


IST-2001-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

Project Number:	IST-2001-32603
Project Title:	6NET
CEC Deliverable Number:	32603/ULB/DS/7.2/A2
Contractual Date of Delivery to the CEC:	30 June 2003
Actual Date of Delivery to the CEC:	July 2003
Title of Deliverable:	Dissemination and Use Plan; third version
Work package contributing to Deliverable:	WP7
Type of Deliverable*:	R
Deliverable Security Class**:	PU
Editors:	Paul Van Binst (ULB)
Contributors:	6NET Partners

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

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


Abstract:

This Deliverable describes the plans for the dissemination of knowledge gained during the work, and (to the extent that can be foreseen at this stage) the exploitation plans of the results for the consortium as a whole, for individual participants, and groups of participants. It expresses as far as possible in concrete terms, the dissemination strategies, the target groups and the strategic impact of the project in terms of improvement of competitiveness or creation of market opportunities for the participants.

One of the purposes of this Deliverable is to disseminate information about the project, and its progress, in such a way that other workers in the area can make use of the results, or see how they can feed information into the project. In this way it acts as a vehicle for the cross-fertilisation of ideas and a means of establishing co-operation. This document will be regularly updated.

Keywords:

Exploitation, dissemination, trials, standards

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

Executive Summary

In the scope of the 6NET project, new concepts and technological results are being derived that will have an impact on the future of the Internet. It is therefore seen as being of crucial importance to publish and disseminate the results from the project through the appropriate channels and in a timely fashion.

This *Dissemination and Use Plan* will be treated as a living document and will be updated during the life of the project. It will include at each update a summary of changes since the previous release and an outline of expected future additions or changes. Being a publicly available document, it will be made available on the project web site.

One of the purposes of this *Dissemination and Use Plan* is to disseminate information about the project, and its progress, in such a way that other workers in the area can make use of the results, or see how they can feed information into the project. In this way it acts as a vehicle for the cross-fertilisation of ideas and a means of establishing co-operation.

The contents of the Deliverable include:

- plans for the dissemination of knowledge
 - standards
 - publications
 - deliverables
 - conferences and other events
- exploitation plans
 - project as a whole
 - individual partners

This third edition (June 2003) of Deliverable 7.2. includes new or updated contributions from most of the project partners.

EXECUTIVE SUMMARY	2
PLANS FOR THE DISSEMINATION OF KNOWLEDGE	5
1.1. STANDARDS BODIES	5
1.1.1.1 IETF:	5
1.1.1.2 ETSI:	5
1.1.1.3 RIPE:	5
1.2. PUBLICATIONS.....	6
1.3. DELIVERABLES	9
1.4. CONFERENCES AND OTHER EVENTS	15
EXPLOITATION PLANS	16
1.5. EXPLOITATION PLANS FOR THE PROJECT AS A WHOLE	16
1.6. EXPLOITATION PLANS OF THE INDIVIDUAL PARTNERS	17
1.6.1. CISCO Systems	17
1.6.2. Universite Libre de Bruxelles (ULB)	18
1.6.3. DANTE.....	20
1.6.4. TERENA.....	20
1.6.5. SONY	20
1.6.6. IBM	21
1.6.7. NTT Communications Corporation (NTT Com)	22
1.6.8. RENATER	22
1.6.9. UKERNA.....	23
1.6.10. NORDUnet.....	23
1.6.11. DFN.....	24
1.6.12. SURFnet.....	24
1.6.13. SWITCH.....	24
1.6.13.1 Educational and research organisations.....	25
1.6.13.2 Regional ISPs	25
1.6.13.3 General Public	25
1.6.13.4 Means of Dissemination.....	25
1.6.13.4.1 Co-ordination Committee Meetings.....	25
1.6.13.4.2 IPv6 Web pages.....	25
1.6.13.4.3 "SWITCH Bulletin" Electronic Newsletter.....	25
1.6.13.4.4 Dedicated Workshops	26
1.6.13.4.5 One-to-One Deployment and Assistance.....	26
1.6.13.4.6 SwiNOG Meetings.....	26
1.6.13.4.7 SWITCH Journal.....	26
1.6.13.4.8 SWITCH's "Internet Identifiers" Division.....	26
1.6.14. AConet.....	26
1.6.15. GRnet	26
1.6.16. INFN-GARR.....	28
1.6.16.1 Means of Dissemination.....	28
1.6.16.1.1 Italian 6NET Web Site	28
1.6.16.1.2 Tutorials.....	28
1.6.16.1.3 Press.....	28
1.6.16.1.4 Conferences	29
1.6.17. University College London	29
1.6.18. University of Southampton.....	29
1.6.19. University of Lancaster.....	30
1.6.20. Telematica Institute.....	32
1.6.21. UNINETT (Assistant Contractor to NORDUnet).....	32
1.6.22. CSC/FUNET (Assistant Contractor to NORDUnet)	32
1.6.23. Polytechnic Institute Oulu (Assistant Contractor to NORDUnet).....	33

1.6.24.	<i>University of Oulu (Assistant Contractor to NORDUnet)</i>	33
1.6.25.	<i>Invenia Innovation (Assistant Contractor to NORDUnet)</i>	33
1.6.26.	<i>Westfälische Wilhelms-Universität Münster (Assistant Contractor to DFN)</i>	34
1.6.27.	<i>Fraunhofer Gesellschaft (Assistant Contractor to DFN)</i>	35
1.6.27.1	<i>Exploitable Results</i>	35
1.6.27.1.1	<i>Mobility</i>	35
1.6.27.1.2	<i>VoIP Demonstrator</i>	35
1.6.27.1.3	<i>WLAN</i>	35
1.6.27.1.4	<i>AAA Infrastructure</i>	35
1.6.27.2	<i>Exploitation and Dissemination Strategy</i>	35
1.6.27.2.1	<i>ISPs and Networks Operators</i>	35
1.6.27.2.2	<i>Research Projects</i>	36
1.6.28.	<i>Computer Technology Institute (Assistant Contractor to GRnet)</i>	37
1.6.29.	<i>DTU (Assistant Contractor to NORDUnet)</i>	37
1.6.30.	<i>INRIA (Assistant Contractor to RENATER)</i>	38
1.6.31.	<i>UNIVERSITÉ LOUIS PASTEUR (Assistant Contractor to RENATER)</i>	38
1.6.32.	<i>PSNC (Instytut Chemii Bioorganicznej Pan W Poznaniu)</i>	39
1.6.32.1	<i>Web site</i>	39
1.6.32.2	<i>Conference presentation</i>	39
1.6.32.3	<i>Technical Polish NREN POL34/622 members meetings</i>	39
1.6.33.	<i>CESNET (Zajmove Sdruzeni Pravnickyh Osob)</i>	39
1.6.34.	<i>HUNGARnet</i>	40
1.6.34.1	<i>Means of Dissemination</i>	40
1.6.34.1.1	<i>Web Site</i>	40
1.6.34.1.2	<i>Conference presentations</i>	40
1.6.34.1.3	<i>Tutorials</i>	40
1.6.34.1.4	<i>NIIF/HUNGARNET Technical Council meeting</i>	40
1.6.34.1.5	<i>Other meetings</i>	40
1.6.35.	<i>ETRI (Electronics and Telecommunications Research Institute)</i>	40
CONCLUSION		41
ANNEX 1		42

Plans for the Dissemination of Knowledge

1.1. Standards Bodies

1.1.1.1 IETF:

The most important body in terms of Internet standards is the Internet Engineering Task Force (IETF). Meeting three times a year, the IETF embraces all aspects of Internet technology. For IPv6, there are three directly relevant working groups:

- **IPng**, defining the IPv6 standards.
- **v6ops**: defining methods for IPv4 and IPv6 transition, integration and coexistence
- **multi6**: defining methods for site and network multihoming in IPv6

Other working groups of interest include:

- **mobileip** (including Mobile IPv6)
- **manet** (mobile ad-hoc networks, currently typically using ad-hoc 802.11b WLANs)
- **zeroconf** (zero configuration)
- **dnsex** (DNS extensions)
- **dhc** (dynamic host configuration, including DHCPv6).

6NET participants attend the IETF meetings and participate in mailing list discussions where relevant work is being undertaken in the workpackages (eg. IPv6 transition in WP2). 6NET work contributes directly to the standards process.


1.1.1.2 ETSI:

The European Telecommunications Standards Institute (ETSI) has a focus more directed at wireless and 3G systems, but also has a strong reputation for other services including hosting of interoperability tests. 6NET will seek to take advantage of such services where appropriate in the project. Interaction with ETSI is of direct benefit to Europe.

ULB, in particular, is closely associated with the IPv6 interoperability “Plugtests”. They took part in the *re-routing* tests in Cannes (September 2002), and are responsible (with VUB) for organising the infrastructure for the next IPv6 Plugtests event in Brussels in September 2003. The event will be combined with a 1-day International Workshop on IPv6 Testing, Certification and Market Acceptance.

1.1.1.3 RIPE:

RIPE (Réseaux IP Européens) is a series of 4-monthly open meetings attended by technical experts running IP networks in Europe. The logistics for the RIPE meetings are provided by the staff of the RIPE NCC association. The RIPE NCC is the European Internet Registry responsible for the management of Internet address assignments in the European region. The RIPE NCC allocates IPv4 and IPv6 address space, autonomous system (AS) numbers, and reverse address delegations (for IPv6, under ip6.int). 6NET contributes to the determination of address assignment policies and towards establishing best practices for organisational and site addressing for IPv6. 6NET has gained

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---


operational experience of DNS servers and reverse delegations (under ip6.int or ip6.arpa). The experience from 6NET is being fed back via RIPE IPv6 Working Group meetings. Representatives of a number of 6NET partners, especially AConet (WP3 leader), attend these meetings.

1.2. Publications


Many publications have been made by partners in journals, conferences and to IETF meetings.

The following table summarizes the most significant publications:


Topic	Journal/Conference status	Company	Date
Europe drives next generation internet deployment	IST Conferences press release	6NET/ Euro6IX Consortia	4 th December, 2001
Europe to build the world's highest-capacity IPv6 research network	IST Conferences press release	6NET Consortium	December 2001
Note about the Use of IPv6 /127 Prefix Length: http://search.ietf.org/internet-drafts/draft-savola-ipv6-127-prefixlen-01.txt	IETF draft	CSC-Funet	February 2002
Security Considerations for 6to4: http://search.ietf.org/internet-drafts/draft-savola-ngtrans-6to4-security-01.txt	IETF draft	CSC-Funet	February
Migration and Co-existence of IPv4 and IPv6 in Residential Networks (base material for the coming Deliverables) http://www.csc.fi/~psavola/residential.html	Technical University of Helsinki, Telecommunications Software and Multimedia Laboratory, Seminar on Internetworking (T-110.551) 2002	CSC-Funet	February
DFN's role in the <i>IPv6Showcase</i> project		DFN	7 th March 2002
IPv6 Transition Strategies	TERENA Network Conference	UoS	March 2002
New www pages for the Finnish IPv6 community including information on the 6NET project: http://www.csc.fi/proj/ipv6/	CSC - Scientific Computing Ltd Official www pages	CSC- Funet	March
Internet Draft: draft-jelger-mssmsv6-00.txt	IETF Draft (www.ietf.org)	ULP	March
"Use of /127 Prefix Length Between Routers Considered Harmful" http://search.ietf.org/internet-drafts/draft-savola-ipv6-127-prefixlen-04.txt	IETF draft	P. Savola, CSC-Funet	June 2002

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

Technical report: "Implementation of common IPv6-MIB modules for IPv4 and IPv6 protocols in a FreeBSD 4.5 router"		LORIA	September 2002
"SNMP over IPv6"	Project abstract	LORIA	September 2002
"draft-ietf-ipngwg-rfc2011(2012 and 2013)-update-01.txt implementation"	Project abstract	LORIA	September
"IPv6 Network automatic topology discovery service"	Project abstract	LORIA	September 2002
Presentation: "Where are we with IPv6 network management?"	Aristote Conference	LORIA	September 2002
"IPv6 Router Project" (in Czech)	EurOpen 2002 Conference, Znojmo	J. Novotny	September 30 th 2002
"Transition Strategies from IPv4 to IPv6: The case of GRnet"	INC2002,	University of Plymouth	12 th - 19 th July
"IPv6 auf dem Vormarsch"	Inforum	WWU (JOIN)	January 2002
"6WiN - IPv6 in the WiN"	TERENA Networking Conference, Limerick	WWU (JOIN)	4 th June
"6WiN - a native IPv6 network"	8 th TF-NGN in Berlin and RV-NRW workshop in Hagen	WWU (JOIN)	1 st - 2 nd July
"Neues Internet-Protokoll IPv6, ein Schwerpunkt im ZIV der WWU"	Press release	WWU (JOIN)	August
"Multicast for Mobile Hosts in IP Networks: Progress and Challenges"	IEEE Wireless Communications Magazine	ULP	October 2002
"Supporting Mobile SSM Sources for IPv6"	IEEE Globecom '02 Conference	ULP	November 2002
"Review of IPv6 Transition Scenarios for European Academic Networks"	IPv6 Conference in Paris/ accepted	UoS	28 th -30 th October 2002
"Results and plans of the IPv6 testbed initiatives within the European Commission IST Programme"	IEEE SAINT 2003 in Orlando/ accepted	UoS	January 27 th - 31 st 2003
"IPv6 Initiatives within the European National Research and Education Networks (NRENs)"	IEEE SAINT 2003 in Orlando/ accepted	UoS	January 27 th - 31 st 2003
"IPv6 - Good for Grid: A position statement based on a technical viewpoint"	TERENA Networking Conference 2003 in Zagreb	UCL, UoS, ULANC	May 19 th - 22 nd 2003
"The m6bone: International Experiments with IPv6 Multicast"	TERENA Networking Conference 2003 in Zagreb/ accepted	UoS, CSC, UNINETT	May 19 th - 22 nd 2003

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

"6NET - Internationales IPv6 Weitverkehrs-Netz"	37 th DFN Betriebstagung	WWU (JOIN)	November 12 th - 13 th 2002
"6WiN - Update"	37 th DFN Betriebstagung	WWU (JOIN)	November 12 th - 13 th 2002
"European IPv6 Projects in FP5 and 6"	PowerPoint presentation	RENATER	December 2002
"A Scenario-based Review of IPv6 Transition Tools"	IEEE Internet Computing, Special Edition on IPv6	ULANC	October 2002
"Security Considerations for 6to4" (http://www.ietf.org/internet-drafts/draft-savola-v6ops-6to4-security-02.txt)	IETF Internet Draft	CSC	January 2003
"From IPv4 to IPv6: The Case of OpenH323 Library"	The 2003 International Symposium on Applications and the Internet / IPv6 and Applications Workshop	CTI	January 27 th - 31 st 2003
"Multihoming Using IPv6 Addressing Derived from AS Numbers" (http://www.ietf.org/internet-drafts/draft-savola-multi6-asn-pi-00.txt)	Internet Draft	CSC	January 2003
"A View on IPv6 Transition Architecture" (http://www.ietf.org/internet-drafts/draft-savola-v6ops-transarch-00.txt)	IETF Internet Draft	CSC	January 2003
"RFC 3041 Considered Harmful" (http://www.ietf.org/internet-drafts/draft-dupont-ipv6-rfc3041harmful-02.txt)	IETF Internet Draft	CSC	January 2003
"Embedding the Address of RP in IPv6 Multicast Address" (http://www.ietf.org/internet-drafts/draft-savola-mboned-mcast-rpaddr-02.txt)	IETF Internet Draft	CSC	March 2003
"Firewalling Considerations for IPv6" (http://www.ietf.org/internet-drafts/draft-savola-v6ops-firewalling-01.txt)	IETF Internet Draft	CSC	March 2003
"A Scenario Based Review of IPv6 Transition Tools"	IEEE Computer Networks magazine	UoS, ULANC, Cisco	March 2003
"IPv6: Integration & Transition"	38 th DFN Betriebstagung	WWU (JOIN)	4 th March
"IPv6 Site Multihoming: Now What?" (CSC)	IETF Draft	CSC	April 2003

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

"A Scenario-Based Review of IPv6 Transition Tools"	IEEE Internet Computing magazine	Martin Dunmore, Tim Chown, Graca Carvalho	May-June 2003
--	----------------------------------	---	---------------

1.3. Deliverables

Almost all Deliverables from the project are available as public material. All public Deliverables are placed on the project's Web server. Here is the list of all the Deliverables produced as of June 2003, including a short description of the content of each of them.

- D3.4.3: IPv6 multicast address allocation study - *April 2003*
Author: RENATER

This Deliverable examines the issue of address allocation for multicast. The main need for such an allocation mechanism is collision avoidance. Two kinds of collision are considered:

- address collision, and
- address and port collision.

This document also details the announcement mechanisms that can be used to let people know the existence of IPv6 multicast sessions (since the session announcement problem is closely related to the address allocation issue). The document gives addressing architecture details for IPv6 multicast, identifies the many documents (RFCs and Internet-drafts) already in existence on the IPv6 address allocation issue, and describes the existing approaches to the session advertisement problem. Current implementations for IPv6 multicast address allocation and session advertisement are given. Finally, deployable solutions are investigated, some directly provided by the state of art, whilst others are provided by the partners involved in this area.

- D5.5: Definition of generic framework for IPv6 applications trials and evaluation - *31 March 2003*
Author: IBM

This document outlines the procedure to be followed in conducting and reporting application trials in 6NET.

- D2.2.2: Initial IPv4 to IPv6 Migration Cookbook for organizational/ISP (NREN) and backbone networks - *6 March 2003*
Author: UoS

The document describes the IPv6 transition mechanisms available to the National Research and Education Networks (NRENs) who are part of the 6NET project. The mechanisms need to operate to complement those that may apply in the core IPv6 network, and most importantly to provide an IPv6 service to the end users in the universities. We review the mechanisms, state the current usage of those mechanisms, and describe some of the scenarios for NREN transition. This "cookbook" of transition mechanisms and experience will be updated throughout the duration of the 6NET project.

- D1.6: Report on the latest 6NET network design: Addition of NAS connectivity and implementation of 2.5 Gbps capacity – *March 2003*
Author: DANTE

This document gives a detailed overview of:

- Addition of NAS connectivity
- Implementation of 2.5 Gbps capacity.

- D3.4.1: IPv6 Intra-domain multicast service – *March 2003*
Author: SURFnet

This document describes the IPv6 Intradomain multicast service used with 6NET. At this moment IPv6 Interdomain multicast, involving multiple Protocol-Independent Multicast (PIM) domains and thus multiple PIM Rendezvous Points (RPs) is not possible. Except when using Source Specific Multicast (SSM) since SSM does not require RPs. The French initiative M6Bone was used to deploy and gain experience with IPv6 Intradomain multicast.

- D4.3.1: First set of IPv6-enabled Dynamic VPNs running – *March 2003*
Author: UCL

VPN technology is widely deployed within IPv4, however the provisioning of dynamic VPN technology still remains very much an open research issue. This document outlines the investigation carried out into the issues surrounding the deployment of dynamic VPN technology within the specific context of IPv6. A number of VPN infrastructures aiming to provide dynamic VPNs have been analysed providing a status and a review of suitability. Consideration is also given to applications that may use an underlying dynamic VPN infrastructure, with specific focus on the context of conferencing environments. These have been supported by Active Networking, though other options are considered.

- D6.2.2: Operational procedures for secured management with transition mechanisms - 28
February 2003
Author: DANTE

This document examines the operational security issues behind various methods employed when migrating to native IPv6 network interconnection. The most common methods for gradual transition to IPv6 capability and operation parallel to the IPv4 network are presented in detail along with the security issues they raise. Directives for avoiding security problems are given for each solution.


- D2.3.2: Initial IPv4 to IPv6 transition cookbook for end-site networks/universities - 24
February 2003
Author: WWU

This is the first version of an IPv4 to IPv6 transition cookbook for end site networks and/or universities. After a giving a general overview of transition to IPv6 and a brief description of each mechanism on a theoretical basis, this document focuses mainly on installation and configuration examples. The deliverable will be a living document from this initial release onwards and as such will be updated and revised whenever there is new or different material available.

- D4.1.2: Initial MIPv6 Support Guide - *February 2003*
Author: ULANC

This document provides an initial guide for people wishing to deploy a Mobile IPv6 (MIPv6) testbed at their site. We describe what infrastructure is required to support MIPv6 and detail the installation, configuration and operation of the most suitable implementations.

- D4.4.1: Specification of QoS tests - *February 2003*
Author: ULANC

IST-2000-32603	<p style="text-align: center;">Deliverable D 7.2</p> <p style="text-align: center;">Dissemination and Use Plan; third version</p>	
----------------	---	---

This document is a specification of the IPv6 Quality of Service (QoS) tests that will be carried out by the various partners in 6NET. We describe the QoS testbed infrastructure of the various partners and the tests that will be performed. The majority of the tests will be concerned with the provision of the Differentiated Services both within the partner networks and between partner networks across 6NET.

- D5.3: Initial applications development phase and PoP deployment progress report - *20 January 2003*
Author: TELIN

This deliverable describes the progress and the timetable for deploying different Points of Presence and data centres from Activities 5.3 and 5.4. Also the software that will be deployed at particular locations is described.

- D3.2.3: DHCPv6 implementation and test report - *17 January 2003*
Author: HUNGARNET

This document describes the needs why the DHCPv6 protocol has developed, the design and usage issues we found during the tests we performed. We found that no complete DHCPv6 is available till now. We also felt that operation of DHCPv6 in concert with DNS can be difficult, therefore a tool is under development in the project to ease the administrative burden of IPv6 administrators.

- D5.4: Identification of user community for Activities 5.1 and 5.2 - *20 January 2003*
Author: SONY

This document lists and briefly describes the communities identified as potential users for the applications listed in Deliverable D5.1 for the activities 5.1 “Real-time video-conferencing and media streaming” and 5.2 “On-line games”. This Deliverable complements Deliverable D5.2 that describes the users communities for the applications of activities A5.3 and A5.4.

- D6.1.2: Management Architecture Specifications - *31 December 2002*
Author: RENATER


This document is the final specification of the management architecture of the 6Net network. It enumerates the requirements towards the management framework, provides a description of all entities contributing to the management activity and specifies their interaction. Especially it defines the 6NCC, which is the entity at the heart of the management architecture which ensures coordination among all other participants.

- D7.2b: Dissemination and Use Plan, Second Version - *31 December 2002*
Author: ULB

This deliverable (second version) describes the plans for the dissemination of knowledge gained during the work, and (to the extent that can be foreseen at this stage) the exploitation plans of the results for the consortium as a whole, for individual participants, and groups of participants. It expresses as far as possible in concrete terms, the dissemination strategies, the target groups and the strategic impact of the project in terms of improvement of competitiveness or creation of market opportunities for the participants.

- D2.4.1: Initial report on technology for wireless LAN/MAN transition to IPv6 - *6 December 2002*
Author: UoS

This report complements the existing 6NET Deliverable D4.2.1 on Access Issues for IPv6 WLANs by highlighting and commenting on issues for IPv6 WLAN deployment that network managers

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

more used to thinking the “IPv4 way” should be aware of. This is an initial scoping report for the issues, which will be expanded during the project.

- D2.5.1: Issues for IPv6 deployment (missing pieces for IPv6 deployment and IPv6-only operation) - *6 December 2002*
Author: UoS

The report focuses on IPv6 components and “missing pieces” that still require attention in either standardisation processes or within appropriate bodies essential to successful deployment. The scope has changed from the original aim of reporting on IPv6-only networking issues; the broader coverage of general IPv6 deployment issues is more appropriate to this initial scoping report. We also present a case study of an IPv6-only site deployment made at a university in Norway.

- D4.5.1: Report on IETF Multihoming Solutions - *31 October 2002*
Author: ULANC

This document is an intermediate report on IPv6 multihoming solutions that have been proposed within the IETF. Although not within the IETF framework, some multihoming considerations within the BRAIN and MIND projects are also briefly described.

- D3.3.1: Contribute and report on discussions on IPv6 support in RIPE database - *28 October 2002*
Author: SURFnet

This document describes the background and history of RPSL and it's relationship to the Routing Registry part of the RIPE DataBase. It reviews the current state of discussions, boundary conditions for the definition of RPSLng (the next version of this language), and the relevance for 6NET. It also proposes to already try to use RSPLng, at least on paper for now, to describe 6NET's routing environment in the IPv6-based Internet.

- D6.3.1: 6NET IPv6 Network Management Cookbook - *30 September 2002*

This deliverable documents design, features, recommendations and tools that may be used to manage and monitor a wide area IPv6 network.

- D2.1.1: IPv4 to IPv6 migration scoping report for core networks - *9 August 2002*
Author: DANTE

The goal of this deliverable is to provide an overview about existing transition mechanisms which are useful for a smooth integration of IPv6 into IPv4 core (backbone) networks. Transition scenarios are discussed on the example of the GÉANT network as a pan-European network, which is a potential candidate for an IPv4 to IPv6 transition in the near future. Moreover, experiences and implementation details about the MPLS/CCC encapsulated IPv6 as one of the deployment strategies are provided, which is used to connect Greece, Poland and Hungary to the 6NET core network.

- D7.2a: Dissemination and Use Plan, First Version - *5 August 2002*
Author: ULB

This Deliverable (first version) describes the plans for the dissemination of knowledge gained during the work, and (to the extent that can be foreseen at this stage) the exploitation plans of the results for the consortium as a whole, for individual participants, and groups of participants. It expresses as far as possible in concrete terms, the dissemination strategies, the target groups and the strategic impact of the project in terms of improvement of competitiveness or creation of market opportunities for the participants.

- D2.2.1: IPv4 to IPv6 migration scoping report for organisational (NREN) networks - 2 August 2002
Author: UoS

This document describes the IPv6 transition mechanisms available to the National Research and Education Networks (NRENs) who are part of the 6NET project. The mechanisms need to operate to complement those that may apply in the core IPv6 network, and most importantly to provide an IPv6 service to the end users in the universities. We review the mechanisms, state the current usage of those mechanisms, and describe some of the scenarios for NREN transition.

- D2.3.1: IPv4 to IPv6 scoping report for end-site networks/universities - 31 July 2002
Author: UoS

This deliverable presents an initial review of site-oriented transition tools for IPv4-IPv6 transition and integration. Theoretical overviews and comments are made for a variety of mechanisms. We also review the current deployment status of these tools within the project participant sites, and seek to identify scenarios to which the mechanisms may (or may not) be most suitably applied. This scoping deliverable will be updated periodically to take the form of a site-level IPv4-IPv6 transition cookbook during the project (at M12, M24 and M36)

- D1.5.1: Six-Monthly Report on the usage of 6NET - 30 July 2002
Author: DANTE

This document gives details of the usage of the 6NET network over the six-month period, and lists the activities supported. As the 6NET network was not implemented until late May 2002, this report provides details of the installation dates of the elements of the network and provides the framework which will be used for future reports.

- D4.2.1: IPv6 Wireless LAN Access Issues - 29 July 2002
Author: ULANC

This report investigates the major issues relating to IPv6 access over wireless LANs. Although 6NET is particularly concerned with IPv6, most of the issues in this report apply equally as well to the IPv4 case since the issues tend to be related to the properties of wireless LANs rather than the version of IP being deployed.


- D7.9: Report on Liaison between 6NET and Euro6IX - 22 July 2002
Author: TERENA

The two projects 6NET and Euro6IX both focus on large-scale IPv6 deployment, but for different market segments, research/academic and commercial respectively. They work closely together and exchange information freely (as witnessed by this common Deliverable). This Deliverable describes areas in which they have identified some potential common activities. It also includes the minutes of two joint workshops that have been held (March, Madrid and June, Limerick). Tentative plans for future joint events (workshops and trials) are given.

- D7.7: Report on 1st 6NET Training Workshop - 18 July 2002
Author: TERENA

This document provides a report of the 1st 6NET Training Workshop held on 14-15 May 2002 in Brussels, Belgium.

- D6.2.1: 6NET Management Tools Requirements - 18 July 2002
Author: LORIA

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

This document provides a list of selected management tools and components that will be evaluated and/or developed and/or extended and/or deployed within the 6Net management project.

- D6.1.1: 6NET Network Management Initial Architecture - *12 July 2002*

This deliverable presents the WP6 initial description of a management architecture for the 6Net project.

- D5.2: Identification of User Community for Activities 5.3 and 5.4 - *11 July 2002*
Author: IBM

This deliverable lists and briefly describes the communities identified as potential users for the applications listed in deliverable D5.1. This document deals with users communities for activities A5.3 “E-business solutions” and A5.4 “Edge Services for IPv6”. It will be complemented by deliverable D5.4 that will describe the users communities for activities A5.1 “Real-time video-conferencing and media streaming” and A5.2 “On-line games”.

- D7.3: Report on Joint 6NET/Euro6IX Workshop - *8 July 2002*
Author: TERENA

This document provides a report of the Joint 6NET/Euro6IX Workshop held on 5 June 2002 in Limerick, Ireland.

- D1.3: Operational procedures to be followed by organisations connected to 6NET - *30 June 2002*
Author: DANTE

This document summarises the procedures and policies of interconnection in 6NET and the usage policy after the interconnection.

- D5.1: Specification of IPv6 Applications to be developed within the project - *27 May 2002*
Author: IBM

This deliverable lists and briefly describes the applications identified as potential candidates to run on 6Net’s IPv6 network. The document contains two main sections: the first section contains texts that briefly describe the domain and functions of the applications; the second one contains for each application a ‘summary sheet’ that details its technical environment.


- D7.1: Report on Project Website - *5 May 2002*
Author: TERENA

This document provides a report on the establishment and features of the 6NET website.

- D4.1.1: Survey and evaluation of MIPv6 implementations - *2 May 2002*
Author: ULANC

This document provides a survey and evaluation of existing Mobile IPv6 (MIPv6) implementations. At the time of writing MIPv6 continues to be refined by the IETF mobileip working group and has not yet reached RFC status. MIPv6 is therefore not yet a standard and current implementations vary in both their completeness and to which draft version of the standard they are intended to support. This document provides a survey on how many host/router MIPv6 implementations are available and evaluates the MIPv6 features that are supported.

- D1.4: Procedures for the approval and scheduling of 6NET tests - *30 April 2002*
Author: DANTE

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

This document gives the description of the procedures to be followed and implemented and for the approval and schedule of experiments on 6NET testbed.

- D3.2.1: IPv6 DNS service for the 6NET Network - *30 April 2002*
Author: UniVie-ACOnet

This document describes the requirements, some DNS technology background and documents the initial setup for the DNS service for 6NET (both forward DNS and reverse DNS), which is required to support the early operational phase of 6NET.

- D1.1: Design specification of 6NET – *April 2002*
Author: DANTE

This document gives the detailed implementation description of the 6NET testbed infrastructure for Year 1 including topology, equipment, routing, naming and initial management aspects.

- D1.2: Operational Procedures to be followed by 6NET NOC – *April 2002*
Author: DANTE

This document gives a detailed overview about the operation, maintenance and management procedures the 6NET NOC is intended to follow. Moreover, the interactions of the 6NET NOC with other management entities of the 6NET projects are addressed during the several management processes.


- D3.1.1: IPv6 Routing Plan for the 6NET Network - *31 March 2002*
Author: SURFnet

This document describes the initial routing and naming setup of the 6NET core network. The convention for the domain names of the equipment is also described.

1.4. Conferences and other events

6NET has been represented at the following events:

- SAINT-2003 (27-31 January, Orlando, USA)
- JANET IPv6 Conference (12 February, London, UK)
- 6NET Consortium Meetings (5-7 March, Lisbon, Portugal)
- IETF Meeting (17-22 March, Minneapolis, USA)
- Quality of Service and Policy based Networks (4 April, Athens, Greece)
- Nordic IPv6 Workshop (11 April, Espoo, Finland)
- IPv6 Summit Switzerland (24 April, Zürich, Switzerland)
- Madrid 2003 Global IPv6 Summit (12-14 May, Madrid, Spain)
- TERENA Networking Conference 2003 (19-22 May, Zagreb, Croatia)
- 1st Open 6NET Workshop (21 May, Zagreb, Croatia)
- 6NET WP3 Meeting (16-17 June, Münster, Germany)
- 6NET WP6 Meeting (17-18 June, Münster, Germany)
- 6NET WP1 Meeting (18 June, Münster, Germany)
- Global IPv6 Summit (25-27 June, San Diego, USA)

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

- 8th Global Grid Forum (GGF8): “Grids and IPv6” (26 June, Seattle, USA)

Further conferences where 6NET will be represented include, at this point in time:

- IPv6 technical workshop (7 July 2003, Patra, Greece)
- 2nd Open 6NET Workshop (TNC 2004 in Rhodes)
- 3rd Open 6NET Workshop (TBA December 2004)

Exploitation Plans

1.5. Exploitation Plans for the project as a whole

A specific workpackage (WP7) has been established to co-ordinate the dissemination activities of the project.

The objective of this workpackage is to provide an analytical and comprehensive approach and concrete basis for the strategies of visibility, dissemination, implementation and exploitation of the research results.

Obvious forms of dissemination are through the professional Website, presentations at workshops and conferences, journal papers, and contributions to the IETF, TF-NGN, etc. Disseminating information on 6NET to people active in standardisation bodies, technical development work and the operations of networks, and receiving feedback from them, brings significant added value to both parties. Results from 6NET are being taken on board in the work of, among others, the IETF, TF-NGN and operational networks. Conversely, the inputs from standardisation bodies, technology development groups and operational networks contribute to the steering of the 6NET project. Information on 6NET is also being disseminated via press releases, leaflets, newsletters and brochures.

The dissemination and liaison activities have as one of their target groups the research and education networks in Europe, including those that are not themselves participating in 6NET. In this way, the results of 6NET are being made available to the European research and education networking community at large, thereby promoting the widespread deployment. Research networking organisations outside Europe are also being targeted, eg. Internet2 and CANARIE in North America, APAN in the Asia-Pacific region and ENRED in Latin America. An enquiry for collaboration has also been received recently from the Australian NREN (ARNet), which will receive \$42.5 million over the next two years to invest in bandwidth infrastructure for Australian universities.

The 6NET work is featured at the TERENA Networking Conferences. These annual conferences are prominent events bringing together leading figures from the research networking community in Europe and worldwide.

The most important entities that will be addressed by the dissemination and liaison activities are:

- Standards and Policy Bodies
- IPv6 Projects
- IPv6 Promotion
- External Communities

- Clustering Expertise


1.6. Exploitation plans of the individual partners

1.6.1. CISCO Systems

Cisco Systems (Europe) is a leading global provider of internetworking solutions. Cisco solutions are the internetworking foundation of thousands of companies, universities, utilities and government agencies worldwide. Cisco is a driving force behind the global Internet.

Cisco intends to use the 6NET network to:

- test out new features on a large scale in conditions that can “break” the network. These features include:
 - co-existence and migration strategies for integrating IPv6 with the existing IPv4 infrastructure (core and access networks), including the utilisation of standard PC architectures and open source operating systems and software
 - transition tools (inc. dual stack)
 - interoperability between IPv6 implemented in different devices based on various network technologies such as ATM and Ethernet
 - access to new IPv6 applications, legacy IPv4 applications and content
 - auto-configuration techniques to enable a large numbers of IP hosts to easily discover the network and get an IPv6 address associated with their location. Nodes can assemble their own addresses with stateless auto configuration
 - support for class-of-service (‘Traffic Class’ field) compliant with the IETF Differentiated Services (DiffServ) model
 - security (IPSec)
 - mobility (many facets are considered, ranging from wireless-only LAN networks in an end-site environment, through to the convergence of mobile and fixed network technologies). Specifically: MIPv6 support, handoff latencies, the relationship between autoconfiguration and User/Terminal management, multihoming, multicast, performance, and roaming
 - VPNs (current methods of managing the establishment, maintenance and teardown of VPNs are also largely manual, relatively time consuming, and not scalable. Automation will be introduced into these procedures. Operations staff and end users will be provided with web-based systems to make their interactions with the services as easy to use as possible)
 - network management tools for (as a minimum):
 - configuration management
 - performance and capacity management
 - fault management
 - security management
 - availability management
 - network services like DNS (names to address resolution: IPv4 - IPv6), registries, multicast routing, etc.
- testing under high traffic loads
- testing of the handling of traffic class segregation (eg. for QoS, security) under real operating conditions

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

- exploit the synergy between the work they are doing and that being performed on IPv6 by other manufacturers such as IBM and Sony, European NRENs and universities.
- validate that the demands for the continuous growth of the global Internet can be met with the new IPv6 technology.

Cisco will also disseminate the results, and explore broader exploitation opportunities via the academic and research networking communities, including in the Newly Associated States (3 new partners from the Czech Republic, Hungary and Poland were incorporated into the project in September 2002 as a result of such activities by Cisco).

They will generally play a leading role in defining the next generation of networking technologies that go beyond the current state of the art.


All of these activities map closely onto the main aims of the project.

1.6.2. Universite Libre de Bruxelles (ULB)

1. ULB has two main activities in WP7: producing on a 6-monthly basis, both the 6NET Newsletters and the successive versions of the Dissemination and Use Plan.

The details of these activities is as follows:

- For the Newsletter:
 - think and decide about the contents, in concertation with the Project Coordinator and WP Leader;
 - obtain the material; chase the people;
 - edit (sometimes re-write) what they send;
 - get the pictures and the (right) logos;
 - draft the Newsletter;
 - interact with the lay-out people, correct, proof-read;
 - doing regular worldwide mass mailing of very high quality (very little returns) requires a proper and well-maintained database, which is an important task that has to be handled on a day by day basis because addresses keep changing, because people in the ICT world keep moving; statistics relative to the present contents of our database can be seen in Annex 1
 - have the mass mailing done by an external company.
- For the Dissemination and Use Plan:
 - decide about the structure and content, in concertation with the Project Coordinator and the WP Leader;
 - obtain the material, chase the people;
 - edit (sometimes re-write or supplement) what they send;
 - compile and draft the document;
 - have it reviewed, checked and submitted to the Project Coordinator.

IST-2000-32603	<p style="text-align: center;">Deliverable D 7.2</p> <p style="text-align: center;">Dissemination and Use Plan; third version</p>	
----------------	---	---

2. On top of the activities described in point 1, in order to be well aware of the project progress and achievements, and therefore to be able to produce the best quality dissemination material, ULB participates in a number of project activities such as Consortium Meetings, 6NET/Euro6IX meetings, 6NET workshops, as well as Project Management Committee meetings and WP7 meetings.
3. The information gathered and produced as described above is also enhanced by the participation of ULB in the TERENA TF-NGN meetings and in the activities of the European IPv6 Task Force.
4. ULB is just about to supplement the Newsletter with shorter “newsbriefs” or “spot news” about the 6NET project, that will be issued on an ad hoc basis, to cover particular events in the project, in the form of press releases. A draft internal “spot news” was issued about the establishment of the 6NET/NTT link, and the procedure is being defined to formally have this sort of information approved by the Project Management Committee before releasing it to the public.
5. On top of the activities described in points 1, 2, 3 and 4, which relate directly to its contractual obligations, ULB also has a number of dissemination and communication actions that directly promote the 6NET project:
 - coordination of the Belgian IPv6 Task Force (see www.ipv6tf.be), where 6NET appears as one of the main links. The Task Force presently has more than 70 members from all parts of the private and public sectors, and is regularly fed with information about IPv6 in the world, including reports of 6NET activities (eg. the video realised at the 6NET Consortium meeting in Lisbon). In particular, the Belgian Task Force is supported by BELNET, BELTUG (the Belgian Telecommunications Users Group – 400 members), ISPA (the Belgian ISPs association) and DNS.BE (the .be ccTLD organisation) which are all regularly informed, and are often further disseminating the information.
 - support contract with BELNET, which will offer native IPv6 services as of this summer, largely because of ULB (and VUB) activities, and which will provide (for free) the connectivity to 6NET for the September 2003 events (see below).
 - ULB runs Isabel over 6NET, and we regularly participate in the Isabel worldwide seminars; people from the EC and from industry have come repeatedly to EuroDemo to attend these events or participate as speakers. Also during the recent IPv6 Summit in Madrid, ULB was one of the (few) places reachable through Isabel over IPv6 (using the Euro6IX and 6NET networks).
 - ULB organized the first ETSI IPv6 remote interop event in September 2002, which was the first usage of 6NET to do formal interoperability testing; that had been requested to ULB by ETSI because of our EuroDemo facility and IPv6 connectivity, and it was found to be such a good idea that the European Commission (DG Enterprise) asked ULB to host the next ETSI IPv6 interop event here in Brussels in September 2003 (using BELNET and 6NET for external connectivity). On that occasion, there will also be an International Workshop on IPv6 Testing, Certification and Market Acceptance, which will be opened by Mr. Fabio Colasanti and will include a large number of top-level international speakers (see www.ipv6event.be). The Workshop programme will be published very soon and will include Patrick Grossetete from CISCO/6NET.

- We have teaching activities at ULB directed to adults already engaged in the professional life; all our lectures include information over IPv6 and references to European projects, including 6NET; hundreds of (adult, professional) students follow these lectures.
- ULB is deeply involved in R&D and training activities with Belgian and international companies and institutions; the present demand for information about IPv6 is growing enormously, and we always refer of course to the latest developments, including 6NET. A list of recent direct contacts in 2003 include Alcatel, Ascom, Belgacom, Mobistar, 6Wind, Worldcom, as well as the Brussels, Flemish, Walloon and Federal Governments.

1.6.3. DANTE

DANTE has a long-standing experience of building and operating pan-European research networks, including the liaison with network service providers. They are also in the perfect position to assess the feasibility of exploiting the GÉANT network for providing the connectivity for this dedicated IPv6 pilot network. DANTE are the leaders of WP1 (Build and operate an IPv6 Network). DANTE supervise the provisioning of native IPv6 connectivity that the project needs to fulfil its commitments; both in the core of the network and in local loops.

1.6.4. TERENA

TERENA has a specific role in the project for the dissemination of technical information concerning the project results. TERENA has built on its long-standing relationships with the European NRENs to provide a two-way information conduit between the project partners and the academic and research community. TERENA will continue this important information dissemination role in 6NET with the expectation that the increased information that the project will bring combines in a synergistic fashion to attract growing interest in the project results and workshops.

Activities include:


- Hosting the project Web site
- Hosting project mailing lists
- Organising workshops to disseminate information about the project activities to third parties, and to get inputs from the wider user community into the project progress planning
- Support for project organisation
- Liaisons with National Research and Education Networks in Europe
- Liaison with research networking organisations in other continents (eg. Internet2, APAN, ENRED)
- Liaison with IETF

1.6.5. SONY

Sony is a leading manufacturer of audio, video, communications, and information technology products for the consumer and professional markets.

Sony vision is to create a “Ubiquitous Value Network”, which targets to melt its consumer electronics products with networking. To realize this, Sony is planning to include network capabilities in a wide range of its products during the next years. Because of the larger address space and other features, IPv6 is a key technology to implement this strategy. Sony is therefore a strong supporter of IPv6 development and deployment.

Sony will use the results and experiences gained in 6Net internally for its IPv6 developments. General information about the project, the experiences and results are shared with the respective

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

business units and technology centers. The 6Net project is also used as a reference in internal and external discussions for proving the feasibility of large IPv6 installations, IPv6 technology in general and the progress of IPv6 deployment in Europe.

1.6.6. IBM

IBM has been a leading participant in IPv6 design since its inception. IBM staff have co-authored numerous IPv6 specifications, and IBM was a founding member of the IPv6 Forum. IBM launched the first commercial UNIX IPv6 product (AIX) in 1997, and each AIX release since then, including the current AIX 5L version, has enhanced those initial capabilities. The z/OS Operating System on the z-Series platform (formerly System 390) is being IPv6 enabled as a key element in the IBM server family of products. IPv6 functionality is being phased in over various releases of z/OS as market requirements emerge, with an initial release in the z/OS V1R4 version in September 2002. Similarly, OS/400 on the IBM iSeries platform is also being IPv6 enabled in a phased approach, with initial support in version V5R2 in September 2002. IPv6 is available on the Linux and Windows operating systems on IBM platforms. IBM also supports IPv6 on its Network Processor chips.


IBM's Tivoli Netview, the premier z/OS network management system, will be enabled with IPv6 capability in conjunction with the z/OS platform IPv6 enablement. This will impact every aspect of NetView panels, code logic, GUI displays, and IP services used and provided by NetView. IPv4 applications will continue to be supported but v4 addressing will be virtual addresses for backward compatibility and will be mapped to IPv6 actual addresses.

IBM is starting the process of enabling its middleware to support IPv6, based on market needs and IPv4/v6 interoperability requirements. This evolution will be done product by product according to emerging market demand, but 6NET is very important in this context as it gives us both technical experience in porting and deploying middleware over IPv6, and initial feedback on user requirements and operational issues. Thus IBM's leadership of workpackage 5 (WP5) feeds directly back into our corporate approach to IPv6 enablement. It also fits our strategy of partnering with both other vendors and customers during the early stages of IPv6 deployment. Specifically, an IPv6-enabled version of IBM Websphere is delivered to four 6NET partners, and also to at least one major commercial customer. In parallel with 6NET, the programme of middleware enablement is continuing despite the industry slowdown. IBM is collaborating closely with the Globus project, and is strongly encouraging the IPv6 enablement of Globus and its deployment and testing within 6NET, led by UCL.

Finally, in addition to laboratory tests and our planned connection to 6NET, IBM is finalising a strategy for progressive internal deployment of IPv6, initially for testing and familiarisation. The contacts made within 6NET are crucial for this. This will require us to:

- Obtain an IPv6 prefix for the IBM Intranet
- Define the address allocation methods world-wide for IBM
- Create a strategy and standards document for IBM internal use
- Port the strategy and knowledge into our commercial e-business services
- Gather requirements from IBM Business Units active in IPv6 working with the internal Internet / software team

IBM intends to use the success of 6NET as a reference point when discussing IPv6 adoption with its customers worldwide. IBM Global Services is receiving daily requests on IPv6 from customers who

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

want to consider or use this technology in their operations. Our activities in WP5 and other 6NET workpackages is feeding our experience database to help in customer projects ranging from consulting and planning to integration and operations both at the infrastructure level as well as at the IT solution and application levels.

On June 26th, Mr. Brian Carpenter chaired the BOF on “Grid and IPv6” during the 8th Global Grid Forum (GGF8), with the objectives to raise consciousness of IPv6 in the GGF, and decide what action is needed.

The agenda was:

- IPv6 status and how the IETF is tackling IPv6-readiness
- Plans for GT3 and IPv6
- Experience with GT3 and IPv6
- Unicore and IPv6 experience
- Open discussion on issues and process, possible charter, deliverables and milestones

Mr. Carpenter exposed the case for IPv6 in terms of the larger address space, autoconfiguration, better aggregation of routing tables, a complete solution for mobile IP, IP sec end-to-end globally, simplified header format, provision for QoS flow label in addition to the DSCP/TOS byte. The problem of underallocation in places like China was also mentioned. Header and address formats were explained, and coexistence/transition of v4 and v6. DNS was discussed - e.g. which of several answers should be tried in a dual stack environment. Reported that basic standards are done, work continuing on some topics such as site multihoming, address space for disconnected sites. Implementation status is good and the conversion of commercial applications is beginning.

Multiple R&D IPv6 testbeds are running, about 350 IPv6 prefixes have been allocated, mainly belonging to approx 25 ISPs (10 in Japan). US DoD has announced it will require IPv6 support in all products purchased from October 2003, with full transition targeted for 2008. Message is "IPv6 is real!" There is a weeding exercise through RFC going on (cf. millennium bug) looking for dependencies on v4 address format. Does GGF need to do the same? The work was done by Philip J. Nesser II, see IETF drafts: draft-ietf-v6ops-ipv4survey-*.txt

1.6.7. NTT Communications Corporation (NTT Com)

NTT Com provides an opportunity to bring an IPv6 link into the Asia-Pacific region.


1.6.8. RENATER

RENATER is the leader of WP6 (IPv6 network management architecture and tools). RENATER has already organised two IPv6 conferences in France. The first one was held in Paris on October 28-29, 2002. The second conference was in Caen, on June 19-21, 2003.

Furthermore, RENATER is one of the founders of the IPv6 Task Force France, and support its dissemination and operation activities under its own budget.

RENATER organises also several training sessions every year in Montpellier about IPv6 (<http://www.renater.fr/Reseau/Formations/Index.htm>).

As service, RENATER has deployed a full native IPv6 service on all its national backbone (which is extended up to the US 6TAP and into the Asia Pacific rim through the TEIN link) and manages also DNS-v6 functions either directly or in partnership with the French ccTLD organisation

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

(AFNIC). Furthermore, RENATER is also developing IPv6 interchanges at the SFINX (www.sfinx.tm.fr) and work with Japan for DNS hosting.

Renater is strongly involved in IPv6 Multicast deployment (WP3) for 6Net and in the management of the worldwide network called M6bone (<http://www.m6bone.net/sites-map.html>) Renater is working on research areas like IPv6 multicast Interdomain routing jointly with Cisco's team in San José.

1.6.9. UKERNA

UKERNA is participating in WP1, WP2, WP6 and WP7, in order to understand the issues involved in migrating to IPv6 over a production network and to gain operational experience of running IPv6. UKERNA has been supporting the IPv6 work carried out by University College London, University of Southampton (leader of 6NET WP2) and University of Lancaster (leader of 6NET WP4) since the mid 1990s, and will continue to support these three UK Universities in terms of facilitating the provision of connectivity into the 6NET backbone across JANET.

UKERNA organised a JANET IPv6 Conference on 12th February 2003 in London. The conference was intended to promote awareness of IPv6 within the UK academic and research communities, as well as to provide details of the support currently available, and planned, for IPv6 services on JANET and to disseminate information on the 6NET project. There were 60 places for this event and it was fully booked, and well received by the audience.

The presentations given at the event can be found at:
http://www.ja.net/conferences/ipv6/feb_03/prog.html

A statement outlining the current position regarding IPv6 on JANET can be found at:
http://www.ja.net/development/ipv6/position_statement.html

In April 2003, UKERNA held it's annual network conference in the UK, where a presentation on JANET IPv6 and 6NET was given.

UKERNA uses a number of dissemination routes to promote 6NET, including:

- Regular articles in “UKERNA News” (published on a quarterly basis)
- Distribution of the 6NET newsletter with “UKERNA News”
- An IPv6 event, planned for early 2003
- Presence on the JANET WWW
- Participation in the UK IPv6 Task Force
- Annual presentations on IPv6 at the UK Networkshop event, attended by UK academic network managers


1.6.10. NORDUnet

NORDUnet participates mainly in WP1, and organises the connectivity for the NRENs in the Nordic countries. Apart from Sweden, this includes, for 6NET: Denmark, Finland and Norway.

NORDUnet uses the following dissemination routes to promote 6NET:

- IPv6 pages in the web sites of NORDUnet and the Nordic national R&E networks
- Articles in the newsletters from Forskningsnet, FUNET, and UNINETT
- IPv6 presentations at the NORDUnet Conferences

NORDUnet held an IPv6 workshop in Espoo, Finland on the April 11th, 2003. NORDUnet is the Nordic Internet highway to research and education networks in Denmark, Finland, Iceland, Norway

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

and Sweden, and provides the Nordic backbone to the Global Information Society. NORDUnet has its roots in the NORDUNET programme, which was financed by the Nordic Council of Ministers. The meeting site was CSC, which stands for the Centre for Scientific Computing. CSC is the Finnish IT Centre for Science, which has several services for the Finnish academic community, e.g. the Funet network.

See www.nordu.net and www.csc.fi for further information.

The event was intended for Nordic IPv6 activists and staff for Nordic IPv6 activists and staff members of the NORDUnet member networks. The number of participants was 18 and every Nordic country had participants.

The event program was equally divided between the current implementation status, future development needs and IPv6 applications. The positive effect of the 6NET project was noted in several presentations.

The 6NET project was presented by Jari Miettinen, who works as a 6NET project coordinator for NORDUnet and CSC. The project history and the current issues were covered. The current working areas and the major areas of discussion were highlighted. The latest issue of the 6NET newsletter was also distributed among the audience. The free copies which were available in the document stand were almost completely consumed.

The audience was encouraged to contact the speaker if they had some questions concerning the IPv6 work in the Nordic countries and in 6NET.

1.6.11. DFN

The DFN-Verein has been involved in the IPng development for many years. Together with the two national research organisations, WWU Münster and FhG Fokus, they participate in all of the workpackages WP1-7. Specific activities of FhG Fokus are in the area of VoIP in IPv6: SIP platform to be demonstrated over IPv6 (end systems, proxies and registries), and VoIP in heterogeneous networks: interoperation between an IPv6 SIP phone and an IPv4 SIP phone.

1.6.12. SURFnet


SURFnet's existing IP infrastructure, SURFnet5, runs dual-stack IPv4 and IPv6 for unicast services and IPv4 multicast services as of the start in September 2001. SURFnet has been delivering multicast connectivity for IPv4 since the spring of 1993. The introduction of the first IPv6 multicast services on SURFnet5 is scheduled for late 2003.

SURFnet focuses its 6net activities on IPv6 multicast in WP3 and leads the corresponding Activity (A3.4). The major part of the work is interconnecting the IPv6 multicast test-networks of the 6net partners and creating a pan-European disruptive IPv6 multicast network with connections to the rest of the IPv6 multicast world. On the applications level SURFnet contributes to the 6NET WP5 by testing several multimedia applications over IPv6. In 2003 SURFnet focuses within the WP5 on high-quality streaming and conferencing on both unicast and multicast IPv6.

1.6.13. SWITCH

SWITCH is a founding member of the Swiss IPv6 Task Force, and the leader of the Network Group, within that organisation.

As the Internet Service Provider to the Swiss Education and Research community, SWITCH favours an implementation-oriented approach to dissemination. They target the following groups:

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

1.6.13.1 Educational and research organisations

SWITCH works closely with these customers to both apply the results from the 6NET project to their own network, and help their customers apply them to theirs. Through the 6NET participation of the University of Geneva as their subcontractor, they are gaining insights into the IPv6 requirements and deployment issues of a large campus network, which is helping them understand the needs of other types of customers.

1.6.13.2 Regional ISPs

SWITCH has peering relationships with the main commercial Internet Service Providers (ISPs) in Switzerland as well as with a few international ones. Due to its early involvement in 6BONE, they have become a natural point of contact when such ISPs want to experiment with IPv6. SWITCH provides tunnelled 6BONE connectivity to several other ISPs in Switzerland and the surrounding countries. They expect to leverage this position for the dissemination of 6NET results.

1.6.13.3 General Public

In this category, SWITCH includes commercial and other Internet users that have a general interest in IPv6 for the evolution of the Internet. As a service organisation for a basically closed group, SWITCH has limited outreach to the general public, although they do have a few publication channels that enjoy distribution above and beyond their member community.

There is one important exception to the closed-user-group aspect of SWITCH, and that is the domain name registry function that they perform for the .CH and .LI top-level domains. With 440'000 second-level domain name delegations, the Internet Identifiers division of SWITCH interacts directly with a large part of the Swiss Internet users that hold domain names. Future enhancements of the registry service to support IPv6 addresses will significantly raise IPv6 awareness among these, as well as provide opportunities to lead interested users to more information about 6NET results.

1.6.13.4 Means of Dissemination

1.6.13.4.1 Co-ordination Committee Meetings

The "Co-ordination Committee" meeting is a regular one-day gathering to which SWITCH invites representatives of all connected sites. This serves as a forum for informing about updates on SWITCH's service offerings, as well as providing an opportunity to exchange information between the sites. They regularly update their user community on the progress within the 6NET project, in particular concerning intra-site deployment issues.

1.6.13.4.2 IPv6 Web pages

SWITCH has been maintaining Web pages on its IPv6 activities for more than five years, and this well-established site is being continually enhanced to include up-to-date information on SWITCH's 6NET activities.

Reference: <http://www.switch.ch/network/ipv6/>

1.6.13.4.3 "SWITCH Bulletin" Electronic Newsletter

An electronic newsletter is sent to members and some subscribers from the interested public at irregular intervals. This newsletter contains short updates about important events and developments concerning the network. Issues 2001-2 and 2002-2 included announcements concerning 6NET; the former about the 6NET proposal process and the latter about the uptake of operation on 6NET and SWITCH's connection to it. The newsletter reaches a wide audience and is designed to point interested readers to Web pages for more information. For example, the latest 6NET announcement in issue 2002-2 contained pointers to the main 6NET site as well as SWITCH's IPv6 pages.

Reference: <http://www.switch.ch/bulletin/>

1.6.13.4.4 Dedicated Workshops

If and when there is sufficient interest in IPv6 within the user community - stimulated by the dissemination measures mentioned above – SWITCH will hold theme-specific workshops on IPv6-related topics.

1.6.13.4.5 One-to-One Deployment and Assistance

The 6NET participants both at SWITCH and the University of Geneva are also active in the day-to-day operations of their respective networks, and so are directly involved in bringing IPv6 to their users.

1.6.13.4.6 SwiNOG Meetings

The Swiss Network Operators' Group (SwiNOG) is an informal association of Internet Service Providers, focussed on technical issues. It holds meetings about twice a year, as a forum for technical presentations and discussions. SWITCH made a presentation on IPv6 operations issues at the March 2001 meeting. As commercial interest in IPv6 services increases, there will be other opportunities to disseminate specific 6NET results in this forum.

Reference: <http://www.swinog.ch/>

1.6.13.4.7 SWITCH Journal

The SWITCH Journal is a paper publication that is issued approximately twice a year. It is widely distributed within member sites and to a number of outside subscribers.

Reference: <http://www.switch.ch/about/switch-journal.html>

1.6.13.4.8 SWITCH's "Internet Identifiers" Division

SWITCH is working with the technical group of their "Internet Identifiers" division to implement IPv6 support for the domain delegation processes, database, and other registry functions. Once functional, this will be documented on the domain registration Web server, which is used by .CH/.LI domain holders for all data modifications or online subscription payments. They will provide links to additional IPv6 information in the documentation sections of the registration Web site (<http://www.switch.ch/id/>)

1.6.14. ACOnet

ACOnet is the leader of WP3 (Basic network services). ACOnet will have a major role in Vienna's hosting of the IETF meeting in July 2003.

1.6.15. GRnet

GRNET, as the Greek NREN, continuously organise activities that disseminate information about IPv6 technology and 6NET project in Greece. The main objectives for these activities is the wide spread of knowledge and awareness of IPv6 technology and 6NET achievements to the research, academic and (commercial) Internet communities in Greece. Also, significant effort is put on informing potential end-users and service providers about the IPv6 state-of-the-art applications and services in order to facilitate the introduction of IPv6 to current production networks.

GRNET distributes 6NET publicity material, e.g. deliverables and presentations, to local Universities and research Institutes in order to facilitate the installation and testing of new IPv6 applications and services. Also, it promotes IPv6 technology and organises demonstrations in various academic events in Greece. In particular, such events are planned during 2003, e.g. IPv6 Technical Workshop planned in July, in which participate the academic, research and Internet

community of Greece. Furthermore, IPv6 technology will be integrated to the new GRNET core network, called GRNET2, which will provide dual stack (or native) IPv6 connectivity to local universities and institutes. For the time being, operational experience in running IPv6-enabled 6NET network has already assisted GRNET engineers to introduce IPv6 services to current legacy backbone network. Finally, GRNET, as the operator of the Athens Internet Exchange (<http://www.aix.gr>), which is the peering point between commercial Greek ISPs, exploits the results of 6NET and co-operate with them for the promotion of IPv6 to the commercial Greek Internet.

GRNET already promotes IPv6 and 6NET awareness to the South East Europe research area through linking and co-operating with the SEEREN (South East European Research Networking) project (<http://www.seeren.net>). GRNET, as common partner in both projects, provided information related to IPv6 technology to SEEREN partners, e.g. public 6NET deliverables, and impels beneficial SEEREN countries to deploy IPv6 technology in their local and international networks.

Finally, GRNET, as one of the NRENs in the consortium, has an important role to the dissemination of information about the project with the presentation of papers in conferences, workshops, and writing papers in journals. GRNET, in cooperation with the other NRENs, exchanges information with the related European and International Research Task Forces, such as TF-NGN and Internet2.

Further exploitation is expected to be performed during the 6th Framework Programme by the continuation of 6NET research and development, while education/training based on 6NET results is being planned.

Further details about 6NET and IPv6 are provided via GRNET web sites <http://www.grnet.gr/6NET> and <http://www.grnet.gr>

On 4th of April, GRNET organized a technical workshop at OTE (local PTT) research premises in Athens. The conference presented some GRNET's QoS-related projects and GRNET activities in 6NET WP4 (A4.4 IPv6 QoS). The title of the workshop was "Quality of Service and Policy based Networks" and the agenda included presentation on three main subjects:

- A) QoS (Definition of Class of Services, available QoS mechanisms in edge technology routers, DiffServ & IntServ architecture, Provisioning Premium IP in core networks, GREN T QoS related projects)
- B) Policy Based Networking (Policy Management for QoS-enabled networks, Testing PBN products, Managed Bandwidth Service)
- C) Service Level Agreements (Introduction to SLAs, Practices and Common problems in SLAs provisioning)

On 7th of July, GRNET will organize a technical IPv6 workshop at Patra. The objectives of this event are twofold: to present IPv6 technology to the network engineers of research or commercial NOCs and to encourage them to deploy and test IPv6 services at their internal networks. The agenda of the event, in brief, is the following:

- Introduction to IPv6 technology
- Advanced IPv6 services
- Roadmap for the deployment of IPv6 service to production networks
- Transition mechanisms for end site networks
- IPv6 support in current operating systems
- IPv6 support and software development

- Frequently-used applications that support IPv6
- Presentation 6NET
- IPv6 support in research and commercial production networks

Also, during the event there will be some demonstration regarding IPv6 applications, such as videoconferencing, multicast and (hopefully) webstreaming.

Further relevant activities of GRNET include:

- Submission of an article at 3rd 6NET newsletter
- Cooperation with SEEREN project regarding IPv6 installation at the Balkan regional network

1.6.16. INFN-GARR

The Italian Academic and Research Network carried out the following dissemination activities:

1.6.16.1 Means of Dissemination

1.6.16.1.1 Italian 6NET Web Site

The main site (<http://www.6net.garr.it>) contains all the information about GARR's 6NET activities, network tools and a co-ordination area for Italian partners.

Several Italian local partners (universities and research institutes) are involved in the local 6NET testbed and have realized their own local Web sites, containing information about their own specific activities:

- <http://www.caspur.6net.garr.it>
- <http://www.polito.6net.garr.it/>
- <http://www.unibo.6net.garr.it/>
- <http://www.unifi.6net.garr.it/>
- <http://www.uniroma3.6net.garr.it/>
- <http://www.cnr.6net.garr.it>

These Web sites are available in IPv4 and in IPv6.

1.6.16.1.2 Tutorials

GARR organized 3 IPv6 tutorial during the last quarter of 2002, in Turin, Rome and Florence. Usually, a tutorial is divided in two parts: a tradition tutorial during the first day and a "IPv6 Live session" with hands-on experience in configuration, routing, services and mobility for all the people attending the tutorial.

The number of participants was 70 for the first event, 90 during the second one and 120 during the last one.


The Rome tutorial was also transmitted live over the Internet using streaming media technologies. The archives are available on-line at: <http://www.6net.garr.it/tutorial/>

1.6.16.1.3 Press

GARR wrote a press release about their participation in 6NET.

Other news has been published in specialized press releases.

The public national radio station carried out an interview about 6NET and IPv6:
<http://www.radio.rai.it/grr/tema/vediuna.cfm?CodeNot=15274>

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

1.6.16.1.4 Conferences

GARR made presentations on 6NET and IPv6 during the 4th GARR-B Workshop: "Applications and Advanced Services on the Next Generation GARR Network", held in Bologna 24-26 June 2002.

1.6.17. University College London

Members of the University College London are recognised experts in the IPv6 field, and, through their contacts, facilitate liaison with other IPv6 initiatives, worldwide.

On June 26th, Mr. Piers O'Hanlon participated to the BOF on "Grid and IPv6" during the 8th Global Grid Forum (GGF8).

Mr. O'Hanlon presented "IPv6 Globus – experiences". The work is being conducted under the 6NET project with help from other partners. He recapped the status of platform support for IPv6 - broad router and operating system support has been there for a while. People are working on more advanced aspects now.

IPv6 grids have massive scaling potential, simplification of networking for virtual organisations, auto configuration, enable peer-to-peer communication and have better mobility support. Initially looked at Globus GT2 with UoS, apparent that it was fairly straightforward to use IPV4 or IPv6 but using both is trickier.

This work was not finished due to GT3 release. GT3 is written mainly in Java and is being examined top down (protocols and APIs) and bottom up (network related source code - but this is a moving target as the code is changing). GT3 needs some tweaking to be compliant with RFC2732.


Address configuration (initialisation and runtime) and DNS naming issues is needed. GridFTP already flagged and needs RFC2428 needs to be applied. A new area to look at is the Globus XIO, which is based on GT2's Globus IO – which will form the foundation for GridFTP. Other protocols are being examined. It is preferable to make these changes before standardisation but this isn't always possible. IPv6 support is also needed in associated applications including JDBC (for RFT) and the container environments (Tomcat, WebSphere and .Net). Porting stages were identified: IPv6 only, IPv4 and IPv6 dual stack, and interconnection of IPv4-only and IPv6-only (transition mechanisms and application gateways).

The test environment is 8 linux redhat-8.0 machines, installed GT3 alpha release, uses host/user certificates and packet level network monitoring. Test services are the standard shipped test services and the OGSA service browser. UCL test projects include material simulation (modelling Aspirin molecule), e-protein (currently GT2) and a multimedia gateway in development (within context of 6NET). GGF community services are welcome. The speaker concluded by summarising the current status and showing a screenshot of the OGSA GUI with an IPv6 machine. Tests have been successfully carried with pure-IPv6 across the network, though some IPv4 traffic is seen on the loopback interfaces. These tests only required configuration modifications to GT3. The GT3 container, tomcat4LE, and Postgresql have been tested on IPv6.

UCL is reporting bugs to the globus bugzilla. Future work includes operating with a variety of services over IPv6, interest in mobility and security and transition/co-existence services.

1.6.18. University of Southampton

The Department of Electronics and Computer Science at the University of Southampton has been running IPv6 since 1996/97, and is currently involved in a wide range of IPv6 projects. In the context of the EU 5th Framework Programme, those projects include 6INIT (completed), 6WINIT (finishing January 2003), 6NET, Euro6IX, 6LINK and the IPv6 Task Force Steering Committee.

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

In the UK, the department is active in assisting UKERNA in deploying IPv6 in the UK academic community, and in building the UK IPv6 Task Force. The University of Southampton also acts in an advisory capacity for - and gives presentations and workshops to - various UK groups, eg. at the UKUUG (Unix Users Group) Winter Conference 2003.

UoS uses a number of dissemination routes to promote 6NET, including:

- active contribution to the IPv6 Cluster, as a partner of 6LINK and various European projects
- active contribution to the EU and UK IPv6 Task Forces
- membership of the IPv6 Forum, and presence on the Forum's Technical Directorate
- attendance of - and collaboration with - Internet2 events and IPv6 partners
- active role in the deployment of IPv6 in the UK academic network (JANET)
- active role in IPv6 experiments for GÉANT (chaining the TERENA TF-NGN IPv6 WG)
- publishing IPv6 papers, eg. at the IEEE SAINT 2003 Conference in Orlando, Florida, January 2003, and the IPv6 transition paper in the May/June 2003 issue of the IEEE Internet Computing magazine
- IPv6 presentations and workshops for external groups
- IPv6 advisory role for external commercial groups
- attendance at IPv6 Forum events

The usage plans of UoS include:

- development of IPv6 testbeds and experiments in areas including IPv6 multicast (on the m6bone) and Mobile IPv6 (a local testbed)
- local deployment of IPv6 to 1'500 potential users in the Department
- development of IPv6-enabled applications (including porting work on the Vocal VoIP package and the Globus Toolkit)
- promoting IPv6 use in other related research projects in our Department
- using IPv6 in pervasive computing and GRID environments
- using IPv6 in campus Wireless LAN environments and the local Southampton community wireless network
- attendance at the IETF, and contribution to IETF standards
- establishing new IPv6-related research projects under the IST 6th Framework Programme

1.6.19. University of Lancaster

Lancaster University has followed multiple dissemination routes to promote 6NET and its related activities:

- Participation in the UK IPv6 Task Force
- Giving IPv6 tutorials - the most recent tutorial was on Mobile IPv6 and IPv4/IPv6 transition given at Telekom Austria
- Conference / workshop presentations:
 - "Overview of IPv6 - the Benefits and Deployment Issues", presented by Christopher Edwards at the JANET IPv6 Conference, 12th February 2003. Presentations slides available from http://www.ja.net/conferences/ipv6/feb_03/CE.pdf

- "Case study: Mobile IPv6 Activities at Lancaster University", presented by Martin Dunmore at the JANET IPv6 Conference, 12th February 2003. Presentation slides available from http://www.ja.net/conferences/ipv6/feb_03/Martin_Dunmore.pdf
- Publishing papers:
 - "A Scenario based Review of IPv6 Transition Tools", published in IEEE Internet Computing, Moving Toward an IPv6 Future, May/June 2003 (Vol. 7, No.3).
Abstract:
IPv6 protocols have been in development for over six years. The ngtrans IETF working group developed a broad group of transitioning tools aimed at assisting the introduction of IPv6, providing a 'transitioning toolbox' that could be used by operators migrating to IPv6.
More recently, with the formation of the v6ops working group, work is focusing on the operational aspects of introducing IPv6 services into IPv4 environments, and in deploying green field IPv6 networks. In the IST 6NET project, many major European national research and education networks (NRENs) and universities are jointly studying and running trials of a variety of the IETF's proposed IPv6 transition techniques.
This paper offers an overview of the theory of the various IPv4 / IPv6 transition techniques and discusses (in both a commercial and academic context) three likely scenarios for transition from a service provider, enterprise network and home user perspective.
 - "IPv6 migration implications for Network Management – Introducing the Site Transitioning Framework (STF)", to be presented at IPOM 2003 (2003 IEEE Workshop on IP Operations and Management), Kansas City, Missouri October 1-3, 2003.
Abstract:
This paper outlines the need to supplement the current work on network management for IPv6 with a system specifically to support IP transitioning. As something that is likely to play a major role in any IPv6 network for the considerable future, support for managing the transitioning aspects of managed networks in terms of the infrastructure in place and the service provided to users is vital.
While there is still work being done within the IETF and other bodies on the management of IPv6 networks, the management aspects relating to transitioning require special attention as they are likely to be among the most dynamic over the period of IPv4/IPv6 interoperation and have yet to be fully addresses.
This paper introduces the Site Transitioning Framework, which unifies a site's transitioning infrastructure under a single architecture in order to simplify its management and operation. We will also outline its design and operation, highlighting the advantages that this method would introduce. Finally, the STF concept will be demonstrated using a case study of a site based interoperation scenario.
- Participation at joint 6NET-Euro6ix meetings, the most recent during Global IPv6 Summit in Madrid, May 2003. This included discussions with Euro6ix representatives regarding collaboration on Mobile IPv6 and IPv6 QoS activities between the two projects.
- Participation at 1st UK WAG (Wireless Advisory Group) meeting, London 30th May 2003. This included a discussion of ULANC's wireless testbed and associated 6NET activities including deploying MIPv6 and access control to the testbed.
- Maintenance of the UK IPv6 Resource Centre website

1.6.20. Telematica Institute

TELIN present their 6NET work at conferences, and actively disseminates the objectives of 6NET within their own community (see www.telin.nl).

TELIN uses the knowledge obtained in 6NET with respect to the status of IPv6 deployment on both the network and the application layer in its joint projects with various partners, ranging from vendors, mobile network operators and ISPs to end-user communities.

They are promoting 6NET as an opportunity to link national testbed-programmes on advanced networking with international parties.

1.6.21. UNINETT (Assistant Contractor to NORDUnet)

UNINETT is the Norwegian network for research and education. UNINETT has deployed IPv6 in the core network and are offering IPv6 connectivity to a number of Norwegian universities and colleges. Experiences from 6NET have been very helpful in this work, and it also gives UNINETT and the connected sites, better IPv6 connectivity and better opportunities for IPv6 experiments.


UNINETT is disseminating IPv6 to its members (Norwegian universities and colleges) in several ways. Articles in UNINETT's quarterly magazine, talks at UNINETT's annual conference, and meetings with network administrators. UNINETT is also sometimes presenting IPv6 at other events in Norway. IPv6 and experiences from 6NET, in particular multicast, has also been presented at TF-NGN meetings, Global IPv6 summit in Madrid, 1st 6NET workshop in Zagreb and mboned working group at the IETF. This is expected to also happen throughout the remainder of the 6NET project.

1.6.22. CSC/FUNET (Assistant Contractor to NORDUnet)

Funet is a NREN and thus CSC's main target group regarding the dissemination of the knowledge generated under the 6net project are the network maintenance persons in Funet member organisations. Two of the Funet member organisations, University of Oulu and Oulu Polytechnic are also participating in the 6net project. The Funet core network is already dual-stack, fully supporting IPv6. Pilot experiments together with the Funet member organisations have been ongoing (e.g. to enable dual-stack access instead of separate IPv4 and IPv6 network access). The pilot projects are planned to exchange information and explore the IPv6 deployment.

IPv6 and the 6net project are presented and discussed in various events, e.g. in the annual Funet Technical Days for the maintenance persons in member organisations. In April 2003 CSC hosted the Nordic IPv6 Workshop organised by NORDUnet and the 6net project. The 6net project will be presented also in the next NORDUnet Networking Conference in August 2003. The active participation of the CSC 6net team in the IETF standardisation workgroups also helps to disseminate the results of the 6net project. A number of IETF drafts e.g. on network multihoming in IPv6, IPv6 transition, firewalling considerations for IPv6 is being delivered. Pekka Savola from CSC is also a co-chair of IETF v6ops (IPv6 operations) working group, managing the IPv6 transition and co-existence. CSC also represents the Funet community in the national IPv6 group organised by Finnish Communications Regulatory Authority.

A Funet IPv6 discussion list and a national language Funet IPv6 web page (<http://www.csc.fi/proj/ipv6/>) are set up to introduce the Funet IPv6 services. The web page gives general information of using and implementing IPv6 in the campus network. The web page gives information and guidelines for building IPv6 services and includes instructions and tutorials on IPv6 systems, organizing IPv6 nameservice, using IPv4 services on IPv6, 6to4 technique and information on IPv6 addresses and connectivity, Funet IPv6 typology and IPv6 applications. Funet

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

member organisations have possibility to connect their own IPv6 network to the national and international IPv6 networks through Funet IPv6 network. From CSC members can order IPv6 addresses and connectivity. CSC also gives expertise in the field of IPv6 and aims to develop new basic services to support IPv6 usage. The web page also includes a number of IETF-drafts, publications, presentations, tutorials and articles in CSC's magazines on IPv6 by the CSC 6net team members. 6net public deliverables will be announced via the Funet IPv6 discussion list and placed on the national IPv6 web site.

CSC/Funet participated to the IETF Meeting (Minneapolis, USA, 17th - 22nd March).

1.6.23. Polytechnic Institute Oulu (Assistant Contractor to NORDUnet)

Oulu Polytechnic/Institute of Technology (OP) has been running IPv6 since 1996. First in small Linux test network and 1997 - 2001 as a member of 6bone network via ATM-connection to FUNET using Cisco routers and Cisco beta IOS code.

Currently OP runs IPv6 in dual-stack production network under most of the conventional IP applications like NNTP, IRC, SMTP, HTTP, NFS, DNS etc. Connection to 6NET network is via gigabit Ethernet interface to FUNET dual-stack national backbone network.

OP has following dissemination strategies:

- Active role in pushing IPv6 to other FUNET member networks (Finnish universities and research organizations)
- Advisory role for PTT's and high tech enterprises in Oulu area.
- deeply integrate IPv6 related things to courses about IP technology and mobile communications.

OP has (have had) following usage plans:

- IPv6 in production network
- OP will test services and equipment needed in campus network. This includes OSPFv3, access control, multicast routing, routing performance, IPv6 layer 3 switching etc.
- OP will provide "content" to multimedia streaming services over multicast or unicast v6 (wp3 and wp5).
- OP will provide services like NetNews, IRC, NFS, SMB etc over IPv6 for external users for trialling and testing purposes.
- OP will provide open WLAN access to IPv6 users at least in and near its own buildings.

1.6.24. University of Oulu (Assistant Contractor to NORDUnet)

University of Oulu will exploit the experience and results of 6NET projects in order to define the IPv6 transition strategy for the university campus network. The knowledge will also be used in other networking projects inside the telecommunication laboratory.

1.6.25. Invenia Innovation (Assistant Contractor to NORDUnet)

Invenia Innovation has a long established IPv6-only network, and together with the Department of Computer Science at the University of Tromsø, Norway, uses this network to give students first hand experience with IPv6-only networking.

Specific activities in the 6NET project are:

- IPv6 presentations (e.g. on request and in cooperation with DND: the Norwegian Computer Engineering Association).
- IPv6 seminar(s) and ‘networking in the/our marketplace’ aimed at ‘decision makers’ at clients and partners.
- IPv6 course(s) aimed at a more technically skilled audience (possibly also in cooperation with DND, as we have done before).
- Build Norwegian IPv6 WWW-site, ‘knowledge center’ and tunnelbroker at <http://www.ipng.no>
- Promote IPv6 on campus/among student population and student networks (overlaps with/ is side-effect of our WP2/WP4 work). Guest lecture on IPv6 at University and technical highschool networking courses.
- Build IPv6 awareness in the public and commercial sector, especially at county and district (‘kommune og fylke’) level and among local ISPs. Sofar, we cooperate locally with the University of Tromsø (both computing center and computer science department) and Telenor FoU.

1.6.26. Westfälische Wilhelms-Universität Münster (Assistant Contractor to DFN)

The Westfälische Wilhelms-Universität Münster (WWU) runs the JOIN Project.


This project has been exclusively researching IPv6 since 1996 and acts as an IPv6 competence and reference centre for Germany and the German research and education community. The project is executed on behalf of the German research network (DFN), Germany's national NREN.

One of JOIN's main goals is the propagation and distribution of IPv6 in the German R&E facilities. For this project goal different solutions to migrate to IPv6 for a large range of possible network scenarios are developed. JOIN also actively helps R&E facilities integrating IPv6 into their network, software and management environment on a consulting basis answering questions and helping with specific problems during the transition. Within this work JOIN can share knowledge acquired working in the 6NET project while at the same time gaining new experiences which can be contributed back to the project.

Next to Germany's 6bone backbone node, JOIN also operates the national IPv6 test network of the DFN called 6WiN, which establishes connections to German R&E facilities and to the 6NET. It is a large scale network - quite similar to the 6NET core - which can be used for further tests of routing protocols, management strategies and to gain operational experiences.

JOIN works in close relationship with other strong partners to communicate results. The JOIN project is one of the founding members of the German IPv6 Task Force and actively contributes its knowledge within the TF-NGN. Within cooperations with German and international hardware and software manufactures, JOIN helps integrating IPv6 into their products.

To share knowledge with 6NET partners and any other R&E institution, JOIN mainly disseminates results by means of instructional and documentary papers published on it's website or via presentations on conferences and in self-organized introductory workshops.

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

1.6.27. Fraunhofer Gesellschaft (Assistant Contractor to DFN)

The initial objective for dissemination and use was to announce the start of the project and to raise awareness of its aims, objectives and scope. It was also intended to encourage interested parties – particularly those involved in related projects and initiatives – to find out more about the project’s work.

1.6.27.1 Exploitable Results

A main value for FhG Fokus on the technical side is to advance their understanding and operational experience of the IPv6 technology implemented in a large-scale IPv6 network. There are four significant areas, which are of main interest for FhG Fokus in this respect:

1.6.27.1.1 Mobility

Mobility is a significant area of attention in 6NET. The testing and evaluation of Mobile IPv6 functionality as an integrated part of the IPv6 protocol is of utmost importance. FhG Fokus provides one of the most advanced Mobile IP platforms. Based on the work and experience to be gained during 6NET, their Mobile IPv6 platform will be further extended with IPv6 specific security enhancements. Further, a major output is the knowledge and experience gained about the appropriate integration strategy for deploying Mobile IP in IPv6 networks.

1.6.27.1.2 VoIP Demonstrator

A VoIPv6 capable infrastructure based on SIP will be provided. Appropriate translation and mechanisms enabling the co-operation of IPv6 and IPv4 users will be developed and investigated.

1.6.27.1.3 WLAN

Wireless LAN access currently shows an explosive growth worldwide. Support of IPv6-only WLAN access will be an important step to the provision of IPv6 “end-to-end”. Mobile IPv6, AAA and performance issues with respect to header compression techniques and TCP improvements will be treated.

1.6.27.1.4 AAA Infrastructure

An evaluation of the issues relating to AAA within an IPv6-only wireless LAN is of particular importance.


In all of these fields, 6NET will allow FhG Fokus to develop its expertise on these technologies. Also, practical experience gained in deploying - and interworking between - these technologies on the basis of a large-scale IPv6 network will enable FhG Fokus to take part in realizing the next Internet generation.

1.6.27.2 Exploitation and Dissemination Strategy

During the last few years FhG Fokus has established strong connections to different companies and potential customers in the area of Mobile IP and VoIP. The results of 6NET in the form of knowledge and innovative components will further enhance these relations. For future business, FhG Fokus is targeting customers such as operators, ISPs and further research opportunities.

1.6.27.2.1 ISPs and Networks Operators

Network operators are aiming at expanding their service with roaming and mobile computing services as well as VPN and secure communication support. FhG Fokus has a close relation with Deutsche Telekom as a network operator and the German research network (DFN) as an ISP. Collaboration has involved investigation and evaluation of the usage of Mobile IP as the basis for supporting mobile communication. In these cooperations FhG Fokus has provided technical

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

support, products, prototyping and consulting as well as research in innovative areas such as AAA and QoS.

Based on the expected results of 6NET, such collaborations are expected to be intensified in the area of security and provide thereby a missing cornerstone that would enable those ISPs and operators to support not only for mobile but also for secure communication. The knowledge gained and components realized in 6NET will build the basis for joint projects between FhG Fokus and 3G network operators in which FhG provides consulting, research and prototyping.

1.6.27.2.2 Research Projects

FhG Fokus is currently engineering a proprietary UMTS testbed and development environment (<http://www.fokus.fhg.de/news/umts/content062002-en.html>) which is a division of their 3Gb test lab, specializing in network technologies such as Bluetooth, WLAN 802.11a and 802.11b, fixed Internet, GSM, GPRS, UMTS FDD and TDD, Satellite IP and DVB-T. One main purpose is to create and implement a seamless all-IP based communications infrastructure for the development of mobile services and applications. The FhG Fokus UMTS testbed is designed as one of the Berlin UMTS cells of T-Mobile Deutschland. For increased capacity, it may be linked with other cells, thus providing the testbed user with a fully seamless infrastructure. The work dedicated to this item as well as the experience gained in this context build the cornerstone for supporting further work on transparent mobility enabling technology for UMTS and IPv6 based wireless LAN and fixed networks.

The *IPv6 Showcase* (<http://www.ipv6-showcase.de/>) is an IPv6 pilot trial of Deutsche Telekom (T-Systems), which provides high quality nationwide IPv6 network access to companies and other interested parties such as universities and research organizations. Additionally, IPv6 services and applications, and access to the other national and international IPv6 networks, will be made available.

Some of the main research subjects of FhG Fokus in the area of mobile communication are directed towards providing all-IP VPNs based on Mobile IP. 6NET provides some of the major building blocks for supporting such a service namely security and Mobile IP components. The work to be done in 6NET as well as the expected experience will present a basis for this work.


The results will be presented in conferences and used as input for standardisation groups.

In 2002, FhG has:

- built a 6NET Web site as part of the presentation of the FhG Fokus institute on the Web (see www.fokus.gmd.de/research/cc/mobis/projects/6net/). Additionally it provides an interface enabling basic access and test of IPv6 services (reachability and connectivity tests, FhG Fokus IPv6 testbed status, Mobile IPv6, IPv6/IPv4 telephony)
- participated in the DFN-Betriebstagung (12-13 Nov 2002) where FhG Fokus presented its contribution to the 6NET project: "Mobile IPv6 und SIPv6 in 6NET". The slides are available at: www.dfn.de/dfn/dfn-bt/vortraege.

In 2003 (until end of march), FhG Fokus has:

- Now changed over to an own IPv6 address prefix (2001:0638:0806::/48) substituting the former connection via the BERKOM IPv6 network where Fokus was kindly allowed to use temporarily parts of the BERKOM IPv6 addresses.
- Participated in the "International SIP 2003" conference in Paris Bercy, France, (14-17 Jan 2003) where FhG Fokus also showed its SIPv6- / VoIPv6 activities within the 6NET project.

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	---

- Participated in the conference “SAINT 2003 - The 2003 International Symposium on Applications and the Internet” in Orlando, Florida (27-31 Jan 2003) where FhG Fokus presented parts of the 6NET related work. The presentation emphasized on the IPv6/IPv4 SIP- and media translation.
- Participated in the 4. VoIP-Arbeitstagung in Mannheim (25 Mar 2003) where FhG Fokus promoted its VoIPv6 work within the 6NET project.
- Participated in the conference “SAINT 2003 - The 2003 International Symposium on Applications and the Internet” in Orlando, Florida (27-31 Jan 2003) where FhG Fokus presented parts of the 6NET related work. The presentation emphasized on the IPv6/IPv4 SIP- and media translation.
- Participated in the 4. VoIP-Arbeitstagung in Mannheim (25 Mar 2003), where FhG Fokus promoted its VoIPv6 work within the 6NET project.

1.6.28. Computer Technology Institute (Assistant Contractor to GRnet)

The Research Academic Computer Technology Institute (CTI) is a research institute supervised by the Greek Ministry of Education & Religious Affairs. CTI collaborates with public and private constitutions, universities and educational constitutions of the country. Moreover, it can set up branches in Greece and abroad, receive loans and furnish postgraduate and postdoctoral scholarships.

In the context of 6NET, CTI disseminates 6NET results by publishing papers in International Journals and Conferences. Until now, CTI has published the following two papers, which disseminate the work carried out in the context of 6NET:

- C. Bouras, A. Gkamas, and K. Stamos, “From IPv4 to IPv6: The Case of OpenH323 Library”, SAINT2003 Workshop, Jan. 27-31 2003, Orlando, Florida, USA
- Christos Bouras, A. Gkamas, A. Karaliotas, D. Primpas and K. Stamos, “Issues for the Performance Monitoring of an Open Source H.323 Implementation Ported to IPv6-Enabled Networks with QoS Characteristics”, The 4th International Conference on Internet Computing (IC 2003), June 23-26 2003, Monte Carlo Resort, Las Vegas, Nevada, USA

In addition, CTI has a close relationship with the University of Patras and the Greek School Network, and as a result, CTI disseminates the 6NET results within the Greek academic community, which will benefit from the new capabilities of IPv6. At 7 July 2003 CTI organized in collaboration with GRNET a one-day seminar on IPv6, with presentations on the work carried out in the context of 6NET. The seminar also included a general presentation of the 6NET project.

Moreover, CTI, through its participation to the 6NET project, is supporting one PhD postgraduate student and one MSc postgraduate student, who conduct research in IPv6. In addition, CTI provides first-line support both to end users and business users (for example Greek ISPs) in the area of IPv6 real time applications and QoS.

1.6.29. DTU (Assistant Contractor to NORDUnet)

The Danish Forskningsnet serves universities and research institutions.

It participates mainly in WP1 and WP3. So far the IPv6 connection has been extended to the Technical University in Lyngby and to University of Copenhagen.

Connections to other Danish universities in Odense, Aarhus and Aalborg are planned and the needed lines are available. Other institutions may be connected through tunnels based on FreeBSD machines. At the same time the Forskningsnet is planning to promote the use of the IPv6 network. This includes the use of IPv6 multicast.

1.6.30. INRIA (Assistant Contractor to RENATER)

INRIA, through the MADYNES team, contributes to the 6net Project in Work Package 6 (network administration).

The MADYNES team main research areas are autonomous management and functional areas like security, service configuration, provisioning and automated instrumentation. It owns a great experience on IPv4 network management (the open source MODERES information model environment is an example of contributions made by the team to the management community). MADYNES works on IPv6 since 1994 in order to experiment and validate new platforms and management applications.

It specifically investigates, designs and defines new tools, with features that are to native IPv6 networks. It has already defined the native IPv6 Looking Glass for the pilot Renater II network management platform.

For the 6net project, we have planed to implement the new MIBs able to manage either IPv4 and IPv6 networks. This will be done inside the net-snmp package. We will also design and implement a native IPv6 LAN dynamic topology discover service.

1.6.31. UNIVERSITÉ LOUIS PASTEUR (Assistant Contractor to RENATER)

In the context of the 6NET project, the Université Louis Pasteur (Strasbourg, France) is represented by members of the Networks and Protocols Team of the LSIIT laboratory (UMR 7005 CNRS-ULP). The “Centre Réseau et Communication” (CRC - Networking and Telecom Center) which is the operator of the academic metropolitan network OSIRIS is also involved in the project. In particular, the OSIRIS network already offers a native IPv6 Internet connection to interested faculties, departments and laboratories on the university campus. Through the university participation in 6NET, there is a strong intention to promote the adoption of IPv6 within the OSIRIS network.

In parallel, the university has already a number of activities around IPv6. The computer science department proposes a teaching module at Master level, which includes IPv6, Mobile IPv6 and BGP4+, and a graduate course including IPv6 in its PhD program. A wireless IPv6 infrastructure is currently being deployed in partnership with France Telecom in order to evaluate the benefit of wireless technologies and IPv6, and also to gain knowledge in such a deployment. The university is also willing to extend its partnerships with local companies to promote the use, evaluation and adoption of IPv6.

Finally, the Networks and Protocols Team conducts a number of research projects around IPv6 with students at both PhD and Master levels. Results from these projects are made available through journal papers, conferences and workshop. The team has also already proposed a draft document (draft-jelger-mssmsv6-00.txt) to the IETF standardisation body. This draft proposes a number of mechanisms that support the construction of multicast source rooted trees (SSM) when the source is an IPv6 mobile node. The 6NET network will eventually permit to test and validate these mechanisms.

1.6.32. PSNC (Instytut Chemii Bioorganicznej Pan W Poznaniu)

1.6.32.1 Web site

PSNC maintains web site <http://www.ipv6.man.poznan.pl> which contains description of all activities within IPv6 technology. These pages show overview of the 6NET project and describes detailed activities within individual Work Packages performed by PSNC and also web interface of network monitoring tools and network statistics. This site is IPv4 and IPv6 accessible.

PSNC is also active in developing and testing IPv6 enable software especially concerning network monitoring and multimedia streaming. These tools are disseminated on the following pages:

- <http://www.ipv6.man.poznan.pl/6net/ttsnmp-frame/index.html> - presents *The IPv6 Management Gateway* which main purpose is to enable the existing IPv4 network management platforms to monitor, configure and manage the native IPv6 network. It translates SNMP and ICMP protocol messages between IPv4 and IPv6 networks.
- <http://icecast-ipv6.man.poznan.pl/> - presents Icecast, which is an audio broadcasting system that streams music in the Ogg Vorbis format. This is IPv6 enabled version of Icecast2. There are five local radio station broadcasted live using IPv6 on this web site.
- <http://beaconserver.m6bone.pl/> - presents The Multicast Beacon, which is a popular measurement tool to monitor multicast traffic (also IPv6 traffic).. This site offers web presentation of the server to the end user.
- <http://muvi.man.poznan.pl/> - presents The Multicast Visualization Tool (MUVI), which is a Java application to monitor multicast network.

First tool is developed within WP6, the rest are only tested using 6NET network resources.

1.6.32.2 Conference presentation


Artur Binczewski, Bartosz Gajda, Wiktor Procyk, Maciej Stroiński, Robert Szuman “Management of IPv6 Networks with IPv4/IPv6 SNMP Gateway”, Terena Networking Conference 2003 Zagreb, 19 - 22 May 2003.

1.6.32.3 Technical Polish NREN POL34/622 members meetings

PSNC as a network operator of a National Academic Broad-band Network POL-34/622 arranges and participates in frequent meetings of Metropolitan Area Networks operators where the 6NET project is being continuously disseminated.

1.6.33. CESNET (Zajmowe Sdruzeni Pravnickyh Osob)

CESNET addresses the performance and configuration weaknesses of PC-based IPv6 router implementations, by developing a hardware accelerator for IPv6 routing and related functions in the form of a PCI board using programmable gate arrays (FPGA). They also provide the project with a comprehensive public repository of IPv6 open source software, and operate an on-line version control system (CVS or similar) for most software development, documentation and configuration activities.

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

1.6.34. HUNGARnet

1.6.34.1 Means of Dissemination

1.6.34.1.1 Web Site

The website rehomed to a new server and made IPv6 accessible in January 2003. The web site continuously updated according to the 6NET project and IPv6 project of NIIF/HUNGARNET.

1.6.34.1.2 Conference presentations

- "IPv6 in EU FP 5 programs: point of view from 6NET and GÉANT" presented by János Mohácsi at Matáv-PKI (Hungarian Telecommunication Company Development and Research Center) meeting, Budapest, Hungary 08 April 2003.
- "IPv6 service at HUNGARNET: When?" presented by János Mohácsi at Networkshop 2003, Pécs, Hungary, 14 April 2003. The presentation is available at <http://nws.iif.hu/ncd2003/>

1.6.34.1.3 Tutorials

"Practical IPv6" - tutorial, given by János Mohácsi at Networkshop 2003, Pécs, Hungary, 13 April 2003.

1.6.34.1.4 NIIF/HUNGARNET Technical Council meeting


- Discussion about the IPv6 deployment at NIIF/HUNGARNET.
- Decision about the IPv6 deployments of further sites and Hungarian IPv6 tutorials later this year (25th of April 2003)

1.6.34.1.5 Other meetings

"NIIF/HUNGARNET IPv6 project" - presented by János Mohácsi at Siemens Hungary Rt., Discussion about NIIF/HUNGARNET IPv6 strategy (2nd of June 2003)

1.6.35. ETRI (Electronics and Telecommunications Research Institute)

ETRI is a government-funded forefront R&D institute in Korea. It promotes the development of economy and society and produces qualified manpower in the IT field. ETRI has much experience in IPv6 network management and in the development of IPv4/IPv6 transition tools. ETRI is a member of the IPv6 Forum and has connectivity to Japan and international networks.

IST-2000-32603	Deliverable D 7.2 Dissemination and Use Plan; third version	
----------------	--	--

Conclusion

As seen by this third version of the Dissemination and Use Plan, the plans of the 6NET partners to promote the project and exploit the availability of this large-scale wide area test facilities for the testing, validation and demonstration of applications, services and features associated specifically with the new IPv6 technology are becoming ever more concrete and comprehensive.

The scientific and technical prospects for the project are excellent, with exploitation routes directly into the development departments of major industrial companies, and key people and organisations in the standards arenas. The synergy with GÉANT optimises the EC economic investment in this network, and the results are be widely disseminated, giving high visibility to the partners and the EC alike.

Annex 1

Statistics relative to the ULB database:

Country	Administration	Academic	Industrial	Press	Other	Total
ALBANIA	1	0	0	0	0	1
ARMENIA	0	2	0	0	0	2
AUSTRALIA	0	0	1	0	0	1
AUSTRIA	0	1	6	0	0	7
BELGIUM	204	240	758	174	284	1660
Bulgaria	0	2	1	0	2	5
Canada	0	2	2	0	2	6
China	6	32	2	0	6	46
Croatia	0	0	0	0	3	3
Cyprus	0	1	0	0	0	1
Czech Republic	1	10	2	0	3	16
Denmark	0	3	10	0	3	16
Egypt	0	1	0	0	1	2
Estonia	0	0	3	0	0	3
Finland	0	2	8	0	0	10
France	14	25	39	4	45	127
Germany	7	17	39	3	11	77
Greece	3	7	10	0	7	27
HONG KONG	0	1	1	0	0	2
Hungary	0	4	0	0	5	9
Iceland	0	2	1	0	3	6
India	0	1	0	0	4	5
Iran	0	2	3	0	7	12
Ireland	0	9	3	0	13	25
Israel	0	0	2	0	0	2
Italy	6	16	15	0	17	54
Japan	0	3	14	0	4	21
KAZAKHSTAN	0	5	6	0	0	11
KENYA	0	0	0	0	1	1
Korea	0	4	1	0	1	6

Country	Administration	Academic	Industrial	Press	Other	Total
Latvia	0	3	0	0	3	6
Lithuania	0	3	0	0	2	5
Luxembourg	0	3	3	0	14	20
MACEDONIA	0	1	1	0	1	3
MALTA	0	0	0	0	1	1
Maroc	0	4	0	0	0	4
Moldova	0	2	0	0	0	2
New Zealand	0	0	1	0	1	2
Northern Ireland	0	1	0	0	0	1
Norway	0	1	6	2	1	10
Poland	0	10	8	0	5	23
Portugal	0	8	4	0	0	12
Republic of Belarus	0	2	1	0	0	3
Republic of Georgia	0	2	0	0	1	3
Republic of Macedonia	0	2	0	0	0	2
Romania	0	5	0	0	2	7
Russia	0	13	5	0	3	21
Singapore	0	2	0	0	0	2
Slovakia	0	3	1	0	1	5
Slovenia	0	3	0	0	4	7
South Africa	0	0	0	0	2	2
Spain	3	15	8	2	6	34
Sweden	0	8	4	0	5	17
Switzerland	2	10	12	1	9	34
TAIWAN	0	2	4	0	3	9
The Netherlands	6	9	12	3	15	45
Tunisia	0	2	0	0	0	2
Turkey	0	5	0	0	0	5
Ukraine	0	5	0	0	1	6
United Kingdom	4	23	42	6	20	95
USA	0	8	5	4	3	20
Total	257	547	1044	199	525	2572