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Abstract:

This deliverable provides the plans of dissemination activities planned in the framework of Euro6IX project. It addresses the dissemination within partner groups, at IST cluster and concertation level, Fora, standards groups (IETF, ITU, ETSI), other related organizations or entities (IPv6 Forum, IPv6 Task Force, etc.), conferences and workshops, publications and liaison to national activities and user groups. The project also has plans to interact at international level with different sponsoring and supporting organizations.

Keywords:

IST, Concertation, Dissemination, IPv6 cluster, Users, IPv6 Applications, Publications, Events, Conferences, Exploitation

Revision History

The following table describes the main changes done in the document since his creation.

Revision	Date	Description	Author (Organization)
v1.0	01/03/2002	Document creation	Sathya Rao (Telscom)
v1.x	30/03/2002	Several modifications	Not annoted
v2.0	30/04/2002	Document updated to match Project Deliverable Template	Jordi Palet (Consulintel)
v2.2	21/06/2002	Naming convention	Jordi Palet (Consulintel)

Executive Summary

This Document provides Euro6IX project's dissemination plans over the project life period. It identifies the on-line dissemination, project and IST level communication, events to be organized by the project, participation in standards activities, and presentation of project results in workshops and conferences as well as publication initiatives. The deliverable also provides early exploitation plans from the project partners and their associated sponsors and user groups that can be identified in the early phase of the project.

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1. INTRODUCTION

The goal of the Euro6IX project is to support the rapid introduction of IPv6 in Europe. Towards this goal, both R&D work as well as awareness creation activities are planned in the project. The project addresses the network design, network deployment, research on advanced network services, development of applications (as part of R&D work) and active dissemination activities, including events and conferences, contributions to standards (IETF among others), publication of papers and active promotion of all the publicly available project results through the project web site.

The project has very experienced partners in achieving the success in awareness creation by choosing appropriate measures. The project will take a pro-active approach in proposing and collaborating with others for collective dissemination, which will involve all the important actors (network providers, ISPs, User Groups, and investors). Both on-line and off-line tools will be exploited for effective dissemination activities.

The infrastructure of Euro6IX will consist of the following different network levels:

- **IX-level:** Regional native IPv6 exchanges.
- **Backbone-level:** Pan-European core network that interconnects the regional exchanges and creates the highest level in the network hierarchy.
- **Node-level:** Service providers, ISPs and other providers accessing the core network to provide IPv6 services and end user access. The users will be connected by means of a variety of access technologies, including IPv6 tunnels over legacy IPv4 networks and services whenever no IPv6 native links are available or feasible. This level includes a set of academic, research and non-commercial trial users who will use native IPv6 services and generate IPv6 native traffic.

Euro6IX will offer advanced network services, and a repository of IPv6 enabled applications, which have been ported, adapted or enhanced, and made available for trials both within Euro6IX and to third parties. The project will seek wherever possible to have the IPv6 enhancements it makes to public (open source) packages fed back into the main development tree, such that the public versions of such packages are by default IPv6-enabled or enhanced. In such cases the web site may contain only pointers to the official web page of the application, not a ported “snapshot” version.

The native IPv6 traffic will be the result of both specific and generic applications tuned for IPv6 (e.g. IPv6 enabled Web browsers, IPv6 voice over IP applications).

The validation will be performed in a realistic context where the different actors and roles, which exist in the present Internet, are extrapolated to the IPv6 based next generation Internet. This validation will be made through the involvement of existing and new user groups created by the project with the daily use of the network by project partners and through both, internal and public trials and other events.

Additional dissemination, liaison and coordination activities will be performed in clusters, standards organizations or with interested third parties in order to give to the results of the project the highest visibility and to achieve the largest impact.

2. CURRENT STATUS OF PROJECT CONTACTS

The project has established very good contacts before and after the start of the project with different actors around the world: Network providers, ISPs, Industrial organizations, Research groups, IST projects, applications developers and user groups.

2.1 IST projects

There are number of IST projects who are involved in researching IPv6 network issues and applications development as well as awareness creation. Euro6IX project is active in different level of co-operation with these identified projects. The table provides the list of projects and their activities that has direct or indirect relation to Euro6IX activities.

IST No.	Project	Website
IST-2000-25153	6WINIT	www.6winit.org
IST-2001-32603	6NET	www.6net.org
IST-2001-34056	6LINK	www.6link.org
IST-2001-32161	Euro6IX	www.euro6ix.net
IST-2000-26041	NGNLab	www.ngnlab.org
IST-2000-25394	MobyDick	www-int.berkom.de/~mobydick
IST-1999-10299	ANDROID	www.cs.ucl.ac.uk/research/android
IST-1999-20393	LONG	www.long.ccaba.upc.es
IST-1999-10504	GCAP	www.laas.fr/GCAP
IST-2000-28584	MIND	www.ist-mind.org
IST-2000-26418	NGNI	www.ngni.org
IST-2000-26135	FEEL	www.dsv.su.se/feel
GEANT	GTPv6	www.ipv6.ac.uk/gtpv6

Figure 2-1: IST Projects

3. IST PROJECTS ACTIVITY MATRIX

Project / main issues	Architecture	Protocol	Fixed/wireless	Applications	Security	QoS	Standards	Trials
6WINIT	X	X	Wireless	Clinical	X	?	X	X (multisite)
6NET	X		Fixed	Business	X	X	X	XXX (NRENs)
6LINK	IPv6 Cluster support project: Compilation of results, facilitation of standards contribution, Cookbook							
Euro6IX	X	X	X	Business	X	X	X	XXX (pre-commercial
NGNLab	Testbed	XX	F/W	From users	X	XX	X	Interop
MobyDick	X	X	W	Available Applications			X	X (multi-standards)
ANDROID	Mgmt	X	-	?	?	?	X	X
LONG	Testbed	X	F	ISABEL-IPv6	?	X	X	Two sites
GCAP	X	XX	?	?	?	?	X	X (concluded)
MIND	X	X	W	X	?	?	X	X
NGNI	Thematic Network project to develop the NGN roadmap including IPv6, QoS, security, standards							
Moebius	X	X	W	Healthcare	?	X	?	X (concluded)
WINE	WLAN	X	W	Available Applications	?	X	X	X (concluded)
Tsunami	X	X	F/W	Applns test	X	XXX	X	
FEEL	Ad-hoc	X	W	Ad-hoc meeting, service discovery, intrusiveness	?	?	X	X
GTPv6	Testing	X	F	Available Applications	?	XXX	X	X

X: Relevance in the project, F: Fixed, W: Wireless

Figure 3-1: IST Projects Activity Matrix

3.1 National activities

There are number of national activities which will be followed by Euro6IX projects through partners in respective countries. Some examples are:

3.1.1 France

France Telecom R&D is one founding member of the French G6 group. The G6 gets together French academic and industrial people involved in IPv6, since the very beginning of the 6Bone. Some members of the G6 are part of entities directly involved in the 6NET project (i.e. Renater, LORIA)

France Telecom R&D is implicated the national RNRT program that initiate advanced research project involving national academic and industrial partners.
France Telecom R&D is partner of a bunch of projects dealing with IPv6:

- VTHD++: this is the follow up project of VTHD that goal was to provide a very high throughput (namely Vraiment Très Haut Débit) IP network infrastructure, and then, to experiment advanced applications. One main new goal of VTHD++ is to introduce and experiment IPv6 within the previous infrastructure.
- @IRS: The main goal of this project, which ended in 2001, was to set up an IPv6 network dealing with QoS, in order to provide high reliability services. The follow up project of @IRS is called @IRS++.
- Cyberté: the main goal of Cyberté is to study and experiment mobility of IPv6 terminal equipment over different wireless technologies such as IEEE 802.11, GPRS or UMTS. The project will deal with security and QoS issues, as well.

For more details (mainly in French) on the RNRT program see www.telecom.gouv.fr/rnrt/.

3.1.2 U.K.

The UK6x (www.UK6x.com) is one of a new breed of open, independent IPv6 Internet Exchange Points that are starting to appear around the world. It is operated by BTexact Technologies with the aim of furthering the introduction of IPv6 in the UK, Europe and the world. The UK6x is located in London, at the heart of the UK Internet, and offers an unrivaled set of services:

- a variety of access mechanisms
- peering
- transit
- address allocation
- DNS
- IPv4/IPv6 Interworking
- a variety of hosting opportunities

The network services available from the UK6x are complemented by a range of Professional Services that are offered by BTexact Technologies and are detailed on the BTexact Technologies IPv6 site.

The UK6x will be used as part of the Euro6ix network and will provide the initial (and possible only) interconnection between Euro6IX and 6NET.

Bermuda 2 Project:

The Bermuda 2 project (http://www.ipv6.ac.uk/bermuda2/) conducted trials of IPv6 on UK academic networks; UoS led the project, which also featured Lancaster and UCL. Bermuda 2 included studies in WLAN, Mobile IPv6 and other issues of direct relevance to Euro6IX.

UoS is chairing the UK IPv6 Working Group for IPv6 pilot deployment on JANET. This will primarily contribute to 6NET, but the work will have implications for Euro6IX also (http://www.ipv6.ac.uk/). The experiences of the end user communities (the WG mail list has 50 subscribers so far, some non-academic) can be shared, and we could make Euro6IX applications available to these users, even if their primary connectivity is 6NET-oriented.

A UK IPv6 Task Force is being formed as of April 2002, and UoS will be a member of the group, which will look to take the EU IPv6 Task Force recommendations forward, and address UK-specific issues.

3.1.3 Spain

SABA-DOS (New services for broadband academic network – 2):

SABA-DOS is a project which addresses the design, experimentation and evaluation of tele-meeting, tele-education/learning and tele-conference over a next generation Internet. It supports broadband communications, multicast, quality of service control facilities and protocols like RSVP, IPv6, RTP-RTCP and other protocols which are considered to play an important role in the future Internet.

This project is devoted to the experimentation and evaluation of tele-meeting, tele-education/ learning and tele-conference over a broadband communication network of second generation Internet type, with multicast, quality of service control facilities and protocols like RSVP, IPv6, RTP-RTCP as a key elements of the future Internet

PREAMBULO Project (Prototipo de red multiservicio de muy altas prestaciones basada en IPv4/IPv6 sobre multiplexación por longitud de onda):

PREAMBULO project is centred on IP over DWDM technologies and is aimed to create a high performance network that will interconnect three important research institutions in Madrid. Primary study issues will be the management functions of the optical network: traffic control, failure recovery and QoS. Advanced experiences will also be carried out to analyse the system behaviour under QoS, multicast and IPv6 traffic.

MIRA (Metodologías para la Inspección de tráfico en Redes Avanzadas):

MIRA project has developed tools and applications to analyse and characterise the traffic of the Spanish National R&D Network RedIRIS.

3.1.4 Germany

6Win- Project by German Research Network DFN:

The DFN-Verein operates a Germany-wide network for universities and research institutes and is about to implement a native IPv6 service within this network in 2002 (http://www.join.uni-muenster.de).

The objective of this activity is to support the DFN partners with an early production-like IPv6 service and to capture further experiences with respect to the operation of complex IPv6 networks.

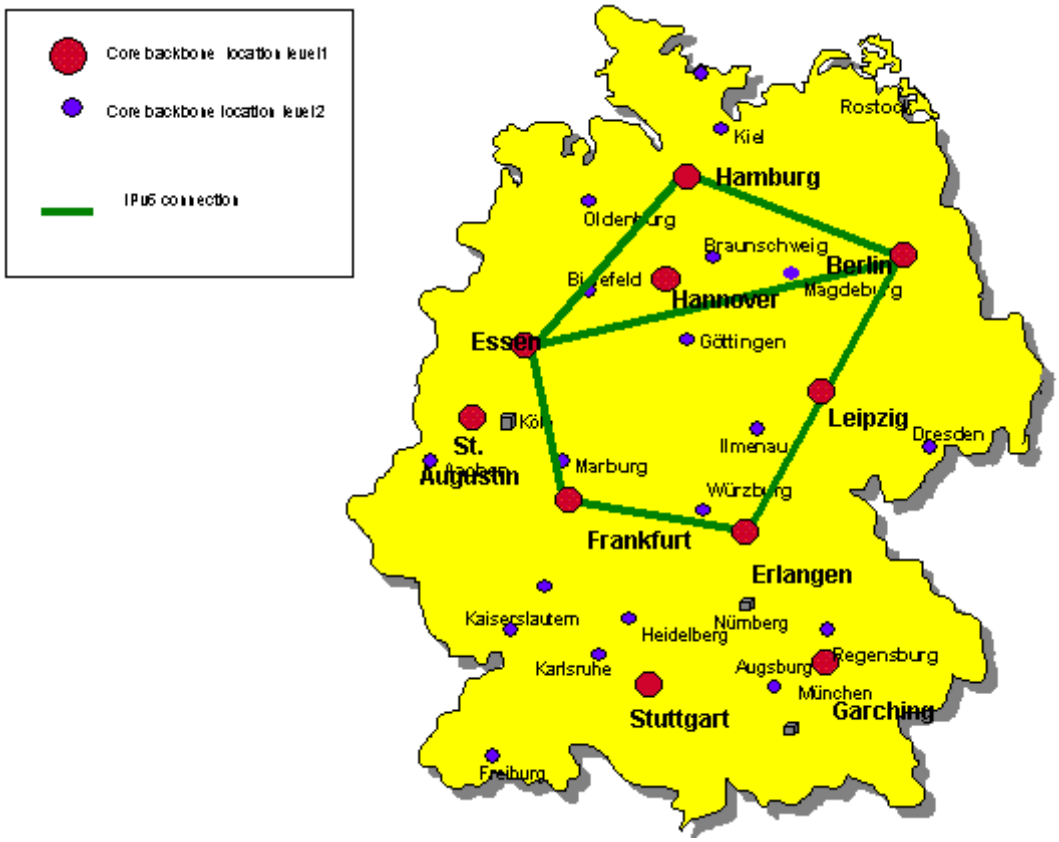

Figure 3-2: 6Win Network

The core 6Win network will consist of 5 locations as the following picture describes.

The JOIN project of the DFN plans also to integrate this 6Win network in its activities within the European 6Net project.

The Ber6IX POP of the Euro6IX project will also be located in Berlin like one of the edges of the 6Win DFN network. Because there are already strong project relations between T-Systems Nova (Euro6IX) and DFN / JOIN (6Net) a native IPv6 interconnection of this 2 POP locations in Berlin is planned.

This means that the 6Win of DFN could be understood as one of the ISPs / customers at the BER6IX and there their can be a network interconnection of Euro6IX and 6Net in Berlin.

During the project lifetime of Euro6IX this possibility will be investigated and implemented well considering the objectives of both European IST projects. T-Systems Nova will hereby act in and represent the interests of the Euro6IX project.

"IPv6 Show Case" Project of T-Systems Nova:

Since March 2002 T-Systems Nova is operating a German-wide IPv6 Show Case by order of the Innovations management department of Deutsche Telekom. This IPv6 Show Case is a public user trial, where T-Systems offers a native production-like IPv6 network service to interested customers and research institutes.

In a first step this Show Case will be open until September 2002 and a further prolongation is still under investigation by Deutsche Telekom.

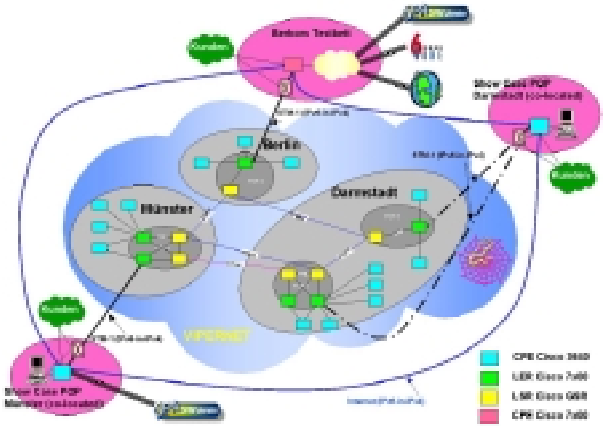

Figure 3-3: German IPv6 Show Case

The Show Case network consists of three major IPv6 POPs which are connected by WDM-links and where the customers will be attached using mainly IPv6-in-IPv4 tunnel mechanisms.

The main objective for this activity of Deutsche Telekom is to send a signal to the market that IPv6 is ready and that Deutsche Telekom has the knowledge to provide its customers with this technology. Besides that this Show Case shall give the early test customers the possibility to get in touch with this new network technology and to gather own experiences within scheduled trials and test events.

After setting up the BER6IX Euro6IX POP in Berlin the Show Case network will be attached to this POP and serve as one ISP or customer of the Euro6IX network, providing its partners with European-wide native IPv6 connectivity.

3.1.5 Italy

Telecom Italia Lab launched at the beginning of 2002 the ngnet.it initiative (http://www.ngnet.it/e/index.html) to promote the innovation of the Internet and the IP networks.

The first proposal by ngnet is based on IPv6, the next generation Internet Protocol. In this sense the initiative is aimed at promoting the wide adoption of the new protocol in Italy and Europe by making available IPv6-ready services and applications.

To the residential users, ngnet.it offers the possibility to connect to the growing IPv6 network through any kind of Internet connection, using the IPv6 Tunnel Broker developed by the IETF and implemented by Telecom Italia Lab. IPv6 users can access all the worldwide available IPv6 application services as well as specific application services offered by ngnet.it, that include chat, e-mail, news and network gaming. The ngnet.it Tunnel Broker users are currently more than 14,000, which means that this is really a huge, and constantly growing, user community that will take a great benefit, in terms of network performance and availability of new services, from the achievements of the Euro6IX project.

The ngnet.it initiative addresses also the enterprises willing to experiment IPv6. To them ngnet.it offers the following set of experimental services:

- Experimental IPv6 connection and 6Bone access, a service experimental in nature, without any warranty of reliability or continuity.

- Controlled and managed IPv6 connection to the ngnet.it network based on "production" addresses to open the way towards commercial developments. It includes continuous monitoring of the IPv6 link and preferred access to the users of the ngnet.it IPv6 Tunnel Broker.
- Consultancy/outsourcing services: set up of IPv6 sites (routing, DNS, application servers, hosts, etc.), monitoring of the reachability of IPv6 remote sites and routing performances, design and implementation support for IPv6 networks in LAN and WAN environments.
- Products for service management: inter-domain IPv6 routing Monitor, IPv6 reachability Monitor, IPv6 network and traffic Monitor, IPv6 Tunnel Broker, etc.

Since the launch of the ngnet.it web site, more than 60 companies have asked to participate to the initiative. They are mainly Italian enterprises and ISPs willing to make available on IPv6 their production IPv4 services and willing to envisage the maturity of the IPv6 technology for the deployment within their organization. Most of these companies get access to the ngnet.it IPv6 services by means of tunnels but they represent another user community that will benefit of the Euro6IX achievements.

3.1.6 Portugal

There are no known national research activities in Portugal in the area of the IPv6 protocol in large scale. Actually, there are research activities in IPv6 performed by several separated entities, like Telepac, FCCN and, of course, Universities, but not as partnerships projects.

The details of the most interesting work can be found in the following links:

- http://www.ipv6.telepac.pt (Telepac).
- http://www.fccn.pt/projectos/ipv6/index_html (FCCN).
- http://www.ipv6.ualg.pt (University of Algarve).

3.1.7 Denmark

Ericsson Telebit is a major IPv6 activity centre in Denmark. Their laboratory has significant activity related to European IPv6 deployment. They are also active with Eurescom IPv6 projects. The technical university is another centre where some IPv6 projects are running.

3.1.8 Switzerland

National research network (SWITCH) has s-TLA for IPv6 and are involved in testing various IPv6 features across several interconnected networks such as CERN, ETHZ, EPFL etc. Swisscom also has started some studies in IPv6 area recently.

Several technical schools are also experimenting with IPv6, but no commercial networks and applications are available in the country.

Both MCLAB and Telscom who are active in several IPv6 related projects have the IPv6 laboratory facilities available in their premises. The MCLAB network is interconnected to GEANT network, so that many experiments can be carried over with connectivity across Europe.

3.2 Eurescom projects

Eurescom is active in researching and validating the IPv6 network features with analysis, deployment and testing The Tsunami project (P1113) which is the follow-on project of the ARMSTRONG project has similar interest as Euro6IX project.

- The setup of a network environment with new IPv6 features.
- Gain experience and single out problems in the deployment of the recently released standards in an operational multi-provider environment, which will be set up by all providers in the coming years.
- The case for new IPv6 services built on these features will be investigated.
- Sample applications for such ISP services will be demonstrated.
- The test bed built up in Armstrong will be used and expanded by the new project.

3.3 International projects

- European GEANT Test Programme (GTPv6) participant activities include subjects such as routing architecture, DNS, registries and addressing, applications, wireless access, IPv6 multicast, network monitoring and security. These are of direct interest for the Euro6IX for planning their network, deployment and test. UoS chairs this activity, with funding from UKERNA.
- There is already number of academic and scientific IPv6 networks deployed and operated in U.S (6TAP, 6REN, Virginia test-bed, TRAIL, vBNS, etc.). For possible international trials the links to some of these networks will be established. To further the cooperation and collaboration with the US networks, it will be necessary to attend US-oriented events, such as the Internet 2 Spring and Fall Member Meetings.
- In Canada both Viagenie and CC*NET2 are operating to serve the academic and scientific community. The project partners have close links to these groups and some of the international trials during the project lifetime, will be linked to Canada for interoperability tests.
- NTT's global IPv6 network consists of NTTv6Net (a research network owned by NTT PF Laboratories) and NTT Europe's IPv6 commercial network. Both networks are connected seamlessly and will eventually cover all of the world's major continents. The main Points of Presence (PoP) connected via IPv6 native links: London (UK), Dusseldorf (Germany), New Jersey (USA - East Coast), Cupertino (USA - West Coast), Tokyo (Japan). Users are provisioned with: Official IPv6 /48 address from NTT Communications sTLA block (2001:218::/35), IPv6 Internet connectivity, DNS reverse zone delegation for the subscriber's IPv6 address space, IPv6 Web hosting, FTP server, SMTP server and POP3 server. Such an experience is of high value to Euro6IX. The links with NTT-Europe have already been established.
- We expect collaboration with WIDE. In November 2001 UoS attended the Japanese Gigabit Network Conference at the invitation of the hosts, along with representatives from RENATER and UCL. There have also been meetings with WIDE representatives at past IETF meetings (e.g. a 2-day workshop after IETF-51 in London). Physical links to WIDE could be achieved through Internet 2 or via the Korean TEIN link.
- Hitachi, one of the sponsors of Euro6IX project has provided one of his engineers, working half time during the project lifetime. This engineer is one of the original members of the WIDE project.
- South Korea has officially committed to the IPv6 deployment, and they are in the same stage as the Europeans and hence close collaboration between Euro6IX and Korean projects and industries will be established.

- From the international cooperation perspective EuroLink Project is also of interest. EuroLink is a National Science Foundation-funded initiative that facilitates the connection of European and Israeli National Research Networks (NRNs) to the high-performance vBNS and Abilene networks of U.S. Euro-Link is funded through 2003 as a next-generation Internet initiative that supports international research collaboration.
- Several other international corporations, groups, projects and activities had contacted Euro6IX and we are working in establish the adequate mechanism and legal framework in order to allow them an active participation. In total we expect cooperation with more than 150 entities.

4. DISSEMINATION ACTIVITIES

The dissemination activities will have the responsibility of awareness creation of IPv6 deployment related issues among all actors involved in the operational needs of IPv6 networks. This group will be supporting the activities of several organization and fora, related to IPv6 development and deployment. Examples of this are the IPv6 Forum, IPv6 Task Force, Next Generation Networks Initiative, ETSI, ISOC, IETF, 3GPP, 3GPP2, … This group will organize timely events/workshops jointly with important organizations and professional events organizers with targeted participants, to direct the dissemination for maximum impact.

4.1 Press releases

The project issued a press release during the IST-2001 conference, which was widely circulated before the official start of the project. It was also sent out to many international agencies and IPv6 related forums. The press release is annexed in Annex 1.

The project also demonstrated its commitment to co-operation with the 6NET project, by jointly issuing another press release, which is attached as Annex 2.

The third press release was made during the Madrid 2002 Global IPv6 Summit (13-15th March), which is attached as Annex 3.

4.2 Project Website

The main dissemination tool of the project is the project website. The domain names euro6ix.org, euro6ix.com and euro6ix.net have been registered and all these lead to the same web site www.euro6ix.org.

The project web site is established and will be continuously updated with the results of the project. The website has been submitted to most of the important search engines and to the portals, so that any visitor to one of the linked portals can easily access the Euro6IX website for more information.

The site has both public and private space. The public space will have project related public information, links to related sites such 6NET, IPv6 cluster, IPv6 Forum, standards group such as IETF among others. In addition to all these public information, all public deliverables will be made available on this site so that visitors can download the deliverables of their interest, by registering as users. All these users profiles will be maintained in the users group and whenever major changes are made with news, deliverables, events, etc. all these users will be notified in the form of news flash.

The project partners for exchange of documents, discussion groups and mail archiving will use the private web space.

The FTP has also been set up, for easier communication with bigger files exchange.

4.3 Liaison Activities

Liaison is part of visibility to be created among the peer projects and initiatives. Several level of liaisons are considered in the project ranging from project, cluster, fora, industry, standard groups (IETF, RIPE and others), National and European initiatives (e.g. NRENs, IPv6 Task Force, etc.). These liaisons are used for exchange of information of mutual interest, organization of events, contribution towards standards and common specifications. It is expected that Euro6IX can use the 6LINK project as a means to feed project results to the wider community, as well as the IPv6 Cluster.

4.4 IPv6 Cluster

There are a number of IPv6-related projects which are already active in researching IPv6 technology-related issues and that are promoting the cause and importance of IPv6 as a new protocol to make the next generation internet a commercial success in Europe. Euro6IX will take a leading role in assisting the 6LINK project in assembling all related IPv6 projects and identifying the commonalities among the various activities at the level of an IPv6 cluster. As one of the two current major IPv6 projects (long with 6NET), we expect Euro6IX to be a major contributor to this process. The activities are aimed at demonstrating the limitations of IPv4 and the need for planning of future networks taking into account real user needs, developing appropriate solutions. The awareness of available standards and products is an important issue in the evolution of future networks. The Euro6IX project will work very closely with other IPv6 cluster projects to liaise with standards groups and Forums as well as industrial organizations to promote IPv6 based network development and deployment.

One mechanism that will be used to promote IPv6 among industry, research institutions, vendors and user groups is the Concertation process at the level of IST projects. Since the Concertation meetings include most of the relevant players, it is important to use that platform. Through this platform close links will be established with ETSI (IPv6 plugtests), the IPv6 Forum (awareness creation through participation in summits, and participation in technical directorate meetings), IETF WGs related to IPv6 (ngtrans and IPng) and NGN WGs of ETSI and ITU to promote IPv6 at the highest possible level of standardization and framework. The successful deployment of these technologies is dependent upon feasible strategies for their interoperability with existing networks and services. Such interoperability issues are the focus of the several projects and hence the IST can have a major impact, when the information is properly channeled to appropriate groups. The IPv6 cluster is hence an important platform to achieve such wide-ranging influence. It will be particularly important to be able to feed back the results of this cluster work to the standards bodies like the IETF, backed by concrete experience.

IPv6 cluster level workshops will be initiated by the 6LINK project to discuss deployment related issues, to promote early development of IPv6 production level networks. Euro6IX will play a leading role in this activity.

4.5 Euro6IX-6NET joint IPv6 workshop

6NET, another IST project addressing IPv6 deployment for the National Research and Education Networks (NRENs), is the major project with which Euro6IX will have very close co-operation. Contractually both projects have agreed to conduct a first joint workshop during June 2002.

This joint workshop will be held at Limerick on 5th June 2002, in Ireland, as part of the Terena networking conference. Terena will provide the logistics and both Euro6IX and 6NET projects will organize the sessions on IPv6 with selected speakers addressing some important issues of IPv6 that has to be urgently resolved for successful deployment of IPv6 networks and applications. The details of the planned workshop can be seen at http://www.terena.nl/tnc2002/6workshop.html.

It is expected that at least 3 further joint workshops will be held over the lifetime of both projects.

4.6 IPv6 Forum events

The IPv6 Forum has the main objective of awareness creation of IPv6 features among the key actors. This awareness creation is done through a number of IPv6 Summits across the world. The Euro6IX project will take an active role by providing speakers, demonstrations and infrastructure to such events.

The recent Madrid 2002 Global IPv6 Summit (13-15 Mar. 02) was used by the project as a first platform to inform a large gathering of participants (over 550 delegates). During this event IPv6 applications were demonstrated across IPv6 networks connecting multiple remote sites connected to the GEANT network and linked to the U.S, Canada and Japan.

Consulintel has already committed to organize a new Global IPv6 Summit in Madrid, most probably in May 2003, that will be organized together with a joint Workshop and Public Trial for 6NET and Euro6IX projects, with a target of over 600 delegates. Is expected that this event could be organized together with a big distributed interoperability test (with participants connected locally and in different 6NET/Euro6IX nodes), most probably jointly with ETSI.

Consulintel is also organizing in Spain (Madrid or Barcelona), a new big event, probably in Spring 2004, consisting in an IETF meeting and in the week before or after, a Global IPv6 Summit. Both events will be supported with the Euro6IX and 6NET networks.

4.7 IETF meetings

Project partners are participating in IETF ipng, ngtrans, mobileip, multi6 and other IPv6-related working groups. Is expected that this participation will increased along with the project progress. This will enable the follow-up of the standardization activities, very closely, for adopting the project research work in line with ongoing standards development, and to contribute to the IETF groups with the project findings for promoting early standards.

The 53rd IETF meeting, in Minneapolis, was attended by 5 people, from the Euro6IX project.

Consulintel has made a presentation of the Euro6IX project in this meeting, in the frame of the Technical Directorate.

4.8 RIPE meetings

Consulintel has been presented the project in the IPv6 working group of RIPE, and also an update of the project status was delivered to the delegates.

A joint event with a RIPE meeting, in Madrid, is under negotiation, to be organized by Consulintel and RedIRIS. Euro6IX will also support it.

4.9 IST Events

Consulintel has worked with the IST Directorate in order to prepare for the deployment of the network of the next IST event, to be held in Copenhagen next November (4-6th).

This scenario will be exploited for an important demonstration of the project progress, including real usage of IPv6 network, both fixed and wireless.

4.10 Conferences and publications

The project partners will contribute to important and selected conferences and workshops with the results of the project research work, to develop more working relationships with other related activities, which will be presented in such conferences and workshops. This includes contributions to quality academic journals where appropriate.

The project will also follow up publication of IPv6 related articles both of the overview type for general interest and in–depth technical papers in the scientific journals to reach a large audience with the project results. The project has already taken some initiative, for a possible special issue of IEEE Communication magazine addressing IPv6.

It's important to point that the Dissemination work on both of these directions (conferences and publications), has started already before the project itself, with dozens of public presentations and papers, in Spanish and English, made by Consulintel. This work and the related traveling expenses had been not funded by the project. The impact of this work for the project awareness is highly relevant.

4.11 Demonstration of IPv6 applications

The success of IPv6 deployment is a function of IPv6 compatible applications. There are several applications that have already been ported to IPv6 and the Euro6IX project is adding more such ported applications into the IPv6 world. All these applications will be demonstrated during public events such IPv6 Summits (as was done during the Madrid event) and IST events across heterogeneous networks encompassing both fixed and mobile networks and applications.

Development of new services and applications is not one of the mayor goals of Euro6IX, but it is important for the project to be able to show to the IP world community, the feasibility of such services provided over complex networks and large scale systems. This will be the key element for service providers to gain confidence in the success of the IPv6 networks.

In this context large-scale trials combined with public events such as Madrid Ipv6 Summit offers one of the best scenarios. Such public trials are planned for IST2002 in Copenhagen.

5. USAGE PLANS

The Euro6IX project has plans to acquire many non-commercial users for using the IPv6 native networks provisioned by the projects. The project will prepare an acceptable usage policy (AUP) and an agreement document will be prepared that should be signed by the users to the Euro6IX network (free of cost) for only non-commercial traffic. The project will make open source IPv6-enabled applications available to users outside the Euro6IX network, in the expectation that the applications will be used to communicate with users inside the Euro6IX (project) network.

5.1 Partner's exploitation plans

5.1.1 Network Operators/ISPs

Euro6IX will help the operators in the development of a real IPv6 scenario ready to test future IPv6 commercial services. In this way, the creation of an IPv6 Spanish Internet Exchanger (IX) connected to other European IXs is the best way to start the deployment of advanced European networks at the same time as Japan and in advance of the USA.

By setting up an IPv6-capable and natively interconnected Internet Exchange, operators can expect to dramatically improve the quality of the experimental IPv6 services that it is already providing to the increasingly large IPv6 community. All of these customers will benefit of the Euro6IX results immediately and the availability of a more reliable IPv6 network infrastructure will probably encourage many other IPv6 newcomers to make their way towards the new protocol, thus increasing the IPv6 market and awareness.

Moreover, operators collaborate with the main Business/industrial partners for the development of innovative services, such as those based on IPv6. For this reason, it is expected that in a couple of years operators will be directly involved in planning the IPv6 migration path for most of the IPv4 backbones managed by the other companies. This effort will represent an excellent opportunity to exploit and re-use most of the know-how and deployment experience gained during the Euro6IX Project, which will develop a production-like large scale IPv6 environment that will be required to approach as much as possible the quality standards of the current IPv4 Internet.

Besides that all investigations in direction of network addressing, ISP BGP peering as well as the network trials and the support of advanced network services (Renumbering, IPv4/IPv6 interoperation, Multihoming) will be of significant importance for operators, for the future operation of an native IPv6 service network.

The operators will use the experience gained in this project in training their personnel for operating and managing new network. The training in IPv6 network operation is an important part of exploitation activity for the operators.

The Partners involved are: BT, France Telecom, T-NOVA (DT), TILAB (Telecom Italia), TID (Telefónica), Portugal Telecom. Other Telco sponsors are expected to join this initiative, and several ISPs in the near future.

5.1.2 Manufacturers

6WIND and Ericsson Telebit are 2 edge devices manufacturers active in the project. This project will help their leading edge position within the next generation of the Internet by implementation and testing of the additional functionality needed for it, i.e. IPv4-v6 Seamless Translation routing, VoIPv6 Telephony and accounting.

Through this project, Ericsson Telebit will get an opportunity to support the build up of the Euro-IPv6 Network catering for the needs of the New Internet for quality and secure E-commerce.

5.1.3 Consultants, System Integrators and Application Developers

Consulintel, novaGnet and Telscom are 3 active companies in this category. Euro6IX will help maintain their leverage on the national market with IPv6 networks, consultancy, system integration, and training. The experience gained and shared would be of high value in defining the company's product strategy and alliances of the future. Euro6IX is the perfect test-bed for several new applications and technologies that rely on extensive use of IPv6. Moreover, the experience gained with the project will help these companies in the development of new applications, using all the relevant IPv6 features.

5.1.4 Universities

Universities are well placed for exploiting the project results thorough an increase in know-how and ability to support the European Internet industry. They will be in a strong position to supply technical support and trained engineers to the European work force in Internet services, from their active R&D work in the project.

The Universities will be in a position to support the migration of companies and users from IPv4 infrastructures and services to IPv6. It will create competence to support the integration of European industries and research centers in an advances Pan-European network for the development of a competitive Internet industry. They will also produce some academic research papers in national and international conferences and scientific journals from their activities in this project; furthermore, the direct cooperation with some industrial partners will help to disseminate their knowledge and experience.

5.1.5 Users

Few partners in the project and the uses who will be using the IPv6 network of the project will be the few of first IPv6 users and they would exploit the leading edge technology for developing users specific applications, test for their performance and some of them could develop profitable business from their usage of IPv6 infrastructure that would be made available by Euro6IX project. Is expected that several dozens of non-commercial customers will joint the trial activities of the project.

5.2 Enrolment of Users

A key point in the project is to provide enough native IPv6 user's traffic so that scalability tests will be run in the Euro6IX test-bed. These activities will include traffic-engineering investigations, guidelines for IPv6 core networks design and network services and end user applications deployment.

The project has already contacted all IPv6 related projects and national IPv6 initiatives to enroll themselves as users, since these projects are looking for the pan-European test beds for testing their development work in the form of HW or SW components.

The network that Euro6IX is building will be open to external user groups, according to a specific policy, that is needed in order to avoid conflicts either with the IST Programme mission and funding strategy, or mislead future cooperation with other projects, research and academic networks.

The approach will be to accept request of network usage from User Groups that comply the following Access Usage Policy (AUP): "Euro6IX will offer the use of its IPv6 test-bed network for non-commercial traffic of R+D projects or organizations."

For example, it will include laboratory users, universities, and groups engaged in the IPv6 protocol and applications development and their subsequent deployment.

5.3 Joint Trials with 6NET and other IST projects

Euro6IX project has signed a co-operation agreement with 6NET for collaborative research and testing. In this context there will be a peering between Euro6IX and 6NET networks. After deploying the Euro6IX test-bed, the project will link to external IPv6 networks that would be identified and invited to join the trials.

These networks could be temporally connected or maybe get a permanent connection. In both cases the rules regarding the AUP will be followed.

The first relevant experiments to be achieved in this way are related to other IPv6 IST projects, such as 6NET, GÉANT, NGNLAB, 6WINIT and LONG, among others. Other examples of these networks are: Japanese, Korean, Chinese and North American IPv6 **test** networks, which could also provide specific users groups.

6. SUMMARY AND CONCLUSIONS

Euro6IX project has set up well-established plans for bringing success to the project through the R&D in networks and applications, and then deploying them for users.

The users will be recruited by the awareness creation programme involving tools of on-line dissemination through the project website, timely press releases, participation in concertation activities lead by IPv6 cluster, contribution to standards and conferences. The IPv6 features will be demonstrated in public trials at the project level and jointly with 6NET at pan-European level, involving other user projects interested in IPv6 network and applications.

The project participants had initiated early dissemination and awareness activities (presentations and papers in events and conferences), that provide a very good tool for gathering new “users” and “sponsors” for the research, development and trial activities of the project.