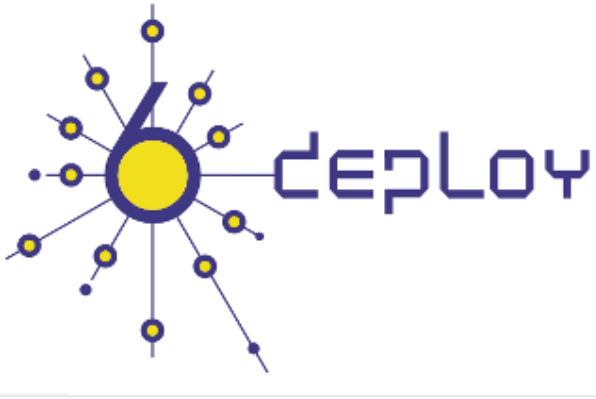

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Abstract:

This deliverable presents a report from the workshop held in Bishkek (Kyrgyzstan) from 22nd - 24th September 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, 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 created.

Revision	Date	Description	Author (Organization)
v0.1	29/09/2010	Document creation, added content provided by Peter Kirstein(UCL) and Socrates Varakliotis(UCL)	Piers O'Hanlon (UCL)
v0.2	1/10/2010	Minor updates from Kirstein and Varakliotis	Piers O'Hanlon (UCL)
v1.0	5/10/2010	Final review and editing	A. Higa, M. 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 report details the IPv6 lab opening and the workshop at National IT Centre offices in Bishkek (Kyrgyzstan) from 22nd - 24th September 2010. The opening was performed by the deputy Prime Minister (acting Prime Minister), Amangeldi Muraliev, whilst the workshop was attended by technical staff from Kyrgyzstan, Tajikistan, Turkmenistan, and Kazakhstan. The workshop and associated CAREN meeting received a high level of media coverage in local television and regional press.

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. CAREN, 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:

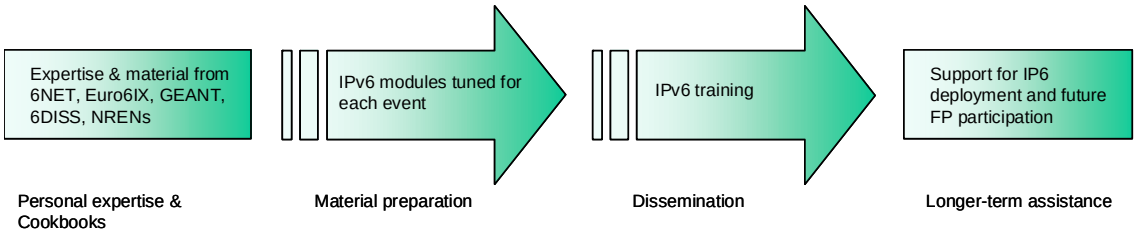

Figure 1-1: 6DEPLOY methodology (diagrammatically)

The approach is to use course material available from 6DEPLOY 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 6DEPLOY 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 Bishkek (Kyrgyzstan) from 22nd - 24th September 2010. The workshop comprised both slide presentations and

hands-on exercises (using local equipment and the local new 6DEPLOY testbed.

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 local testbed. 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 BISHKEK (KYRGYZSTAN)

This workshop was held in the National IT Centre offices in Bishkek from September 22nd - 24th 2010, and was organised by UCL, and Cisco Systems with local support from National IT Centre and CAREN and the Cisco Academy at the Centre. The workshop is described below, including descriptions of the attendees and their affiliations, the programme outline, and the material that was presented. The workshop received press coverage on Kyrgyz Television, and in the Cisco newsroom.

The Bishkek IPv6 Workshop included the formal opening of the IPv6 Laboratory donated by Cisco in the same way as the other 6DEPLOY laboratories. It was initially scheduled as a self-standing event at the end of June 2010; however, the political turmoil in Kyrgyzstan meant that it was impractical to hold it at that time. The funding for the travel and living expenses of many of the participants was going to come in any case from the new EC CAREN project, which is supporting connectivity to GEANT in Central Asia. We decided, therefore, to re-schedule the workshop to September 22-24, adjoining the formal launch of the CAREN Project. The CAREN launch, the IPv6 laboratory and the IPv6 workshop were all located in the same premises - the National IT Centre located at the building of the Presidium of the National Academy of Science (Chui Prospect 265, Bishkek).

The juxtaposition of the two events ensured a high level of attendance at the opening ceremony – both from local politicians and the EC. Nevertheless, we insisted that the two events should be separate, with the official CAREN launch on the 21st and the formal IPv6 workshop and laboratory opening on the 22nd.

There was wide coverage of the opening from the local TV and Press. Some typical examples are given in Annex A. There was also a Press Release joint between the National IT Centre and Cisco[1]. The attendees for the Opening Ceremony included, in addition to the three lecturers (Socrates Varakliotis (UCL), Piers O'Hanlon (UCL) and Bertus Habraken (Cisco)), the workshop organisers (Peter Kirstein (UCL) and Almaz Bakenov (National IT Centre)), Chantal Hebberecht, (the EC Ambassador to Kyrgyzstan), William Hanna (Head of Unit for Asia and Central Asia, EC DG AIDCO) and Bernhard Fabianek (the Project Officer in the EC FP7 division responsible for GEANT and High Performance Computing), the CAREN management and the CAREN Exco.

The IPv6 workshop lasted 2.5 days, from 22nd to 24th September. Individuals present at the workshop included Prof. Peter Kirstein (UCL), Piers O'Hanlon (UCL), Socrates Varakliotis (UCL), and Bertus Habraken (Cisco).

[1] *http://blogs.cisco.com/emerging/comments/ipv6_comes_to_bishkek_capital_of_the_kyrgyz_republic/*

3.1 The Venue and Funding

The National IT Centre is principally a training Institute, located within the Academy of Science. It has an extensive training programme in many aspects of IT including Operating Systems, Applications, Networks and Programming languages. It was set up largely by a grant from the Japanese government some five years ago. It has several computer rooms for training, including one that is used mainly as training for the Cisco Academy. The equipment for the IPv6 laboratory is located in that room – and the workshop was held there also.

Unlike some of our other workshops, it is necessary to support not only the lecturers but also some of the participants. In this case, the costs of the lecturers' travel and accommodation came from the normal 6DEPLOY funds, and the CAREN project agreed to pay the travel and accommodation of two participants from each of its foreign partners – Tajikistan and Turkmenistan. The UCL 6DEPLOY budget paid the cost of the travel and accommodation of one participant from Tajikistan and one from Kazakhstan. The final list of attendees is given in the next section. The UCL 6DEPLOY budget was used to defray the extra costs of lunches, the formal dinner and transport of the participants. The Kyrgyz NREN hosted the formal dinner for the attendees at the CAREN event, while the UCL budget funded the network participants at that event – which was deliberately a joint one. Cisco agreed to underwrite any cost over-run of the UCL budget due entirely to this workshop by transferring part of their 6DEPLOY budget to UCL. At the time of writing, it is not yet clear to what extent this offer of Cisco will need to be utilised.

3.1.1 Formal Lab Opening

For the IPv6 workshop, there was a formal Opening Ceremony on the 22th. After a welcome address from the Director of the National IT Centre, Almaz Bakenov, there was a speech by the Deputy Prime Minister Amangeldi Muraliev – who is also the acting Prime Minister and, in view of the temporary absence of the President abroad, then acting President! His speech emphasised the needs of the country in ICT, and their commitment to the Internet and its future development – with the emphasis on mass areas like health coverage and distance education. Professor Kirstein responded in a talk that emphasised how important IPv6 was in this context – particularly for countries like Kyrgyzstan which had only a small allocation of IPv4 addresses so far. There was then a formal ribbon cutting by both the Deputy Prime Minister and Professor Kirstein, and the laboratory was officially open.

The agenda of this part was the following:

Date	Time	Title of session
22/09/2010	09:30	Welcome – Prof. Almaz Bakenov, Director National IT Centre
22/09/2010	09:40	Speech by Amangeldi Muraliev, Deputy Prime Minister IPv6, the 6DEPLOY IPv6 laboratories, how this laboratory fits in (Prof. Peter Kirstein, University College London)
22/09/2010	10:00	Cisco Systems lab presentation (Mr. Bertus Habraken, Enterprise Architect, Cisco Systems)

Table 3-1: Bishkek Workshop Lab Opening Agenda

3.1.2 The IPv6 Workshop

The IPv6 workshop consisted of a number of presentations, interspersed with practical sessions enabling the students to have hands-on experience of IPv6, based upon the material from the lectures.

The National IT Centre hosted the workshop and provided local computers with access to the IPv6 router lab, and the Internet via CAREN. The workshop was conducted by Peter Kirstein, Piers O'Hanlon, Socrates Varakliotis (UCL), and Bertus Habraken (Cisco).

All the presentations were in English.

3.2 Attendees

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

No.	Surname	First Name	Affiliation	Position
1	Muminov	Mukaddas	Tajikistan	Network Administrator TARENA
2	Gafurov	Mansur	Tajikistan	Network Administrator TARENA
3	Yunusov	Hurshed	Tajikistan	IT Technician
4	Yegoshin	Ruben	Turkmenistan	Network Administrator TURENA
5	Medvedyeva-Goncharuk	Natalya	Turkmenistan	Leading Expert, Academy of Sciences
6	Jumabek Uulu	Zarlyk	Kyrgyz Republic	CAREN NOC Manager
7	Albanov	Emil	Kyrgyz Republic	CAREN NOC Engineer
8	Chokutaev	Samar	Kyrgyz Republic	CAREN NOC Engineer
9	Ulukman	Karabukaev	Kyrgyz Republic	KRENA
10	Arinov	Sagindyk	Kazakhstan	Technical Director KazRENA
11	Tatybaev	Saparaly	Kazakhstan	Network Engineer KazRENA

Table 3-2: Bishkek (Kyrgyzstan) Workshop list of participants

The attendees' technical background with IPv4 networking was rather heterogeneous. As a result some of the participants experienced difficulty in completing a number of the hands-on exercises. More details may be found in section 5.1 regarding the attendees, based on their answers to the questionnaire.

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
Wednesday 22/09/2010		**Lecture Session 1**
	10:45	Cisco IPv6 labs (Bertus Habraken, BH)
	11:00	Introduction to IPv6 (Peter Kirstein)
	11:45	IPv6 Basics: Protocol (Piers O'Hanlon, PO)
	12:00	IPv6 Basics: Addressing (Socrates Varakliotis, SV)
	12:30	*Lunch*
		Lecture Session 2
	14:00	Associated Protocols (PO)
	15:00	Auto-configuration (PO)
	15:30	*Coffee Break*
	15:50	IPv6 Support in the DNS (SV)
		Lab Session 1: Host configuration
	16:30	Lab Session 1: Windows and Linux host configuration
	18:15	*End of First Day*
	19:00	Workshop Dinner Joint with CAREN (KRENA/6DEPLOY Host)
Thursday 16/12/2010	9:30	Introduction by Bernhard Fabianek
		Lecture Session 3
	10:00	Mobile IPv6 (BH)
	11:00	Transition mechanisms (BH)
	11:30	*Coffee Break*
		Lab Session 2: DNS
	11:50	Lab Session 2: DNS
	13:30	*Lunch*
		Lecture Session 4
	14:30	Sensor networking (SV)
	16:30	*Coffee Break*
	16:50	Applications: Grid, VOIP, and Conferencing Case Studies (PO)
	18:50	*End of Second Day*
Friday 17/12/2010		**Lecture Session 5**
	10:00	Routing Protocols for IPv6 (BH)
	11:45	*Coffee Break*
		Lab Session 3: Routing Configuration
	12:00	Lab Session 3: Routing Configuration
	13:30	*Lunch*
		Lecture Session 6
	15:00	Security (PO)

	16:00	Feedback Form
	16:00	*End of Workshop*

Table 3-3: Bishkek Workshop programme

3.4 Presentation material

The following 6DEPLOY modules were updated before the workshop and presented:

Modules	Hands-on exercises	Presented by	Affiliation
Introduction to IPv6		Peter Kirstein	UCL
IPv6 Basics: Protocol and Addressing		Socrates Varakliotis	UCL
Associated Protocols		Piers O'Hanlon	UCL
Auto-configuration		Piers O'Hanlon	UCL
Host and Auto-configuration lab	LAB1	All	
IPv6 Support in the DNS		Bertus Habraken	Cisco
Deployment and Transition mechanisms		Bertus Habraken	Cisco
Sensor networking		Socrates Varakliotis	UCL
DNS lab	LAB2	All	
Mobile IPv6		Bertus Habraken	Cisco
Applications: Grid, VOIP, and Conferencing Case Studies		Piers O'Hanlon	UCL
Routing		Bertus Habraken	Cisco
Routing lab	LAB3	All	
Security		Piers O'Hanlon	UCL

Table 3-4: Bishkek 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.
- **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).
- **Sensor networking:** This module explains the 6LoWPAN protocol and shows some examples of sensor networks.
- **Mobile IPv6:** This module describes IPv6 mobility and news features compared to IPv4 mobility.
- **Applications: Grid, VOIP, and Conferencing Case Studies:** This module describes services and applications available for IPv6.
- **Routing:** This module mainly describes the differences between IPv4 and IPv6 routing protocols for OSPFv3, EIGRP, RIPng, BGP4+, ISIS and MPLS.
- **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, and the newly installed IPv6 router lab. Most of the trainees used the machines in the lab, whilst others used their own laptops.

The local PC lab consisted of one PC per trainee, was used for exercises on hosts and servers. Linux (Ubuntu) and Windows Vista were used to support the exercises related to basic IPv6 configuration, standard network services, security and management tools.

The router lab – as was the case for other 6DEPLOY workshops - was used for external (BGP) and internal (OSPFv3) routing protocols exercises.

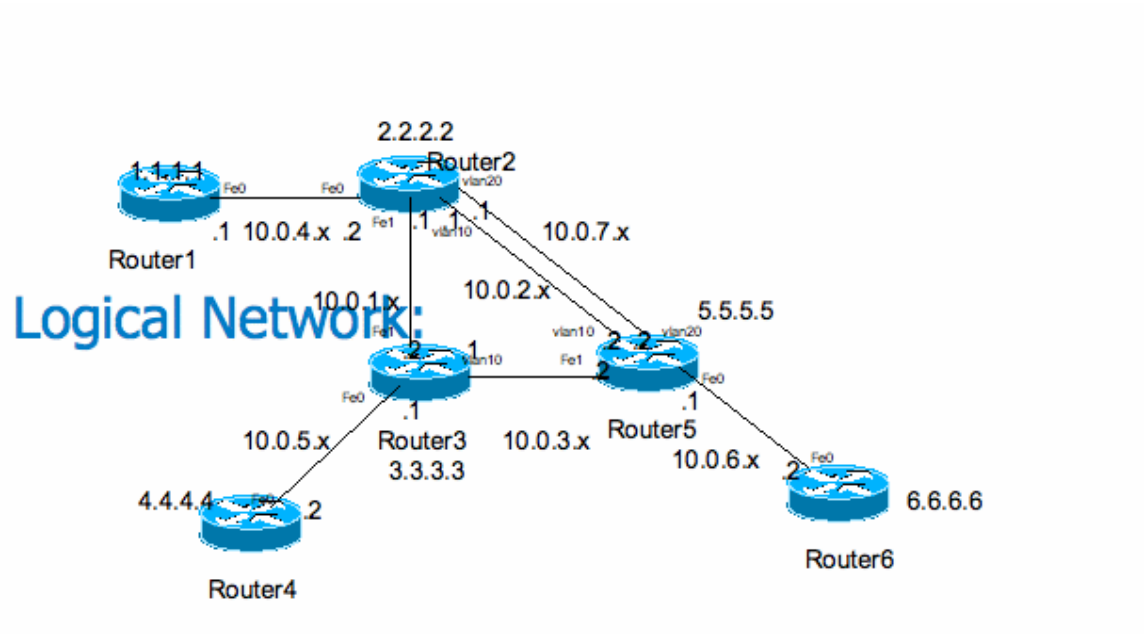

Figure 3-1: Router Lab at Bishkek, Kyrgyzstan

3.5 Photographs taken at the event

Figure 3-2: Lab opening - Deputy Prime Minister's Address

Figure 3-3: Lecturers and students at Bishkek workshop

Figure 3-4: Presenting the workshop material

Figure 3-5: Students at the workshop

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

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
Introduction to IPv6	4	7	0	0
IPv6 Basics: Protocol and Addressing	4	7	0	0
Associated Protocols	4	7	0	0
Auto-configuration	4	6	1	0
Host configuration lab	4	6	1	0
IPv6 Support in the DNS	4	7	0	0
DNS lab	4	7	0	0
Mobile IPv6	4	7	0	0
Deployment and Transition mechanisms	5	6	0	0
Sensor networking	4	7	0	0
Applications: Grid, VOIP, and Conferencing Case Studies	4	7	0	0
Routing	5	6	0	0
Routing lab	5	6	0	0
Security	4	7	0	0
Quality of the course documentation	Excellent	Good	Average	Poor
	7	4	0	0
General workshop organisation	Excellent	Good	Average	Poor
	6	5	0	0
Recommend to your colleagues?	yes	no		
	11	0		

Table 5-2: Questions regarding the workshop

5.3 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 Routing, Security, DNS, or to have a more “hands-on” sessions in general.

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**?:*

- *(1) Mobile IPv6*
- *(2) Routing protocols*
- *(1) DNS*
- *(1) Security*
- *(1) Transition mechanisms*
- *(2) Practical work/Hands-ons*

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

- *None*

*Any **other comments**:*

- *Thank you very much for excellent training. It gave a lot of information to explore on the nearest future.*
- *It is better to carry out such workshops a lot.*
- *We will be very pleasure to see you again guys!*
- *I appreciate what you are doing!*

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 workshops provide an important role of informing and enabling the adoption of IPv6. With particular emphasis on the technical aspects of IPv6 the workshops enable participants to go out and deploy IPv6 in their networks and services.

This workshop saw the deployment of the first IPv6 lab in the region providing a key building block to enable adoption. Kyrgyzstan has a keen interest in being involved in IPv6 and we identified the steps necessary to enable their and other networks to enable IPv6.

The feedback from workshop was very positive and the attendees felt they had gained a lot from the presentations and practical sessions. All participants would recommend the workshop to others, and we expect it to result in the continued advancement of both the Internet and of IPv6 in the region.

The impact of the workshop was high in Kyrgyzstan, with involvement of from leaders of the National government. The event attracted good coverage by the national press, and was also covered by the Cisco press. The knowledge and experience gained will be vital in the continued expansion of the Internet into these countries.

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

ANNEX A: PRESS COVERAGE

There was wide coverage of the event in local and regional press and it also featured in the Cisco emerging countries blog.

Most notably the event was covered by the Kyrgyz Presidential press office: http://www.kyrgyz-el.kg/index.php?option=com_content&task=view&id=1353

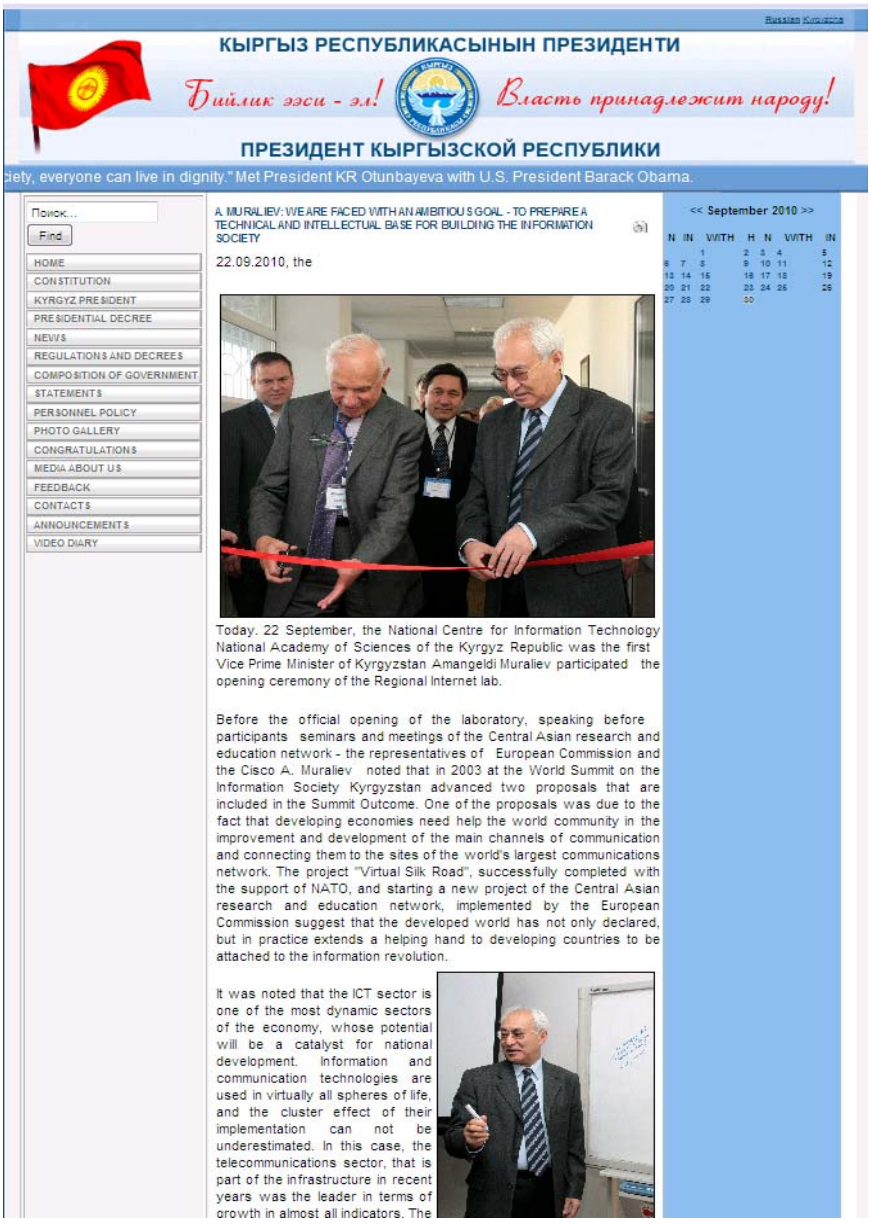

Figure 6 Kyrgyz Presidential press coverage (Google translated)

Links to other news Kyrgyz sources are listed below:

- http://www.journalist.kg/?pid=174&nid=1991
- http://www.medialaw.kg/?q=node/758
- http://www.media.kg/?pid=175&cid=1&nid=2030
- http://kg.akipress.org/news:266541
- http://www.24.kg/community/83056-vzglyad-v-internet-budushhee.html
- http://kabar.kg/index.php?option=com_content&task=view&id=7024&Itemid=36
- http://www.for.kg/ru/news/135457/
- http://kabar.kg/index.php?option=com_content&task=view&id=7039&Itemid=40
- http://www.24.kg/community/82796-kyrgyzstan-stal-chastyu-evropejskoj-nauchno.html

Press coverage in Kazakhstan news:

- http://www.profit.kz/news/006306/

Cisco Emerging Countries blog:

- http://blogs.cisco.com/emerging/comments/ipv6_comes_to_bishkek_capital_of_the_kyrgyz_republic/