of BPDs (cont.)

- Remarks about the subject:
  - Areas which need continual improvements, such as phy topic, email spam, filtering, network monitoring …
    - *WG members can contribute to national BPDs*

  - Areas in which NREN is not yet developed but keeping pace with in others, such as eduroam, and wireless, IPv6 …
    - *WG members must gather some experience to be able to contribute*
    - *"Is there some BPD about …?"*

  - Area which is still under development and where different approaches are possible – several current practices instead of best practice, such as AAI topic

# Recommendations regarding the initial steps

- Do not have to be ambitious at the beginning (just start)

- Benefit from other NRENs experience, use already prepared BPDs

- Can try with existing BPDs and try to discus
  - If it cover your needs in proper way
  - How to change it and adopt it to your situation

- Gain proper understanding and support for campus activities in NREN

# Getting Support for Campus Best Practice Activities in Serbia

- Activities towards the campuses – adopted through GEANT project
- Facilitator – Dedicated campus project team - can be:
  - NREN
  - Consortium of Universities
- Proliferate idea to other Stakeholders
  - Campus level participants
  - Government and Funding Bodies
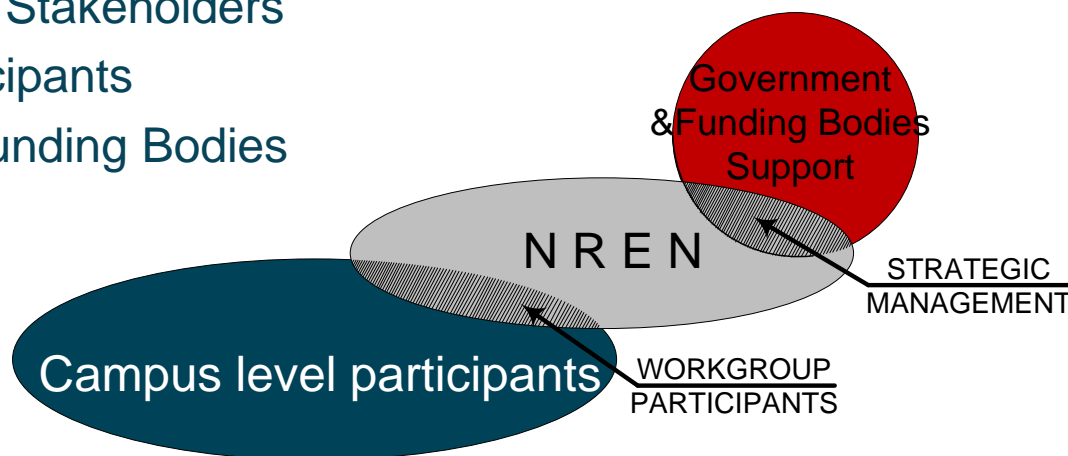
# Best Practice Documents
# Published in English and Serbian

- Find on the page with all

  **Campus Best Practice documents**

  - http://www.geant.net/cbp/
  - http://www.terena.org/campus-bp/
  - Currently 58 documents available

- **Announcements of new documents:**
  - campus-bp-announcements@terena.org

- Version in Serbian on
  - https://www.bpd.amres.ac.rs/

- **Campus Best Practice Team:**
  - gn3campus@uninett.no

**Physical Infrastructure (9)**
   Cabling, power, cooling, AV, etc

**The campus network (10)**
   The network itself,
      including IPv6 deployment

**Real-time comm. (5)**
IP telephony and SIP

**Network monitoring (9)**

**Wireless (7)**
Including eduroam deployments

**Security (4)**

# Dissemination – efforts so far (GN3/NA3/T4)

- Organise workshops at the
  **European level**
  - Network monitoring
  - Real-time communications
  - IPv6
  - Wireless

Organise workshops at the
**National level**
- Macedonia
- Slovenia
- Lithuania
- France

Present papers at **conferences**
- European conferences (TERENA, EUNIS, IEEE)
- National conferences (France, Denmark, Croatia, Romania…)

# Thank you!

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