IPv6 workshop
Gosier, La Guadeloupe
March 5-9 2007

Simon.Muyal@renater.fr
Stig.Venaas@uninett.no
Bernard.Tuy@renater.fr

Copy ...Rights

• This slide set is the ownership of the 6DISS project via its partners

• The Powerpoint version of this material may be reused and modified only with written authorization

• Using part of this material must mention 6DISS courtesy

• PDF files are available from www.6diss.org

• Looking for a contact?
  – Mail to: martin.potts@martel-consulting.ch
  – Or bernard.tuy@renater.fr
Agenda

• Workshop objectives
• What you can expect
• What we expect
• The 6DISS project and resources
• Session organisation

Workshop objectives

• Introduce IPv6 concepts and differences to IPv4
  – Coverage includes:
    • Basic protocol operation
    • Core services
    • IPv6 routing – Deployment – getting up and running
• Give you hands-on (Cisco, Vista, Linux) experience
• Allow you to go home and get IPv6-connected!
What can you expect?

• 150% availability of the tutors team
  – Answering your questions
  – Helping you to achieve *all* the exercises
  – Helping you to find (a) solution to problem(s) you might report
• Get in touch for further offline questions
• ...

What we expect ...

• Take the chance to gain a strong experience with IPv6 configuration (hands on)
• Ask questions at any time
  – Don’t leave the room with an unanswered question or a partially achieved exercise
• Provide us with your experience and your needs to go ahead in IPv6 deployment
• Remain in contact afterwards ... and be informed of all the initiatives related to IPv6 in your region
• Fill in the feedback questionnaire …to help us getting better ;(}
Non goals …

• Operating systems and IP(v4) networks operation
• Network management and monitoring basics
• IP “classical” service protocols (DNS, HTTP, SMTP, …)

Session programme
Session Programme /1

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Tutor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:45</td>
<td>Welcome</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>Opening session and training objectives 6DISS presentation</td>
<td>Bernard</td>
</tr>
<tr>
<td>14:30</td>
<td>IPv6 basics : protocol, addressing</td>
<td>Stig</td>
</tr>
<tr>
<td></td>
<td>Case study</td>
<td>Simon</td>
</tr>
<tr>
<td>15:30</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>15:45</td>
<td>Associated protocols</td>
<td>Stig</td>
</tr>
<tr>
<td>16:15</td>
<td>LABs presentation</td>
<td>Simon</td>
</tr>
<tr>
<td></td>
<td>LAB-1: Enabling IPv6 on hosts &amp; routers</td>
<td></td>
</tr>
<tr>
<td>17:30</td>
<td>End of Day #1</td>
<td></td>
</tr>
</tbody>
</table>

Session Programme /2

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Tutor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30</td>
<td>Autoconfiguration protocols for IPv6</td>
<td>SM</td>
</tr>
<tr>
<td>11:00</td>
<td>LAB-2: Packets analysis (“S, “A)</td>
<td>SV</td>
</tr>
<tr>
<td>12:15</td>
<td>End of Day #2</td>
<td></td>
</tr>
</tbody>
</table>
### Session Programme /3

**Wednesday, March 7th 2007**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30</td>
<td>Routing protocols for IPv6</td>
<td>Bernard</td>
</tr>
<tr>
<td>11:00</td>
<td>LAB-3: IGP &amp; EGP configuration</td>
<td>Simon</td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch break</td>
<td></td>
</tr>
<tr>
<td>13:45</td>
<td>LAB-3: cont’d</td>
<td>Simon</td>
</tr>
<tr>
<td>14:30</td>
<td>DNS for IPv6</td>
<td>Bernard</td>
</tr>
<tr>
<td>15:00</td>
<td>IPv6 Applications</td>
<td>Stig</td>
</tr>
<tr>
<td>15:30</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>15:45</td>
<td>LAB-4: DNS &amp; applications configuration</td>
<td>Stig</td>
</tr>
<tr>
<td>17:00</td>
<td>Managing IPv6 networks</td>
<td>Simon</td>
</tr>
<tr>
<td>17:30</td>
<td>End of day #3</td>
<td></td>
</tr>
</tbody>
</table>

### Session Programme /4

**Thursday, March 8th 2007**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>LAB-5: Management tools installation &amp;</td>
<td>Simon</td>
</tr>
<tr>
<td></td>
<td>configuration</td>
<td></td>
</tr>
<tr>
<td>09:30</td>
<td>Feedback questionnaire</td>
<td>All</td>
</tr>
<tr>
<td>10:15</td>
<td>Debriefing</td>
<td>Tutors</td>
</tr>
<tr>
<td>10:30</td>
<td>End of IPv6 training</td>
<td></td>
</tr>
</tbody>
</table>
How the session will be run & organized

• Every workshop session won’t be repeated ...
• Then the programme starts on Monday and finishes on Thursday
• Workshop language is *(kind of)* English
  – Questions in French, Norwegian and Spanish … allowed!
• Look at the programme to stick to the agenda
⇒ If more time slots are available … we’ll use them for additional items
Don’t forget to switch your cellphone back on during the breaks ;)

Thank you!

Questions?
Programme

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives and Approach</td>
</tr>
<tr>
<td>2</td>
<td>Key Data</td>
</tr>
<tr>
<td>3</td>
<td>The 6DISS Toolkit</td>
</tr>
<tr>
<td>4</td>
<td>World Tour Programme</td>
</tr>
<tr>
<td>5</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>
Programme

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives and Approach</td>
</tr>
<tr>
<td>2</td>
<td>Key Data</td>
</tr>
<tr>
<td>3</td>
<td>The 6DISS Toolkit</td>
</tr>
<tr>
<td>4</td>
<td>World Tour Programme</td>
</tr>
<tr>
<td>5</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>

Objectives

To transfer knowledge on IPv6 deployment and operation to NRENs, Universities, commercial organisations, ISPs, Governments and Regulators in:

- Southern Africa & Sub-Saharan Africa
- SE Europe
- Mediterranean Countries
- South America, Central America & Caribbean
- Asia Pacific Region
- Newly-Independent States in Central Asia
- India & China
Objectives

- To raise awareness of IPv6
- To work with communities and organisations in the regions
- To exchange best practices
- To try and integrate the organisations into future European projects

Approach

To take the knowledge gained and the documented results from the EU projects 6NET: http://www.6net.org and Euro6IX: http://www.euro6ix.org

... and build a new (smaller) project, focused on sharing the experience in a practical way
Approach

At least 8 workshops will be given to disseminate information on:
- IPv6 Addressing and Routing
- IPv6 deployment and migration strategies
- Making network services ready for IPv6: DNS, DHCP, HTTP, SMTP, ...
- IPv6-enabled applications
- Monitoring and management tools
- Multicast, Security, QoS, Renumbering, Mobility ...

Programme

1 Objectives and Approach
2 Key Data
3 The 6DISS Toolkit
4 World Tour Programme
5 Conclusion
### Key Data

- **10 Partners:**
  - Martel
  - FCCN
  - Renater
  - EET
  - HUB
  - Cisco
  - UCL
  - University of Southampton
  - Alcatel

- **Start date:** 1st April 2005
- **End date:** 30th September 2007

### Programme

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives and Approach</td>
</tr>
<tr>
<td>2</td>
<td>Key Data</td>
</tr>
<tr>
<td>3</td>
<td>The 6DISS Toolkit</td>
</tr>
<tr>
<td>4</td>
<td>World Tour Programme</td>
</tr>
<tr>
<td>5</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>
The 6DISS Toolkit

- Workshops
  - (slideware + access to remote labs)
- E-learning package
- Training the Trainers manual and courses
- Tiger Team (helpdesk@6diss.org)
- Website

6DISS Toolkit – “Slideware”

- 400 slides inherited from the G6 Group and RENATER
- 6DISS partners then:
  - harmonised the style
  - reviewed the content
  - added new topics/modules (provided by partners)
  - 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, …)
6DISS Toolkit – “Slideware”

<table>
<thead>
<tr>
<th>Module Topic</th>
<th>Module Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DISS presentation</td>
<td>IPv6 DNS</td>
</tr>
<tr>
<td>IPv6 Introduction</td>
<td>IPv6 Routing protocols</td>
</tr>
<tr>
<td>IPv6 Protocol</td>
<td>RPSLng</td>
</tr>
<tr>
<td>IPv6 Addressing</td>
<td>IPv6 Security</td>
</tr>
<tr>
<td>IPv6 Addressing case studies</td>
<td>IPv6 Mobility</td>
</tr>
<tr>
<td>IPv6 Associated protocols</td>
<td>IPv6 - IPv4 Co-existence</td>
</tr>
<tr>
<td>IPv6 Network Management</td>
<td>Deployment scenarios</td>
</tr>
<tr>
<td>IPv6 Multicast</td>
<td>IPv6 Applications</td>
</tr>
<tr>
<td>M6Bone</td>
<td>Equipment configuration</td>
</tr>
<tr>
<td>IPv6 Autoconfiguration</td>
<td>IPv6 QoS</td>
</tr>
</tbody>
</table>

6DISS Toolkit – Access to remote labs

Brussels lab

The Internet
6DISS Toolkit – Access to remote labs

Paris lab

6DISS Toolkit – Reserving the labs

Lab booking and usage procedures...

- http://www.6diss.org/labs
- labs@6diss.org
Available from anywhere (accessible via [http://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 (so far, only in Portuguese)

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
6DISS Toolkit – Training other Trainers

Goal
- Prepare other / potential trainers to build IPv6 workshops and courses
- Increase / multiply the number of occurrences for IPv6 trainings around the globe

Audience
- Engineers, teachers, professors, ... in charge of the education of technical teams, students, ...

Means
- (re)use all available material prepared and validated by 6DISS partners
- Slides sets, remote labs, e-learning, ...

Content
- Guidelines regarding the fundamentals of teaching
- Guidelines on how to organize and run a workshop about IPv6
- Information on all the 6DISS material and services available
- Practical exercises on using 6DISS slide modules
- Remote labs presentation and configuration

6DISS Toolkit – Tiger Team

The “Tiger Team” is a channel to experts (within or outside the project). It operates via a help desk service (helpdesk@6diss.org), concerning 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
6DISS Toolkit – Website

At 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 the information they need regarding the organisational details.

Programme

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives and Approach</td>
</tr>
<tr>
<td>2</td>
<td>Key Data</td>
</tr>
<tr>
<td>3</td>
<td>The 6DISS Toolkit</td>
</tr>
<tr>
<td>4</td>
<td>World Tour Programme</td>
</tr>
<tr>
<td>5</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>
World Tour Programme

**Workshops held so far:**

- Asia-Pacific Region: Taipei, Taiwan (IPv6 Summit, 08/2005)
- Southern Africa: Port Elizabeth (TENET IPv6 workshop, 09/2005)
- S-E Europe: Serbia/Montenegro (03/2006)
- Mediterranean Countries: Malta (04/2006)
- South & Central America: Ecuador (07/2006)
- Sub-Saharan Africa: Senegal (10/2006)

“Hands-on” practical sessions supported at:

- Afrinic-3, AfriNIC-4, AFNIC FFTI, ...

“IPv6 Trainers’ session” in Belgium (10/2006)
# Programme

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives and Approach</td>
</tr>
<tr>
<td>2</td>
<td>Key Data</td>
</tr>
<tr>
<td>3</td>
<td>The 6DISS Toolkit</td>
</tr>
<tr>
<td>4</td>
<td>World Tour Programme</td>
</tr>
<tr>
<td>5</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>

## Conclusions

6DISS aims to:

- Assist regions with less IPv6 experience to deploy the latest technology in the most efficient manner
- Build contacts to organisations in these regions to support and enable their subsequent participation in projects within the EU ICT Programme
- Make European research and industrial concerns aware of the highly skilled personnel who can contribute to the urgently needed improvement of ICT infrastructures
Conclusions

The 6DISS project is achieving its objectives well, but we know that there are lots of other related initiatives.

Cooperation, sharing information, … is a must

So, if you are planning an event that includes IPv6 information dissemination, training, etc., do not hesitate to get in touch with us.

Contact us through our Website (www.6diss.org), or send a mail to helpdesk@6diss.org