A meeting of the whole 6NET Consortium was held in Lisbon from 5th – 7th March, organised by Cisco’s Portugal office. Individual Work Packages were reviewed, and in addition there was an opportunity for an update on issues critical for the whole project in a plenary meeting. Key points from the consortium Plenary meeting were:

- Connectivity has recently been provided to:
  - o NTT (via UK): E1
  - o Hungarnet: STM-1
  - o NITV (via UK): E1

- 6NET will operate with a single point of presence (PoP) to each network of the user for experimental purposes. Production and test traffic will be routed as appropriate via GEANT or 6NET.

- Tests have been defined at the network service level (QoS, routing, multicast, security, mobile IP, firewalls, network management issues, and the applicability of IPv6 to the Grid.

- The second session focused on IPv6 rollout issues. Harald Alvestrand, Chairman of the IETF, discussed the aspects of the IETF and possible projects, and the importance of the distribution and implementation of IPv6 “peculiarities” and constrains. Consequently, there is a significant opportunity for NREN NRENs to build a human network in the field of IPv6, which will assist them to reduce the gap with commercial service providers.

- 6NET and SEEREN will search for common ground for cooperations that will be beneficial for the whole project. This includes also to cooperate with the other Eligible Countries (NRENs) in eligible countries and GÉANT.

- The eligible countries are Greece, Hungary, Romania, Albania, Bosnia-Herzegovina, Bulgaria, Former Yugoslav Republic of Macedonia, and Serbia and Montenegro, Greece, Hungary and Romania already have GÉANT connectivity, therefore Ireland, Spain, and France are beneficiaries of this initiative. The project will oversee the design and implementation of connectivity between the partner NRENs and the regional GÉANT points of presence via 2-34Mbps links. Furthermore, the project will leverage other European or international funds and coordinate them to maximise the impact on the region.

- Coordination: The 6NET Consortium is composed of 35 partners representing 28 participating parties.

- 6NET Workshop - Zagreb, 21 May 2003

- The 6NET Workshop was held on 21 May 2003 in conjunction with TRC-CIC 2003 in Zagreb, Croatia. The objective was to present various aspects of IPv6 deployments in GÉANT and泛欧 networks and the transition from legacy networks. In addition, it considered the role of 6NET and related projects such as EuroGrid and EuroGrid-Plus in the development of the next generation of networks. This day-long workshop was attended by 60 participants and featured speakers from a number of different organizations.

- The opening session provided an overview of the 6NET and EuroGrid projects, as well as the introduction of IPv6 in the pan-European research network.

- The EuroGrid presentation was actually given via videoconference in a demonstration of Internet network services across Europe. Unfortunately, the video about the 6NET project was also shown for the first time. The session concluded with a presentation on the future prospects of IPv6 in the forthcoming 6th Framework Programme.

- The second session focused on IPv6 rollout issues. Harold Alvestrand, Chairman of the IETF, discussed the aspects of the IETF and possible projects and the importance of the distribution and implementation of IPv6 “peculiarities” and constrains. Consequently, there is a significant opportunity for NREN NRENs to build a human network in the field of IPv6, which will assist them to reduce the gap with commercial service providers.

- The greatest opportunities are to really advance the understanding of IPv6 and its deployment in all types of networks, so that it is adopted correctly and effectively. The project has a significant role to play in this understanding.

- 6NET Workshop - Lariboisière, 24 February 2004

- The 6NET Workshop was held on 24 February 2004 in conjunction with the COST 296 workshop, which was partially financed by the European Commission. A large public institution.

- The participants were able to learn of the new opportunities provided by the IPv6 technology. These activities will strengthen the foundation of publicity materials, such as Deliverables, making presentations at SEEREN planning and technical conferences and events, and networking SEEREN partners and stakeholders.

- The attainment of the major objectives and promotes the spread of IPv6 to research and academic communities in Europe.

- The 6NET Consortium

- Coordinator: Cisco Systems International

- Principal Contractors:
  - Czech National Research and Education Network (CERNET) Delivery of Advanced Technology to Europe (DAte) (Czech Republic)
  - Hungarian Academic and Research Network (Hungary)
  - Compagnie IBM France
  - Istituto Nazionale di Fisica Nucleare - Gruppo per l'Armonizzazione delle Reti (Italy)
  - Deliver of Advanced Networking (GARNET), Compagnie IBM France, Istituto Nazionale di Fisica Nucleare - Gruppo per l'Armonizzazione delle Reti (Italy), United Kingdom Education & Research Networking Association (UKERNA), University of Stuttgart, University of Vienna, Universitat Politècnica de Catalunya, University of Rome III

- Editors: Mrs. Butler, what is your function in Cisco and your role in the 6NET project?

- Butler: I am Head of Strategic Technology and Collaboration for Cisco in Europe, Middle East and Africa and I am Chair of the 6NET Consortium and Chair of the Project Management Committee (PMC) for the project.

- Interview with Jane Butler

- Mrs. Butler, what is your function in Cisco and your role in the 6NET project?

- Butler: I am Head of Strategic Technology and Collaboration for Cisco in Europe, Middle East and Africa and I am Chair of the 6NET Consortium and Chair of the Project Management Committee (PMC) for the project.

- How do you position 6NET in this evolution?

- Butler: 6NET is an emerging technology and as such can only become familiar with IPv6 “peculiarities” and constrains. Consequently, there is a significant opportunity for NREN NRENs to build a human network in the field of IPv6, which will assist them to reduce the gap with commercial service providers.

- The greatest opportunities are to really advance the understanding of IPv6 and its deployment in all types of networks, so that it is adopted correctly and effectively. The project has a significant role to play in this understanding.

- What do you see as the biggest challenges and opportunities of the 6NET project?

- Butler: The biggest challenges are to really advance the understanding of IPv6 and its deployment in all types of networks, so that it is adopted correctly and effectively. The project has a significant role to play in this understanding. The biggest opportunities are to really advance the understanding of IPv6 and its deployment in all types of networks, so that it is adopted correctly and effectively. The project has a significant role to play in this understanding.

- What is your opinion about the evolution of the market with regards to the acceptance of the IPv6 protocol?

- Butler: 6NET is an emerging technology and as such can only become familiar with IPv6 “peculiarities” and constrains. Consequently, there is a significant opportunity for NREN NRENs to build a human network in the field of IPv6, which will assist them to reduce the gap with commercial service providers. As the regional interconnection infrastructure is currently in very poor condition, this may become an advantage in some cases, as these regional NRENs are greenfield networks. As the regional interconnection infrastructure is currently in very poor condition, this may become an advantage in some cases, as these regional NRENs are greenfield networks. As the regional interconnection infrastructure is currently in very poor condition, this may become an advantage in some cases, as these regional NRENs are greenfield networks. As the regional interconnection infrastructure is currently in very poor condition, this may become an advantage in some cases, as these regional NRENs are greenfield networks.
Virtual Private Network (VPN) technology has, and increasingly continues to be widely deployed within IPv6 inter-network environments. However, such deployment usually involves a high degree of static configuration. Provisioning for dynamic VPN set-up is still very much an open research issue. A VPN is a network built over the shared public IP infrastructure that operates with the security, and is an effective means of building and deploying private communication networks for multi-site inter-network environments. However, such deployment usually involves a high degree of static configuration. Provisioning for dynamic VPN set-up is still very much an open research issue.

The validation phase of the IPv6 testbed, which is part of the 6NET Project, aims to test the implementation of such an IPv6 in an end-user fashion and to be able to understand the behaviour of IPv6 in a real-time environment. A solution, which appears to be relevant in terms of increasing the traffic, is to deploy a network storage infrastructure that can provide a service which can be easily replicated for testing purposes. To this end, the involvement of a mixed IPv4 / IPv6 infrastructure, using web pages on a dual-stack server.

The network storage system chosen for this experiment is the Internet Backbone Prototype (IBP) middleware. This was selected because it provides a complete storage infrastructure inside the network (in the form of distributed data depots which allows data depots to achieve high performances in temporary storage. The IBP middleware is able to provide a layer that sits on top of the network storage depots, in order to make it transparent, scalable, and data is already IPv6 compliant. It’s clear that with such a large number and different applications in the IPv6 catalogue, not all of them can be expected to be part of the final tests and evaluations. This is why the notion of Trials has been introduced. A Trial is a smaller scale deployment.

The IBP middleware deployment that GARR is planning is divided into two parts. Initially, a set of IBP depots will be deployed in three core network PoPs (Rome, Milan, and Bologna). In parallel to this deployment, the Universities and Research Institutes participating to the Italian part of the 6NET project will designate some machines to serve as local IBP depots. This infrastructure will be used to distribute open source code, and a web site will be used as an application that complies with the evaluation process defined in Deliverable D5.5. At the moment, 10 Class A Trials (A minimum of 3 named users at each of 5 named sites) and 16 Class C Trials (minimum of 2 named users at each of 5 named sites) have been identified. Formerly, 10 Class C Trials were performed in 6NET, and 4 Class A Trials are under evaluation. The Trial Coordinator has the duty and responsibility to manage the Trial, to schedule the tests and to report the results of each test through the Test Evaluation Form on the 6NET Applications Website.

6NET applications

The 6NET project is more than just another IPv6 network, and 6NET’s primary objective is to deploy IPv6 in the European core network (transit). The project is dedicated to promote IPv6 across Europe, and to provide the necessary technical support for its implementation. The 6NET project is also committed to demonstrating the benefits of IPv6 across different verticals, such as performing a C-like malloc (memory allocator) procedure on an Internet resource, with some outstanding differences. Such a system enables: the generation of IPv6 traffic independent from users, and the UK 6NET router. It provides 6NET with an IPv6 native network interface services (Mobile IPv6, IPv6 Multicast, etc.) provided by the 6NET network service providers. These services also support IPv6 and a new peering to the North American network service providers.

The following diagram presents the main components of the 6NET core environment.