IPv6DISSemination and Exploitation

Information Society Technologies

Project no. 015926

6DISS

IPv6 Dissemination and Exploitation

Instrument: SPECIFIC SUPPORT ACTION

Thematic Priority 2

D15: Report on Raising Public Participation and Awareness

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Executive Summary

This document summarises how public awareness has been achieved, through the website, workshop attendance, utilisation of the Tiger Team, and various publications.

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

Contents

1. Website

For IST projects, and arguably for any activity these days, a website is the most effective method of disseminating information. As it is accessible to anyone with Internet access, this effectively means that information is available on a worldwide basis. For this reason, the development and maintenance of a high-quality website was one of the major activities in the 6DISS project.

The 6DISS website can be accessed at http://www.6diss.org/, and includes an overview of the project, makes available the IPv6 tutorials and e-learning material developed by the project, and references important strategy documents about IPv6. It also provides links to complementary websites associated with 6DISS, as well as to other related activities. All informational articles, newsletters, press releases and presentations produced during the project lifetime can be found on the website.

The website is primarily targeted at the worldwide research and education community, although much of the material is relevant to the commercial, government, and public service sectors as well. In particular, several strategy papers have been produced by the project which have widespread applicablity.

This section provides a summary of usage of the public website during the 30-month lifetime of the project (1 April 2005 – 30 September 2007), based on three main categories:

- Visits are defined as the number of times users viewed the website. However, the viewing of several pages by a user (using the same host) within a specific time limit (20 minutes) only counts as one visit.

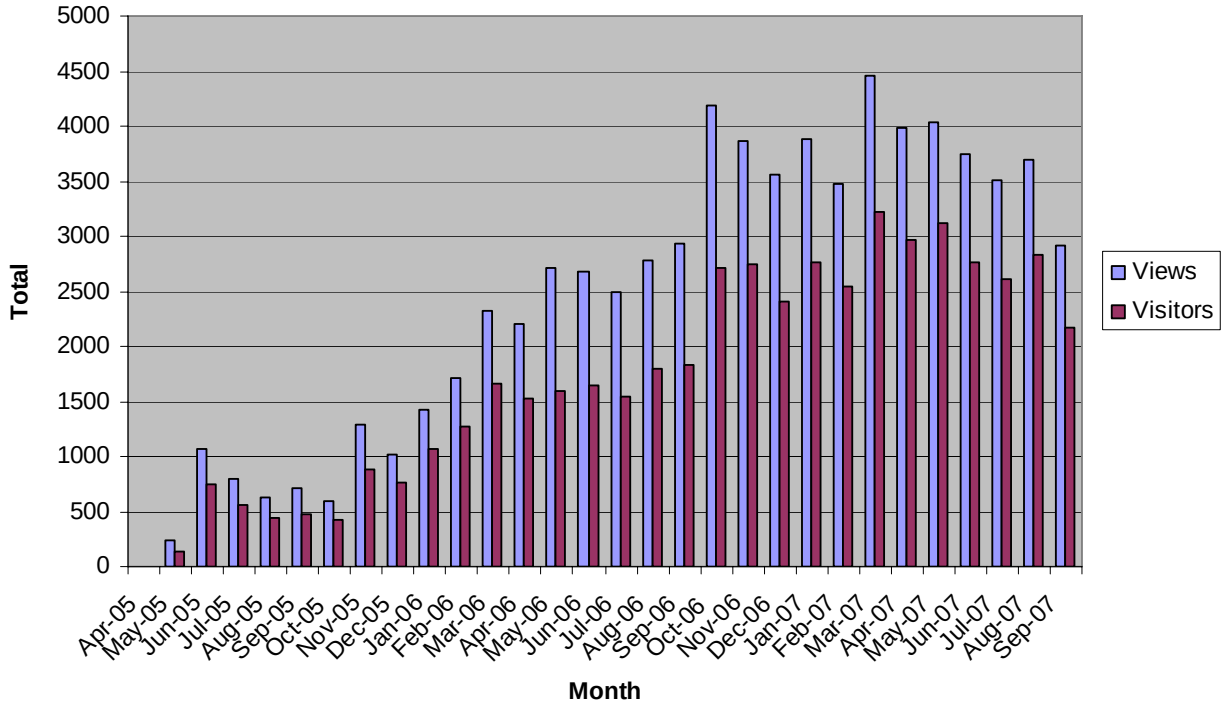
- Unique visitors are defined as those who have visited the website at least once during a specific period (using the same host).

- Repeat visitors are those users who returned to the website (using the same host) having previously viewed it during the same specific period.

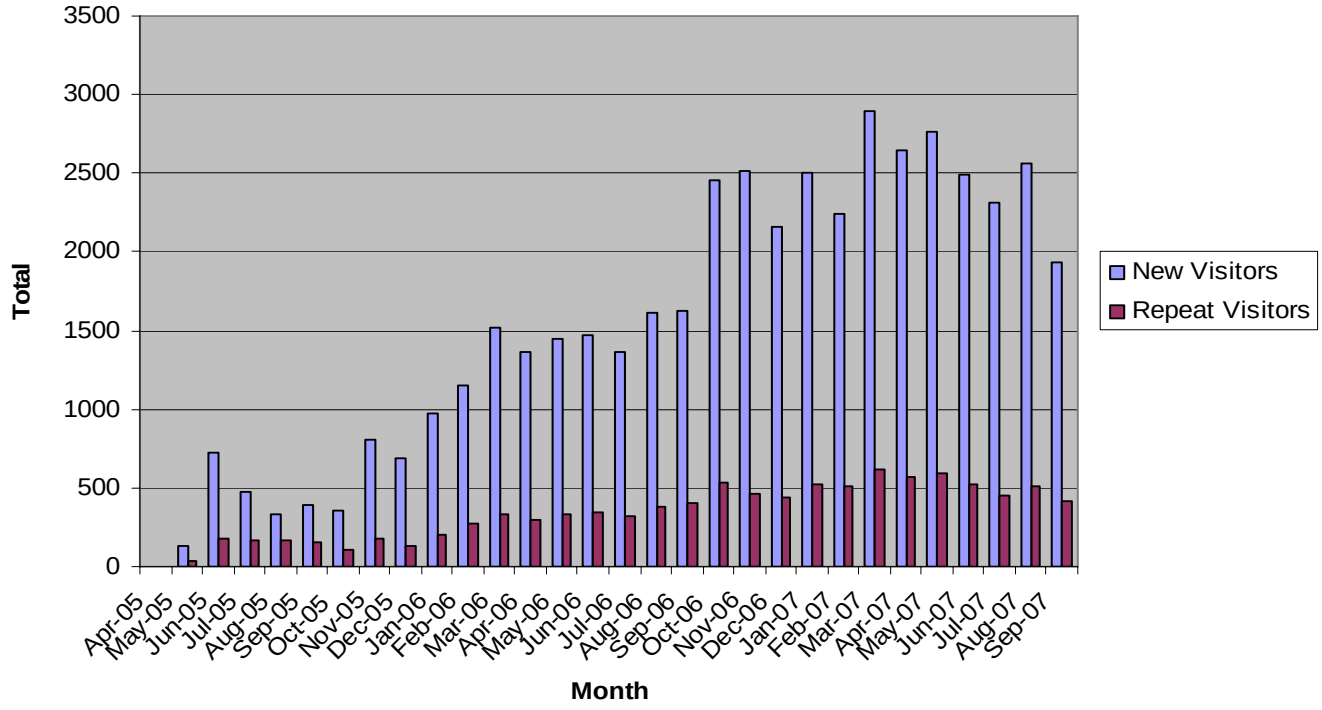
Total Visits and Visitors

Total visits	72,869
Unique visitors	51,168
Repeat visitors	10,186
Total pages viewed	197,067
Average visits per visitor	1.42
Average visits per repeat visitor	7.15
Average pages viewed per visitor	3.85

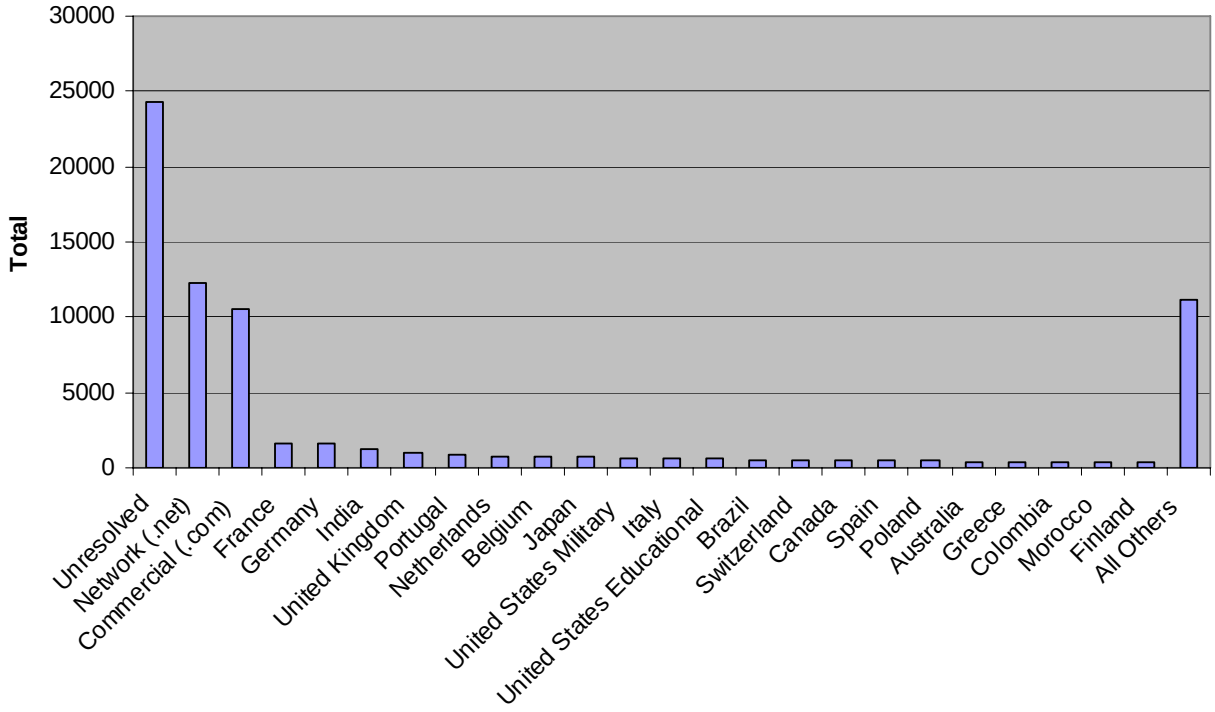
Total Views and Visits by Month



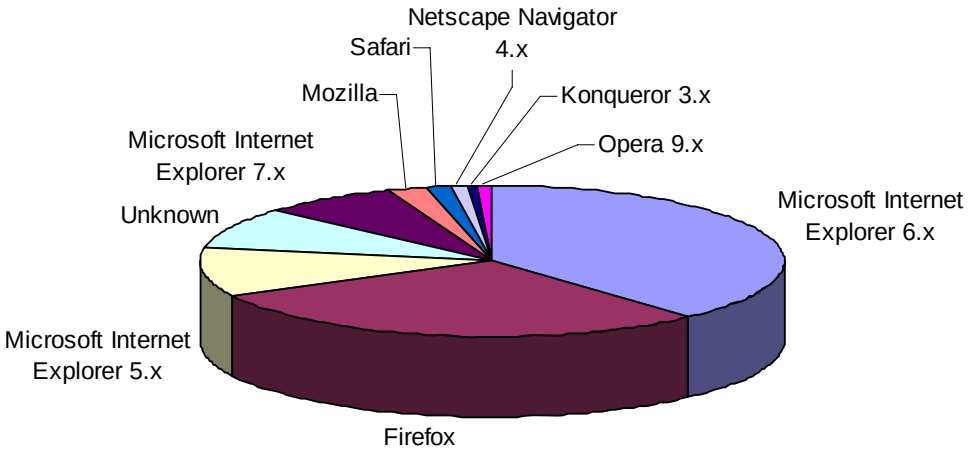
Unique and Repeat Visitors by Month



Visits by Domain



Most Popular Browsers



Most Requested Pages

Page	**Visits**
6DISS Home Page	25,802
E-Learning Modules	8,911
Asia Pacific IPv6 Training Workshop	5,105
Press Release: 6DISS supports IPv6 deployment in Africa	4,377
Southern Africa IPv6 Training Workshop	2,842
Related Sites	2,106
AfriNIC-3 Workshop	1,726
South & Central America IPv6 Workshop	1,512
Press Release: 6DISS IPv6 Training Workshops	1,046
IPv6 Deployment Guide	1,012
1st Training the Trainers Workshop	798
Mediterranean IPv6 Workshop	567
IPv6TD'06 Workshop	543
Sub-Saharan Africa IPv6 Workshop	526
Presentation: IPv6 Security Issues: thinking outside the NAT box	509
D12: IPv6 Training Material	509
White Paper: IPv6 Opportunities and Challenges for Enterprises and Service Providers	497
A Pragmatic Report on IPv4 Address Consumption	496
6DISS Tutorials	470
Guidelines for Organizing an IPv6 Workshop	461
South-East Europe IPv6 Workshop	459
D07: Report on the workshop and status of Internet connectivity in South East Europe (Balkan countries)	449
Central America IPv6 Workshop	394
D11: Training the Trainers Manual	365
D13: E-learning Material	341
D16: Initial Plan for Using and Disseminating Knowledge	311
Caribbean IPv6 Workshop	295
European IPv6 Roadmap 2006 Recommendations	279
Northern Africa IPv6 Workshop	238
IPv6 Convergence Conference	229
D05: Report on the workshop and status of Internet connectivity in South & Central America	191
D01: Project Presentation	170
Central Asia IPv6 Workshop	152
Press Release: 6DISS supports IPv6 training at AfriNIC-3	151
Press Release: 6DISS project to deliver IPv6 message worldwide	148
SEE Newsletter No. 2 (Jan 2006)	142
Worldwide IPv6 Initiatives	135
Press Release: 6DISS goes Latin	
Press Release: 6DISS strengthens its collaboration with AfriNIC and AfNOG	129

2. Workshop Participation

The 6DISS project organised 12 training workshops that provided training for a total of 336 persons from more than 60 countries. The participation at each workshop was as follows:

Event	Attendance
Asia-Pacific Workshop	45
Southern Africa Workshop,	23
South-East Europe Workshop #1	54
Mediterranean Workshop	29
South & Central America Workshop	21
Sub-Saharan Workshop	35
Central American Workshop	19
Caribbean Workshop	20
Northern Africa Workshop	40
Central Asia Workshop	19
South-East Europe Workshop #2	20
Training the Trainers Workshop	11

3. Publications

Press Releases

6DISS issued several press releases and other news items during the course of the project that were circulated via TERENA's established PR channels (e.g. website, inter-NREN news exchange, and relevant mailing lists). These were used to promote the project and highlight important developments such as the release of the training material and e-learning course.

The following press releases were issued:

- *6DISS project to deliver IPv6 message worldwide* – issued on 1 June 2005 to publicise goals and aims of the 6DISS project.
- *6DISS IPv6 Training Workshops* – issued on 19 August 2005 to announce dates and venues of Asia-Pacific and Southern Africa IPv6 Workshops.
- *6DISS supports IPv6 deployment in Africa* – issued on 19 October 2005 to publicise IPv6 training workshops in Africa.
- *6DISS supports IPv6 training at AfriNIC-3* – issued on 12 January 2006 to publicise IPv6 training at AfriNIC-3 meetings.
- *6DISS strengthens its collaboration with AfriNIC and AfNOG* - issued on 30 April 2006 to publicise African IPv6 training workshops, and 6DISS participation in other African events.
- *6DISS goes Latin* – issued on 4 August 2006 to publicise the South & Central America Workshop.

Several other news items were also issued via electronic channels.

Informational Articles

At the beginning of the project, 6DISS produced an information sheet for promotional purposes that outlined the aims and goals of the project. This was distributed at variety of conferences and other events, as well as being made available on the 6DISS website.

The information sheet was updated in October 2006 to highlight the achievements of the project to-date, including references to the training material, e-learning courses, deployment guide, IPv6 testbed, and Tiger team. This is available from http://www.6diss.org/publications/info/6diss-2006.pdf

The IPv6 Deployment Guide originally produced by the 6NET project was also made available on the 6DISS website at http://www.6diss.org/publications/info/deployment-guide.pdf

Newsletters

The 6DISS project produced three newsletters targeted at South-East Europe. The initial newsletter in October 2005 provided an overview of the project and the IPv6 training opportunities, and reported on the first couple of workshops. The second newsletter in January 2006 served as an announcement for the 1st South-East Europe IPv6 Workshop, provided an overview of the 6DISS e-learning package, and reported on the 6DISS collaboration with AfriNIC. The third newsletter in June 2006 outlined the opportunities offered by the 1st 'Training the Trainers' workshop, reported on the 1st South-East Europe and Mediterranean IPv6 Workshops, and announced the availability of the 6DISS CD-ROM.

These newsletters are available online at http://www.6diss.org/publications/#newsletters

Strategy Papers

6DISS published three strategy papers during the course of the project:

- *A Pragmatic Report on IPv4 Address Consumption* – published in September 2005 to discuss the issue of when IPv4 address space may be exhausted.
- *Worldwide IPv6 Initiatives* – published in January 2007 to outline current IPv6 rollout projects and activities.
- *IPv6 Deployment and Associated Risks (for Strategists)* – published on 24 August 2007 to outline the case for IPv6, whilst recommending specific actions to be undertaken.

References to other relevant strategy papers are also provided on the 6DISS website.

4. Presentations

A number of presentations about 6DISS project were given at various conferences and other events during the lifetime of the project:

- *IPv6 Security Issues: thinking outside the NAT box* - AfriNIC-3, 13 December 2005
- *IPv6 Network Deployments* - AfriNIC-3, 13 December 2005
- *The 6DISS Project: IPv6 Dissemination and Exploitation* - Global IPv6 Summit China, 14 April 2006
- *The 6DISS Project: Objectives, Data, Toolkit & Experiences* - eInfrastructures Partnership Workshop, 2 May 2006
- *The 6DISS Project and its Opportunities for the African Continent* - IST-Africa 2006, 5 May 2006
- *IPv6 International Efforts - Research Networking Testbeds Concertation Meeting*, 20 November 2006
- *The 6DISS Project: Objectives, Data, Toolkit & Experiences* - AfriNIC 5, 29 November 2006
- *The 6DISS Project: Objectives, Data, Toolkit & Experiences* - Euro-Africa S&T Collaboration Event, 14 December 2006

5. Liaison Workshops

6DISS participated in two IPv6 liaison workshops in order to exchange knowledge and experience with regions where IPv6 was already widely adopted. The first workshop was held on 14-15 December 2006 in New Delhi, India, in conjunction with the BELIEF eInfrastructures Conference. The second workshop was held on 28 August 2007 in Xi'an, China, in conjunction with the APAN 24 meetings.

Euro-India Workshop

This workshop was held to explore possible collaborations between Indian and EC researchers in the context of FP7 activities. It was organised jointly by the BELIEF project and ERNET, the latter running the Indian NREN.

The workshop opened with a plenary session, followed by three sets of parallel sessions. A 6DISS representative chaired the sessions on "Connectivity and sustainability: outreach to new use communities", and presented during the "E-Infrastructures reducing the digital divide in emerging economies" session.

ERNET currently connects all the Indian Institutes of Information Technology and universities. It has 15 PoPs connected with a fibre infrastructure, and has three transponders on the Indosat satellite for distance education. There are three international PoPs, and it runs root DNS servers, provides security services, and organises training, and is involved in a number of projects. The

projects include the development of an online encyclopaedia, connecting schools to ERNET, as well as establishing VPNs, videoconferencing and IPv6 services. They plane to start moving over to IPv6 in 2008, but only in a dual-stack mode.

At present, ERNET still has fairly low international bandwidth – just a 45 Mbps to Europe – and one of the key aims is to obtain higher international bandwidth. Cost is a major factor here, because local telecommunications providers charge a very high cost for international connectivity.

The proceedings of this workshop are available at
http://www.beliefproject.org/events/IndiaConference/Session_A3/

Euro-China Workshop

This workshop was held to take advantages of the experiences of the widespread adoption of IPv6 in China, and in the wider Asia-Pacific region. It was therefore jointly organised by APAN (the Asia-Pacific research and education backbone network) and 6DISS, with logistical support from CERNET (the Chinese NREN).

The Euro-China Workshop was combined with the APAN IPv6 Task Force meeting, and was co-chaired by Peter Kirstein and Xing Li. The workshop event ran for a full day on 28 August 2007.
Tim Chown (University of Southampton) gave a general presentation about IPv6 adoption in Europe, followed by Stig Venaas (Uninett) who have a presentation on IPv6 multicast. This was followed by a presentation from Peter Kirstein about IPv6 activities in support of emergency communications, in particular with respect to the RUNES and u2010 projects. He also have a presentation on behalf of the North American IPv6 Task Force Chair concerning the METRONET6 project that is closely allied with u2010.

At the end of the workshop, a panel session was held where 30 minutes of discussion took place. There was general consensus on many issues, for example, that the IPv4 ‘exhaustion’ date is now likely to be around 2010, at which point availability of new IPv4 address blocks will become more restricted. In addition, that work in the Asian region including Japan showed some excellent uses of IPv6, and that application-led research and development is important.

The workshop allowed useful contacts to be made in the region, and will be followed-up as part of further collaborations. This included some specific research areas including IPv6 multicast, where an initial agreement was made on four fronts: multicast measurement, content distribution, applications (DVTS) and possible FP7 proposals that may result.

There are effectively two separate APAN networks: the main network that interconnects the member NRENs via fibre links, and a satellite network that has direct links to some 20 leading universities. The international links are normally nationally-owned, whilst the links out of the region are partly national, and partly internationally-owned. TEIN provides two routes: 2.5 Gbps via a Southern route, and 622 Mbps via a Northern Siberian route. There are also direct 10 Gbps national links from Japan, South Korea and Australia to the US, most of which are for general Internet traffic. However, GLORIAD is a project using donated fibre for specific purposes such as VLBI or High Energy Physics.

The satellite capacity is provided by Japan and comprises about 155 Mbps in total. This is principally for research purposes and operated by the computer science departments of the universities. This therefore supports IPv6 in a dual-stack mode, although some universities are IPv6-only. It is used for IPv6 multicast video streaming and other novel purposes.

The IPv6 deployment on CERNET2 was discussed. This is of particular interest since it is IPv6 only, and connecting sites (campuses) generally do so via dual-stack. There are some 38 PoPs, supporting IPv6 unicast and multicast, and around 25 PoPs support IPv6 SSM and are using IPv6 capable DVTS for video streaming at up to 30Mbit/s. The CERNET2 border routers support Embedded-RP for IPv6 multicast, though the core routers do not yet, whilst ASM over SSM is being used to distribute some content to universities. While APAN does not yet support IPv6 multicast, there is scope for collaborative tests via GEANT, TEIN2 and CERNET2. At the time of the meeting, some 200 of 1800 universities were connecting to CERNET2 via IPv6, the others still using CERNET1 with IPv4.

The proceedings of this workshop are available at
http://www.apan.net/meetings/xian2007/proposals/ipv6.html

6. Tiger Team

The Tiger Team is a distributed virtual team of experts in IPv6 technology drawn from the 6DISS project. The original goal in creating the Tiger Team was to offer an electronic helpdesk facility for any technical issues arising, in general or from workshop attendees.

The implementation of the virtual helpdesk was undertaken using the rt problem tracker. This allows all mails to ‘helpdesk@6diss.org’ to be injected into a tracking database, where queries can be picked up and/or assigned to appropriate experts. An anti-spam system (MailScanner) is used to filter spam to prevent the system being clogged with ‘junk’ mail.

The following subject matter queues were configured:

- Addressing plans
- Applications
- Collaboration
- Helpdesk
- Host configuration
- Mobility
- Multicast
- Network management
- Routing
- Transition

One or two experts were assigned to each area, and thus alerted when an incoming problem was assigned to their queue.

During the course of the project, over 1500 messages/problems were received into the system, although the vast majority of these were still 'spam' mail messages, despite MailScanner being used (settings were relaxed to avoid risk of false positives). The number of genuine support requests was thus low, under 50 for the project duration. The bulk of these requests were in the Collaboration category (i.e. people looking to have 6DISS run a workshop for them, for 6DISS to present at an event, or for advice on certain material).

Naturally the low level of enquiries to the helpdesk address on the face of it is disappointing. However, it is believed the bulk of the technical enquiries were made via direct contact to the experts, including the people presenting at the events. While the helpdesk address was advertised at the workshops, it seems people prefer to interact directly with the people they have met (i.e. 'faces' rather than a virtual helpdesk). In other cases, mailing lists were used for support (e.g. IPv6 multicast queries tended to go to the m6bone mail list, which is led by 6DISS partners, rather than to the helpdesk address). Thus problems were still handled by 6DISS experts, but not via the problem tracker system.

In retrospect, these direct enquiries should have been bounced into the problem tracker where possible, so that the amount of e-mail based support that was provided during the project could be more accurately measured. That would certainly be the recommendation to any other projects that are offering a similar technology support function.

The Tiger Team was also intended to provide technical support. It contributed to technical discussions in various areas, and reviewed presentation material where appropriate. It supported the IPv6 Eprints archive at http://www.6journal.org/, which has some 230 IPv6-related papers and presentations deposited in searchable open archive format. An IPv6 applications database was also developed, to which any Tiger Team member could add/edit application information, under http://applications.6pack.org.

These three online functions – helpdesk, EPrints archive and applications database – are expected to continue to operate after the official end of the project. These will be hosted at the University of Southampton for the foreseeable future.