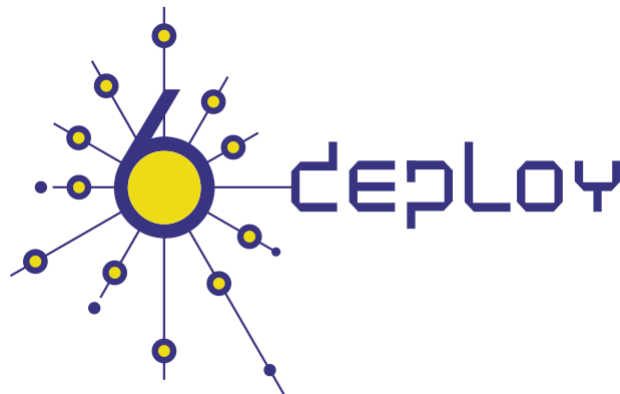




e-infrastructure



Title:	Deliverable D1. 20 Report from the 19th Workshop in Accra (Ghana)	Document Version: 1.0
---------------	------------------------------------------------------------------------------	-------------------------------------

Project Number: 223794	Project Acronym: 6DEPLOY	Project Title: IPv6 Deployment Support
----------------------------------	------------------------------------	--------------------------------------------------

Contractual Delivery Date: Not in the original project schedule	Actual Delivery Date: 07/10/2010	Deliverable Type* - Security**: R – PU
---------------------------------------------------------------------------	--------------------------------------------	--------------------------------------------------

* Type: P – Prototype, R – Report, D – Demonstrator, O – Other

** Security Class: PU- Public, PP – Restricted to other programme participants (including the Commission Services), RE – Restricted to a group defined by the consortium (including the Commission Services), CO – Confidential, only for members of the consortium (including the Commission Services)

Responsible and Editor/Author: Trond Skjesol	Organization: UNINETT	Contributing WP: WP1
--------------------------------------------------------	---------------------------------	--------------------------------

Authors (organisations): Trond Skjesol, UNINETT

Abstract: This deliverable presents a report from the workshop held in Accra (Ghana) from May 13 th to 14 th , 2010 prior to the Idlelo 4 Conference. The presentation material is listed, the attendees and their affiliations are given, and the opportunities for further co-operation and follow-up actions are described.

Keywords: IPv6, Support, LAC, Training, Testbeds, Modules, 6DISS, 6DEPLOY, Hands-on exercises

Disclaimer

The 6DEPLOY project (number 223794) is co-funded by the European Commission under the Framework Programme 7. This document contains material that is the copyright of certain 6DEPLOY beneficiaries and the EC, and that may not be reproduced or copied without permission. The information herein does not necessarily express the opinion of the EC.

The EC is not responsible for any use that might be made of data appearing herein. The 6DEPLOY beneficiaries do not warrant that the information contained herein is capable of use, or that use of the information is free from risk, and so do not accept liability for loss or damage suffered by any person using this information.

Revision History

The following table describes the main changes to the document since it was created.

Revision	Date	Description	Author (Organization)
v0.1	18/08/2010	Document creation	Trond Skjesol (UNINETT)
v1.0	08/09/2010	Document review	Alicia Higa, Martin Potts (Martel)

Executive Summary

One of the main activities in the 6DEPLOY project is to organise workshops to train the different Internet communities in the areas of IPv6 deployment, configuration, and usage. This project is a follow up of previous project activities within and outside the Framework Programmes of the European Commission.

This deliverable presents a report from the workshop held in Accra (Ghana) from May 13th to 14th, 2010 prior to the Idlelo 4 Conference. The following workshop details are described in this report: a) the workshop attendees and their affiliations, b) the programme outline, c) the material presented, d) an assessment of the opportunities for further co-operation and follow-up actions planned, and e) an analysis of the feedback questionnaires from the participants.

Table of Contents

- Table of Contents* 5
- 1. Introduction** 7
 - 1.1 6DEPLOY Objectives**..... 7
 - 1.2 6DEPLOY Workshop Methodology** 8
- 2. The Workshops (general)** 10
- 3. The 6DEPLOY Workshop in Accra (Ghana)** 12
 - 3.1 Overview** 12
 - 3.2 Attendees** 12
 - 3.3 Workshop programme** 13
 - 3.4 Presentation material** 13
 - 3.4.1 Modules..... 14
 - 3.4.2 Hands-on exercises 15
- 4. Opportunities for Further Co-operation**..... 17
- 5. Analysis of the Feedback Questionnaires** 18
 - 5.1 General questions related to participants and IPv6** 18
 - 5.2 Questions regarding the workshop**..... 19
 - 5.3 Participants comments** 22
- 6. Conclusions** 23
- 7. References** 24

Figure Index

Figure 1-1: 6DEPLOY methodology (diagrammatically) 8
Figure 3-4: Paris and Mauritius testbed..... 16

Table Index

Table 3-1: Ghana list of participants..... 12
Table 3-2: Ghana Workshop programme 13
Table 3-3: Ghana Workshop list of modules used 14
Table 5-1: General questions related to participants and IPv6 18
Table 5-2: Questions regarding the workshop 22

1. INTRODUCTION

1.1 6DEPLOY Objectives

The following comprise the 6DEPLOY objectives:

- organize workshops for the e-Infrastructure community and give practical advice and hands-on support for deploying IPv6 in their environments;
- work on deployments in Europe and in developing countries, exchanging experiences and best practices;
- improve the competitiveness of European industry by sharing experiences from IPv6 deployments in other regions;
- gain expertise with which to support *more commercial* deployments in European industries (e.g. Emergency Services, Health, Broadcast, Transport, Schools, Environment, Gaming, etc.);
- help to build consensus between European researchers by enabling and exploiting synergy among related projects (e.g. GÉANT-2, SEEREN-2, SEE-GRID, EUMEDCONNECT, CLARA, ALICE);
- encourage and enhance the effectiveness of the coordination between National and pan-European e-Infrastructure initiatives by being a focal point for IPv6 activities, giving IPv6 training, and supporting IPv6 deployments;
- open up the ICT programme to the participation of third country organisations in International Cooperation Partner Countries, including countries in Africa, Asia, and Latin America, by involving organizations that influence e-Infrastructures on those continents;
- improve scientific cooperation between Europe and the declared target regions (Africa, Asia, and Latin America) by exchanging knowledge and experiences through direct practical support for deployment, training events, etc. The project therefore also helps support other Community policies, most notably the development policy. Telecommunications infrastructures and the capability to access information worldwide are key measures of a country's progress. IPv6 has been a cornerstone of European Internet policy for several years; and
- support interoperability and standards by sharing information on the latest IPv6 standards, equipment hardware and software releases, and IPv6 policies (RIRs).

One of the main activities in the 6DEPLOY project is therefore to organise workshops to

train the different Internet communities in the areas of IPv6 deployment, configuration, operation, and management. This activity is a follow up of previous project's activities within and outside the Framework Programmes of the European Commission.

1.2 6DEPLOY Workshop Methodology

The 6DEPLOY methodology relating to the workshops is shown in the diagram below:

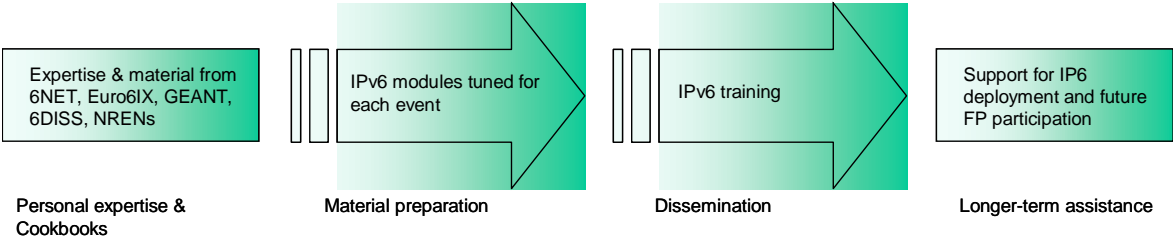


Figure 1-1: 6DEPLOY methodology (diagrammatically)

The approach is to use course material available from 6DISS and elsewhere that relates to IPv6, the e-learning course, and the 6NET IPv6 Deployment Guide book, together which will form the basis of the training material. This training material is supplemented with knowledge from partners' participation in events such as IPv6 Forum meetings, IPv6 Task Force meetings, Internet2 meetings, and the IETF, and from the experience of similar activities brought to the project by the representatives of the Internet Registries in North and South America, the Asia-Pacific region, Africa, and Europe. The knowledge is disseminated through training sessions that, for practical reasons, are often held in conjunction with AfriNIC, LACNIC, APNIC, AfNOG, APRICOT, and ISOC meetings.

After each workshop, feedback reports are collected from the participants, enabling 6DEPLOY to assess the impact of the presentations and to identify any areas that need improvement.

The full set of dissemination materials (including the e-learning course and 2 managed testbeds) is available from 6DISS and partners' own sources. This includes presentation slides on all issues of Internet deployment and evolution; especially IPv4-IPv6 transition strategies, DNS, DHCP, routing, QoS, MobileIP, multicast, renumbering, auto-configuration, security, monitoring and management tools, and applications. This material was described in the deliverable D1.1: "IPv6 training material and related usage procedures".

This deliverable presents a report from the workshop held in Accra (Ghana) from May 13th to 14th, 2010. The workshop comprised both slide presentations and hands-on exercises (using local equipment and the remote 6DEPLOY testbeds in Mauritius at the Afrinic premises).

Chapter 2 of this document explains the general motivation for running IPv6 workshops, and chapter 3 describe the specific details of this workshop, in terms of the attendees, the modules that were presented, and the “hands-on” exercises that were performed, using both local equipment and the remote testbeds in Paris and Sofia. Chapter 4 identifies opportunities for further collaboration in the region and follow up actions, Chapter 5 summarises the analysis of the feedback questionnaires that were filled in by the participants, and Chapter 6 provides some general conclusions.

2. THE WORKSHOPS (GENERAL)

Workshops are one of the main mechanisms used by 6DEPLOY to transfer information and to build collaboration.

6DEPLOY is structured to provide an ideal platform for the discussion of deployment scenarios and the exchange of best practices, thereby avoiding duplication of effort, by preventing the waste of time on techniques that are known not to have been deprecated, and generally making the most efficient use of the available resources in a region. Partners in 6DEPLOY have deployed IPv6 on a production basis in their own NRENs and University networks, and have documented their experiences in Cookbooks and in IETF informational/best common practice RFCs. The manufacturer in the consortium is building IPv6 products.

The workshops are not only intended to lead to an improved quality of the Internet infrastructure in developing countries, but will also raise the competence of the attendees and, in exploiting the personal contacts made through 6DEPLOY, facilitate and encourage the participation of their organisations in future FP7 calls and beyond.

Impacts from the workshops will include:

- a positive effect towards preventing the “brain drain” from developing countries by bringing interesting and state-of-the-art activities into these regions, thus making information and knowledge resources accessible to scholars both locally and globally;
- an expansion of the conditions for growth by enabling the exchange of ideas, launching joint experiments and projects, disseminating RTD results, and activating market forces; all of which are substantial elements in the process of regional development;
- making European research and industrial concerns aware of the highly skilled personnel who can contribute to the urgently needed improvement of ICT infrastructures, resulting in an increase of the demand for specialized services provided by the highly skilled academics and researchers of the region; and
- the identification of IPv6 deployment activities in the region and an exchange of information about deployment experiences.

While IPv6 standards and services are quite stable, regional variations in practices and operations will require slightly different approaches for collaboration and dissemination. Therefore, the material for these workshops was collected, and the workshop

schedules, formats, and contents were tailored in conjunction with the local organisers so as to suit the type of participants, the subjects to be addressed, the location, the host organisation, the sponsors, etc.

3. THE 6DEPLOY WORKSHOP IN ACCRA (GHANA)

This IPv6 Workshop was held in Accra (Ghana) from May 13th to 14th, 2010. The workshop took place as a pre-conference training prior to the Idlelo 4 Conference (<http://www.idlelo.net/content/idlelo-4-pre-conference-trainings>). In the following paragraphs we provide information about the workshop, including the programme outline, and the material that was presented.

Details of the workshop and the training material used could be found in 6DEPLOY's project web site:

<http://www.6deploy.eu/index.php?page=workshops>

3.1 Overview

Individuals leading the IPv6 workshop included Jos Snijders, from Cisco and Trond Skjesol from UNINETT representing 6DEPLOY. The first morning, the IPv6 workshop was presented and included some words from representatives of AITI. The IPv6 workshop started afterwards and included several IPv6 related issues, both theoretical and practical. The presentations were conducted in English.

3.2 Attendees

Below is a list of people that attended at least one session:

No.	Surname	First name
1	Okraku-Yirekyi	Yaw
2	Ansah	Michael
3	Adu-Amanfoh	Kenneth
4	Haizel	Terry
5	Kan-Dapaah	Kwabena
6	Attah	Modesta
7	Ahatsi	Emmanuel
8	Touray	Katim S.
9	Adisi	Emmanuel
10	Afful	Eleanor
11	Gizaw	Solomon
12	Yirenchi-Danquah	Albert
13	Sackey	Nathan
14	Kwarko	Issac Kobina
15	Aboagyey	Bernard O.
16	Awoke	Tigisit
17	Brown	Raymond A.

Table 3-1: Ghana list of participants

The participants represented a wide range of the ICT community. They were technical people whose knowledge about IPv6 ranged from almost no knowledge at all to having significant experience with IPv6 deployment. Some had already performed IPv6 experiments or were planning some level of deployment at their institutions.

3.3 Workshop programme

The agenda was agreed on after close collaboration with the local organisers. The meeting agenda and the related material were submitted in advance so that the local organisers could decide which topics should be prioritized and so manage the logistics accordingly. The programme of the workshop is presented in the following table:

Date	Time	Title of session
13/05/2010	9:00	Welcome, introduction of 6deploy project
	9:15	Why Ipv6 is important (Module 010)
	9:30	Introduction to Ipv6 (020)
	10:00	IPv6 Basics (030)
	10:45	Coffie Break
	11:00	Associated Protocols (040)
	11:45	Auto Configuration (080)
	12:15	Lunch
	13:15	Lab session 1: Host auto-configuration
	14:15	Management (060)
	15:30	Management lab -Install tool to monitor machines and associated services -Test additional tools (looking glass, ASPathTree etc)
	17:30	End of Day
	14/05/2010	9:00
9:30		Transition mechanisms (130)
10:30		Coffee Break
10:45		Lab session 3: DNS
11:45		Routing protocols for Ipv6 (100)
12:30		Lunch
13:30		Lab session3. Routing Configuration.
15:30		Coffee Break
15:45		Security (110)
16:30		Feedback Form
17:00		Workshop end

Table 3-2: Ghana Workshop programme

3.4 Presentation material

The following material was presented:

Modules	Presented by	Affiliation
Welcome and Introduction of 6deploy Introduction to Ipv6	Trond Skjesol	UNINETT

IPv6 Basics: Protocol and Addressing Associated Protocols	Jos Sijders	Cisco
Auto-configuration	Trond Skjesol	UNINETT
Host and Auto configuration lab	Trond Skjesol	UNINETT
IPv6 management	Jos Snijders	Cisco
Management lab	Jos Snijders	Cisco
	Trond Skjesol	UNINETT
IPv6 Support in the DNS	Trond Skjesol	UNINETT
Transition mechanisms	Jos Snijders	Cisco
DNS lab	Trond Skjesol	UNINETT
Routing Protocoøvs for IPv6	Jos Snijders	Cisco
Routing lab	Jos Snijders	Cisco
	Trond Skjesol	UNINETT
Security	Trond Skjesol	UNINETT

Table 3-3: Ghana Workshop list of modules used

3.4.1 Modules

Below is a brief description of each module's content:

- **Introduction to IPv6:** This module explains why a new version for IP, IPv6, has been developed. A brief history of IPv6, its motivation and benefits are given.
- **Introduction to IPv6:** This module explains why a new version for IP, IPv6, has been developed. A brief history of IPv6, its motivation and benefits are given.
- **IPv6 Basics: Protocol and Addressing:** This module describes IPv6 packet header, extensions headers and differences with IPv4 headers. Packet size issues and upper layer considerations are also treated. In addition, this module explains the IPv6 addressing architecture, the different types of addresses (unique local IPv6 addresses, interface IDs, multicast addresses), their textual representation, how these are built and related to a layer 2 address.

- **Associated Protocols:** This module describes new protocols associated to IPv6: e.g. Neighbour Discovery Protocol, SEND, ICMPv6, MLD, DHCPv6, etc.
- **Auto-configuration:** This module describes stateful (DHCPv6) and stateless (Router Solicitation/Router Advertisement) autoconfiguration mechanisms.
- **IPv6 Support in the DNS:** This module describes new Resource Records for IPv6 DNS, availability of IPv6 in the root servers zone and CC-TLDs, etc.
- **Deployment and Transition mechanisms:** This module explains different approaches to deploy IPv6 in an IPv4 environment. Transition concepts are introduced and several transition mechanisms are covered: Dual Stack, tunnels, tunnel broker, 6to4, Teredo, Softwires and translation (at various layers).
- **Security:** Several issues are covered like the IPsec model, privacy extensions, ND threats, IPv4 vs. IPv6 Threat Analysis, IPv6 security issues, practical IPv6 security issues and firewalling IPv6. Security issues from transition and coexistence point of view are also provided

3.4.2 Hands-on exercises

To help ensure that the workshop attendees will be able to install IPv6 in their own environment after the course is over, a set of practical exercises, known as hands-on modules, have been designed. These exercises were performed on local equipment provided for the workshop (PCs), participant laptops. Most of the trainees used their own laptop to perform hands-on modules.

One local PC was used to simulate a router with Router Advertisements and for the server configurations.

Below is a brief description of the hands-on exercises that were performed:

- Exercises which illustrate how to install IPv6 on several platforms, mainly Linux, Vista, and Windows XP operating systems. The Use of link-local addresses, ping and trace route. Configuration of static addresses. Concepts like addresses, autoconfiguration, and neighbor discovery protocol using hosts.
- IPv6 routing protocols are configured by the trainees on the testbed routers. Internal Gateway Protocol (OSPF) and External Gateway Protocol (BGP) are tested.
- Practice to install and configure IPv6-capable DNS (BIND).

3.4.2.1 Hands-on exercises using the IPv6 Testbed in Paris and Mauritius

Routers were configured beforehand to accept telnet connections from the training location. Unfortunately, the local IP addresses at the last minute had to be changed since connection could not be made to the Paris lab. People worked together in groups of 3s to perform the router lab at the Mauritius. Participants used their own computers to run the exercises.

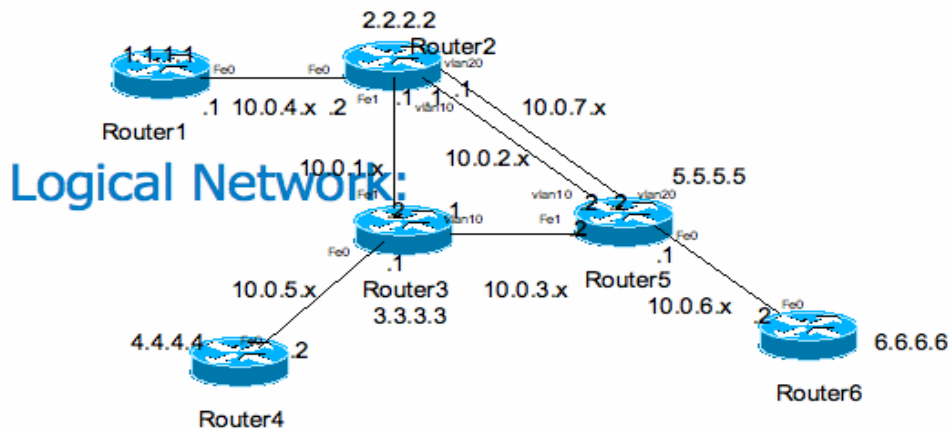


Figure 3-4: Paris and Mauritius testbed

3.4.2.2 Common Tasks

Halfway true the exercise, the connection to the lab for unknown reasons was lost. Trainers went through the theory and continued the theoretical part of the workshop. Three main tasks were proposed within the routing labs:

- Task 1: Configure Loopback and interfaces IPv6 addresses
- Task 2: Configure OSPF routing.
- Task 3: Configure BGP routing.

4. OPPORTUNITIES FOR FURTHER CO-OPERATION

In all the workshops, the attendees were informed on how to stay in contact with the 6DEPLOY partners in case they have questions regarding IPv6 deployment, addressing plans, etc. In this respect, the role of the *helpdesk* was explained as being the way to submit questions. An e-mail to helpdesk@6deploy.org will be distributed to a mailing list composed of volunteers who are available to answer (or forward) any kind of questions, requests, etc. Also a web form can be used to send requests to the project.

Additionally, the attendees (and trainers from the region) can follow the e-learning course and/or check the availability of the 6DEPLOY remote labs and use these.

5. ANALYSIS OF THE FEEDBACK QUESTIONNAIRES

A questionnaire has been specially designed for the purpose of getting feedback from the participants regarding the suitability of the course material, and the presenters' ability to convey information, and the relevance of the information to the expectations of the attendees.

Personal information was not mandatory, so as to allow for anonymous responses.

Each participant was first asked to indicate:

- his/her organization and job responsibilities, and
- his/her plans for IPv6 deployment in his/her organization.

Then, for each theoretical presentation and "hands-on" session, each participant was requested to assess "usefulness", "quality of presentation", "familiarity with the topic", "quality of the course documentation", "general organisation", etc.

5.1 General questions related to participants and IPv6

About the participants		
16 participants were present, 8 questionnaires were returned		
Employment sector	Government	3
	University or other higher education	2
	Schools or further education	0
	Research	0
	Health	0
	Commercial	0
	Other (please specify)	3 (2 Training Institute, 1 UN)
Job function	Government Advisor	0
	Senior Manager	1
	IT Manager	0
	Systems Administrator	0
	Network Administrator	1
	Researcher / Postgraduate	0
	Undergraduate	0
	Other (please specify)	5
Usage of IPv6		
Do you use IPv6 yourself?	Yes	1
	No	4
Does your organisation use IPv6?	Yes	0
	No, but planned in this year	0
	No, but planned in the next year	1
	No, but planned in the longer term	4
	No, and no plans as yet	2

* See the graphics section for more information

Table 5-1: General questions related to participants and IPv6

5.2 Questions regarding the workshop

How useful did you find the presentations?
[Presentation 1 - IPv6: Protocols and Standards]

Answer	Count	Percentage
Very Useful (01)	1	12.50%
Useful (02)	4	50.00%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	2	25.00%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Presentation 2 - IPv6 Protocol and addressing, Associated protocols]

Answer	Count	Percentage
Very Useful (01)	3	37.50%
Useful (02)	3	37.50%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentation:
[Presentation 3 - IPv6 autoconfiguration]

Answer	Count	Percentage
Very Useful (01)	3	37.50%
Useful (02)	3	37.50%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Lab 1 - Host and Auto-configuration]

Answer	Count	Percentage
Very Useful (01)	4	50.00%
Useful (02)	1	12.50%
Slightly Useful (03)	1	12.50%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Presentation 4 - IPv6 management]

Answer	Count	Percentage
Very Useful (01)	3	37.50%
Useful (02)	3	37.50%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Lab 2 - Management lab]

Answer	Count	Percentage
Very Useful (01)	4	50.00%
Useful (02)	1	12.50%
Slightly Useful (03)	1	12.50%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How much of the workshop material was already familiar?
[Presentation 5 - IPv6 Deployment: DNS and IPv6 Applications]

Answer	Count	Percentage
None (09)	1	12.50%
Some (10)	2	25.00%
Most (11)	1	12.50%
All (12)	0	0.00%
No answer	3	37.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Presentation 6 - IPv6 Transition]

Answer	Count	Percentage
Very Useful (01)	2	25.00%
Useful (02)	3	37.50%
Slightly Useful (03)	1	12.50%
Not Useful (04)	0	0.00%
No answer	1	12.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Lab 3 - DNS]

Answer	Count	Percentage
Very Useful (01)	3	37.50%
Useful (02)	1	12.50%
Slightly Useful (03)	1	12.50%
Not Useful (04)	0	0.00%
No answer	2	25.00%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Presentation 7 - IPv6 Routing, OSPFv3, MP-BGP]

Answer	Count	Percentage
Very Useful (01)	3	37.50%
Useful (02)	2	25.00%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	2	25.00%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Lab 4 - Routing Configuration]

Answer	Count	Percentage
Very Useful (01)	2	25.00%
Useful (02)	3	37.50%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	2	25.00%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Presentation 8 - IPv6 Security]

Answer	Count	Percentage
Very Useful (01)	2	25.00%
Useful (02)	1	12.50%
Slightly Useful (03)	1	12.50%
Not Useful (04)	0	0.00%
No answer	3	37.50%
Non completed or Not displayed	1	12.50%

How useful did you find the presentations?
[Lab 5 - Security lab]

Answer	Count	Percentage
Very Useful (01)	2	25.00%
Useful (02)	1	12.50%
Slightly Useful (03)	0	0.00%
Not Useful (04)	0	0.00%
No answer	4	50.00%
Non completed or Not displayed	1	12.50%

Quality of course documentation?

Answer	Count	Percentage
Excellent (05)	1	12.50%
Good (06)	2	25.00%
Average (07)	1	12.50%
Poor (08)	0	0.00%
No answer	3	37.50%
Non completed or Not displayed	1	12.50%

General organisation of the workshop?		
Answer	Count	Percentage
Excellent (05)	1	12.50%
Good (06)	2	25.00%
Average (07)	1	12.50%
Poor (08)	0	0.00%
No answer	3	37.50%
Non completed or Not displayed	1	12.50%

Table 5-2: Questions regarding the workshop

5.3 Participants comments

Following are some graphics that represent the above results in a more friendly way, so as to ease their interpretation.

Here are some comments provided by the trainees:

== Begin of the excerpts

*What topics would you have liked to **hear more about**?:*

- (1) *Services Configuration.*
- (2) *IPv6 Migration*
- (2) *DNS*
- (1) *More practical experiences, real deployments issues.*
- (1) *Routing.*

*What topics would you have liked to **hear less about**?*

- (1) *Security*

Any other comments:

- (1) *I wish the labs have longer duration with all favorable conditions.*
- (1) *Keep up the good work*
- (1) *I was expecting to be exposed to live networks and more practice for the configurations with the various transition mechanisms*
- (1) *I think the presentation should be made comprehensive and self explanatory.*

End of the excerpts ==

6. CONCLUSIONS

Workshops are a key mechanism through which information, knowledge, and know-how are transferred to less experienced countries and participants. The workshops enable us to build constituencies and raise awareness; disseminate, benchmark, and validate the research results from the EU's Framework Programmes; promote European technologies; exchange best practices; and offer information related to standards and interoperability issues.

Thanks to previous projects and training activities, most of the IPv6 education material needed to start 6DEPLOY workshop training was available from the very beginning. The material included most of the issues of Internet deployment and evolution, especially IPv6 introduction, IPv4-IPv6 transition/co-existence strategies, DNS, Autoconfiguration, Routing, Servers and Applications. 6DEPLOY Mauritius testbed was used for practical routing exercises. It should be possible for the trainer to work with the lab before the workshop. 16 network engineers, system administrators, and regulators participated in the workshops. The topics presented were selected according to the participants' requirements.

According to the evaluation forms and the comments from the participants at the workshop, it is clear that there is significant interest in the region for the IPv6 technology and it seems that since the project begun there are more people that know about and/or have used IPv6. The participants expressed positive comments on the workshop's usefulness and organization. They also requested that 6DEPLOY organize more workshops in the region with more specific technical subjects. During the 6DEPLOY lifetime, stakeholders will continue to enhance today's "knowledge database". The reader and interested parties are referred to the 6DEPLOY website to check for new material. In summary, this workshop should be considered a success.

7. REFERENCES

6DEPLOY website: <http://www.6deploy.eu>

6DISS website: <http://www.6diss.org>

Hands-on modules: <http://www.6deploy.eu/index.php?page=hands-on>

How-to organise an IPv6 workshop:

<http://6diss.6deploy.eu/workshops/workshop-guidelines.pdf>

Training the trainers workshop: <http://6diss.6deploy.eu/workshops/ttt/>

e-learning package: <http://www.6deploy.eu/index.php?page=e-learning>

6DEPLOY Workshops Agenda and detailed information:

<http://www.6deploy.eu/index.php?page=workshops>