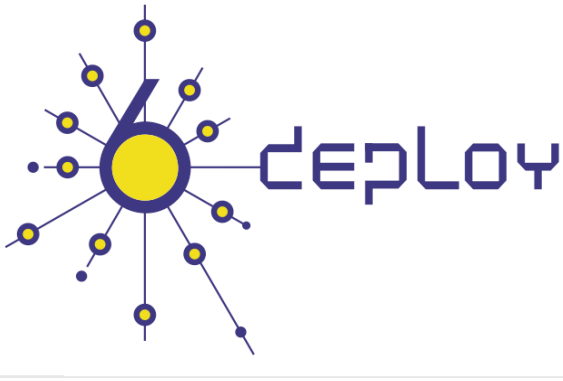

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Abstract:

This deliverable represents a summary of the current dissemination material available in the project, including training modules, “hands-on” exercises, the e-learning package, IPv6 labs, press releases, conference presentations, news bulletins, brochures, leaflets, posters, web-based publications, etc.

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	October 2010	Update of deliverable D2.2.3 from RENATER	Simon Muyal (RENATER)
v1.0	October 2010	Reviewed	A. Higa, M. Potts (Martel)

Executive Summary

One of the main activities in the 6DEPLOY project is to produce and maintain a set of dissemination material for use in workshops to train the different Internet communities in the areas of IPv6 deployment, configuration, and usage. This material is partly produced within 6DEPLOY, but also exploits previous project activities within and outside the Framework Programmes of the European Commission.

This document describes the set of dissemination material that is currently available. It is updated every 6 months. This deliverable describes the material which is available at the conclusion of this project. This material will be the basis on which to begin the 6DEPLOY-2 project.

In this revision, the main topics regarding the information / training material that the 6DEPLOY project maintains and disseminates through its activities worldwide are:

- IPv6 Modules
- Descriptions of “hands-on” exercises
- The e-learning package
- IPv6 Labs (locations, reservation process, management procedures, ...)
- Informational material (leaflets and flyers about the project
- Deliverables (especially the following Deployment Case Studies, which are available from the link to “Publications” at: http://www.6deploy.eu//index.php?page=home/):
    - D2.1.1: Greek School Network Deployment Use Case
    - D2.1.2: School of Electronics and Computer Science (ECS) at the University of Southampton Campus Network Deployment Case Study
    - D2.1.3: University of Plovdiv Network Deployment Case Study
    - D2.1.4: IPv6 Deployment within an ISP in a Developing Region

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1. INTRODUCTION

This deliverable represents a summary of the dissemination material produced by the project, including training modules, “hands-on” exercises, the e-learning package, IPv6 Labs, press releases, conference presentations, news bulletins, brochures, leaflets, posters, web-based publications, etc.

This current version is an update of Deliverable D2.2.3, which was released in April 2010. Although there have been no significant changes in the last months, this deliverable allows the updating of the information to reflect the situation at the end of the project. The most significant change relates to 6DEPLOY partners’ access to the increasing number of remote testbeds from the various worldwide training locations. New testbeds have been installed since the beginning of the project and coordination between the respective managers has been effective in ensuring that every testbed has a similar configuration, good availability and accessibility, and offers similar services. In addition, a further Deployment Case Study has been documented in D2.1.4, for ISPs in developing regions.

The process to update and review the 6DEPLOY IPv6 modules started a number of months ago and has been achieved successfully.

2. 6DEPLOY TRAINING MODULES

The IPv6 knowledge from the project has been split into the following individual training modules, so that workshops can be tailored to the specific requirements of a particular audience. All of these modules are posted on 6DEPLOY's website and can be found at: http://www.6deploy.org/index.php?page=tutorials.

Below is a list of the modules and the partner responsible for their maintenance. All of the existing modules have been checked for accuracy and several new modules have been added. On the following pages, is a brief description of the content of each module.

2.1 Training Modules

Module No.[1]	Module Name	Responsible
001	6DEPLOY Presentation	Martel
002	6DEPLOY Workshop introduction	Martel
010	IPv6 Introduction	RIPE_NCC/RENATER
020	IPv6 Protocols	RENATER
030	IPv6 Addressing	Consulintel
031	Addressing case studies	NIIFI
040	IPv6 associated protocols	GRNET
060	IPv6 network management	RENATER
070	IPv6 Multicast + M6Bone	UNINETT
080	IPv6 Autoconfiguration	UCL
090	IPv6 DNS	LACNIC
100	IPv6 Routing	FCCN
101	RPSLng	FCCN
110 + 111[2]	IPv6 Security	UCL
120	IPv6 Mobility	Cisco
130	IPv6 Coexistence with IPv4	Soton-ECS
131	IPv6 Deployment considerations	NIIFI
140	IPv6 Applications	UCL
150	Equipment Configuration	Consulintel

[1] *Module numbers prior to 200 are inherited from 6DISS project.*

[2] *A combined version of these 2 modules as created for the Tbilisi workshop, will lead to a single module for IPv6 security and numbered as 112*

160	IPv6 QoS	GRNET
210 (new)	“How to” Guide for Developers	UNINETT
220 (new)	IPv6 and 3G Cellular Network	GRNET
230 (new)	IPv6 and xDSL	GRNET
231 (new)	IPv6 and DSL – GSN Case Study	GRNET
250 (new)	IPv6 and Sensor Networks	UCL

Table 2-1: The set of 6DEPLOY training modules

2.1.1 Description of the Training Modules

- **001 - 6DEPLOY Presentation**: This module introduces the background and objectives of the 6DEPLOY project, the services offered, the partners and the tools at their disposal.
- **002 - 6DEPLOY Workshop Introduction**: This module is a template for introducing the programme and organisational aspects for a particular Workshop.
- **010 - IPv6 Introduction**: This module explains why a new version for IP (i.e. IPv6) has been developed. A brief history of IPv6, its motivation and benefits are given.
- **020 - IPv6 Protocols**: This module describes the IPv6 protocol: IPv6 packet header, extension headers and the differences from IPv4 headers. Packet size issues and upper layer considerations are also explained.
- **030 - IPv6 Addressing**: 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.
- **031 - Addressing case studies**: This module describes 2 addressing case studies:
  - RENATER backbone addressing plan, and
  - NIIFI backbone and site addressing plans.
- **040 - IPv6 associated protocols**: This module describes new protocols associated with IPv6: e.g. Neighbor Discovery Protocol, SEND, ICMPv6, MLD, etc.
- **060 - IPv6 network management**: This module explains how to manage an IPv6 network. The different ways to retrieve management information are described (MIBs, IPv6 flows) and IPv6 management tools and platforms are presented.
- **070 - IPv6 Multicast + M6Bone**: After presenting some multicast concepts

the following topics are covered: multicast addresses, Multicast Listener Discovery (MLD) protocol, multicast routing, PIM-ASM and PIM-SSM. Some practical issues are included and applications running on top of IPv6 multicast transport are presented as examples.

- **080 - IPv6 Autoconfiguration**: This module describes stateful (DHCPv6) and stateless (Router Solicitation/Router Advertisement) autoconfiguration mechanisms.
- **090 - IPv6 DNS**: This module describes new Resource Records for IPv6 DNS, the availability of IPv6 in the root servers zone, CC-TLDs, etc.
- **100 - IPv6 Routing**: This module describes the differences between IPv4 and IPv6 routing protocols for (mainly) OSPFv3, RIPng, BGP4+ and ISIS.
    - 101 - RPSLng: This module describes the Routing Policy Specification Language for IPv6 to register routing policies into the RIR databases. Some examples are provided for a better understanding.
- **110 - IPv6 Security**: Several issues are covered such as IPsec, privacy extensions, ND threats, IPv4 vs IPv6 threat analysis, IPv6 security issues, practical IPv6 security issues and firewalling IPv6. The distributed security model is also introduced. Security issues from the point of view of transition and coexistence are also provided. (Module 110 is the longer version of this course, while 111 is an abridged version).
- **112 - IPv6 Security** (under construction): This module will be a combined version of 110 and 111.
- **120 - IPv6 Mobility**: This module describes IPv6 mobility and the new features compared to IPv4 mobility.
- **130 - IPv6 Coexistence with IPv4**: 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 and translation (at various layers).
- **131** - IPv6 Deployment considerations: This module proposes a way to start deploying IPv6 in both campuses and ISP networks. Detailed examples illustrate the way to proceed.
- **150 - Equipment Configuration**: This module lists some examples of IPv6 configurations for different operating systems (Windows, Linux, etc.) and routers (Cisco, Juniper).
- **160 - IPv6 QoS**: This module describes how to implement IPv6 QoS with Classes of Service (configuration examples, performance tests) and discusses the

use of the IPv6 Flow Label.

- **210 - "How-to" Guide for Developers**: This module addresses developers' concerns on how to migrate an IPv4 application to IPv6 (porting issues, etc.)
- **220 - IPv6 and 3G Cellular Network:** This module provides a short overview of the different kinds of cellular networks (GSM, GPRS, 3G) and the IPv6 services that can be deployed within them. Specific issues such as IPv6 address allocation using GPRS, transitioning scenarios related to Mobile Stations (MS), transitioning scenarios related to IP Multimedia Subsystem (IMS), and IPv6 MS implementation issues are presented in detail.
- **230 - IPv6 and xDSL**: This module describes how IPv6 can be deployed among the different entities that are present in xDSL environments. Implementation details are provided for Ethernet Bridging over ATM, PPP over AAL5 (PPPoA), PPP over Ethernet (PPPoE), IPv6 and Radius, and IPv6 configuration in the End User terminal.
- **231 - IPv6 and DSL – GSN Case Study**: This module provides a short overview of the Greek Schools Network (GSN), www.sch.gr and details about the deployment phases of IPv6 services in the GSN. IPv6 Deployment strategies in the core network, access networks, infrastructure servers, and school PC labs, address allocation in school gateways and IPv6 experiences are presented in detail.
- **250 – IPv6 and Sensor Networks:** This module explains the 6LoWPAN protocol and shows some examples of IPv6 sensor networks.

2.1.2 Module update process

Due to the fact that IPv6 standardisation is still evolving - mainly in the area of transition mechanisms - and the 6DEPLOY training modules used in workshops by the 6DEPLOY partners need to be updated so that the attendees receive the most current information, the following process has been agreed upon by the 6DEPLOY partners to achieve this goal:

- As seen in the previous table, each IPv6 module has an owner responsible for its content. It is up to the owner to decide which modification is needed or not within the module content. 6DEPLOY partners using the IPv6 modules for their training sessions must check the content and determine if any updates are needed. In the case that they make updates for their training session, they are requested to send all modifications they have performed in the module to the

respective owner.

- The following very important step consists of reviewing the modified modules. Currently, every module has at least one (usually, two) reviewer. The reviewer's role is to check the consistency of the module and to ensure that the updates are correct.

- Finally, when a module has been updated and reviewed, it is tagged and notated as such in the summary table where the status of all the modules is recorded[3].

[3] *This table is accessible on-line for the project partners at:*
http://www.6deploy.org/_temp/6fb31545b5755b0cb811caf97cb8108f/000-modules-owners_v1_3.pdf.zip

3. HANDS-ON MODULES

In addition to providing workshop participants with a theoretical basis of the IPv6 protocol, 6DEPLOY also has ready-to-use practical "hands-on" exercises. These can be used by the trainers for a specific session and targeted community as a basis for their exercises, thereby avoiding the necessity for them to reinvent everything from scratch. The full set (see list below) is available at:
http://www.6deploy.org/index.php?page=hands-on.

The list of available "hands-on" modules is described below:

- **Host configuration**: Two exercises illustrate how IPv6 works on Linux and Windows XP operating systems. Some aspects of the IPv6 protocol are analysed in depth: Neighbor Discovery, Autoconfiguration, etc.
- **Stateful autoconfiguration**: In this exercise, the trainees are requested to install a DHCPv6 client (Dibbler) and make a basic configuration.
- **Routing**: In this exercise, IPv6 routing protocols are configured by the trainees on the testbed routers. Internal Gateway Protocols (RIPng, OSPF and ISIS) and the External Gateway Protocol (BGP) are tested.
- **DNS**: In this exercise, the trainees have to manipulate IPv6 resource records (AAAA, PTR) in a DNS server. It is performed on Linux OS.
- **Services/Applications**: In this exercise, the trainees install IPv6 services such as web servers (with virtual hosts) and FTP servers. This exercise is performed on Linux OS. The other trainees check that the configured services are available from their machine using IPv6 web/ftp clients (on Linux or Windows).
- **Management**: After having tested the services, the trainees are requested to install a management application (Argus) to supervise the routers, PCs and configured IPv6 services (web, ftp, etc.).
- **Security**: In this exercise, the trainees are required to add filters on the routers (ACL) and on the PCs (ip6tables) to allow/deny some PCs/services.

A further set of hands-on exercises is also available from Consulintel[4]:

- IPv6 setup in several Platforms (Windows 2K/XP/2003/Vista, Linux, BSD)
- Basic Configuration, Stateless/Stateful Autoconfiguration, Privacy, Static Routes

[4] *They can be retrieved from the same URL as previously mentioned:http://www.6deploy.org/index.php?page=hands-on*

- Transition Mechanisms Configuration[5]
- Examples of Applications
- IPv6 DNS
- IPv6 and PPP
- IPv6 Firewall
- Enabling IPv6 on Cisco Routers and IPv6 ACLs
- SNMP over IPv6

Depending on the requirements provided in advance by the workshop organizers, the trainers decide which set of hands-on exercises will be used. A mix of both contents can also be used.

[5] *In this hands-on exercise configuration of different transition mechanisms examples are given for different platforms, like Linux and Windows. The main focus is on tunnelling mechanisms.*

4. E-LEARNING PACKAGE

The e-learning package developed within the 6DISS project has been updated to the 6DEPLOY style at http://www.6deploy.eu/index.php?page=e-learning . It can be either followed on-line or downloaded. It has been converted to the 6DEPLOY style and a few pages were updated. The Portuguese subtitles were also changed to match the updated text and voice-over.

Figure 4-1: The introduction page to the e-learning package

5. IPv6 LABS

5.1 Locations

During the last months, 6DEPLOY Labs have been deployed or are in the process of being deployed. Discussions have been established with some partners in different regions in the world to deploy new labs and enhance IPv6 dissemination. The list of the labs is shown below:

Region	Country	City	Organisation	Status
Europe	France	Paris	RENATER	Operational
Europe	Bulgaria	Sofia	BREN	Operational
Europe	Slovenia	Ljubljana	go6	Installed
Europe	Spain	Madrid	Consulintel	On order
Europe	Czech Republic	Prague	CESNET	On order
Africa	Mauritius	Ebene	AfriNIC	Operational
Africa	Ghana	Accra	AITI	Ready to be shipped
Africa	Kenya	Nairobi	KENIC	Under discussion
Central Asia	Kyrgyzstan	Bishkek	CGEIT	Installed
Central Asia	Georgia	Tbilisi	GRENA	Installed
Asia	India	Bangalore	CEDT/IISc	Installed
Latin America	Colombia	Bogota	*TBD*	Being installed
Latin America	Argentina	Buenos Aires	*TBD*	*TBC*
Latin America	Mexico	*TDB*	CUDI	Under discussion

Table 5-1: List of IPv6 labs

These labs can be configured remotely for “hands-on” exercises such as addressing and routing. They may be reserved during the 6DEPLOY training workshops and also outside of these times (according to availability). The composition of each testbed is topologically similar. Thus, it is possible to use more than one of them during a workshop having the same exercises for all the trainees.

The Sofia lab is shown below as an example[6]:

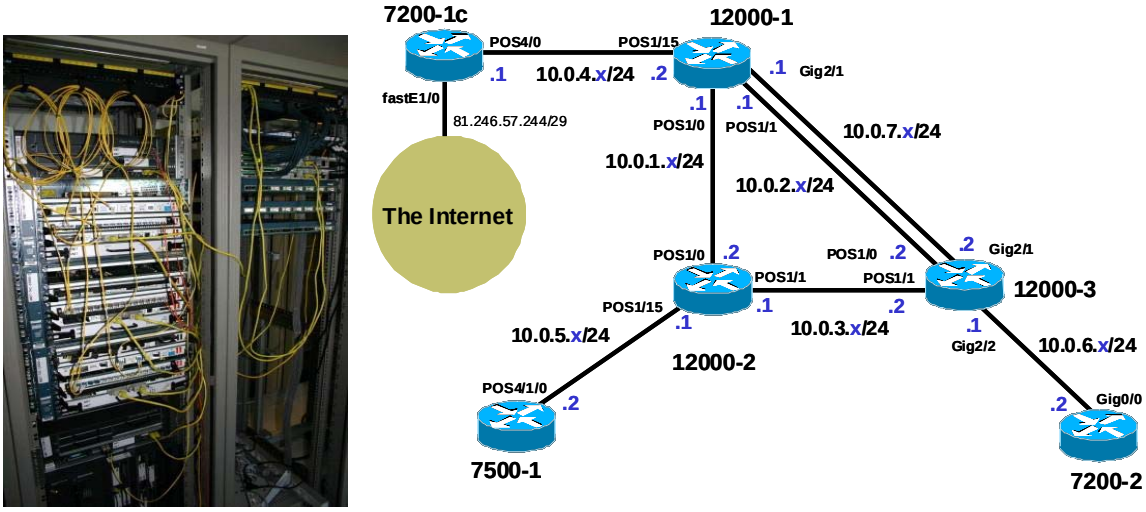

Figure 5-1: The initial configuration of the 6DEPLOY IPv6 Lab at BREN in Sophia

Some efforts have been made to improve the existing labs. In the RENATER and BREN labs, 2 desktop servers have been installed in each testbed. Several virtual machines can be installed on these servers and Windows or Linux operating systems can run on these virtual machines. With this configuration, it is possible to run all kind of "hands-on" exercises (DNS, applications, ...) remotely. The advantage is the time saving during workshop preparations, since configurations do not have to be done locally. The only requirement is to have an Internet connection to the labs.

[6] Note that the testbeds are only configured initially with IPv4 addresses, so it is up to the trainees to perform all the necessary actions to have it running over IPv6 and connected to the IPv6 Internet.

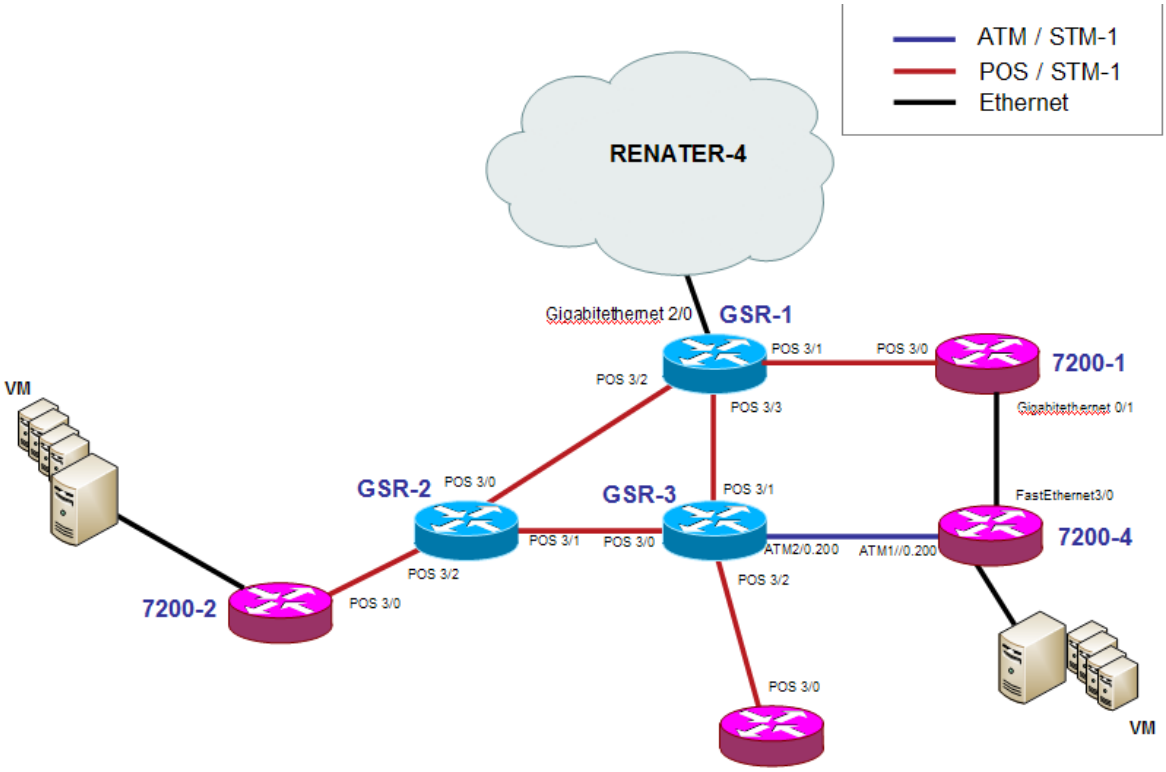

Figure 5-2: The placement of the Virtual Machines in the RENATER and BREN Labs

5.2 Testbeds and training material usage

The trainers for 6DEPLOY - or any other project related to IPv6 training - can use the 6DEPLOY material, perform the same “hands-on” exercises and join the 6DEPLOY human-network community.

5.3 Testbed managers coordination and activities

Since the number of testbed locations (and number of persons in charge of their management and maintenance) is growing (150% in 2009), the way that the testbeds provide services must be coordinated, so that every IPv6 lab works uniformly. In this way, a workshop trainer can use a testbed from any location without noticing any difference. 6DEPLOY organises specific training workshops for existing - and future - testbed managers. The first one was held in September 2008 at RENATER, the second one in Amsterdam, in May, 2009 and the most recent one took take place in conjunction with the project meeting in July 2010 in Brussels.

In order to manage the different labs, it was decided to create a specific activity. The goals of this activity are to:

- Share experience between the testbed managers
- Coordinate the work to improve the labs
- Have the same level of facilities in the labs
- Manage the reservations via a one-stop-shop web interface

Some achievements have been made during the last months regarding this activity:

- **Central reservation interface:** Since February 2009, a one-stop-shop web interface has been established, allowing a workshop organizer to book the set of testbeds he/she will need for a dedicated event. The organizer simply needs to go to http://www.6deploy.org/index.php?page=testbed to perform this reservation. A mailing list has been created to inform testbed managers when a reservation has been requested. The testbed managers also have a management interface where it is possible to accept or reject a reservation. Generally, some discussions will have taken place previously on the testbed manager mailing list, in order to determine which lab(s) - and how many - will be used for a given training session. The decision to use one lab or another depends also on the location (time zone) where the workshop is to take place.

Figure 5-3: A reservation request to the Lab managers

- **Reset the configuration of a lab:** In order to automate the management of the labs, scripts have been produced by RENATER. These scripts are available via a web page and allow the restoration of various configurations - i.e. restore initial configurations - made during a training session. In this way, the lab can be prepared for a new training session within a few minutes. This system is currently only available for the RENATER lab, but deployment is being planned for other testbeds. Another new feature is the possibility of saving easily the router's configuration through a web interface. This operation can be useful at the end of a training session, for example, if the trainer or the trainees want to have a backup of the exercises done.

  The picture below shows the web interface allowing the configurations to be reset:

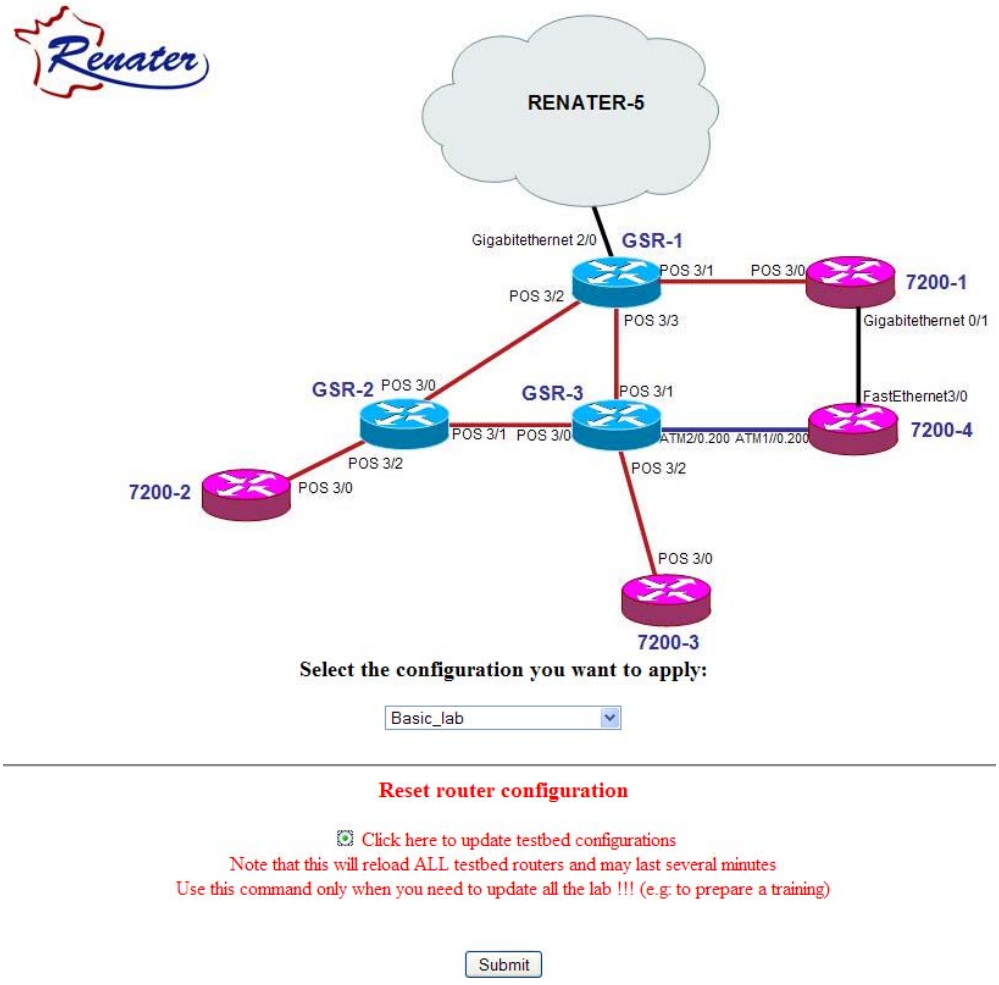

Figure 5-4: Interface for resetting Labs to their default configuration

6. PRESS RELEASES

6.1 6DEPLOY team to become the centre of European expertise regarding IPv6 deployment

The following Press Release was produced at the start of the project:

6DEPLOY team to become the centre of European expertise regarding IPv6 deployment

The 6DEPLOY project within the European Commission's 7th Framework Programme for Research and Technological Development started on 1st May 2008 and has duration of 30 months.

The purpose of 6DEPLOY is to support the deployment of IPv6 in (i) e-Infrastructure environments, thereby improving the use of existing research infrastructures for all fields of science and technology, (ii) other projects in the 7th Framework Programme, (iii) developing countries (Africa, Latin America, Asia and Eastern Europe), and (iv) commercial environments, especially in Europe.

6DEPLOY exploits the expertise and high quality training material collected from previous European projects, including presentations, a professional e-learning course and 2 testbeds that can be accessed remotely. Whilst offering tailor-made training to organisations throughout the world, it also plans to multiply its training effectiveness through courses which educate other trainers about the basics of IPv6, so that they can teach others ("training trainers"). Partners are also willing to give support for real IPv6 deployments.

The **outreach to European industries and researchers** and **giving practical support for deployments** are the 2 key new services offered by 6DEPLOY. Developing regions (in Europe and abroad) are often the *early adopters* of IPv6, given that they have less legacy IPv4 networks installed. Case Studies will be published about real deployments and used to help deployers working in similar areas. **The 6DEPLOY team will become the centre of European expertise regarding IPv6 deployment**.

This expertise will also be used to support more-commercial deployments in Europe, in industry branches such as Emergency Services, Health, Broadcast, Transport, Schools, Environment, Gaming, etc. These sectors will be reached through contacts with other EC projects, the IPv6 Forum and National IPv6 Task Forces.

The 6DEPLOY Consortium comprises six European National Research and Education Networks (RENATER (France), GRnet (Greece), NIIFI (Hungary), UNINETT (Norway), FCCN (Portugal) and BREN (Bulgaria)), Cisco, the University College London and Southampton University (both in the UK), 2 SMEs (Consulintel and Martel) and the Regional Internet Registries AfriNIC (Africa) and LACNIC (Latin America). Consulintel is an active player in dissemination and training in all the topics and regions covered by 6DEPLOY, and Martel has much experience of project co-ordination. The other three Regional Internet Registries in the world (RIPE-NCC, in Europe, ARIN in North America, and APNIC in the Asia-Pacific Region are associated with the project.

Further information is available from the 6DEPLOY website at www.6deploy.org

6.2 Cisco Press Release – October 2009

CAEN, France, October 28, 2009 – Cisco today announced that the Conseil Régional de Basse-Normandie (CRBN) has deployed Cisco® Unified Communications Manager, running the new version of Internet Protocol (IPv6), to simplify its communications infrastructure. The deployments will facilitate the implementation of new IPv6-based collaboration applications and services and help improve operational efficiency. The new system will operate with the council's VIKMAN research and education network, which uses the IPv6 protocol to provide a high-speed Internet connection between all of the region's research and training sites. CRBN is one of the first councils to deploy the latest version of Cisco Unified Communications Manager, running IPv6.

Highlights / Key Facts:

- Cisco's IPv6-ready Unified Communications Manager will allow CRBN to implement next generation collaboration applications and services, such as rich-media conferencing and improved mobile access, which will help improve the efficiency of its operations and the productivity of its workforce.
- CRBN is taking an innovative approach to managing its operations, and the new capabilities offered by IPv6-ready Unified Communications Manager will help ensure that it continues to provide the highest level of service to its citizens.
- Cisco Unified Communications provides a wide range of communications capabilities that integrate into the rapidly emerging IPv6 networking ecosystem, including IP telephony and unified messaging.
- Cisco Unified Communications Manager will also help CRBN simplify its communications infrastructure by automating a number of network processes, allowing CRBN to deploy applications without having make changes to its underlying network operations.
- The new dual-stack capabilities of Cisco Unified Communications Manager will allow CRBN to transition to IPv6 at a pace that makes sense for the organisation, by allowing the coexistence of IPv4 and IPv6 within devices, gateways and system control servers.
- CRBN paved the way for the IPv6 deployment by preparing and upgrading its infrastructure in 2008-09, enabling IPv6 and Power over Ethernet across the campus LAN. The Cisco Unified Communications Manager deployment has been rolled out to some 600 users since Sept. 2009.
- CRBN is taking steps toward ensuring the agile delivery of services and applications, transforming the way IT manages, scales, provides security and governs networks. IPv6 allows its users to take full advantage of borderless networks by enabling connections to anyone and anything, anywhere, anytime, with a high degree of reliability and security.

- The CRBN deployment builds on a tradition of IPv6 leadership at Cisco, which has supported IPv6 in Cisco IOS® Software on the broadest set of platforms in the industry since Feb. 2001.
- Cisco has a long-standing commitment to supporting the European Commission in its research, education and stimulation efforts through major IPv6 projects aiming at a clear exploration, understanding, dissemination and implementation of IPv6 as a network evolution.
- To support public awareness Cisco presented the first Cisco Unified Communications Manager IPv6 solution at the IPv6 German task force meeting in May 2009. Today's step is another tangible milestone toward IPv6 implementation.

Executive Quotes:

Emmanuel Roussel, CRBN's Networking and Systems Department manager

"As a public sector organization we are continually looking for ways to improve the efficiency of our operations and the services for our public end users in Normandy through leadership and innovation." said CRBN's Networking and Systems Department Manager Emmanuel Roussel. "We believe Cisco's IPv6-ready Unified Communications Manager will enable us to provide our customers with the most future-proof environment possible, stimulating us as well about the different new service creation opportunities that IPv6 is offering us."

Barry O'Sullivan, senior vice president of Cisco's Voice Technology Group

"An IPv6-enabled infrastructure will allow CRBN to gradually adopt the next generation of Internet applications and services, which will help boost the productivity of its employees and significantly increase the efficiency of its operations. The network is the one pervasive element in the IT infrastructure. It touches all locations, departments and people as well as software and hardware. This deployment with CRBN demonstrates Cisco's ability to support IPv6 from core infrastructure right through to applications."

Links / URLs:

Further content can be found at:

- *www.6net.org, www.6diss.org, www.u-2010.eu* and *www.6deploy.eu.*
- Conseil Régional de Basse-Normandie Website: *http://www.cr-basse-normandie.fr*
- Map of Basse-Normandie region (capital Caen):
- *http://sig.cr-basse-normandie.fr/atlas/cartes/pres_generale.jpg*
- Cisco Carrier Grade IPv6 solution: *http://bit.ly/3f8E2J*
- IPv6 in the Enterprise: *http://www.cisco.com/IPv6*
- IP for Smart Objects Alliance: *http://www.ipso-alliance.org*

6.3 BELIEF-II Newsletter

BELIEF-II Project's Newsletter "Zero-In"

Article submitted by Martin Potts of Martel

2011 is the year in which it is widely predicted that the last IPv4 address will be issued to a Regional Internet Registry. 6DEPLOY is preparing organisations for the introduction of IPv6, on the basis that a well-planned deployment, in-line with scheduled equipment replacement cycles are more cost-effective than having to react at short notice. Training is an important aspect of this preparation.

Apart from approaching its 20th IPv6 training workshop - focusing on Europe, Latin America and Africa - 6DEPLOY has been particularly active in deploying IPv6 Labs throughout the world. These testbeds - donated by Cisco - all have a similar configuration making it possible for the Lab managers to exploit the available 6DEPLOY training material and other software tools (e.g. the testbed reservation system). These labs become the natural centres of IPv6 training and expertise within the region.

Regular meetings are held between the Lab managers, to discuss new training exercises and ideas for enhancements (e.g. IPv6-based video and audio between the sites). As all of the testbeds have a similar configuration, any of them can be accessed remotely during the 6DEPLOY training workshops as testbeds for use for performing "hands-on" exercises on configuration, routing, etc..

Labs are currently installed in Paris, Sofia, Slovenia, Georgia, Bishkek and Mauritius. Labs under construction are in Nairobi and Bangalore. Discussions are ongoing for Labs in Turkey, Latin America, Spain and Ghana.

Links / URLs:
Further content can be found at: www.6deploy.eu

6.4 Georgia gets ready for IPv6 with help from Cisco

New IPv6 Lab Is Part of International Network of Training Facilities

TBILISI, Georgia – December 16, 2009 – Cisco and the Georgian Research and Educational Networking Association (GRENA) today announced the opening of the first laboratory for training and research in Internet Protocol version 6 (IPv6) in the Caucasus region. Cisco donated the lab's networking and communications equipment.

Located in the Georgian capital Tbilisi and operated by GRENA, the lab is an integral part of an international network of IPv6 training and research facilities. It is connected to the IPv6 lab operated by RENATER, the French national research network in Paris, as well as to similar centers in Johannesburg, South Africa, and Sofia, Bulgaria.

Key Facts / Highlights:

- The objective of the lab is to provide an open environment for validating solutions, network setups and applications built on the next-generation Internet Protocol, known as IPv6. Internet experts, including academics, government administrators and telecom specialists, can be trained both on-site and through virtual access on innovative information and communications technology solutions relating to the adoption of IPv6.
- In terms of technology and equipment, the lab is an exact replica of the one in Paris. The labs are interconnected through GEANT, the pan-European data network dedicated to the research and education communities. The resources can be used redundantly: If someone needs to conduct a test and one of the labs is busy at the time, the researcher can be directed to another lab.
- The laboratory will be managed by the Georgian Research and Educational Networking Association. It will also help GRENA's participation in the 6DEPLOY project funded by the European Union's Seventh Framework Program, which involves 13 institutions from all over the world and whose aim is disseminating knowledge about IPv6 and supporting its deployment.
- As an early pioneer in IPv6 technology, Cisco has been a driving force in developing IPv6 through various standards bodies, including the Internet Engineering Task Force, and has been shipping a wide variety of end-to-end IPv6 product and solutions. In October, Cisco announced significant enhancements to its Internet Protocol Next-Generation Network (IP NGN) architecture, including the new Cisco® carrier-grade IPv6 solution, which complements Cisco's IPv6 portfolio, the widest and most extensive in the market.
- Cisco has a long-standing commitment to Georgia. The Cisco Networking Academy® has been present in the country since 2004. Currently, there are eight academies and more than 300 students participating in the program. In 2002, Cisco's chairman emeritus, John Morgridge, made a personal donation for an IP

network to connect government offices in Georgia. This network is now connecting more than 600 governmental institutions.

Backgrounder on IPv6:

- Due to the spectacular growth in the adoption of the Internet and Internet-based technologies worldwide, public IP address space is becoming increasingly scarce. The current Internet Protocol version (IPv4) has a limited number of addresses remaining, which will last only until 2012 at the latest. The convergence of technologies and the increasing number of devices on the Internet also require new address space.
- As the world prepares for the adoption of the next-generation Internet Protocol, education on IPv6 becomes crucial. The IPv6 lab in Georgia offers the opportunity to develop a solid knowledge base on the new protocol, which will help ensure the continuity of operation of institutions and companies.

Supporting Quotes:

- Nodar Surguladze, deputy minister, Ministry of Education and Science of Georgia:

  "For countries like Georgia, IPv6 adoption represents an opportunity to manage the gap and be ready for the future of the Internet. We are especially proud of the fact that GRENA and our Georgian specialists can be part of the international IPv6 community, thanks to this donation from Cisco."

- Kaan Terzioglu, vice president, Cisco Emerging Markets East:

  "As a company that has its roots in education, Cisco is very pleased to support the research community. Cisco's intention is to act as a catalyst to accelerate technology innovation. As our countries are building out their communications infrastructure, we see a unique opportunity for local academics and entrepreneurs to develop new technologies and applications around future standards such as IPv6."

Tags:

- Cisco, GRENA, Georgia, IPv6

RSS Feed for Cisco: http://newsroom.cisco.com/dlls/rss.html

Supporting Resources:

- Read more about Cisco IPv6 solutions: http://newsroom.cisco.com/dlls/2009/prod_101309.html
- Read more about GRENA: http://www.grena.ge/english/index.html

- IPv6 Technology: http://www.cisco.com/en/US/products/ps6553/products_ios_technology_home.html
- IPv6 and Unified Communications in the public sector: http://newsroom.cisco.com/dlls/2009/prod_102809c.html

6.5 The Ghana India Kofi Annan Centre of Excellence in ICT (AITIKACE)

Press Release

August 27, 2010

FOR IMMEDIATE RELEASE

AITIKACE TO ESTABLISH NEW IPv6 LABORATORY IN GHANA

The Ghana India Kofi Annan Centre of Excellence in ICT (AITIKACE) in partnership with 6DEPLOY and with IPv6 Forum, is setting up an IPv6 laboratory with the aim of rolling out a series of training and awareness programmes designed to support the deployment of IPv6 in Ghana. With the introduction of IPv6 world wide, workshops and training sessions are being organised to educate experts in the industry as well as Internet users on the importance of IPv6. The training sessions will support a worldwide campaign aimed at educating the public on the benefits, usage and the gradual migration from IPv4 to IPv6. AITIKACE is inviting all stakeholders including telecommunications companies, Internet Service Providers (ISPs) and all major ICT organisations to participate in hands-on training and laboratory sessions.

Many in the IT industry are familiar with the term “IPv6.” For those of us not too conversant with this term, IPv6 is an acronym that stands for Internet Protocol Version Six. As the name suggests, Internet Protocol is a set of rules governing the transfer of data or information from one computer to another via the Internet. This is made possible as each computer possesses a unique IP address which distinctively identifies each “sender” from the “recipient.”

6DEPLOY is an European Union funded initiative set up to support the deployment of IPv6 globally.

The IPv6 Forum is a worldwide consortium of worldwide leading Internet vendors, Industry Subject Matter Experts, Research & Education Networks, with a clear mission to advocate IPv6 by dramatically improving technology, market, and deployment user

and industry awareness of IPv6, creating a quality and secure new Generation Internet and allowing worldwide equitable access to knowledge and technology, embracing a moral responsibility to the world.

The impetus to develop a higher version of the Internet Protocol with many new features stemmed from the depletion of the addressing space of the current version of the Internet Protocol Version 4 (IPv4). As the number of users and Internet enabled devices increases, a larger address space is needed to meet the increasing numbers. The IPv6 offers an addressing space of 2 to the power 96 times that of IPv4, for those who like numbers we can talk about 340 unodecillion.

IPv6 also provides an "always on" environment for network and user mobility. The plug-and-play feature required by consumer Internet appliances such as wireless phones, Personal Digital Assistants (PDAs), cars and home appliances increases the protocol requirement. Millions of these new technologies would not be able to get global IP addresses with Internet Protocol version 4. Another area addressed by IPv6 is embedded security. The introduction of the lab should go a long way to ensuring Ghana is IPv6 ready.

6.6 IPv6 Comes to Bishkek, Capital of the Kyrgyz Republic

September 29, 2010 at 12:00 pm

As of last week, the Kyrgyz National Information Technology Center is home to the first IPv6 lab in the Central Asian region. Donated by Cisco, the lab helps train IT specialist in Kyrgyzstan on next generation internet protocol (IPv6) technologies.

Due to the spectacular growth in the adoption of the Internet and Internet-based technologies worldwide, public IP address space is becoming increasingly scarce. IPv6 will enable the expansion of the Internet to all people and appliances in the world.

Cisco's Bert Habraken handed over the lab's networking and communication equipment to Mr. Amangeldi Muraliev, first deputy prime minister of the Kyrgyz Republic (standing in the center of the picture). "The opening of a regional laboratory is a significant event and an important step forward," first deputy Prime Minister Muraliev said.

The new IPv6 lab in Bishkek is an integral part of an international network of IPv6

training and research facilities. It is connected to the IPv6 lab operated by RENATER, the French national research network in Paris, as well as to similar centers in Mauritius, Kenya, Slovenia, Georgia, India and Bulgaria. Through this network of IPv6 labs, Internet experts, including academics, government administrators and telecom specialists can be trained both on-site and through virtual access and get ready for the adoption of IPv6.

There was also wide coverage of the event in local and regional press. Most notably, the event was covered by the Kyrgyz Presidential press office: Please refer to the following Website:

http://www.kyrgyz-el.kg/index.php?option=com_content&task=view&id=1353

For more information and pictures of the event, please refer to:

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

7. CONFERENCE PRESENTATIONS

7.1 Conference Presentations made

The material that is presented at the 2-3 day 6DEPLOY IPv6 training workshops (indicated as "Workshops" in the table below) is always available on the 6DEPLOY Website. In the table below are listed also related presentations and tutorials that have been made by partners since the beginning of the project (i.e. between March 2008 and October 2010), for which the dissemination material is also available from the 6DEPLOY Website or the corresponding conference proceedings.

Workshops and other publications, such as; Presentations, Tutorials, Journal papers and Conference papers	**Journal/Conference**	**Author(s) /Company**	**Date**
IPv6 – The New Generation Internet Protocol Sofia, Bulgaria	BREN IPv6 lab launch	K. Simonski, S. Kostov / BREN	12th March, 2008
Planning for the IPv6 Integration	BREN IPv6 lab launch	P. Grossetete / Cisco	12th March, 2008
RENATER Testbed	BREN IPv6 lab launch	F. Simon / RENATER	12th March, 2008
GRNET IPv6 Activities in South East Europe	BREN IPv6 lab launch	T. Chiotis / GRNET	12th March, 2008
6DISS and 6DEPLOY	BREN IPv6 lab launch	M. Potts / Martel	12th March, 2008
6DEPLOY: IPv6 Deployment Support	IST-Africa, Namibia	M. Potts / Martel	7th - 9th May, 2008
Presentation: "Security Impact of Business and Residential Broadband Traffic on IPv6 ISP Backbones"	MYNIC Seminar – Internet and DNS Security, Kuala Lumpur (Malaysia)	J. Palet / Consulintel	21st May, 2008
6DEPLOY: IPv6 Deployment Support	IPv6 Launch Day	M. Potts / Martel	30th May, 2008
Presentation on IPv6 (for slides, see: http://www.uknof.org.uk/uknof10/)	UK Network Operators' Forum (UKNOF) at Wolverhampton	T. Chown / Soton-ECS	May 21st, 2008
Presentation of IPv6 (for program and slides, see: http://www.ja.net/services/events/2008/ipv6/programme.html)	JANET IPv6 Briefing Event, Coventry	T. Chown / Soton-ECS	June 11th, 2008
IPv6 Workshop	Montevideo, UY	LACNIC, Consulintel	July 7th - 8th, 2008
IPv6 Workshop	Curacao, AN	LACNIC, Consulintel	July 21st - 22nd, 2008
Presentation of I-D based on operation	v6Ops WG at IETF72	T. Chown /	July 27th -

feedback on issues with use of IPv6 router advertisements in enterprise deployments		Soton-ECS and S. Venaas / UNINETT	August 1st, 2008
Project Presentation	ITU IPv6 workshop, Geneva, Switzerland	M. Potts / Martel	September 4th - 5th, 2008
IPV6 Workshop	Barcelona, Spain	RIPE, Consulintel	September 15th, 2008
IPv6 Tutorial	13th International Telecommunications Network Strategy and Planning Symposium, Budapest, Hungary	J. Mohacsi / NIIFI	September 28th - October 2nd, 2008
IPv6 Tutorial	UK NOF, London	Soton-ECS	September 8th, 2008
IPV6 Tutorial	Montpellier, France	RENATER, BREN	October 6th - 9th, 2008
IPV6 Workshop	Kampala, Uganda	AfriNIC	November 10th, 2008
Project Presentation	ICT2008: “Easing IPv6 Deployment”, Lyon	Martel	November 27th, 2008
Project Presentation	ICT2008 International Village, Lyon	Martel	November 25th - 27th, 2008
Project Presentation	IGF, Hyderabad	Martel	December 3rd - 5th, 2008
IPv6 Tutorial	Montpellier, France	RENATER, BREN	December 8th - 11th, 2008
IPv6 Workshop	Costa Rica	LACNIC	December 9th - 10th, 2008
IPv6 Tutorial	Norway	UNINETT	January 14th - 15th. 2009
Project Presentation	Indian Symposium, New Delhi	UCL	January 28th - 29th, 2009
IPv6 training for the IRMA project	Brussels	RENATER, UNINETT, Cisco	February 24th - 25th, 2009
Project Presentation	Google IPv6 Implementer’s Conference, California	LACNIC	March 19th - 20th, 2009
Hands-on training	Libreville (Gabon)	AfriNIC	June 4th – 5th, 2009
IPv6 Workshop LACNIC Caribbean II	Trinidad and Tobago	LACNIC	July 16th - 17th, 2009
Hands-on training	Bujumbura (Burundi)	AfriNIC	August 26th

			- 28th, 2009
IPv6 Workshop	Quito, Ecuador	LACNIC, Consulintel	September 7th - 8th, 2009
IPv6 Workshop	Santa Cruz, Bolivia	LACNIC, Consulintel	September 9th - 10th, 2009
IPv6 Workshop	Asuncion, Paraguay	LACNIC, Consulintel	September 11th, 2009
IPv6 Workshop at WALC 2009	Bogota, Colombia	LACNIC, Consulintel	September 21st - 25th, 2009
IPv6 Workshop	Managua, Nicaragua	LACNIC, Consulintel	October 12th - 13th, 2009
6DEPLOY Lab Installation and IPv6 Training	Slovenia	GRNET and BREN	October 12th - 13th, 2009
IPv6 Training	Ebene, Mauritius	Consulintel	October 12th - 13th, 2009
IPv6 Workshop	San Salvador	Consulintel	October 15th - 16th, 2009
IPv6 Workshop	Belize	LACNIC	October 14th , 2009
IPv6 Tutorial for Alcatel-Lucent	Budapest	NIIFI	November 13th and 27th, 2009
Project Presentation	Internet Governance Forum (IGF), Sharm el Sheikh	Martel	November 16th - 18th, 2009
Hands-on training	Dakar, Senegal	AfriNIC	November 21st - 22nd, 2009
IPv6 Routing training at the Spanish Network Operator Group (GORE 4) Meeting	Barcelona, Spain	Consulintel	November 24th, 2009
IPv6 Workshop	Tbilisi, Georgia	UCL, NIIFI, Cisco	December 15th - 17th, 2009
IPv6 Training and Bangalore Lab Installation	Bangalore, India	UCL and Cisco	February 15th-17th, 2010
A half-day IPv6 training session	Debrecen, Hungary.	NIIFI	April 6th, 2010
IPv6 Workshop at the Mexico Internet2 meeting	Morelia, Mexico	Consulintel	April 19th - 21st, 2009
Hands-on training	Durban, South Africa	AfriNIC	April 22nd - 23rd, 2010
Project Presentation	IPv6 Workshop:	Martel	April 26th,

	Upgrade for Europe, Brussels		2010
IPv6 Routing training at the Spanish Network Operator Group (GORE 5) Meeting	Bilbao, Spain	Consulintel	May 11th, 2010
Training the Trainers (Zavod go6)	Slovenia	GRNET, CISCO	May 12th - 13th, 2010
IPv6 Workshop	Cape Verde	FCCN	May 12th - 14th, 2010
IPv6 Workshop Idlelo4	Ghana	Cisco, UNINETT	May 13th - 14th, 2010
IPv6 Training at LACNIC XIII	Curacao	Consulintel	May 16th, 2010
IPv6 Information Days for Portuguese industry	Lisbon & Porto, Portugal	FCCN	May 19th and 26th, 2010
IPv6 Tutorial and project presentation	IST-Africa	Martel, Cisco, RENATER, UCL	May 21st, 2010
IPv6 Tutorial on security and hands-on training at the AfriNIC-12 meeting	Rwanda	Cisco, AfriNIC	May 31st, 2010
IPv6 Workshop	Singapore	APNIC, Consulintel	June 2nd - 4th, 2010
IPv6 Workshop at the Indonesian IPv6 Summit	Bali	APNIC, Consulintel	June 8th, 2010
Hands on training	Serredunda, Gambia	AfriNIC	June 17th - 18th, 2010
Hands on training	Freetown, Sierra Leone	AfriNIC	June 21st - 22nd, 2010
IPv6 Workshop	Athens, Greece	GRNET	June 21st - 23rd, 2010
IPv6 Workshop	Brunei	APNIC, Consulintel	June 23rd - 25th, 2010
Hands on training	Monrovia, Liberia	AfriNIC	June 24th - 25th, 2010
IPv6 Workshop	San Salvador	Consulintel	July 6th - 8th, 2010
IPv6 Cluster meeting	Brussels	Martel	July 7th, 2010
IPv6 Workshop at SANOG XVI	Bhutan	Consulintel	July 20th - 21st, 2010
Hands on training	Triploi, Libya	AfriNIC	July 21st - 22nd, 2010
IPv6 Training Euskal Encounter ("Campus Party")	Bilbao, Spain	Consulintel	July 22nd, 2010
IPv6 Workshop	Santiago, Chile	Consulintel	August 12th - 13th, 2010
IPv6 Workshop	Guayaquil, Ecuador	Consulintel	August 16th - 17th, 2010
IPv6 Workshop	Bangkok	Consulintel	August 23rd

			- 24th, 2010
IPv6 Training at APNIC PacINET	Vanuatu	Consulintel	September 13th - 14th, 2010
IPv6 Workshop at the CAREN Conference	Bishkek, Kyrgyzstan	UCL, Cisco,	September 22nd - 24th, 2010
IPv6 Workshop	Bogota, Colombia	Consulintel	September 27th - 29th, 2010
Hands-on training	Lagos, Nigeria	AfriNIC	September 29th - 30th, 2010
IPv6 Workshop	Medellin, Colombia	Consulintel	September 29th - October 1st, 2010
Hands-on training	Abuja, Nigeria	AfriNIC	October 5th - 6th, 2010
IPv6 Training at WALC 2010	Bolivia	Consulintel	October 11th - 15th, 2010

8. NEWS BULLETINS

A list of news bulletins is issued weekly by Consulintel to a wide mailing list. The IPv6 Portal, containing IPv6 news, a new IPv6 deployment guide written in conjunction with ISOC, and an IPv6 newsletter, are linked from the 6DEPLOY Website.

9. BROCHURES

A project description was made and summarized in Deliverable D0.1.

Summary: The purpose of the 6DEPLOY project is to support the deployment of IPv6 in (i) e-Infrastructure environments, (ii) FP7 projects, (iii) developing countries (Africa, Latin America, Asia and Eastern Europe), and (iv) industrial environments in Europe. Partners offer basic training to organisations in Europe and developing countries, and support real IPv6 deployments.
Case studies of installations will be used to gain valuable practical experience which will help the **6DEPLOY team to become the centre of European expertise regarding IPv6 deployment**.

This expertise will be used to support deployments in Europe, in industry branches such as Emergency Services, Health, Broadcast, Transport, (Primary & Secondary) Education, Environment, Gaming, etc.

Objectives: IPv6 will become an integral part of improved multi-disciplinary e-Infrastructures during the timeframe of FP7. Continuing the 6DISS successes, 6DEPLOY aims to encourage the coordination between National and pan-European e-Infrastructure initiatives, by offering its services of IPv6 training and supporting IPv6 deployment.

6DEPLOY will organize workshops on the benefits of IPv6 for e-Infrastructures, and will give practical advice and hands-on support for deploying it in their environments. Several developed regions of the world (e.g. Korea, Japan) have already deployed IPv6 e-Infrastructures more densely than in Europe, and developing regions already recognise the benefit in terms of the availability of addresses, which are no longer available for them with IPv4. Therefore, a majority of the world with which European researchers want to communicate will be based on - or moving to - IPv6 e-Infrastructures. For synergy and efficient international interoperation, more IPv6 deployment in Europe is necessary. 6DEPLOY will work in parallel on deployments in Europe and in developing countries; exchanging experiences and best practices.

Action plan: The *outreach to European industries and researchers* and *giving support for deployments* are the 2 key new services offered by 6DEPLOY. Developing regions (in Europe and abroad) are often the early adopters of IPv6, given that they have less legacy IPv4 networks installed. These test cases will be used to gain valuable practical experience which will be brought back to support deployments within EC e-Infrastructure projects and industrial environments.

We reassert our support for open, bottom-up and consensus-based decision making, but we also call upon the leading senior and expert members of this community to provide strong leadership in the support of a global transition to IPv6.

Project acronym:

6DEPLOY

Contract n°: 223794

Project type: SA

Start date:

March 1st 2008

Duration: 30 months

Total budget:

€1,284,776

Funding from the EC:

€1,000,000

Total funded effort in person-month:

123

Web site:

www.6deploy.org

Contact person:

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Project participants:

Martel	CH
Cisco	NL
Renater	F
GRNET	GR
FCCN	P
NIIFI	HU
Consulintel	ES
UCL	UK
Soton-ECS	UK
UNINETT	N
AfriNIC	MU
LACNIC	UY
BREN	BG

Keywords:
IPv6, deployment, e-infrastructures, training

Collaboration with other EC funded projects:
6CHOICE, Global, GEANT

Support activities: These include the collection and maintenance of material for the training sessions, and the tailoring of programmes in conjunction with the requesting organisation. “Hands-on” IPv6 training courses will be offered to FP7 projects, developing regions (focusing more on *training trainers*, so that the effect of the courses can be multiplied) and European industries. A professional and popular e-learning course is available which will be supplemented with additional topics related to IPv6 and improved with sub-titles in other languages.
A further support activity is the practical on-site assistance for making IPv6 deployments in FP7 projects, the targeted regions (Africa, Latin America, Asia and Eastern Europe) and European industries.

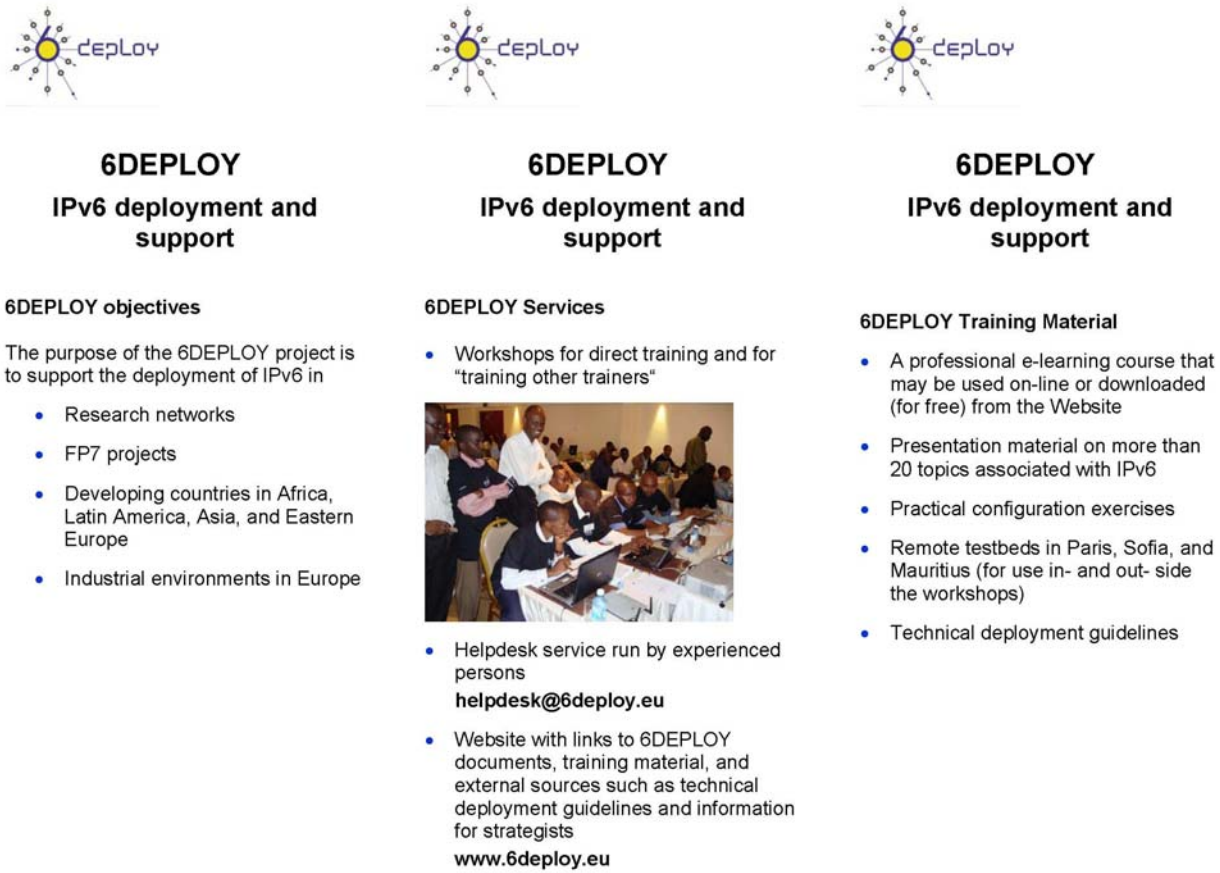
Partners will also give assistance for the development of a strategic plan (“roadmap”) for the deployment and will advise on practical aspects such as equipment ordering specifications, routing plans, etc. An IPv6 Deployment Guide will be maintained, and supplemented with examples of case studies. A less-technical “How to Deploy” guide will also be produced for administrators.

User communities: e-Infrastructures are important for developing new research environments, building upon the ICT capabilities of existing and evolving infrastructures. Since these infrastructures are currently being made IPv6 capable, there is a huge potential benefit to be achieved if users share their deployment experiences. Since the Internet has become the fundamental resource for modern communications, *“users”* in this respect may be network operators and administrators from both the research community and commercial companies. Sharing the information between such user communities requires the emergence of "communities of practice" comprising commercial users, scientific users and computing and communication technologists. e-Infrastructures foster the emergence of new working methods, based on the shared use of resources across different disciplines and technology domains.
As an e-Infrastructure project, 6DEPLOY supports the further development and evolution of high-capacity and high-performance communication (GÉANT) and grid empowered infrastructures, including the reinforcement of world class distributed supercomputing facilities, data storage and advanced visualisation facilities. This activity aims at fostering the adoption of e-Infrastructures by user communities where appropriate, enhancing their global relevance and increasing the level of trust and confidence from their users.

International aspects: 6DEPLOY includes AfriNIC and LACNIC as partners and has close links to RIPE NCC, APNIC and ARIN. Through these Internet address registries, it will keep aware of IPv6 deployment activities and opportunities worldwide. The developing countries of Africa, Latin America, the Asia-Pacific region and Eastern Europe will likely be some of the first to commit to large-scale IPv6 deployment, and may lead their counterparts in the rest of the world. They will therefore provide excellent Case Studies for the project, which can be fed into industrial environments, in order to ensure success.

10. LEAFLETS

The following leaflet was prepared for ICT2008 in Lyon.



6DEPLOY

IPv6 deployment and support

6DEPLOY objectives

The purpose of the 6DEPLOY project is to support the deployment of IPv6 in

- Research networks
- FP7 projects
- Developing countries in Africa, Latin America, Asia, and Eastern Europe
- Industrial environments in Europe

6DEPLOY

IPv6 deployment and support

6DEPLOY Services

- Workshops for direct training and for "training other trainers"

- Helpdesk service run by experienced persons
  helpdesk@6deploy.eu
- Website with links to 6DEPLOY documents, training material, and external sources such as technical deployment guidelines and information for strategists
  www.6deploy.eu

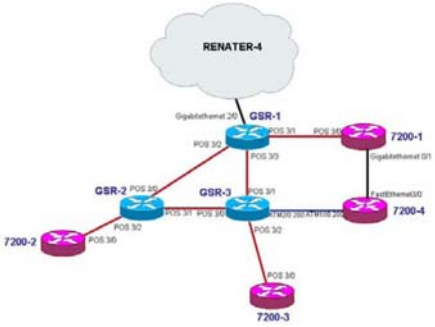
6DEPLOY

IPv6 deployment and support

6DEPLOY Training Material

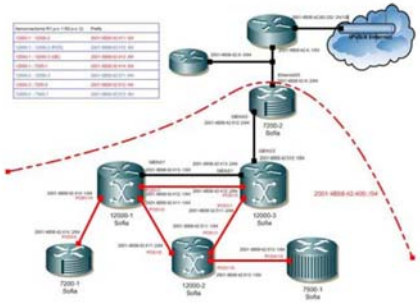
- A professional e-learning course that may be used on-line or downloaded (for free) from the Website
- Presentation material on more than 20 topics associated with IPv6
- Practical configuration exercises
- Remote testbeds in Paris, Sofia, and Mauritius (for use in- and out- side the workshops)
- Technical deployment guidelines

6DEPLOY testbed in Paris (France)



6DEPLOY testbed in Mauritius

6DEPLOY testbed in Sofia (Bulgaria)



Partners of the project:

SMEs:

Martel

ConsulinTel

Industry:

CISCO

NRENs:

Renater

grnet

FCCN Fundação para a Computação Científica Nacional

Bulgarian Research and Education Network

UNINETT

Universities:

UCL

University of Southampton

RIRs:

AfriNIC

LACNIC

11. POSTERS

Three posters were made for ICT2008 in Lyon.

6DEPLOY Workshops

6DEPLOY

IPv6 deployment and support

6DEPLOY objectives

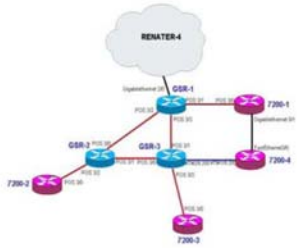
The purpose of the 6DEPLOY project is to support the deployment of IPv6 in

- Research networks
- FP7 projects
- Developing countries in Africa, Latin America, Asia and Eastern Europe
- Industrial environments in Europe

6DEPLOY
IPv6 deployment and support

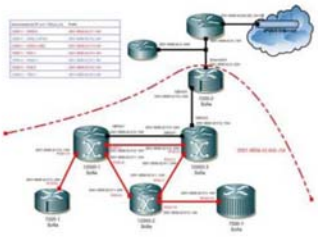
6DEPLOY Training Material

- A professional e-learning course that may be used on-line or downloaded (for free) from the Website
- Presentation material on more than 20 topics associated with IPv6
- Practical configuration exercises
- Remote testbeds in Paris, Sofia and Mauritius (for use in- and out- side the workshops)
- Technical deployment guidelines



Testbed in Paris

Testbed in Mauritius



Testbed in Sofia

12. ABSTRACTS OF THE DEPLOYMENT CASE STUDIES

12.1 Deliverable D2.1.1: Report of 1st Deployment Case Study

This deliverable presents IPv6-related activities in the Greek School Network. It discusses the drivers for the deployment of IPv6 services and the operational experiences from the deployment of services based on IPv6 technology during the last 5 years.

12.2 Deliverable D2.1.2: Report of 2nd Deployment Case Study

This report describes the IPv6 deployment within the School of Electronics and Computer Science (ECS) at the University of Southampton. It includes a description of the process of IPv6 deployment, including network, systems and applications aspects. The deployment is currently live and spans a network of up to 3,700 hosts and over 2,000 users.

12.3 Deliverable D2.1.3: Report of 3rd Deployment Case Study

This deliverable reports on the process of IPv6 deployment of the campus network at the University of Plovdiv, Bulgaria. It describes the network planning and technical configurations, as well as the experiences gained during the deployment.

12.4 Deliverable D2.1.4: Report of 4th Deployment Case Study

This document is a case study intended for ISPs in developing regions considering the deployment of IPv6.

It is based on an actual case, but no details are disclosed that would compromise issues of security or confidentiality for the IS.

13. WEB-BASED PUBLICATIONS

The following is a selection of useful publications that are on the 6DISS and 6DEPLOY Websites.

A briefing paper on "IPv6 Deployment and Associated Risks" (for Strategists)
http://www.6diss.org/publications/papers/ipv6-deployment.pdf

"European IPv6 Roadmap 2006 Recommendations"
http://www.6diss.org/publications/papers/eipv6tf-roadmap.pdf

"6NET: An IPv6 Deployment Guide"
http://www.6diss.org/publications/info/deployment-guide.pdf

4 Deployment case studies, available from the link to "Publications" at: http://www.6deploy.eu//index.php?page=home/

"IPv6 para todos" A new book on IPv6 deployment from ISOC and Consulintel (currently in Spanish, but being translated into English)
http://portalipv6.lacnic.net/en/aggregator/sources/7
http://www.isoc.org.ar/

14. CONCLUSION

One of the main activities in the 6DEPLOY project is to produce and maintain a set of dissemination material for use in workshops to train the different Internet communities in the areas of IPv6 deployment, configuration, and usage. This material is partly produced within 6DEPLOY, but also exploits previous project activities within and outside the Framework Programmes of the European Commission.

This document has described the set of dissemination material available at the end of the project, including training modules, “hands-on” exercises, the e-learning package, IPv6 labs, press releases, conference presentations, news bulletins, brochures, leaflets, posters, web-based publications, etc. This effort will continue in the follow up project “6DEPLOY-2”, which will also fund training workshops, support for IPv6 deployment (and the documenting of further case studies), the installation of more IPv6 Labs around the world and the creation of tools to manage such a network of Labs.

15. 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 on-line: http://www.6deploy.eu/index.php?page=e-learning

e-learning package: http://6diss.6deploy.eu/publications/multimedia/e-learning.iso