

# The 6DISS Project and its Opportunities for the African Continent

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The 6DISS Project: Key Data

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Motivation

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6DISS Objectives

4

6DISS Toolkit

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Conclusion and Outlook

- Partners:



- Start date: 1st April 2005
- Duration: 30 months
- Total cost: € 1'053'265 (76.5PMs)
- EC funding: € 899'908





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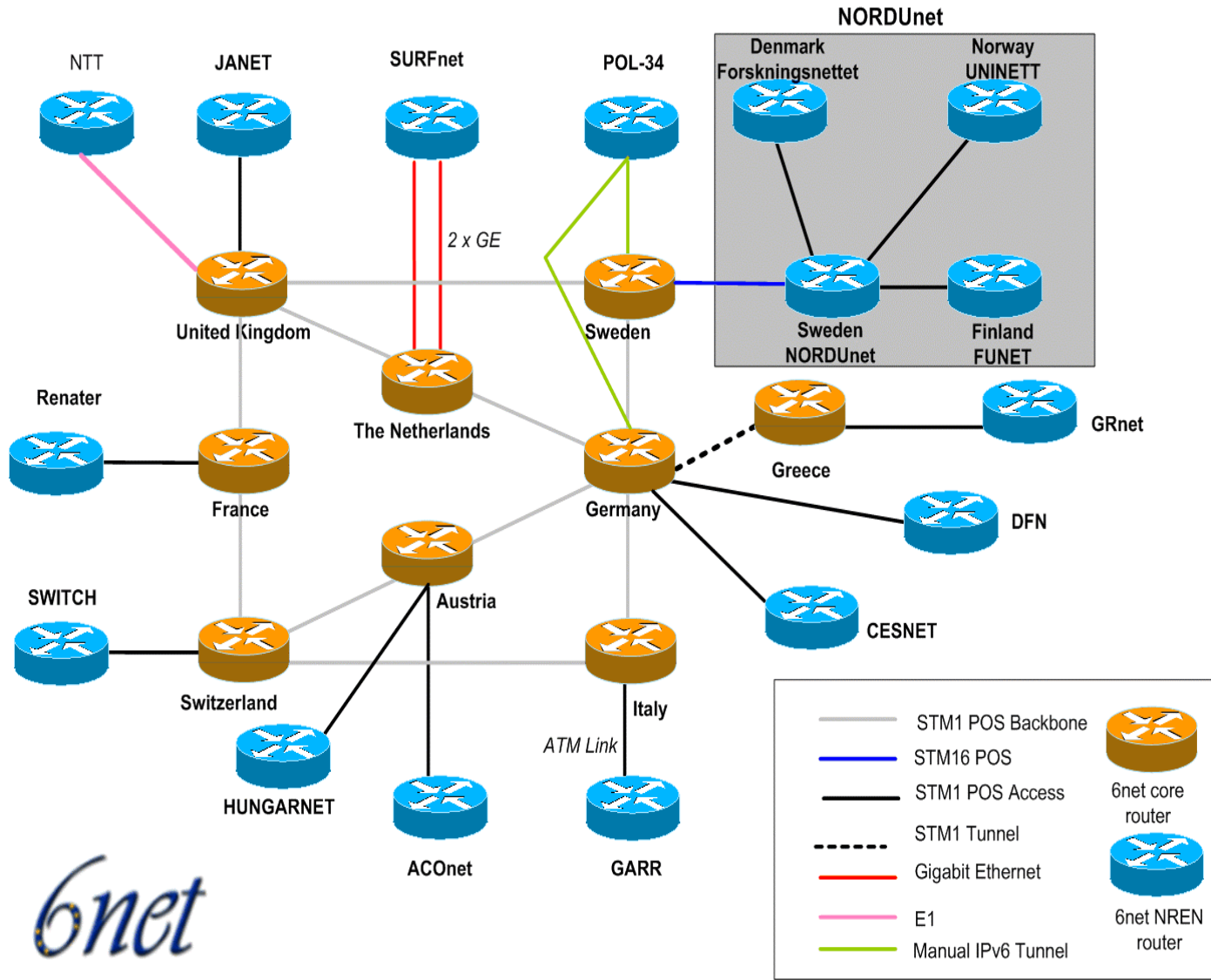
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Conclusion and Outlook

- 6DISS: IPv6 **6DISS** emination and Exploitation  

- [www.6diss.org](http://www.6diss.org)
- Why IPv6?:
  - Larger addressing range ( $3.4 \times 10^{38}$  IP addresses)
  - Shorter and more rational header (options moved to extension headers)
  - Better support for:
    - Mobile IP
    - Neighbour discovery
    - Stateless address autoconfiguration
  - In-built security features (IPsec, authentication and data encryption)

The EU has supported many projects in the area of IPv6:

- Contributing to the standards:
  - Mobile IPv6
  - DNS
  - DHCP
  - Multicast
  
- Proving the *concept* on a small scale (in both fixed and wireless environments)
  
- Proving the *operation* on a large scale (GÉANT, 6NET and Euro6IX)



6net

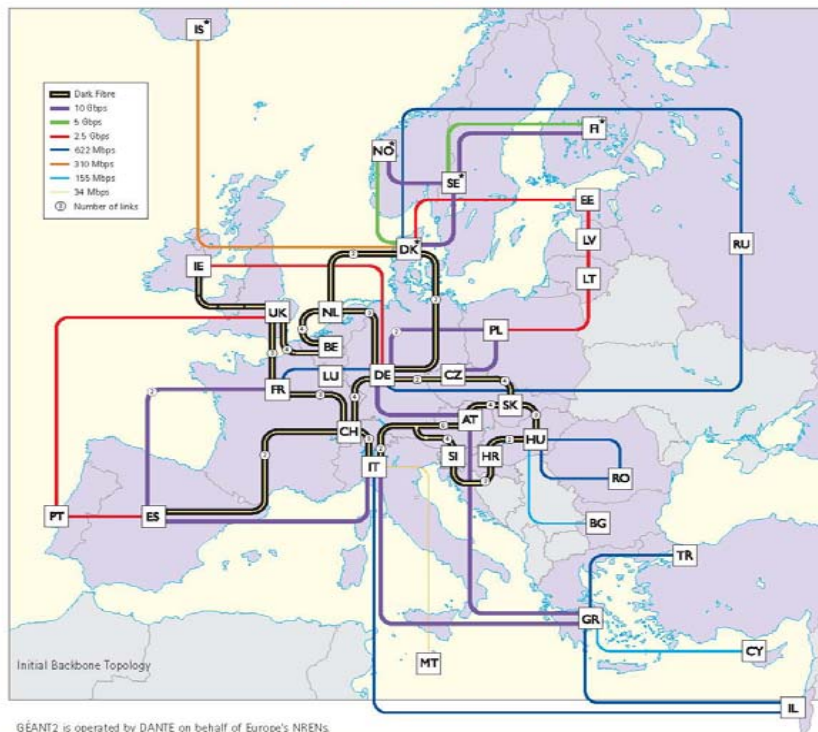


## GEANT2



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\*Connections between these countries are part of NORDUnet (the Nordic regional network)



GEANT2 is co-funded by the European Commission within its 6th R&D Framework Programme.







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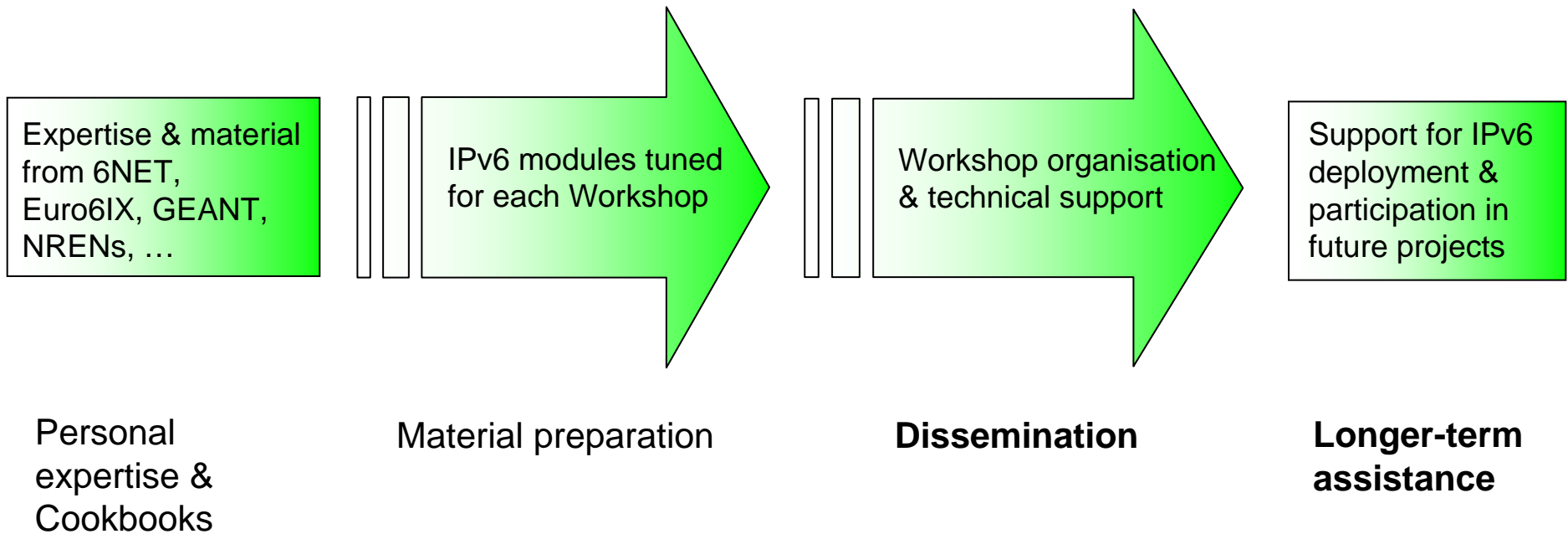
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Conclusion and Outlook

1. To transfer our knowledge on IPv6 deployment to NRENs, Universities, commercial organisations, ISPs, governments and regulators in:
  - Africa (Southern, sub-Saharan and Mediterranean)
  - Asia Pacific Region
  - South and Central America
  - SE Europe
  - Newly-Independent States
  - The Caribbean
2. To help integrate organisations from the visited regions into subsequent European projects





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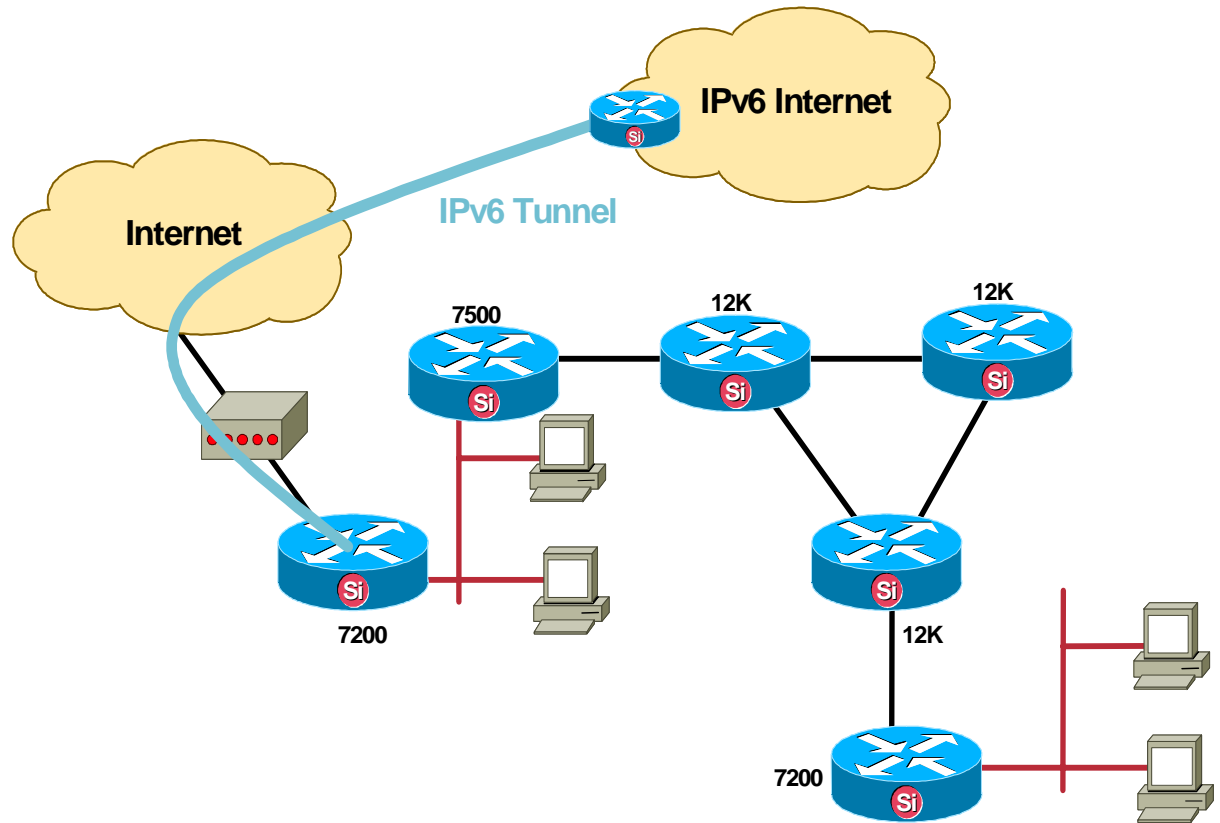
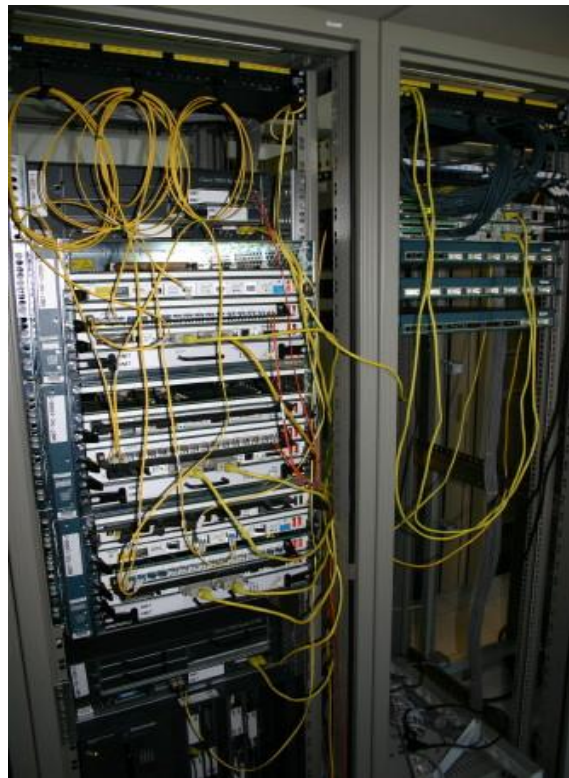
Conclusion and Outlook

- Workshops (slideware + access to remote labs)
- E-learning package
- Training the Trainers manual
- IPv6 Technical Training course
- Tiger Team
- Website

- 600 slides brought in by the 6DISS partners, then we:
  - harmonised the style
  - reviewed the content
  - added new topics
  - split them into 20 modules
    - More convenient to handle and update
    - Easier to build up a workshop programme selecting the appropriate modules.
- Each module has an owner, responsible for the updates
- Modules continue to be added or expanded (eg. lab exercises, deployment scenarios, applications, ...)

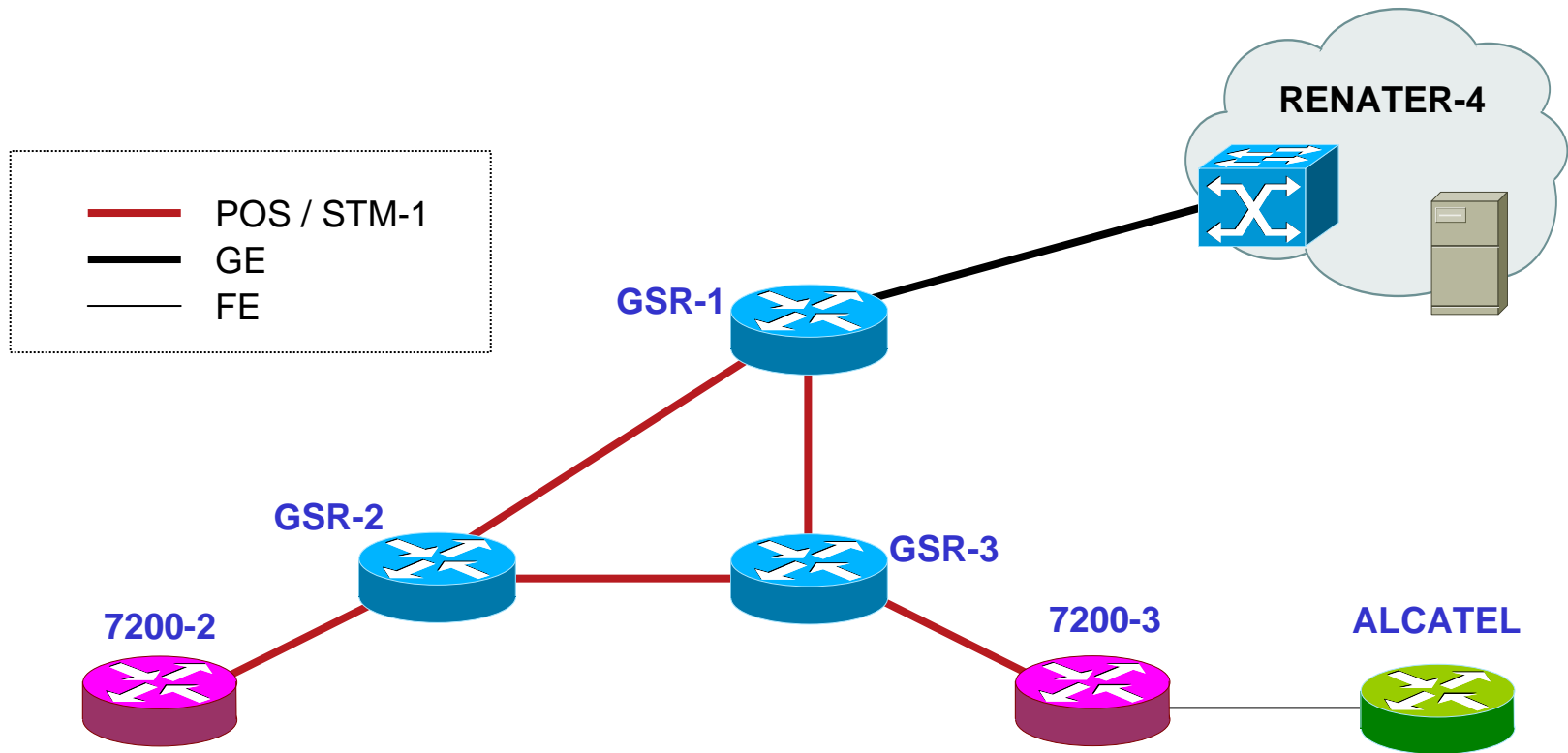
Module Topic		Module Topic
6DISS presentation		IPv6 DNS
IPv6 Introduction		IPv6 Routing protocols
IPv6 Protocol		RPSLNg
IPv6 Addressing		IPv6 Security
IPv6 Addressing case studies		IPv6 Mobility
IPv6 Associated protocols		IPv6 - IPv4 Co-existence
IPv6 Network Management		Deployment scenarios
IPv6 Multicast		IPv6 Applications
M6Bone		Equipment configuration
IPv6 Autoconfiguration		IPv6 QoS

Brussels lab





Paris lab



## Booking and usage procedures...

- <http://www.6diss.org/labs>
- [labs@6diss.org](mailto:labs@6diss.org)

## RENATER Testbed availability

Testbed is already booked for the following dates and events :

Dates :	Events :
September 12th - 24th 2005	CIREN IP multicast tutorial
December 14th - December 27th 2005	NOC-RENATER / tests COS
January 16th - January 20th 2006	6DISS meeting
January 23rd - January 27th 2006	NOC-RENATER / tests COS
January 30th - February 3rd 2006	6DISS review
February 6th - February 10th 2006	NOC-RENATER / tests COS
February 13th - February 20th 2006	EUMEDCONNECT multicast training
March 1st - March 5th 2006	6DISS workshop - South east Europe
March 6th - March 8th 2006	RENATER multicast workshop
April 3rd - 7th 2006	6DISS workshop - EUMEDCONNECT

In order to book the testbed, please, send an email to [durand@renater.fr](mailto:durand@renater.fr)

Available from anywhere ([www.6diss.org/e-learning](http://www.6diss.org/e-learning))

### Attractive content

- well-balanced combination of audio, graphical and animation components

### Effectiveness is ensured through:

- an integrated instructional design, including a modular structure
- interactivity
- individual learning flexibility
- subtitles  
([http://web.instruxion.com/6diss/SubsDemo/6diss\\_ipv6.html](http://web.instruxion.com/6diss/SubsDemo/6diss_ipv6.html))

### The e-learning package is used:

- as a “teaser” for the workshops
- for assessing the suitability of participants for the workshops
- for training the trainers

This training comprises:

- A 1-week course in Brussels or Paris
- The full set of 6DISS presentations, together with supplementary information
- Access to the labs in Brussels and Paris
- Support for answering specific technical questions
- The “Training the Trainers” manual comprising:
  - Guidelines regarding the fundamentals of teaching
  - Guidelines on how to organise a workshop on IPv6
  - Information on where to find the latest material
  - An instructors’ guide to accompany each module
  - Information on the e-learning package
  - Information about the Tiger Team
  - The workshop feedback questionnaire
  - Description of other material available from 6DISS

The courses can be oriented towards whatever specific training is required (e.g. deployment engineers, ISP operational staff, NOC personnel)

Topics can include:

- IPv6 details
- Installing and configuring IPv6 on clients
- Installing and configuring IPv6 on routers
- IPv6 routing protocols
- IPv6 transitioning with tunnels
- Multicast
- Security
- QoS
- Management and monitoring

It was originally planned to make these courses in Brussels or Paris (where the labs are situated), but the demand is also for “on-site” training (eg. AfriNIC-3, AfriNIC-4)

The “Tiger Team” is an open channel to experts (within or outside the project). It operates via a *help desk* service ([helpdesk@6diss.org](mailto:helpdesk@6diss.org)), to answer questions on aspects such as:

- state-of-the-art, eg:
  - IPv6 IETF RFCs that are released or still in progress
  - IPv6 deployments
  - IPv6 applications
- how to configure equipment
- hardware and software requirements and releases
- transition scenarios
- management and monitoring tools
- applications
-

At [www.6diss.org](http://www.6diss.org), you can find:

- All the presentations that have been made at the workshops and in conferences, reports from the workshops, deliverables, press releases, news, etc.
- A calendar of upcoming events especially related to IPv6, and the upcoming 6DISS workshops
- The link to the e-learning package
- Links to related sites

Workshop hosts can also download hints and tips regarding the organisational details of setting up a workshop



- Asia (August 2005, in conjunction with APAN meeting and Taiwan IPv6 Forum)
  - South Africa (September 2005, in conjunction with the DITCHE conference)
  - AfriNIC-3 (Cairo, December 2005)
  - Serbia (SE Europe) (March 2006)
  - Malta (Mediterranean) (April 2006)
- 
- AfriNIC-4 (Nairobi, May 2006)
  - Quito (July, 2006)
  - Sub-saharan Africa (Autumn, 2006)
  - Newly-Independent States (2007)
  - Caribbean (2007)



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- Experiences and follow-up from the African events:
  - DITCHE IPv6 Workshop: Port Elisabeth, September 2005
  - AfriNIC-3 IPv6 Workshop: Cairo, December 2005

### DITCHE: *Development of IT Capacity in Higher Education*

- The audience comprised mainly network administrators from South African Higher Education institutions that had been either granted an IPv6 address space assignment or intended to apply for such an assignment in the next 6 months.



23 attendees, representing:

- 2 ISPs (Telkom and Internet Solutions – the 2 major providers in South Africa)
- 5 Universities

Follow-up from the DITCHE IPv6 Workshop:

- The TENET CTO met with 6DISS partners and the EC in Brussels in December. Opportunities for further collaboration were discussed, in terms of:
  - improving the R&D connectivity capacity between Europe and South Africa
  - joint R&D on network services and applications within EU projects
- TENET has subsequently:
  - set up an IPv6 link to GÉANT
  - requested to GÉANT for an IPv6 Multicast connection
  - become a partner in 2 EC project proposals (submitted last week)

### AfriNIC-3: 1-day „hands-on“ IPv6 Training Session

- Participants were shown:
  - how to enable IPv6 in their PCs
  - how to interconnect IPv6 LANs using tunnels
- Many questions were asked, and there was much interest to get more information and support



### Follow-up from the AfriNIC-3 event:

- 6DISS will support a similar session at AfNOG/AfriNIC-4 in Nairobi (next week)
- AfriNIC has become a partner in 1 EC project proposal (submitted last week)
- AfNOG has become a partner in 1 EC project proposal (submitted last week)
- The Ubuntunet Alliance has become a partner in 2 EC project proposals

6DISS is therefore achieving its stated objectives to:

1. Transfer our knowledge on IPv6 deployment to NRENs, Universities, commercial organisations, ISPs, governments and regulators
2. Help integrate organisations from the visited regions into subsequent European projects

Try to visit one of our IPv6 workshops, and discuss opportunities to get involved in EU R&D projects



Thank you for your  
attention