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Responsible and Editor/Author:	Organization:	Contributing WP:
Alvaro Vives	Consulintel	WP1

Authors (organisations):

Abstract:
This deliverable presents a report from the workshop held in San Salvador (El Salvador) from 6th to 8th July 2010. 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

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Revision History

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

Revision	Date	Description	Author (Organization)
v0.1	25/08/2010	Document creation	Alvaro Vives (Consulintel)
v1.0	04/10/2010	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 San Salvador (El Salvador) from 6th to 8th July 2010. 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.

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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 organisations 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:
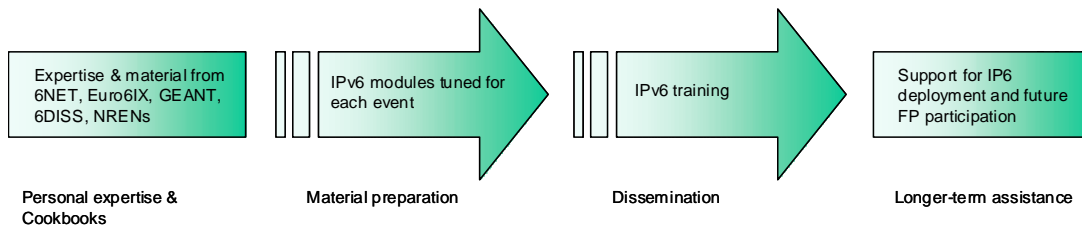
Figure 1-1: 6DEPLOY methodology (diagrammatically)

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 San Salvador (El Salvador) from 6th to 8th July 2010. The workshop comprised both slide presentations and hands-

on exercises (using local equipment and the remote 6DEPLOY testbeds in Paris and Sofia).

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 SAN SALVADOR (EL SALVADOR)

This IPv6 Workshop was held in San Salvador (El Salvador) from 6th to 8th July 2010. 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=20100706_san_salvador

3.1 Overview

Individuals present at the workshop included Alvaro Vives from Consulintel representing 6DEPLOY.

This Workshop was held in collaboration with CLARA (www.redclara.net) and ALICE2 Project (http://alice2.redclara.net) who organized everything in collaboration with RAICES (Red Avanzada de Investigación, Ciencia y Educación Salvadoreña) and UCA (Universidad CentroAmericana "José Simeón Cañas").

During the morning of the first workshop, the workshop was presented by Rafael Lito Ibarra, Executive Director of RAICES, El Salvador NREN.

Figure 3-1: Rafael Lito Ibarra presenting the workshop

The day before the workshop started was devoted completely to preparing the local equipment for the hands-on exercises, that were based on virtualized linux OS.

The main idea of this three-day workshop was to cover three main parts of the network, one each day. An introduction to IPv6 was provided on the first day and the end user or host part of the network was covered. On the second day management and server-related issues were treated. On the last day, the routing core of the network was addressed through the routing labs.

It was specifically requested in advance by organizers that the practical load of the workshop should be high because people had already attended to theoretical and IPv6-introduction like workshops.

The presentations were conducted in Spanish, in order to accommodate the local audience.

3.2 Attendees

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

No.	First name	Surname	Affiliation
1	Jorge Alberto	Minero Chávez	UFG
2	José Leonidas	Castellanos Calles	UFG
3	Fredy Alexander	Angulo López	UFG
4	William	García	UTEC
5	Edwin Alexander	Cartagena	UTEC
6	Salvador Alcides	Franco	UTEC
7	Yonathan	Serrano	ITCA
8	Eduardo	Guillen	ITCA
9	René	García	ITCA
10	David	Cobos	UDB
11	Rene	Aguilera	UDB
12	Roberto	Lazo	UDB
13	Viviana	Román	UCA
14	Daniel	Aguilar	UCA
15	Darwin	González	UCA
16	José Carlos	Madrigal	UNICAES
17	Wilfredo	Bolaños	UNICAES
18	Ronald	Rivas	UNICAES
19	Eric	Lopez	UES
20	Manuel	Flores	UES
21	Juan Carlos	Peña	UES
22	Carlos	Bran	RAICES
23	Enrique	Fernández	RAICES
24	Marvin	Barahona	ITIGES
25	Lisbeth Angélica	Corte Mejía	USAM
26	Eric	Gómez	NAVEGA

Table 3-1: El Salvador Workshop 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 prioritised and so manage the logistics accordingly. The programme of the workshop is presented in the following table:

Date	Time	Title of session
6/07/2010	9:00	Workshop Presentation
	9:15	Introducción a IPv6
	9:45	Formatos de cabeceras y tamaño de paquetes
	10:15	Direccionamiento IPv6
	11:00	ICMPv6, Neighbor Discovery y DHCPv6
	12:00	Lunch
	13:00	Practica 1: Instalación de IPv6 en host
	13:30	Practica 2: Configuración básica Stateless/Stateful
	16:15	Practica 3: Direcciones, manejo prefijos IPv6. Herramientas
	17:00	End of First Day
7/07/2010	9:00	Gestión de Red sobre IPv6
	9:30	DNS IPv6
	10:15	Seguridad IPv6
	11:15	Practica: Servidores IPv6
	12:00	Lunch
	13:00	Practica: Servidores IPv6 (cont.)
	15:00	Practica: Monitorización con IPv6
	17:00	End of Second Day
8/07/2010	9:00	Encaminamiento IPv6
	9:30	Routing Lab: Addressing, OSPF, BGP
	12:00	Lunch
	13:00	Routing Lab: Addressing, OSPF, BGP (cont.)
	17:00	End of Third Day

Table 3-2: El Salvador Workshop programme

3.4 Presentation material

The following material was presented:

Modules	Presented by	Affiliation
Introducción a IPv6	Alvaro Vives	Consulintel
Formatos de cabeceras y tamaño de paquetes		
Direccionamiento IPv6		

ICMPv6, Neighbor Discovery y DHCPv6		
Practica 1: Instalación de IPv6 en host		
Practica 2: Configuración básica Stateless/Stateful		
Practica 3: Direcciones, manejo prefijos IPv6. Herramientas		
Gestión de Red sobre IPv6		
DNS IPv6		
Seguridad IPv6		
Practica: Servidores IPv6		
Practica: Monitorización con IPv6		
Encaminamiento IPv6		
Routing Lab: Addressing, OSPF, BGP		

Table 3-3: El Salvador Workshop list of modules used

3.4.1 Modules

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

- **Introducción a 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.

- **Formatos de cabeceras y tamaño de paquetes:** This module describes IPv6 packet header, extensions headers and differences with IPv4 headers. Packet size issues and upper layer considerations are also treated.

- **Direccionamiento IPv6:** 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.

- **ICMPv6, Neighbor Discovery y DHCPv6:** This module describes new protocols associated to IPv6: e.g. Neighbour Discovery Protocol, SEND, ICMPv6, MLD, DHCPv6, etc.

- **Gestión de Red sobre IPv6:** This module explains how to manage an IPv6 network using SNMP. The different ways to retrieve management information are described (MIBs).

- **DNS IPv6:** This module describes new Resource Records for IPv6 DNS, availability of IPv6 in the root servers zone and CC-TLDs, etc.

- **Seguridad IPv6:** 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. The distributed security model is introduced. Security issues from transition and coexistence point of view are also provided.

- **Encaminamiento con IPv6:** This module mainly describes the differences between IPv4 and IPv6 routing protocols for OSPFv3, EIGRP, RIPng, BGP4+, ISIS and MPLS.

3.4.2 Hands-on exercises

To help ensure the workshop attendees will be able to install IPv6 in their own environment after the course is over, a set of practical exercises has been designed, known as 'hands-on modules'. These exercises are performed both on local equipment and on remote testbeds, some of which were originally established in the 6DISS project, thanks to a Cisco donation. These labs are installed in Paris (RENATER premises) and Sofia (BREN premises).

It was a specific request from organizers that the practical load of the workshop had to be as much as possible because in the past there were other theoretical IPv6 Workshops.

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

- **Practica 1: Instalación de IPv6 en host:** Exercises illustrate how to install IPv6 on several platforms, mainly Linux and Windows (7, Vista, and XP) operating systems. Use of link-local addresses, ping and traceroute. Configuration of static addresses and other platform-specific commands are provided.

- **Practica 2: Configuración básica Stateless/Stateful**: Both stateless and statuful autoconfiguration are demonstrated. Exercises for both are provided allowing to practice both from client and server point of view.

- **Practica 3: Direcciones, manejo prefijos IPv6. Herramientas**: Both practical and theoretical exercises are provided related with addresses and their management. Exercises to practice address notation, subnetting and address management tools are included.

- **Práctica Servidores IPv6**: Practice to install and configure IPv6-capable DNS and web servers.

- **Practica: Monitorización con IPv6**: The following tools are installed,

configured and used over IPv6: SSH, FTP, Smokeping, and ARGUS.

- **Routing Lab: Addressing, OSPF, BGP**: IPv6 routing protocols are configured by the trainees on the testbed routers. Internal Gateway Protocol (OSPF) and External Gateway Protocol (BGP) are tested.

Following are more details about the routing lab, with a brief description of the testbeds used and the exercises carried out.

3.4.2.1   Hands-on exercises using the IPv6 Testbed in Paris

Routers were configured beforehand to accept telnet connections from the training location. The IPv6 prefix which was then used to configure the testbed was 2001:660:3008::/48.
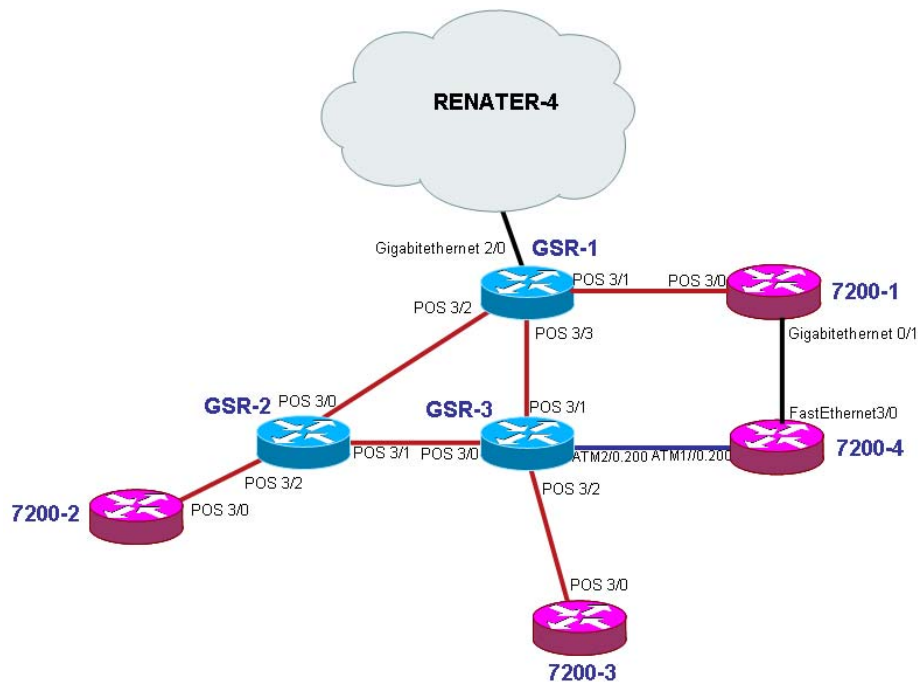
Figure 3-2: Paris testbed

3.4.2.2   Hands-on exercises using the IPv6 testbed in Sofia

The Sofia IPv6 installation more or less mirrors the procedures and functionality of the Paris testbed. Routers were configured beforehand to accept telnet connections from the training location. The IPv6 prefix which was then used to configure the testbed was 2001:4B58:42:400::/54.
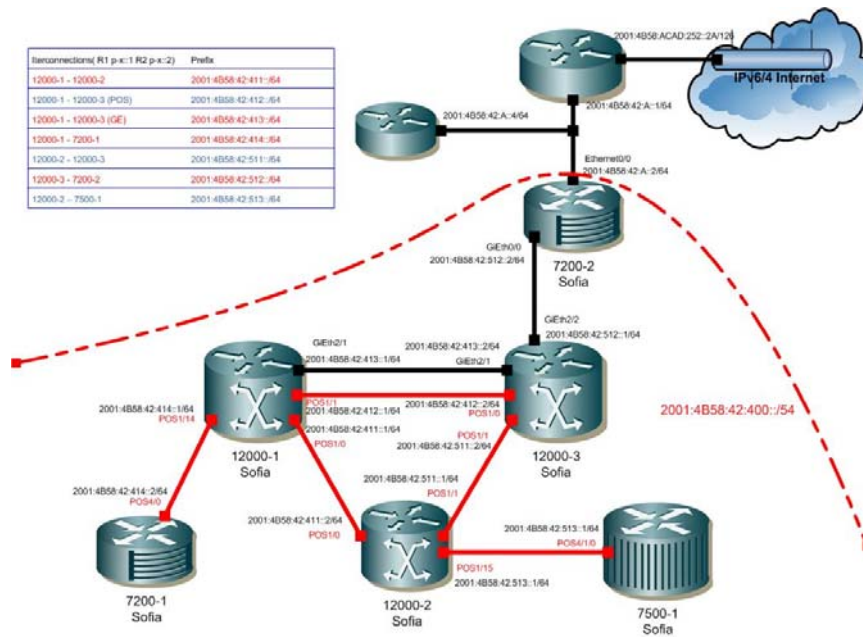
Figure 3-3: Sofia testbed

3.4.2.3 Common tasks

Because of some people missing almost one router was assigned to each attendee, just some of them were grouped in couples.

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.

3.5 Photographs taken at the event

Figure 3-4: Attendees to the workshop

Figure 3-5: Alvaro Vives (Consulintel) Presenting

Figure 3-6: IPv6 Workshop Group Photo

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

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		
26 participants were present, 21 questionnaires were returned		
Employment sector	Government	1
	University or other higher education	21
	Schools or further education	0
	Research	0
	Health	0
	Commercial	0
	Other (please specify)	(0)*
Job function	Government Advisor	0
	Senior Manager	0
	IT Manager	4
	Systems Administrator	7
	Network Administrator	11
	Researcher / Postgraduate	3
	Undergraduate	1
	Other (please specify)	Several (4)*
Usage of IPv6		
Do you use IPv6 yourself?	Yes	3
	No	18
Does your organisation use IPv6?	Yes	2
	No, but planned in this year	3
	No, but planned in the next year	10
	No, but planned in the longer term	8
	No, and no plans as yet	0

* See the graphics section for more information

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

5.2 Questions regarding the workshop

About the Workshop				
Usefulness of the topic	Very useful	Useful	Slightly useful	Not useful
Presentation 1 - Introducción a IPv6	15	4	1	0
Presentation 2 - Formatos de cabeceras y tamaño de paquetes	14	4	2	0
Presentation 3 - Direccionamiento IPv6	18	2	0	0
Presentation 4 - ICMPv6, Neighbor Discovery y DHCPv6	15	4	1	0
Presentation 5 - Gestión de Red sobre IPv6	18	2	0	0
Presentation 6 - DNS IPv6	15	4	1	0
Presentation 7 - Seguridad IPv6	17	2	1	0
Presentation 8 - Encaminamiento con IPv6	16	3	1	0
Practice 1 - Instalación de IPv6 en host	19	1	0	0
Practice 2 - Configuración básica Stateless/Stateful	16	4	1	0
Practice 3 - Direcciones, manejo prefijos IPv6. Herramientas	15	5	0	0
Practice 4 - Servidores IPv6	17	1	2	0
Practice 5 - Monitorización con IPv6	17	3	0	0
Practice 6 - Routing	16	4	0	0
Quality of the presentation	Excellent	Good	Average	Poor
Presentation 1 - Introducción a IPv6	16	4	0	0
Presentation 2 - Formatos de cabeceras y tamaño de paquetes	15	5	0	0
Presentation 3 - Direccionamiento IPv6	16	4	0	0
Presentation 4 - ICMPv6, Neighbor Discovery y DHCPv6	15	4	1	0
Presentation 5 - Gestión de Red sobre IPv6	13	5	1	0
Presentation 6 - DNS IPv6	15	4	1	0
Presentation 7 - Seguridad IPv6	11	5	4	0
Presentation 8 - Encaminamiento con IPv6	12	6	0	0
Practice 1 - Instalación de IPv6 en host	17	3	0	0
Practice 2 - Configuración básica Stateless/Stateful	14	6	0	0
Practice 3 - Direcciones, manejo prefijos IPv6. Herramientas	17	3	0	0
Practice 4 - Servidores IPv6	16	3	0	0
Practice 5 - Monitorización con IPv6	12	8	0	0
Practice 6 - Routing	13	6	0	0
Familiarity with the topic?	None	Some	Most	All
Presentation 1 - Introducción a IPv6	4	9	6	1
Presentation 2 - Formatos de cabeceras y tamaño de paquetes	7	6	7	0
Presentation 3 - Direccionamiento IPv6	7	7	5	1
Presentation 4 - ICMPv6, Neighbor Discovery y DHCPv6	10	7	3	0

Presentation 5 - Gestión de Red sobre IPv6	8	8	3	0
Presentation 6 - DNS IPv6	7	7	5	1
Presentation 7 - Seguridad IPv6	11	6	3	0
Presentation 8 - Encaminamiento con IPv6	11	5	4	0
Practice 1 - Instalación de IPv6 en host	6	7	7	0
Practice 2 - Configuración básica Stateless/Stateful	9	9	2	0
Practice 3 - Direcciones, manejo prefijos IPv6. Herramientas	7	8	5	0
Practice 4 - Servidores IPv6	9	5	6	0
Practice 5 - Monitorización con IPv6	11	7	2	0
Practice 6 - Routing	8	7	4	1
Quality of the course documentation	Excellent	Good	Average	Poor
	10	9	1	0
General workshop organisation	Excellent	Good	Average	Poor
	10	10	0	0
Recommend to your colleagues?	yes	no		
	20	0		

Table 5-2: Questions regarding the workshop

5.3 Results graphics

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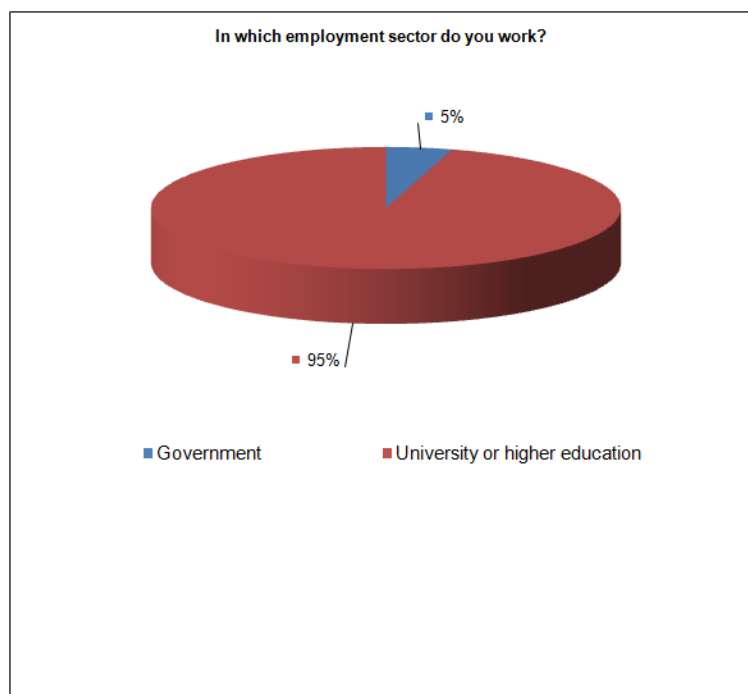

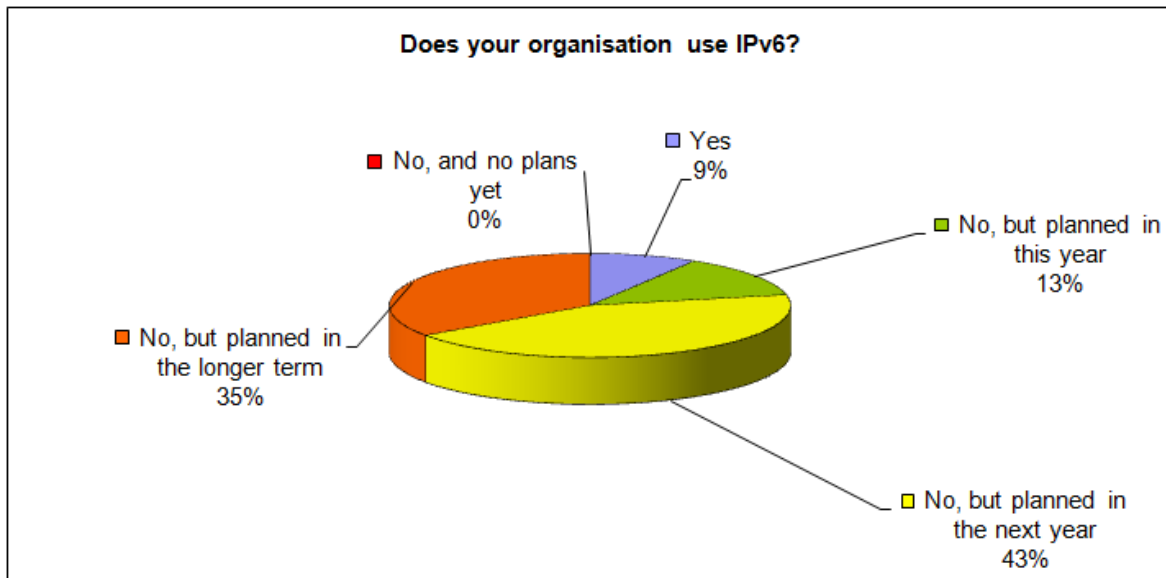**Figure 5-1: In which employment sector do you work?**
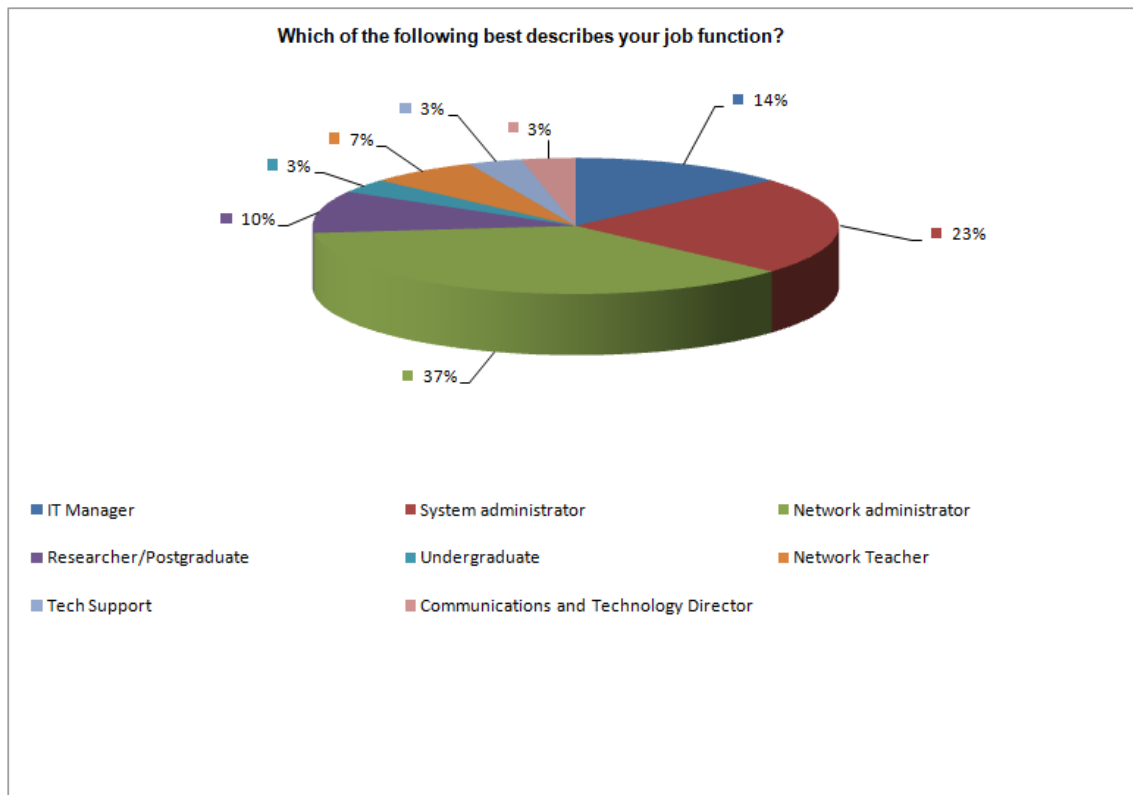
Does your organisation use IPv6?

- No, and no plans yet 0%
- Yes 9%
- No, but planned in this year 13%
- No, but planned in the longer term 35%
- No, but planned in the next year 43%

Figure 5-2: Does your organisation use IPv6?

Which of the following best describes your job function?

- 3%
- 3%
- 7%
- 3%
- 10%
- 14%
- 23%
- 37%

- IT Manager
- System administrator
- Network administrator
- Researcher/Postgraduate
- Undergraduate
- Network Teacher
- Tech Support
- Communications and Technology Director

Figure 5-3: Which of the following best describes your job function?

Do you use IPv6 yourself?

- Yes 14%
- No 86%
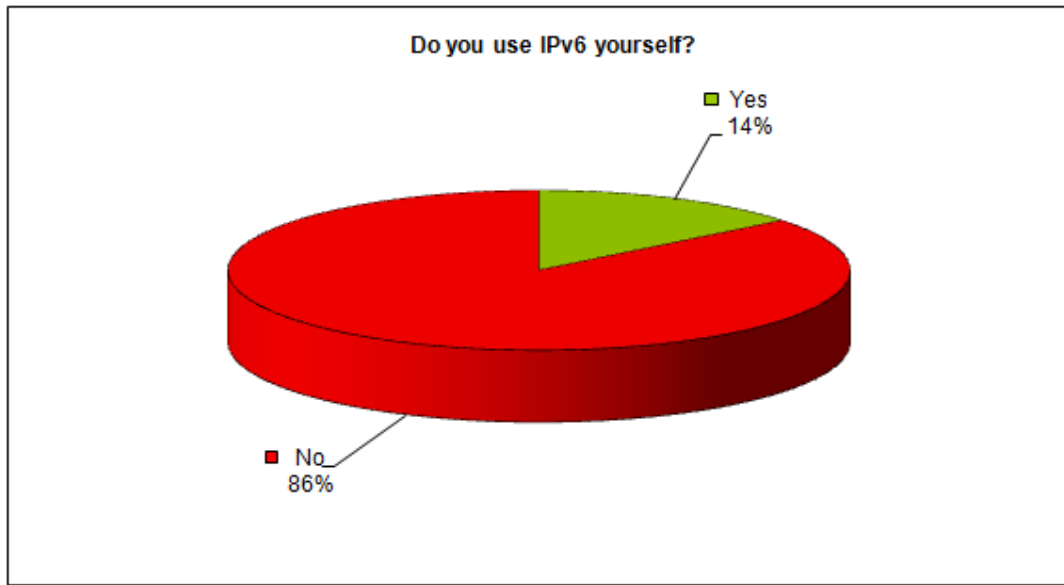
Figure 5-4: Do you use IPv6 yourself?

How useful did you find the presentations?

Legend: Very Useful, Useful, Slightly Useful, Not Useful

X-axis (Module): Presentation 1 - Introducción a.., Presentation 2 - Formatos de.., Presentation 3 -.., Presentation 4 - ICMPv6,.., Presentation 5 - Gestión de.., Presentation 6 - DNS IPv6, Presentation 7 - Seguridad IPv6, Presentation 8 -.., Practice 1 - Instalación de.., Practice 2 - Configuración.., Practice 3 - Direcciones.., Practice 4 - Servidores IPv6, Practice 5 - Monitorización con.., Practice 6 - Routing

Figure 5-5: How useful did you find the presentations?
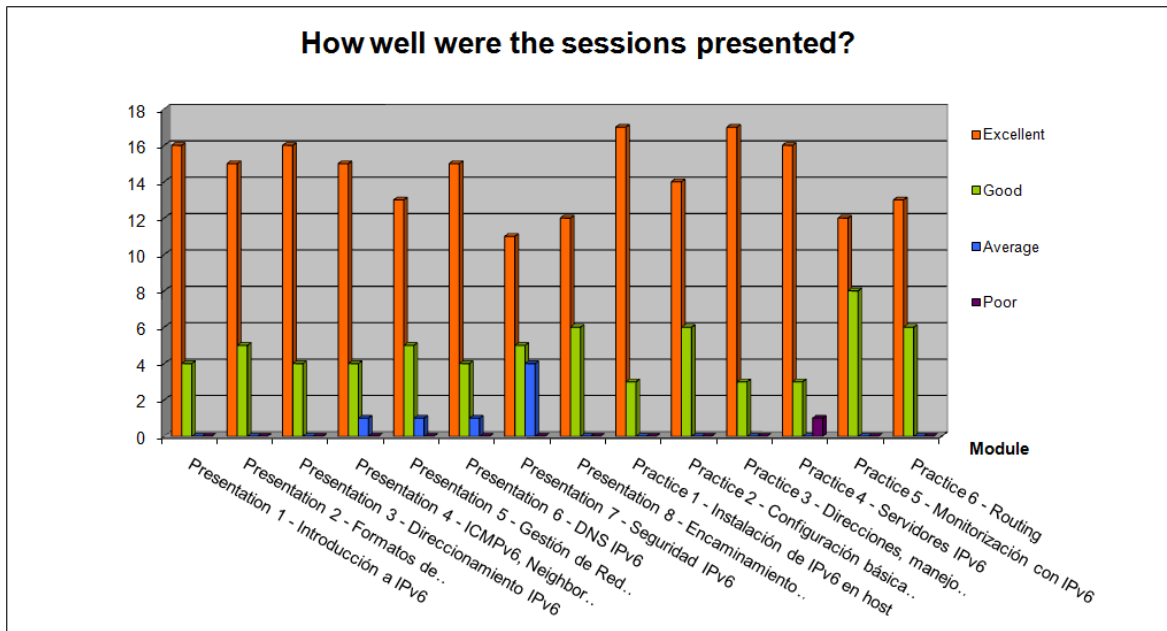
How well were the sessions presented?

Figure 5-6: How well were the sessions presented?

How much of the workshop material was already familiar?
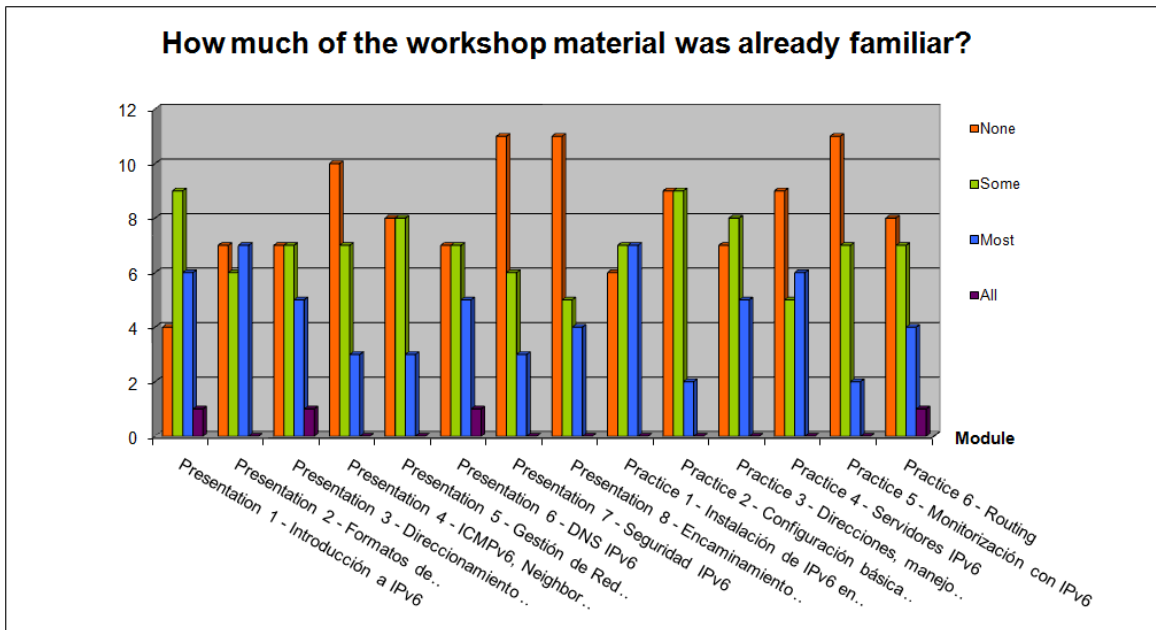
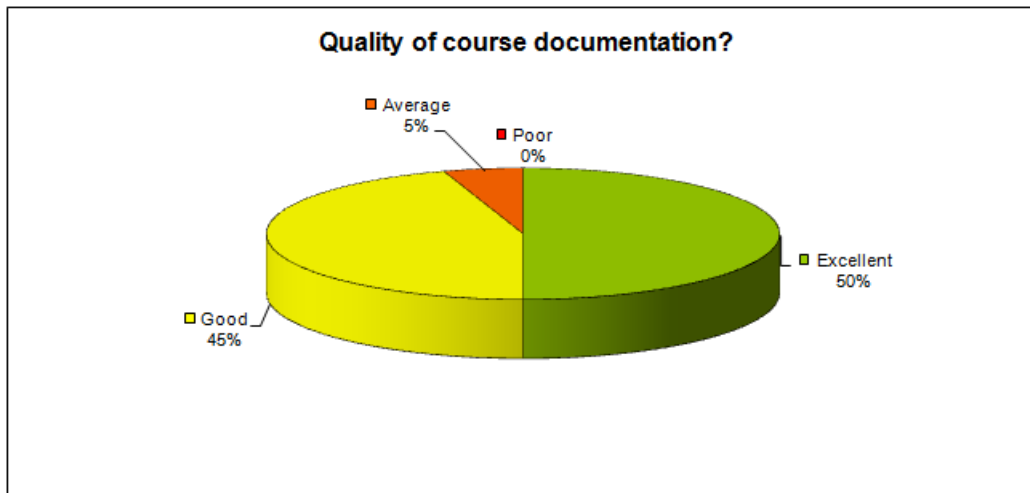**Figure 5-7: How much of the workshop material was already familiar?**

Quality of course documentation?

Average 5%
Poor 0%
Excellent 50%
Good 45%

Figure 5-8: Quality of course documentation?

General organization of the workshop?

Poor 0%
Average 0%
Excellent 50%
Good 50%
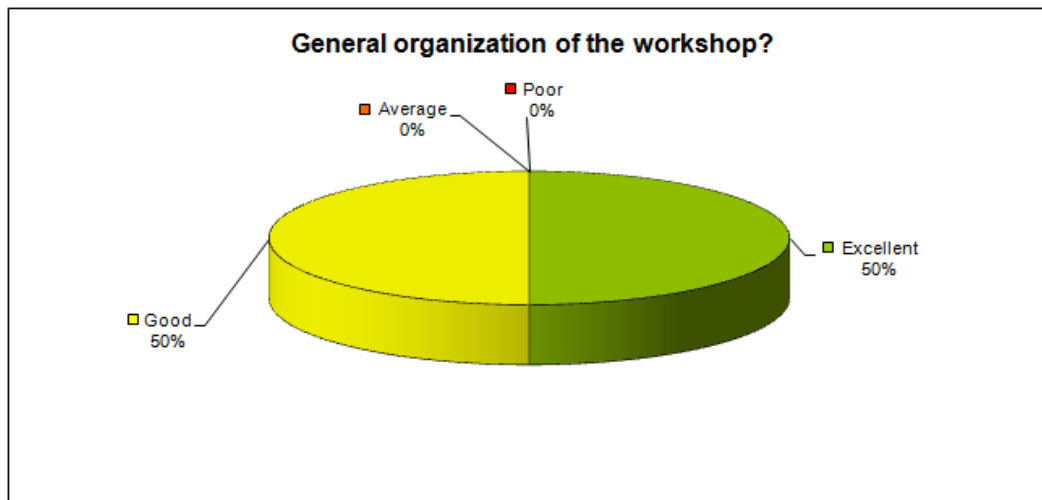
Figure 5-9: General organization of the workshop?

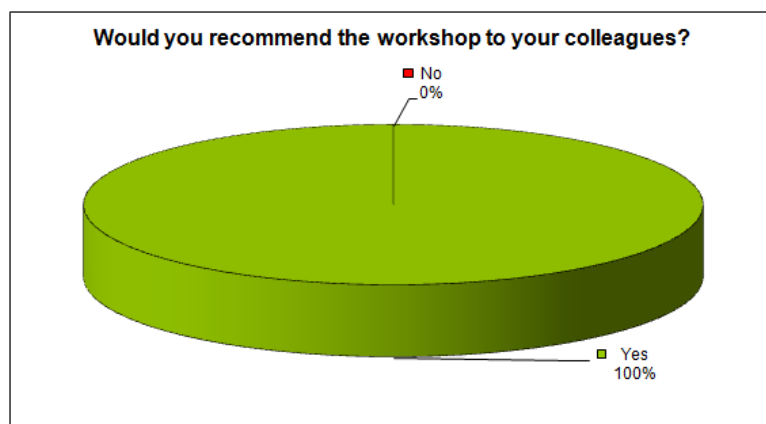**Would you recommend the workshop to your colleagues?**

No 0%
Yes 100%

Figure 5-10: Would you recommend the workshop to your colleagues?

5.4 Participants comments

It should be noted that the participants had different technical backgrounds. For example, some were network engineers (and therefore more interested in routing protocols and troubleshooting practices) while others were system administrators (and therefore more interested in applications and monitoring tools). Depending upon their background, some participants would have preferred to spend more time on Management, Applications, "hands-on", or to have a "hands-on" session related to security issues.

Within the questionnaire there were three open questions where the trainees could give their feedback on the workshop. Below are almost all of the responses. Note that some are repeated (number put between parentheses).

Here are some comments provided by the trainees:
== Begin of the excerpts
*What topics would you have liked to **hear more about**?*

- *(9) Seguridad, ip6tables, Ipsec.*
- *(3) Dual-stack routing.*
- *(1) Perimeter and node security.*
- *(1) Services/servers.*
- *(1) IPv6 routing.*
- *(1) Mobility.*
- *(1) Neighbor discovery and DHCPv6.*

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

- *(2) Headers.*
- *(1) IPv6 Addressing.*
- *(1) Linux.*
- *(1) History.*

*Any **other comments**:*

- *(2) Estuvo excelente (It was excellent).*
- *(1) Todo me parecio muy bien (Everthing seemed very good to me).*
- *(1) Muy completo el contenido y muy bien por el instructor (The content is very comprehensive and very good for the instructor).*

- *(1)   Mucho más práctico con teoría anticipada al workshop (This was more practical, with theory provided in advance).*

- *(1)   El Ing. Alvaro Vives tiene excelente dominio del tema (Engineer Alvaro Vives has an excellent command of the subject) .*

- *(1)   Este tipo de taller es para se ejecutado en mas de tres dias. Por lo demas etuvo bien interesante .(This type of workshop should be executed in more than 3 days. For the rest, it was very interesting).*

- *(1)   En general estuvo muy bien, el instructor hizo buen uso del tiempo y fue muy eficiente y puntual en sus explicaciones (In general, it was very good, the instructor made good use of time and was very efficient and concise in his explanations).*

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.

The 6DEPLOY workshop took place in San Salvador, El Salvador, on July 6th to 8th 2010. This Workshop was held in collaboration with CLARA (www.redclara.net) and ALICE2 Project (http://alice2.redclara.net) who organized everything in collaboration with RAICES (Red Avanzada de Investigación, Ciencia y Educación Salvadoreña) and UCA (Universidad CentroAmericana "José Simeón Cañas"). Consulintel lead this workshop, which was targeted to the LAC Region. 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, DNS, Autoconfiguration, Services, Routing and Applications. 6DEPLOY Paris and Sofia testbeds were used for practical routing exercises.

Approximately 26 network engineers, system administrators, and regulators participated in the workshops. The topics presented were selected according to the participants' requirements, trying to accomplish their need of a more practical workshop.

According to the evaluation forms and the comments from the participants at the workshop, it is clear that the workshop was a success, and 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 organisation. They also requested that 6DEPLOY organise 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 with regard to the dissemination of IPv6 in LAC region, though this is only the first of many steps towards the deployment of real IPv6 networks and services in the region.

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