

Project no. 015926

6DISS

IPv6 Dissemination and Exploitation

Instrument: SPECIFIC SUPPORT ACTION

Thematic Priority 2

D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries

Due date of deliverable: 31 July 2006

Actual submission date: 20 January 2007

Start date of project: April 1st 2005

Duration: 30 months

Organization name of lead contractor for this deliverable:

RENATER

Revision: V1.0


Executive Summary

This deliverable is a report from the 6DISS IPv6 technical workshop that took place on 4-6 April 2006 in Malta. This workshop specifically targeted the partners of the EUMEDConnect project, which is a European funded project that interconnects the Research and Educational communities of the Mediterranean region. RENATER provided training on both IPv6 and multicast technologies. This report includes information on the IPv6 workshop programme, the technical presentations and the “hands-on” training, locally and using the 6DISS remote labs. In addition, this report includes the dissemination material that was distributed to the participants, the list of the attendees and their affiliation; summary of the feedback questionnaire, an analysis of the workshop expenditures, and information on the workshop sponsors. Finally, a summary of the current status of the Internet connectivity in the region and on-going IPv6-related activities are included.

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Table of Contents

1. INTRODUCTION	3
2. THE 6DISS WORKSHOP IN MALTA	4
2.1. GENERAL INFORMATION.....	4
2.2. ATTENDEES.....	5
2.3. PROGRAMME OUTLINE.....	6
2.4. PRESENTATION MATERIAL	10
2.5. WORKSHOP LABS	10
2.6. WORKSHOP CD-ROM AND 6NET BOOKS	13
2.7. SPONSORS	13
2.8. SUMMARY OF COSTS	14
2.9. WORKSHOP DISSEMINATION	14
3. REPORT FROM THE MALTESE IPV6 TASK FORCE MEETING	15
3.1. PARTICIPANTS.....	15
3.2. SUMMARY OF THE MEETING	15
3.3. OPPORTUNITIES FOR FURTHER CO-OPERATION.....	15
4. ANALYSIS OF THE FEEDBACK QUESTIONNAIRE.....	17
4.1. GENERAL QUESTIONS RELATED TO PARTICIPANTS AND IPV6.....	17
4.2. QUESTIONS REGARDING THE WORKSHOP.....	18
4.3. PARTICIPANTS' COMMENTS.....	19
5. BACKGROUND INFORMATION ABOUT THE REGION	21
5.1. STATUS OF INTERNET CONNECTIVITY IN THE REGION.....	21
5.2. EXPERIENCE OF IPV6, AND ONGOING PROJECTS	22
6. CONCLUSION	23
7. ANNEX I: FRONT PAGE OF THE MALTA IPV6 TASK FORCE PRESENTATION	24

IST-3-015926-SSA	<p style="text-align: center;">Deliverable D06:</p> <p style="text-align: center;">Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries</p>	
------------------	--	---

1. Introduction

This deliverable is a report of the 6DISS technical workshop for the Mediterranean region, which took place from 4th-6th of April 2006 in Mellieha (Malta). The workshop targeted especially the partners of the EUMEDConnect project (<http://www.eumedconnect.net/>) which is a European-funded project that strengthens activities between Research and Education communities of the Mediterranean region. This report includes information about the workshop programme, the presentation and dissemination material distributed to the participants, the attendees and their affiliations, a summary of the feedback questionnaire that the attendees completed at the end of the workshop, an analysis of the workshop expenditures, and information about the workshop sponsors. The workshop public website can be accessed at <http://www.6diss.org/workshops/mediterranean/>.

This deliverable also reports on the 2nd meeting of the Maltese IPv6 Task Force that followed the 6DISS-training workshop. Attendance to this meeting was composed of Maltese researchers, R&D engineers from local commercial companies, a representative from the local government ICT agency: Malta Information Technology and Training Services (MITTS), and an engineer from the Malta Communications Authority – the national regulation body. It gave the opportunity to the 6DISS Partners to discuss the IPv6 deployment roadmap in Malta and investigate potential areas of future co-operation.

Finally, the deliverable includes a short description of the major Internet connectivity links deployed by the National Research and Education Networks (NRENs) in the region.

2. The 6DISS Workshop in Malta

2.1. General Information

Most - if not all – of the previous 6DISS workshop reports have summarized the 6DISS project goals and activities. Therefore, this information has not been included in the report, considering first it is now well-known and second it is available on the 6DISS web site¹.

The 6DISS workshop in Malta was organized by two 6DISS partners (*RENATER* (leading partner) and *GRNET*) in the framework of both 6DISS and EUMEDConnect IST projects, and the University of Malta. The training was held on 4th - 6th April 2006 and hosted in Mellieha by the University of Malta that provided the technical support and logistics for the workshop.

The EUMEDConnect partners are already interconnected with a set of links and routers, operated by DANTE. However, at the time that the tutorial was given, the 2 EUMEDConnect POPs, in southern Italy and Cyprus, weren't configured to forward IPv6 traffic².


In the EUMEDConnect project, RENATER has a commitment to provide the Mediterranean community with skills and training in IPv6 and Multicast technologies. The Malta workshop was therefore also an implementation of this commitment.



Figure 1: Venue (Golden Sands)

¹ <http://www.6diss.org>

² However, a Morocco educational organization has an IPv6 connection using the Tunnel Broker service provided by RENATER

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

In brief, the logistics of the 6DISS workshop in Malta were as follows:

<i>Date:</i>	<i>4-6 April 2006</i>
<i>Location:</i>	<i>Mellieha, Malta</i>
<i>Local organiser:</i>	<i>University of Malta</i>
<i>Lead 6DISS partner:</i>	<i>RENATER</i>
<i>Supporting 6DISS partner:</i>	<i>GRNET</i>

2.2. Attendees


The attendees at the workshop were technical personnel of NRENs and universities from six Mediterranean countries. Some of the organisations represented at the workshop had already started to deploy IPv6 in their network; others were planning to experiment with IPv6 technology in the near future. There were also participants from commercial ISPs that are considering offering IPv6 services to their customers. Some of the participants could influence the deployment of IPv6 technology in their region, as they are responsible for the networking infrastructure and services in their organisation or company.

The majority of the trainees did not have any - or only limited - practical experience on the IPv6 technology. However, some of them had very good experience in one or more specific topics, such as IPv6 Security.

In accordance with the pre-requisites for these workshops, all of the participants had studied the 6DISS e-learning module (<http://www.6diss.org/elearning/>) so there was a common background on the IPv6 protocols and the theoretical knowledge. All of the trainees had also a good understanding of IPv4 protocols and network services.

The list of attendees and their affiliations is as follows:

<i>6DISS Training Workshop participants</i>			
1	Hassan	Bouhaddou	CNCPSRT, Morocco
2	Alan	Brincat	MITTS Ltd, Malta
3	Stephen	Camilleri	Maltanet, Malta
4	Gilbert	Cassar	University of Malta
5	Kenneth	Ciangura	Go Mobile, Malta
6	Joseph	Cordina	University of Malta
7	Noel	Degabriele	University of Malta
8	Clara	Della	Malta Communications Authority
			Malta IPv6 Task Force
9	Mark	Dyer	Malta College of Arts, Science & Technology
10	Mark	Ebejer	Vodafone Malta
11	Cynthia	Efremoglou	InterCollege, Cyprus
12	Montaser	El-Halabi	Al-Azhar University of Gaza, Palestine
13	Nasim	Hamaydeh	Al-Quds Open University, Palestine
14	Mayyad	Ihmidan	JUnet, Jordan
15	Isam	Ishaq	Al-Quds University, Palestine
16	Waseem	Jawad	HIAST, Syria
17	Bassel	Khatib	HIAST, Syria
18	Conrad	Laus	Waldonet, Malta
19	Mohammed	Mabrouk	JUnet, Jordan
20	Dave	Mifsud	University of Malta

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---


21	Charles	Mifsud	University of Malta	charles.mifsud@um.edu.mt
22	Charis	Mouskos	CYNET/University of Cyprus	mouskos@ucy.ac.cy
23	Mark	Pace Balzan	Melita Cable, Malta	mpb@melitacable.com
24	Terence	Scott	University of Malta	terence.scott@um.edu.mt
25	Abdalia	Shaban	The Arab American University, Palestine	ashaban@aauj.edu
26	Robert	Sultana	University of Malta Malta Internet Foundation (NIC Malta)	robert.sultana@um.edu.mt
27	Abdel-Raheem	Tamimi	Palestine Polytechnic University	antamimi@ppu.edu
28	Kevin	Vella	University of Malta	kevin.vella@um.edu.mt
29	Saviour	Zammit	Chamber of Commerce – ISP Trade Section, Malta	srzamm@euroweb.net.mt
30	Zinon	Zinonos	University of Cyprus	csp5zz1@cs.ucy.ac.cy

Figure 2: 6DISS Training Workshop Attendees




2.3. Programme outline

The topics presented in the 6DISS workshop were determined in close collaboration with the local organisers from the University of Malta. The 6DISS tutors were requested to reduce as much as possible the theoretical information on the protocols to focus on practical “hands-on” exercises. Dedicated set up and configuration exercises were created for this workshop. The meeting agenda and the related material were submitted in advance, so that the local organisers could decide which topics should be prioritised. As was requested by most of the participating organisations, the “hands-on” sessions occupied almost 50% of the overall time of the training workshop. The programme of the workshop is presented in the following table:

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---


	April 4th - Enabling IPv6
9:00 AM	Welcome , workshop organization and goals <i>The 6DISS Project</i>
9.30 AM	Theory I: Introduction to IPv6 <i>History, The IPv6 protocol and Header, Addressing, Associated protocols, Auto-configuration, IPv6 support in various OS, Basic configuration commands for routers and hosts</i>
10.45 AM	Break
11.00 AM	Hands-on I: Enable IPv6 in the local lab <i>Configure the local routers, set and identify IPv6 address in local PCs, capture IPv6 traffic (e.g. RA), create tunnels, inter-connect local isolated networks, set static routes.</i>
12.30 PM	Lunch
2:00 PM	Hands-on I: Enable IPv6 in the local lab <i>... continue ...</i>
2.50 PM	Theory II: Transition to IPv6 <i>Transition mechanisms and methodology.</i>
3:25 PM	Theory III: Applications <i>Presentation of some of the most common IPv6-enabled applications and services such as basic networking services, p2p, videoconferencing, streaming, etc.</i>
4.00 PM	Break
4.15 PM	Hands-on II: DNS and WWW <i>Enable IPv6 and configure DNS (BIND9) and WWW (APACHE2) services</i>
6.00 PM	End of day 1

	April 5th - Routing and Security
9.00 AM	Theory IV: Routing <i>Presentation of IPv6 routing protocols and configuration best practices. Presentation of IPv6 addressing and routing of RENATER-4 backbone.</i>
9.45 AM	Case studies I: Addressing and routing design for the remote labs <i>This session aims at designing the addressing and addressing to be configured in the network labs.</i>
10.30 AM	Break

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

10.45 AM	Hands-on III: Routing <i>Configuration of routing in Paris and Brussels 6DISS labs</i>
12.30 PM	Lunch
2.00 PM	Debriefing
2.30 PM	Hands-on III: Routing <i>... continue ...</i>
4.00 PM	Break
4.15 PM	Theory V: Security <i>Presentation of IPv6 security aspects, specially firewall configuration practices</i>
4.45 PM	Hands-on IV: Security <i>Configuration of IPv6 firewalls</i>
6.00 PM	End of day 2

	April 6th - IPv6 Management
9.00 AM	Theory VI: Monitoring and network management <i>Live Demos</i>
10.00 AM	Hands-on V: Monitoring and network management <i>Installation of IPv6 monitoring applications among the list available on http://tools.6net.org/moin/MonitoringToolsList</i>
10.45 AM	Break
11.00 AM	Hands-on V <i>... continue ...</i>
12.30 PM	Lunch
2.00 PM	Case studies II <i>EUMEDConnect partners case studies</i>
4.00 PM	Break
4.15 PM	Case studies II <i>EUMEDConnect partners case studies</i>
6.00 PM	End of day 3


IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

The programme of the workshop and all relevant information were published in advance, on a website created by the local organisers and was accessible at:

<http://events.um.edu.mt/6diss/workshop.html>. Today, the following link hosts the presentations and the “hands-on” material used during the workshop: <http://www.6diss.org/workshops/mediterranean/>. Material at this link was further used to help workshop organisers in other countries and regions to build up their own programme (for instance in Dakar, Senegal and in Rabat, Morocco).



Figure 3: Public Website

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

2.4. Presentation material

The theoretical presentations were based on the available 6DISS modules. The list of modules that were used is the following:

- Introduction to IPv6
- IPv6 Associated Protocols
- IPv6 Addressing
- IPv6 Autoconfiguration
- IPv6 Routing Protocols
- IPv6 DNS
- IPv6 Management
- IPv6 Applications
- Security

The responsables for the technical presentations and the “hand-on” sessions were:

- Bernard Tuy (RENATER)
- Jérôme Durand (RENATER)
- Athanassios Liakopoulos (GRNET)



Bernard Tuy (RENATER)



Athanassios Liakopoulos (GRNET)

2.5. Workshop labs

The “hands-on” sessions used both the local PC-based lab (Figure 4) and the 6DISS labs in Brussels and Paris (Figure 6 and Figure 7).

The local lab, which consisted of 30 dual-boot PCs, was used for exercises on hosts and servers. While WinXP operating system was used for basic IPv6 exercises, Linux operating system (scientific linux 4.2), was used to support the exercises related to the basic network services, and management tools.

The remote labs in Brussels and Paris were used for external (BGP) and internal (OSPFv3 and IS-IS) routing exercises.

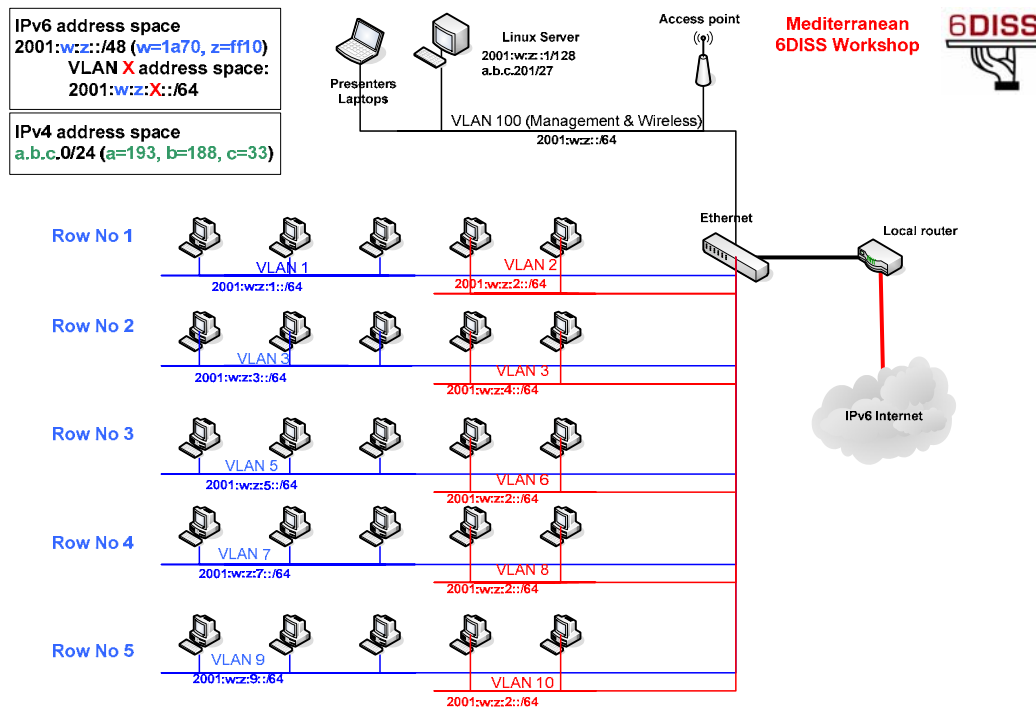


Figure 4: Local PC lab – Physical Topology and Internet Connectivity

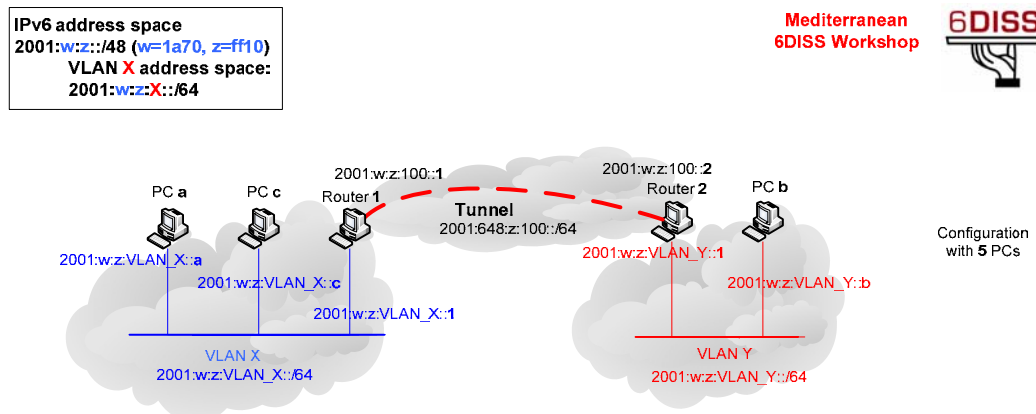


Figure 5: Local PC Lab – Logical Topology

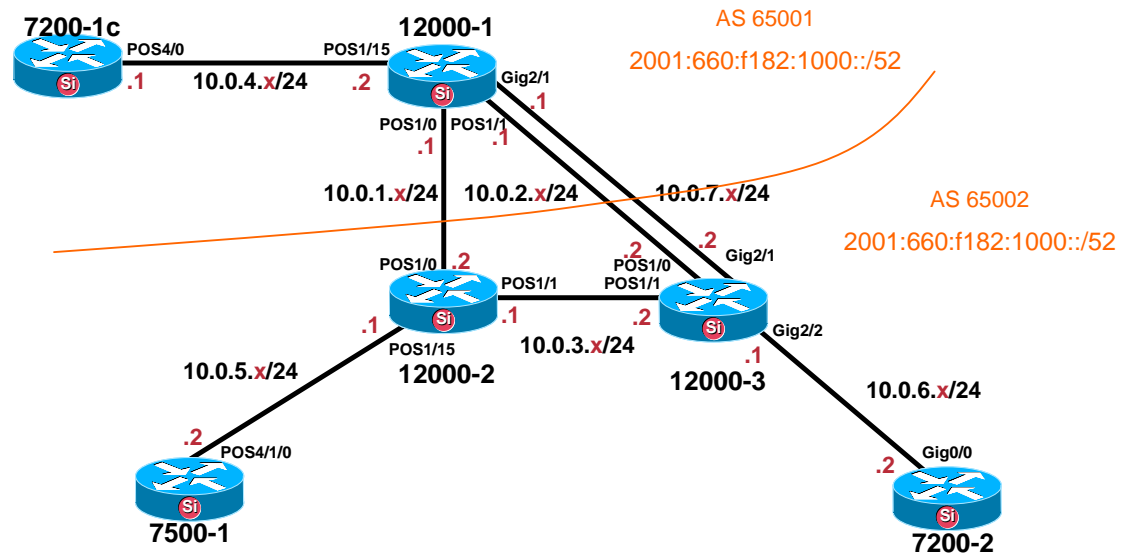


Figure 6: Lab Topology in Brussels – Routing Information

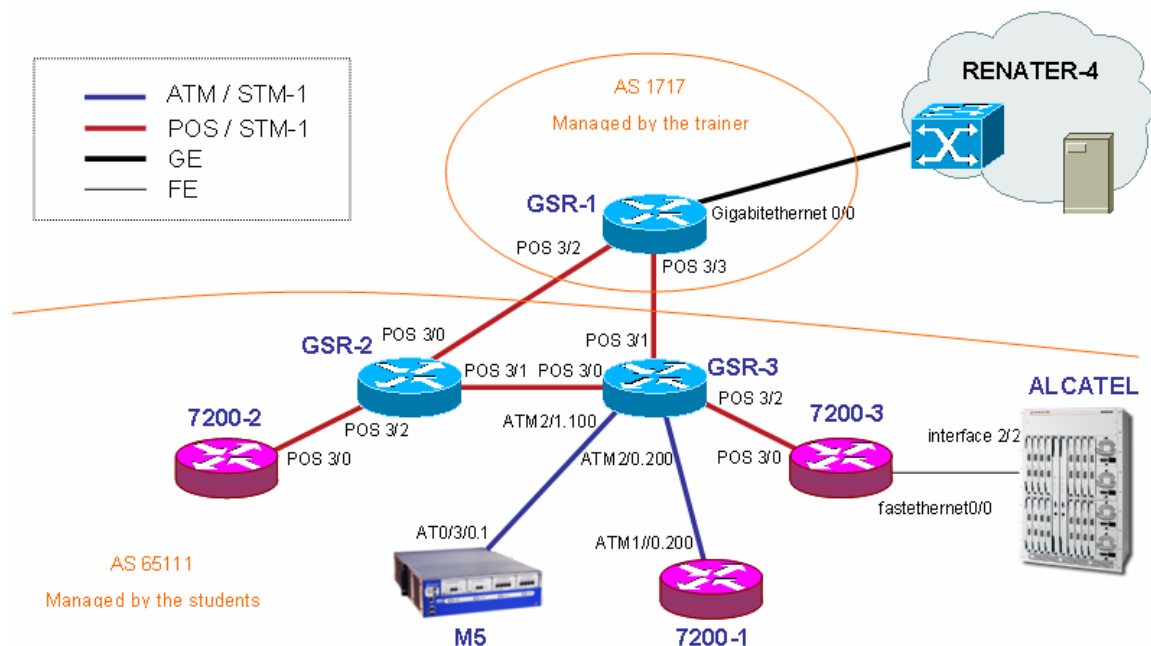



Figure 7: Lab Topology in Paris – Routing Information

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

2.6. Workshop CD-ROM and 6NET Books

Multiple IPv6-related technical presentations and documents as well as open-source IPv6-ready applications were compiled in a CD-ROM and freely distributed to the participants at the end of the workshop. The 6DISS partners aimed to concentrate, in electronic form, a large amount of information related to IPv6 technology so it can be a reference point for “IPv6-literate” and “IPv6-illiterate” engineers in the region.

The contents of the 6DISS IPv6 CD-ROM included:

- The 6DISS e-learning module
- Multiple IPv6 electronic books such as 6NET cookbook, IPv6 ABCs by Cisco, etc
- 6NET technical documentation, such as basic and advanced services, applications, transitioning, management, etc
- Workshop presentations (latest versions)
- A complete set of 6DISS technical modules
- A compilation of monitoring tools, including all the tools used during the hands-on technical sessions.

The 6NET books (Deploying IPv6) were given out at the beginning of the workshop, in order to allow participants to seek for further information during the training breaks of the hand-on sessions. At the end of the workshop, all the participants received the book in an electronic version.

2.7. Sponsors


Cisco Systems: Cisco donated a set of high speed routers to implement the “6DISS remote labs” in Brussels (Cisco TAC premises) and Paris (RENATER premises). Cisco also lent 3 small routers to allow 6DISS tutors to organise the local area network.

NIC(Malta): The Malta Internet Foundation, also known as NIC(Malta), sponsored an evening dinner for all workshop participants. Besides managing the .mt ccTLD, the Malta Internet Foundation promotes the development of Internet in Malta and is an active member of the Malta IPv6 Task Force.

Forestals FGL Information Technology Ltd: The 30 brand new computer workstations with TFT monitors that were used during the workshop for the hands-on sessions were loaned at no cost by Forestals.

maltanet: The interconnection between the workshop venue and the University of Malta campus was provided at no cost by maltanet. This enabled the University’s IPv6 Internet connectivity to be used during the workshop,

SURFnet: IPv6 t-shirts were kindly supplied by SURFnet for the workshop participants.

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---


2.8. Summary of Costs

The total cost to 6DISS for the organisation of this workshop was €741. The cost breakdown is shown in the following table:

Description	Estimation of costs (in Euros)	Comments
Organisation	6741	Meeting rooms, lunch and coffee expenses for all participants in the workshop and the lease of audio and other equipment.
Accommodation and Transportation	0	Accommodation expenses for all participants during the workshop period were claimed on the EUMEDConnect project.
Other	0	The University of Malta and NIC(Malta) sponsored the gala dinner organised for all the workshop participants.

2.9. Workshop Dissemination

A number of promotional actions were taken in advance in order to support the 6DISS training workshop in Mediterranean area, as well as to disseminate the 6DISS objectives in the region. Three countries offered to host the meeting (Cyprus, Algeria and Malta).

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

3. Report from the Maltese IPv6 Task Force Meeting

3.1. Participants

The 3rd meeting of the Maltese IPv6 Task Force was held on April the 7th, immediately after the 6DISS workshop. This meeting was proposed and planned together with the 6DISS tutors and aimed at discussing the IPv6 deployment status in Malta by the universities as well as the commercial actors (telcos, ISPs, ...).

The meeting gathered people from the following organizations and companies:

- Malta Information Technology and Training Services
- Malta Communications Authority
- University of Malta
- Malta Internet Foundation
- Go Mobile
- Innovate
- Melita Cables Plc
- 6DISS

3.2. Summary of the meeting


The meeting started with a presentation by Ms C. Delia - Secretary of the National IPv6 Task Force - about the IPv6 achievements since the Task Force launch in October 2005. The Task Force activities and membership are documented at <http://www.mt.ipv6tf.org>. Two groups have been formed: one working on IPv6 dissemination and the other dealing with tests on a multi partner platform (the testbed is under construction). The cover page of the presentation of Ms Delia is shown at the end of this report (Annex I). The whole presentation is available on the 6DISS website. Then, a presentation was given by A. Liakopoulos (GRNET & 6DISS) on IPv6 deployment in Greece. The general discussion was then focused on migration strategies in the academic and commercial sectors. Experience tips from the 6DISS participants were reported.

3.3. Opportunities for further Co-operation

Although there was no explicit discussion on further cooperation during the Task Force meeting, it has been mentioned many times during the workshop days. This collaboration targets a wider community than the individual countries represented in Malta. Obviously the GEANT-2 network and the EUMEDConnect project create the opportunities for cooperation on a large scale regarding IPv6 deployment or any other IP services like multicast, videoconferencing, ...

Moreover, in the frame of 6DISS activities, two other topics were emphasized:

- the so-called “Tiger Team” of volunteers, who are available to answer (or forward) any kind of questions, requests, ...

IST-3-015926-SSA	<p>Deliverable D06:</p> <p>Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries</p>	
------------------	--	---

-
- the IPv6 remote labs (in Brussels and Paris), which anyone can request for booking and carry out IPv6 experiments.

4. Analysis of the Feedback Questionnaire

A questionnaire has been especially designed to obtain feedback from the participants, regarding the suitability of the course material and the presenters to convey the information, and the relevance of the information to the requirements of the attendees.

Each participant was initially requested to give some information about:

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

Also, 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 organization” etc.

4.1. General Questions related to participants and IPv6

B. Tuy 6DISS Workshops Sept. 19 20, 2005

IPv6 Workshop

Malta, April 2006

Feedback Questionnaire

About the Participants

Approximately 30 participants were present but 25 questionnaires have been returned.

Employment sector	Government	5
	University of other higher education	16
	Schools or further education (K19)	1
	Research	1
	Health	5
	Commercial	5
	Other (please specify)	1SP
Job function	Government Advisor	1
	Senior Manager	1
	IT Manager	4
	System administrator	8
	Network administrator	12
	Researcher / Postgraduate	1
	Undergraduate	2 Academic
	Other (please specify)	1 Telecommunications 1 System Engineer
Usage of IPv6		
you use IPv6	yes	7
	no	18
In your organisation IPv6 is	Yes	5
	No, but planned in the next year	6
	No, but planned in the longer term	7
	No, and no plans as yet	5

4.2. Questions regarding the Workshop

B. Tuy

6DISS Workshops

Sept. 19 20, 2005

About the Workshop

usefulness of the topic				
	Very useful	slightly useful	not useful	useful
Introduction to IPv6	9	15		
IPv6 Transition mechanisms	8	14	2	
Hands-on: IPv6 basics	11	12		
IPv6 applications (DNS, Web, ...)	6	15	3	
Hands-on: IPv6 applications	6	12	5	
IPv6 Routing	10	12		
Hands-on: IPv6 routing	11	11		
General discussion ("debriefing")	5	10	7	
IPv6 Security	5	13	3	1
Hands-on: IPv6 security	3	12	6	1
IPv6 Networks Management	7	13	2	
Hands-on: IPv6 monitoring tools	8	10	3	1
Case studies	7	10	4	

Quality of presentation				
	excellent	good	average	poor
Introduction to IPv6	10	13	1	
IPv6 Transition mechanisms	7	16	2	
Hands-on: IPv6 basics	8	10	7	
IPv6 applications (DNS, Web, ...)	6	12	6	
Hands-on: IPv6 applications	5	11	9	
IPv6 Routing	8	12	1	
Hands-on: IPv6 routing	11	9	3	
General discussion ("debriefing")	5	14	2	
IPv6 Security	5	15	2	
Hands-on: IPv6 security	5	11	7	
IPv6 Networks Management	8	13	3	
Hands-on: IPv6 monitoring tools	6	15	3	1
Case studies	7	11	5	

Familiar with the topic ?	None	some	most	all
Introduction to IPv6	1	6	14	4
IPv6 Transition mechanisms	7	9	8	1
Hands-on: IPv6 basics	6	10	7	2
IPv6 applications (DNS, Web,...)	4	14	5	2
Hands-on: IPv6 applications	10	9	3	2
IPv6 Routing	5	13	3	2
Hands-on: IPv6 routing	8	13	1	
General discussion ("debriefing")	5	15	1	
IPv6 Security	7	16		
Hands-on: IPv6 security	10	12		1
IPv6 Networks Management	9	13	2	
Hands-on: IPv6 monitoring tools	8	13	3	
Case studies	6	13	3	

Quality of course documentation	excellent	9
	good	13
	average	2
	poor	

Quality of local lab set-up	excellent	13
	good	10
	average	2
	poor	

Quality of remote lab set-up	excellent	12
	good	12
	average	
	poor	

General WS organisation	excellent	15
	good	8
	average	2
	poor	

Recommend to your colleagues ?	yes	25
	no	

4.3. Participants' Comments

It should be noted that the participants had different technical backgrounds. For example, some of the participants 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).

Below is an excerpt of some comments received from the attendees:


Beginning of the excerpt

Well done to the 6DISS tutors and the workshop organisers (7)

Very interested in this subject. So, if there is any chance to help to this project, I would like to be a member in such project (8)

It was very useful to participate in this event (9)

Labs should have step by step approach to ensure a proper interaction with the participants (10)

IST-3-015926-SSA	<p style="text-align: center;">Deliverable D06:</p> <p style="text-align: center;">Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries</p>	
------------------	--	---

It's a good idea not to give direct answer during labs to promote research, but at least at the end of the practice session a model answer would certainly help. Overall very satisfied though! (10)

Thanks for the organizers specially for Robert and Vaness, also thanks for Bernard, Jerome and Athanassios for their training and co-operation (11)

Give out the questionnaire at beginning (12)

Hands-on needs to be more organized prepared before hand. More free flowing discussions would have been nicer. Thanks for the organizers (Malta University) (14)

Feedback form should be distributed in the beginning so to remember each item contents and usefulness.

Better detailed hands on with procedures in case we did not the configurations procedure: smaller workshop of two will be great with testing procedures (17)

Practical labs on PCs, routers, etc. will be better if tutor can follow step by step of typical config by means presentation of router config of a server before labs are carried out. This will allow for better understanding of the details of the IPv6 addressing and set up. Other than that, it was well organized. Keep up the good work (18)

Excellent job done by organizers. Looking forward to the next one

Well done for the organization. Would have helped if the workstation had some applications installed already (Apache 2.0.55, Ntop, Argno, bind) etc in order to concentrate more on IPv6 functionality other than installing the applications. Some routers in the Paris lab did not support IS-IS, OSPF and BGP. Apart from these small issues, well done everyone! (21)

It is better to have the evaluation form from the beginning, that way, it can be filled along the sessions, while one still remembers the session

I would like to thank all of you for a wonderful organization of the workshop. I really had a great experience on the workshop. The food was great, the hotel was great, YOU were great. Thank you.

Would like to have some more accurate and validated workshop tutorial handouts (25).

End of the excerpt

5. Background Information about the Region

5.1. Status of Internet Connectivity in the Region

Malta is connected to the Internet via 2 submarine fibre cables and Internet connectivity is provided to local ISPs by maltanet and Vodafone Malta. The University of Malta, which serves as the Maltese National Research and Education Network, has a connection to the GÉANT-2 and EUMEDConnect networks. Other Mediterranean countries' Research and Education Networks are similarly connected via the EUMEDConnect EC project run by DANTE and incorporating some European NRENs (see: <http://www.eumedconnect.net/server/show/nav.600>).

Below is shown the global Internet connectivity:

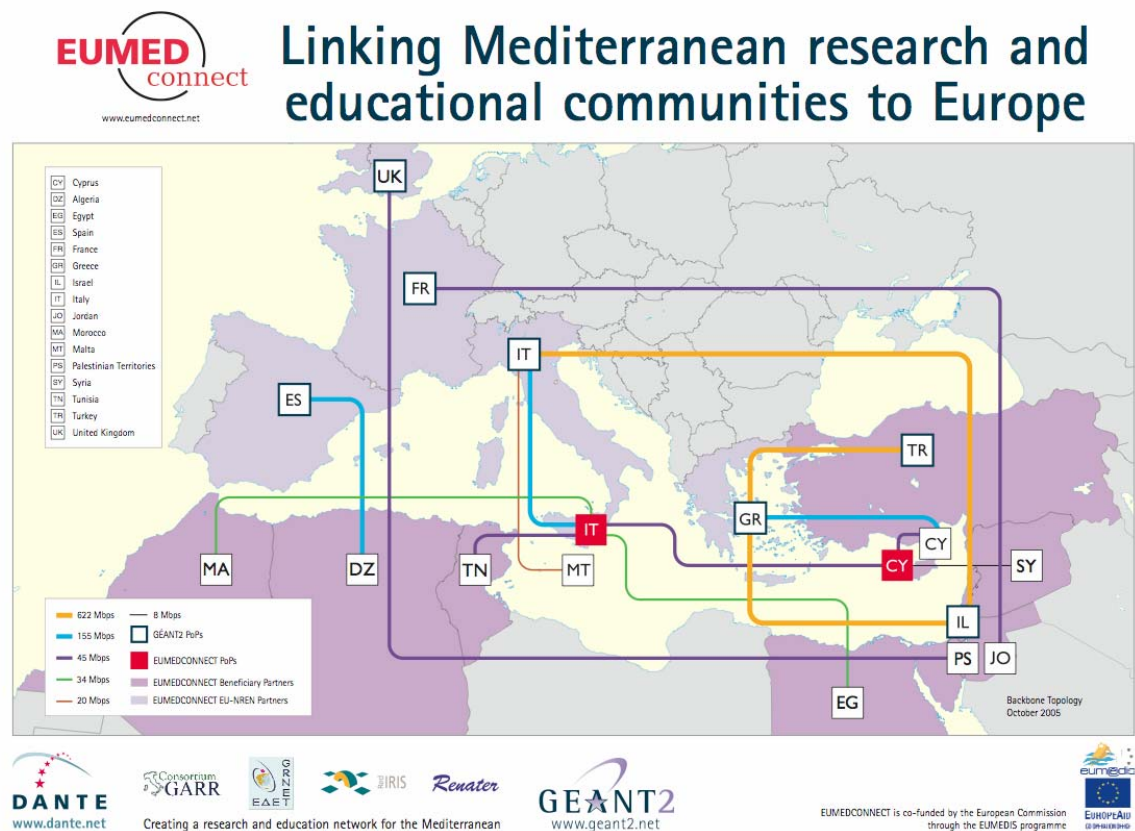


Figure 8: EUMEDConnect Connectivity (courtesy of DANTE)

5.2. Experience of IPv6, and ongoing projects

To illustrate the experiments carried out by the Maltese IPv6 Task Force members, the figure below shows the configuration of the Maltese IPv6 testbed and how many organisations are involved with IPv6 training.

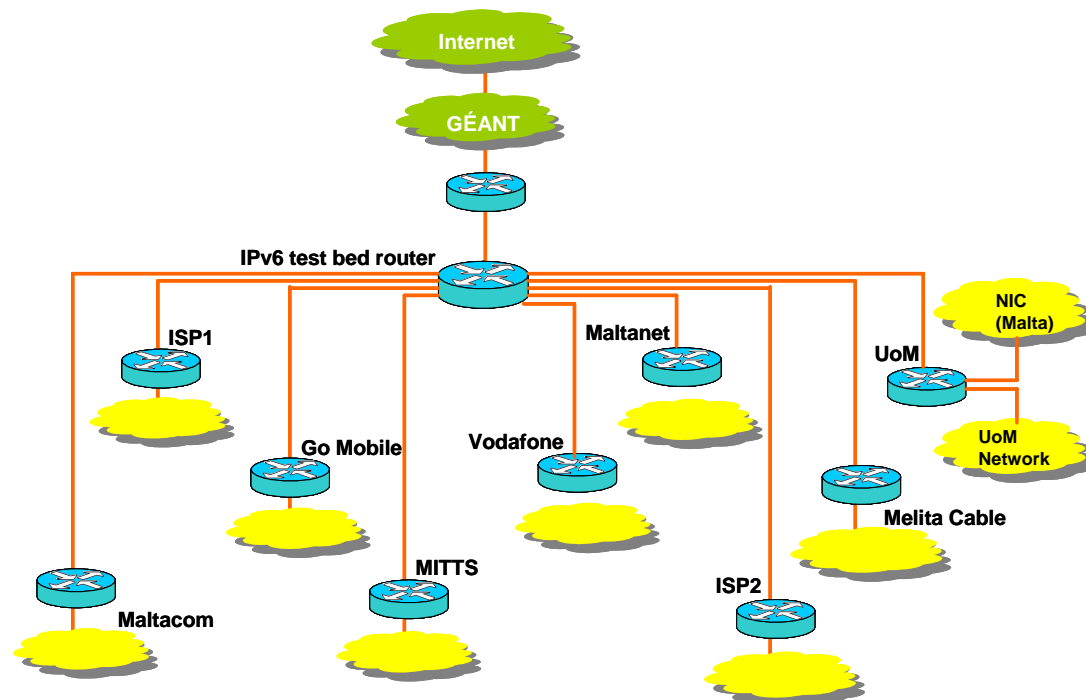



Figure 9: The Maltese IPv6 Testbed Configuration

IST-3-015926-SSA	<p style="text-align: center;">Deliverable D06:</p> <p style="text-align: center;">Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries</p>	
------------------	--	---


6. Conclusion

Workshops are a key mechanism through which information, knowledge and *how-to* is being transferred to less experienced countries. The workshops are also enabling to build constituencies and raise awareness; disseminate, benchmark and validate the research results from IST; promote European technologies; exchange best practices; and explain about activities related to standards and interoperability issues.

RENATER led the 6DISS workshop for the Mediterranean partner countries and was supported by GRNET. The 6DISS technical workshop took place on April 4-6th 2006 in Malta. The University of Malta organised the venue and provided the workshop with all the required logistics. Approximately 30 network engineers and system administrators participated in the event. The topics presented were selected according to the participants' requirements.

The set of dissemination material covered all issues of IPv6 deployment and evolution; especially IPv4-IPv6 transition/coexistence strategies, DNS, DHCP, Routing, Security, Monitoring and Management tools, and Applications.

According to the evaluation forms and the comments from the participants at the workshop, it is clear that there is significant interest in the region for the IPv6 technology. The participants expressed positive comments on the workshop usefulness and organization. They also "requested" 6DISS to organise more workshops in the region with more specific technical subjects. Furthermore, a subset of the attendees expressed interest in participating in a 6DISS "Training for Trainers" course.

IST-3-015926-SSA	Deliverable D06: Report on the Workshop and Status of Internet connectivity in the Mediterranean Partner Countries	
------------------	--	---

7. ANNEX I: Front Page of the Malta IPv6 Task Force Presentation

