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Abstract:

This document presents the Eurov6 Nomadic Showcase scenario and possible enhancements. It explains the integration of the System concept, devices, services and applications from the Fix Scenario into and equivalent version that could be deployed in moving showrooms, like trucks, events, shows, conferences, and similar situations. In addition a reference for detailed reports the exact configuration in order to be easily reproduced in similar environments that may be completely different, so precise minimum requirements need to be determined for different possible configurations.

Keywords:

Eurov6 Fix Showcase, Eurov6 Nomadic Showcase, IPv6 Applications, IPv6 Configurations, IPv6 Devices, IPv6 Services.

Revision History

The following table describes the main changes done in the document since it was created.

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v2.1	04/03/2004	Content fitted to first review recommendations on exact device configurations	César Olvera (Consulintel)
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Executive Summary

The Eurov6 project has as main objective to show the usage of IPv6 products and services and their impact to anybody at anytime.

This document describes the Eurov6 Nomadic Showcase scenario and possible enhancements. It explains the integration of the System concept, devices, services and applications from the Fix Scenario into an equivalent version that could be deployed in moving showrooms, like trucks, events, shows, conferences, and similar situations. In addition the document gives a reference for detailed reports with the exact configuration in order to be easily reproduced in similar environments that may be completely different, so precise minimum requirements need to be determined for different possible configurations.

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1. INTRODUCTION

The main objective of Eurov6 project is to show the usage of IPv6 products and services and their impact to anybody at anytime. Realizing this objective will include:

- Bringing together vendors and sponsors to demonstrate and test their devices and systems.
- Showing various users applications based on IPv6 products and services, permanently at a few locations in Europe ("Fixed Showcase"), which can be visited physically or accessed remotely through telematic means.
- Organizing temporary demonstrations at different locations and/or significant telecommunication industry events (concept of "Nomadic Showcase").

In Eurov6 Deliverable D2.3 the Fix showroom scenario was described, explaining the integration of System concept, devices, applications and services in the Fix Scenario, and gives a web reference of detailed reports of the exact configurations in order to be easily reproduced in similar environments.

This document describes **Eurov6 Nomadic Showcase** scenario, which could be deployed in moving showrooms. The aim is to show the current and possible future enhancements, explaining the integration of System concept, devices, services and applications running in the Nomadic Scenario.

2. INTEGRATION OF SYSTEM CONCEPT

The Nomadic Showroom is intended as the one to be deployed for a short period of time and in any place, usually a booth in a public event. This means that practical issues should be taken into account, like the space available for the showroom, the shipment of the equipment needed, availability of IPv6 connectivity, etc.

For this reason the Nomadic showroom must try to follow some rules:

- Try to use lightweight equipment, laptops, PDAs, etc, as much as possible.
- Try to connect to remote services, for example to the Fix showrooms, in order to need fewer devices, configurations and so on.
- Things must be as visible as possible. The use of projectors, posters, etc. is recommended in order to make the demonstration more spectacular.
- Be prepared for the worst case. Things can go wrong, and backup solutions must be foreseen.

The demonstrations available each time when the Nomadic Showroom is deployed, will change depending on the sponsors, the available technology at that moment, etc. So a set of basic services and applications will be in all the showrooms, fixed and Nomadic, but new demonstrations will be added as the time passes.

For example, DNS or web servers could be located at one Fix Showroom and the laptop client in the Nomadic Showroom, with the laptop screen projected in a big screen. Services like video streaming, in the other hand, would be better placed in the Nomadic Showroom in order to avoid depending 100% on the event network.

Also the four Showroom areas developed in Eurov6 Deliverable D2.2 will not be suitable for a generic Nomadic Showroom for space reasons. Thus before referring any particular element, it is important to clarify that due to the reduced space where no areas distribution exists, so a visitor can not follow any reference guide, since it normally consists of a stand, an always present capable person to explain the functionality of each device, application or service is required, since other way it would be difficult for people to understand by themselves the complete functionality of the showroom.

In addition the visitors usually don't have too much time, during an event to stop too much in several "areas" in the same booth.

One important aspect about the need for the presence of each device, or the integration of applications and services is the availability of connectivity. If the place where the showroom is held arranges an upstream IPv6 connectivity some applications and services could be remotely reached and checked, so maybe some devices could be saved or, at least, the installation process could be easier.

Also the interaction with the Fix Showrooms will be addressed, and will be used in some concrete examples of deployed Nomadic Showcases.

Note on exact device configurations

As the exact configuration on hosts, routers and devices tends to change very fast as newer IPv6 implementations get out to the public, it has been decided not to include these configurations

here as they will become obsolete very soon. Instead, a kind of “Eurov6 Configuration Cookbook” information will be produced permitting to partners to:

- Access to updated configuration material in order to easily reproduce the showroom demonstrations in both new Fix and Nomadic Showcases.
- Upgrade periodically the configuration of the devices integrated in the showroom in order to cover the new IPv6 implementations.

And it is important to remark that this information will be available to interested parties “as is” on request.

3. COMPONENTS OF NOMADIC SHOWROOM

Once the concept of Nomadic showroom has remained clearer, and the main differences between both kinds of showrooms, Fixed and Nomadic, were explained, the following sections give an overview of the devices, services and applications to be used in the Nomadic Showroom. The emphasis will be on the differences with respect to the Fix Showroom explained in D2.2, where more information could be found.

3.1 Devices

This section gives a description of the most appropriate devices that should be used in the Nomadic showroom. Being physical elements, the main restrictions are related to their dimensions.

This restriction of size specially affects routers and desktop hosts, since mobile devices are, in general, smaller.

The use of laptops as client hosts is recommended since the medium requirements on hardware and software for a client machine, and their smaller dimensions rather than a desktop PC, monitor, keyword and mouse. Also they could be used as servers if they can cover all the requirements that are normally upper than those required for client hosts. They should be all configured with several IPv6 enabled operating systems.

Routers present the same size related problem as hosts, so the smaller model that covers all requirements, from Eurov6 sponsors or common vendors (6WIND, Hitachi and Cisco) should be chosen.

Regarding the IPv6 compatible mobile devices, they are the same as the ones used in the Fixed showroom due to their small dimensions. This kind of devices will help showing wireless access on pocket devices using several scenarios. The following pocket/wireless devices could be present in a Nomadic showroom:

- Pocket PCs Linux (Familiar 0.5.2 distribution + BlueZ stack) and Bluetooth.
- Mobile telephones with GPRS, Bluetooth and IrDA.
- Bluetooth PCMCIA cards.
- Bluetooth USB interfaces.
- Wireless LAN cards.

Also, PLC devices can be integrated into a Nomadic showroom in order to demonstrate the capabilities of Power Line Communication technology. In this case only two devices are needed for doing a demonstration: one HE (Head-End) and one CPE (Customer Premises Equipment).

In addition to “traditional” network devices the aim is to show new devices that are being integrated into networked world. The following gives an idea of the kind of devices that will be present in the showroom.

- Microwave oven, coffee maker, etc.
- Security, surveillance, gas/fire detection, alarm systems.
- Cameras, telephone, video and audio devices.
- Wearable devices.

The inclusion of specific devices will depend on the current availability for the showroom, from manufacturers, sponsors, etc.

3.2 Applications

Applications that can be integrated into a Nomadic showroom are, basically, the same that those integrated into a Fixed showroom since most IPv6 applications are available for many platforms and they are easy to implement and install. Furthermore, the applications installed should try to show the "state of the art" in the IPv6 field in the different four areas that were identified in Eurov6 D2.2. Some of these applications are listed below:

- HTTP Client and Server.
- FTP Client and Server.
- Mail Transport agent (Sylpheed).
- ISABEL Multimedia Videoconference.
- Multicast Videoconference tools.
    - RAT (Robust Audio Tool).
    - VIC (Video Conferencing Tool).
    - SDR (Session Directory Tool).
- VoIP with SIP.
- VoIP with H.323.
- VideoLAN.
- MPEG4IP.
- Windows Media Services and Media Encoder 9 Series.
- Windows Media Player 9 Series.
- Media Player on Linux.
- Tetrisnet.
- "Quake" Game (Client for Windows).
- On-line Instant Messaging tool.
- Three Degrees (Peer to Peer Application).
- Home automation.

3.3 Network Services

Like in the case of applications, IPv6 network services used in a Nomadic showroom are not very different from those used in the Fixed showroom.

The main issue with the network services, is that some of them request the presence of several devices, which is not the desired situation for such nomadic reduced scenarios and times. Despite that, the basic services can be always set up in the local place, and thus can be enhanced by means of remote connectivity to Fixed showrooms.

Multicast is a key feature of IPv6 and it is possible to used this service using a connection to the M6Bone, an IPv6 test-bed network specifically deployed to make tests in the IPv6 multicast field, by means of an IPv6 tunnel and applications like RAT or VIC.

Mobility is still a service in progress that gives a node the capability of attaching to a foreign network, with another IPv6 address, without loosing connectivity and being reachable by other nodes. Using MIPL, the latest IPv6 mobility release for Linux, which implements all required functionalities, some scenarios could be showed.

Obtaining PKCs (Public Key Certificates) using PKIv6, the Public Key Infrastructure with IPv6 support developed by the University of Murcia for the Euro6IX project, is another service that can be used whether remote IPv6 connectivity is available.

One of the main features of IPv6 is the QoS since the users can demand some functionality to the network for specific types of traffic. Implementing a complex test-bed scenario is not very easy since several devices are needed, although the aim is to always provide some QoS functionalities.

DNS is one of the most important services in the Internet. To support IPv6 addresses new AAAA records are used. BIND (DNS server) supports them from version 9. Since the IPv6 network is not universally available, requests can be issued and answered both over IPv4 and IPv6, allowing passing between IPv6 islands. Implementing a DNS server allow having IPv6 hosts in the showroom that can be identified by a name, and this application can be installed in a common server machine so it does not imply the presence of any other device.

3.4 Network Infrastructure

For the different services and application, the Nomadic Showcase will use several network infrastructures such as:

- Wireless Access.
    - Bluetooth.
    - IrDA.
    - WLAN.
    - GPRS.
- Transition Mechanisms.
    - Dual stack.
    - Stateless IP/ICMP Translation Algorithm (SIIT).
    - NAT-PT.
    - ISATAP.
    - Tunnels broker.
- PLC Network.

The Fixed showroom used these infrastructures in their facilities (see D2.3), and it could be easily configurable and deployable with several of these functionalities in the Nomadic site each time.

3.5 Devices from Sponsors

One of the Eurov6 goals is to show both, in Nomadic and Fixed showrooms, the latest devices and applications from sponsors.

Eurov6 Nomadic showroom always will count with this support in order to disseminate the work on IPv6 of vendors, developers, services provider and operators.

4. INTERACTION NOMADIC-FIX SHOWROOMS

As said above, the use of remote services could ease the deployment of the Nomadic Showcase. The demonstrations accessed from the Nomadic Showcase could be in one of the following categories:

- Existent Fix Showroom or specially prepared demonstrations.
- Remote sponsor demonstration.
- Other demonstrations belonging to the "IPv6 world".

The natural ones are the Fix Showroom demonstrations, as they were thought, deployed and made accessible within the Eurov6 project.

4.1.1 Network Interconnectivity

It is important to know whether the place where the Nomadic showroom is being held has IPv6 connectivity for accessing remotely some applications and prepare in advance the remote interaction mainly with Eurov6 Fixed showrooms.

The Eurov6 project interconnects three operative showrooms in Brussels (Université Libre de Bruxelles), Basel (Telscom) and Madrid (Consulintel), via native IPv6 or tunneled IPv6 connections. Connectivity is extended worldwide via Euro6IX, GÉANT and 6Bone and multicast links to M6Bone multicast project.

This infrastructure will permit distribute demonstrations among showrooms and the Nomadic showcase when this will have connection to 6Bone in general, and Euro6IX, 6NET and so on in particular.

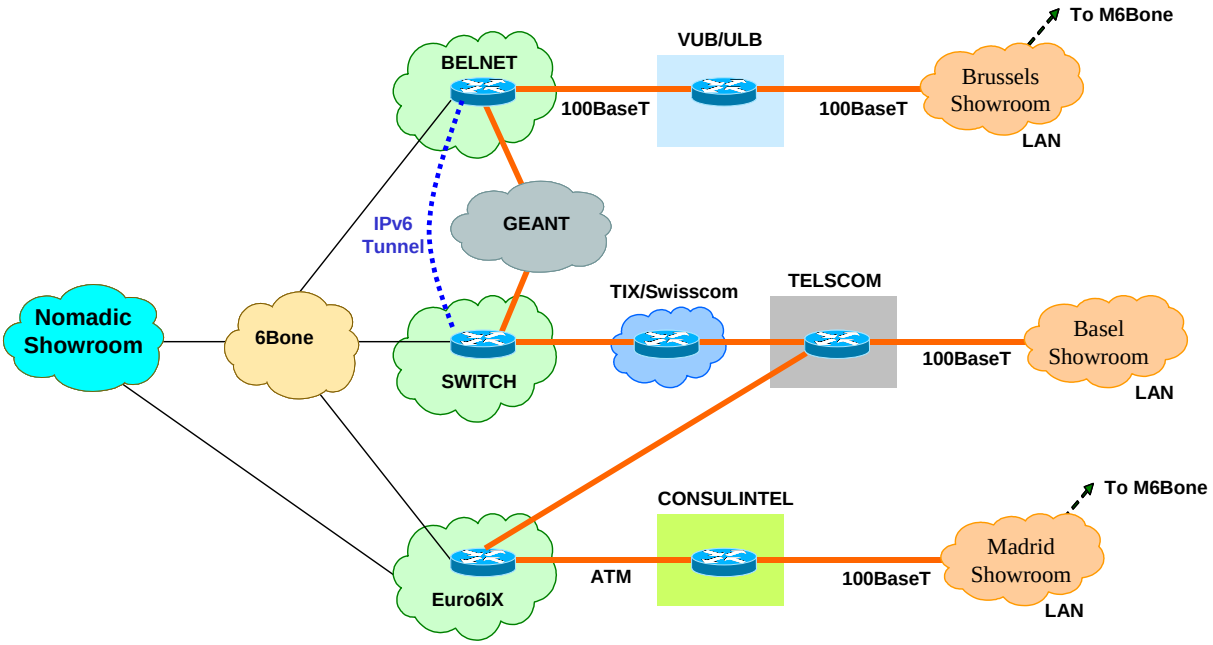

Figure 4-1: Eurov6 Fixed Showrooms Interconnectivity

5. RUNNING NOMADIC SHOWROOMS

This section summarizes the Nomadic showroom presented or will be presented in the near future in highlighted events, shows, conferences, and workshops.

5.1 Past Events

5.1.1 Launch of the Swiss IPv6 Task Force

This event was held on 24th April 2003, in Zürich, Switzerland.

The first trial of Nomadic showroom was set up during the IPv6 Summit Switzerland in Zurich. The showcase was set up in 2 hours of time, to demonstrate the business applications, home automation and remote access applications.

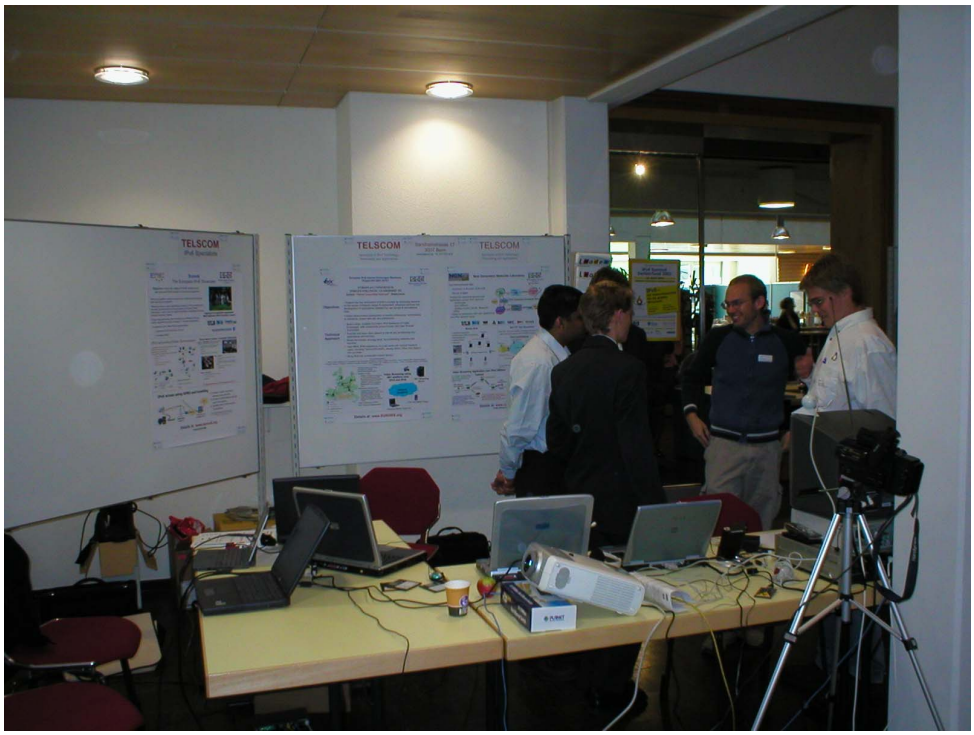

Figure 5-1: Eurov6 Nomadic Showroom at Swiss IPv6 Task Force Launch

5.1.2 Madrid 2003 Global IPv6 Summit

This event was organized by Consulintel from 12th to 14th of May 2003, in Madrid, Spain.

During the Madrid 2003 Global IPv6 Summit, Consulintel, on behalf of Eurov6, presented its Nomadic Showcase showing a number of IPv6 applications and services available and easily deployed, not showed in other project trials.

The applications and services showed in this event ran on both Linux and Windows operating system and were the following:

Server/Client services	Applications
Web	Apache-2.0.40 (Linux) Mozilla-1.0 (Linux) Internet Explorer 6.0 (Windows)
DNS	Bind-9.2.1 (Linux)
FTP	ftp6 (Windows 2000) wu-ftpd-2.6.2 (Linux) ftp-0.17.15 (Linux)
Telnet	PuTTY (Windows 2000) Telnet6 (Windows 2000)
SSH	PuTTY (Windows 2000) OpenSSH-3.4p1 (Linux)
Streaming	Windows Media Server (Windows 2003) Windows Media Player (Windows 2000/XP) Mplayer on Linux (Linux)
Streaming with QoS	Streaming servers and Hitachi Router
Games and Entertainment	gtetrinet-0.4.1 (Tetrinet client) (Linux) tetrinetx-1.13.16 (Tetrinet server) (Linux) 3Degrees (Windows XP)
Transition Mechanisms	Dual Stack (Windows 2000/XP/2003 and Linux) NAP-PT

Figure 5-2: List of applications and services at the Madrid 2003 GIS

Furthermore, in the Nomadic Showcase different demonstrations were showed provided by external companies. They were:

- Demonstration supplied by Xiran.
- Demonstration supplied by Panasonic.

In the show case some other services provided by external IST projects were also used, like network access through PLC network, in order to test both Eurov6 and external IST projects services.

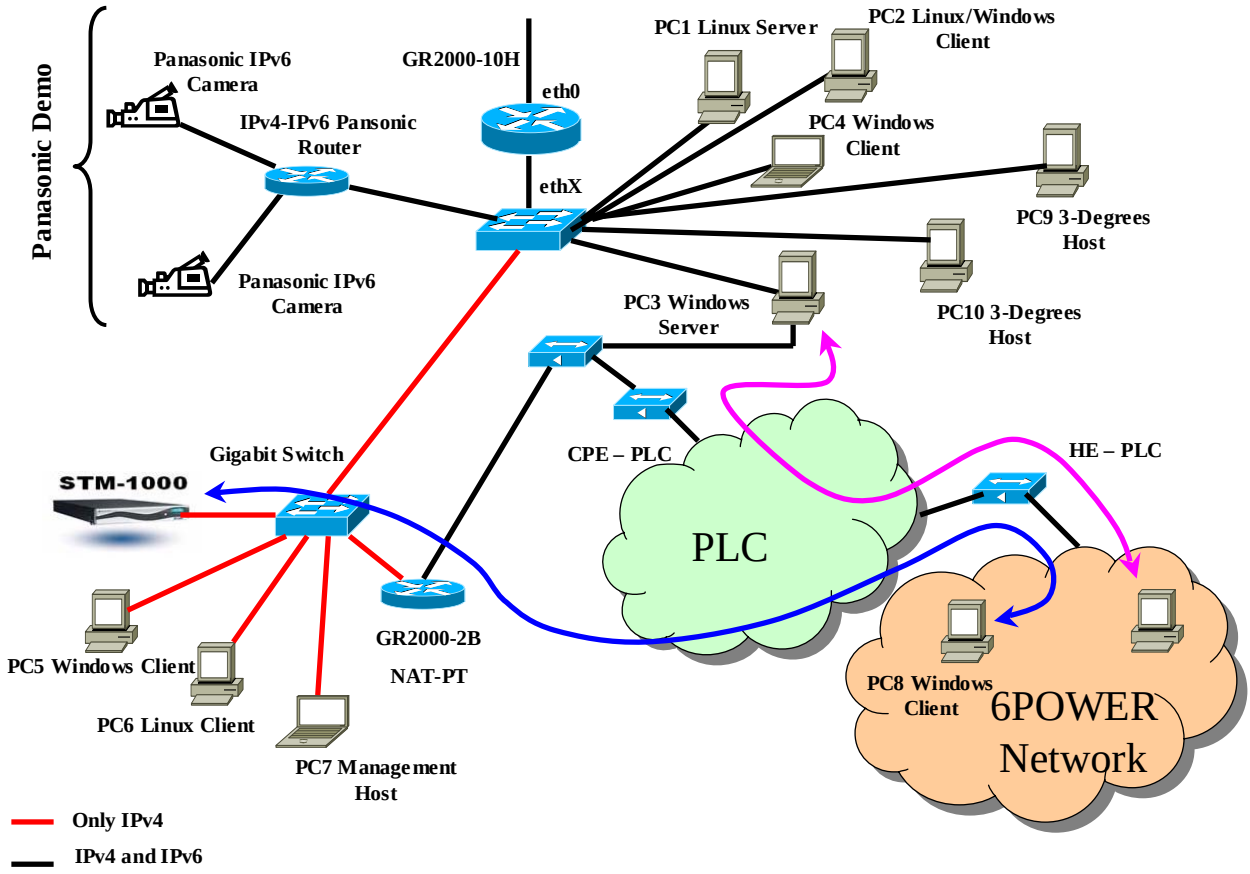

Figure 5-3: Network Map of the Nomadic Showcase at the Madrid 2003 GIS

The network map, which illustrates all the equipments, and configuration that were involved in the showcase is shown in the Figure 5-3. All systems were included in the Domain "madrid.eurov6.org" which was hosted on DNS server in PC 1 and were delegated to this system from eurov6.org DNS server.

All the routers and end systems that were involved within the Madrid Showcase at Madrid 2003 Global IPv6 Summit had name entries in the domain "madrid.eurov6.org". The naming convention was "*name*.madrid.eurov6.org"

As reference a detailed description of these services are described in Annex A.

In the event web site, there are videos with a presentation of the different demonstrations.

In addition to the Eurov6 booth, Consulintel, in the scope of the Eurov6 project, facilitated demonstrations from several IST funded projects, regarding to different IPv6 aspects, at no cost for the projects.

5.2 Future Events

5.2.1 Eurov6 Nomadic Showcase at Brussels

A Nomadic Showcase event will be organized in Brussels from 22nd September 2003 in parallel with an International Workshop on IPv6 Testing, Certification and Market Acceptance and with the 4th ETSI IPv6 Plugtests. All events will take place at Hotel Le Plaza in central Brussels.

The Showcase will be available until 26th of September.

The Eurov6 Showcase will include (at least) the following companies and institutions: 6WIND, ACUNIA, ALCATEL, INGINEO, JUNIPER, MBDS, and MOBISTAR. The IPv6 connectivity will be provided by BELNET.

Here are details of the some of the IPv6 demonstrations that will be available from ULB/VUB:

- Multicast Videoconference tools (VIC, RAT, SDR).
- VideoLAN.
- Windows Media Server (Windows 2003).
- Windows Media Player 9 Series (Windows 2000 and XP).
- Three Degrees (Windows XP).
- Web server (Apache-2.0.40 on Linux and Internet Explorer on Windows).
- DNS (Bind-9.2.1 on Linux).
- SSH (PuTTY on Windows 2000 and OpenSSH on Linux).

Participating companies will provide the following demonstrations:

- 6WIND. Provides a router with IPv4 and IPv6 services capabilities. IPv6 features to be demonstrated include Autoconfiguration, Transition mechanisms (NAT_PT and 6to4), IP Security, Virtual Private Network and Quality of Service.
- ACUNIA. Demonstration of telematics services communicating over IPv6. Acunia is developing an IPv6 version of their CarCube product to be embedded in a vehicle. Identified telematics services to be demonstrated are off-board navigation, e-mail and traffic information.
- ALCATEL. Provides demonstrations of IPv6 features over the Alcatel A7770 OBX core router. A video streaming application (VideoLAN) has run over an Alcatel A7770 OBX in Antwerp and the ULB IPv6 network. The same scenario will be set up to run over the A7770 in Antwerp and the Showcase at the Hotel le Plaza.
- BELNET. The Belgian NREN provides IPv4 and IPv6 connectivity (through a dual stack service) between the Hotel Le Plaza and the external world (through a Belgacom leased line at 2 Mbps, while the BELNET infrastructure is at 2.5 Gbps).
- Mobistar. Demonstrations of IPv6 services. Mobistar is configuring its APN to support IPv6. Demonstrations planned will show a laptop/PDA running basic IPv6 services like ping6 and ifconfig6 through a GPRS phone using the infrastructure provided by Mobistar.
- JUNIPER. Will provide a dual stack router installed at the Hotel Le Plaza.

6. ENHANCEMENTS

Since the current status of the devices, applications and services integrated in both Fixed and Nomadic showcases, the planned enhancements include:

- More complete Mobile IPv6 implementation and connectivity to the GPRS network.
- Installation of an advanced version of the security package.
- Enhancement of the QoS features.
- Test interworking and interoperability.

Another future enhancement is about the interaction of the Eurov6 showroom with external worldwide IPv6 demonstrations. For example the remote interaction with:

- Remote TV and lamp switching with access to Finland and Galleriav6 in Japan.
- Remote use of IPsec in showing encryption when accessing confidential patient files from 6WINIT.
- Hitachi in Japan has a cool location-based roaming from cell to wire.
- NTT DoCoMo has a cool hand-off from WiFi to 2.5G.

The aim is to study, install and evaluate these enhancements first in the Fixed showroom an then will be shown in the Nomadic one.

Some of the planned enhancements to be introduced in the Brussels Nomadic Showcase in September 2003 include:

- A home automation set up: on and off switching of TV and lamp located at the ULB/VUB Fixed Showcase.
- Some streaming applications (VideoLAN) and/or multicast applications (VIC, RAT) running on a laptop/PDA connected to the Mobistar GGSN through GPRS connectivity.

7. SUMMARY AND CONCLUSIONS

This document presents the Eurov6 Nomadic Showcase scenario and possible future enhancements.

It explains the integration of System concept, devices, applications and services in the Nomadic Scenario. The interaction among the different Fixed showcases and the Nomadic showcase is also described.

8. ANNEX A

In the following sections several details are presented about the demonstrations showed by Eurov6 in the Madrid 2003 Global IPv6 Summit. These details in addition of "Eurov6 Configuration Cookbook" will help in the deployment of future Nomadic Showcases.

8.1.1 Demonstration of Services and Network Games on Linux

The main objective of this demonstration is to show the working of the commonest Internet services like web or DNS over IPv6 networks using Linux platforms. The description of the demonstrations is divided according to the role that the PC is playing, that is, server or client.

8.1.1.1 PC 1: Linux Server

Demonstration Scenario on PC1

- The PC1 was used to show the services and server applications that were attached to the Eurov6 network and it belonged to the Eurov6 domain.

Client Requirements

- Each service installed on this PC was used by other/s PC/s working as client inside the Eurov6 show room or outside of it.

Server Requirements

- 1 PC (Pentium II, 400 MHz, 64 MB RAM or higher features)
- Operating System: Linux Red Hat 8.0
- Server Applications installed:
  - IPv6 stack installed
  - Apache for showing WEB server
  - Web sites for showing WEB server
  - Bind for showing DNS server
  - FTP service for showing FTP server
  - TELNET service for showing TELNET server
  - SSH service for showing SSH server
  - tetrinetx-1.13.16 for TETRINET server

Network Requirements

- Connectivity to IPv6 network / Euro6IX backbone
- Connectivity to IPv4 network for DUAL stack working demonstration
- IPv6 DNS resolution for the names assigned to the streaming server.
- 10/100 Mbit/s Ethernet
- IPv4 Address needed: Yes for dual stack working
- IPv6 Address needed: Yes

8.1.1.2 PC2 Linux Client

Demonstration Scenario on PC2

- PC2 was used to show the services and server applications offered by PC1. It was attached to the Eurov6 network and it belonged to the Eurov6 domain.

Client Requirements

- 1 PC (Pentium II, 400 MHz, 64 MB RAM or higher features)
- Operating System: Linux Red Hat 7.0 / Windows 2000 SP3
- Client Applications installed:
  - IPv6 stack installed
  - Mozilla 1.0 (Linux)/ MI Explorer 6.0 (Windows) for showing WEB server
  - Network applications for showing DNS service
  - Both linux and windows ftp client for showing FTP service
  - Both linux and windows telnet client for showing TELNET service
  - Both linux and windows ssh client for showing SSH service
  - gtetrinet-0.4.1 (Linux) for TETRINET client
  - MPlayer v0.9 for showing media player on Linux
  - Windows Media Player series 9 installed under Windows 2000

Server Requirements

- Services that were shown on PC2 were installed on PC1 working as server.

Network Requirements

- Connectivity to IPv6 network / Euro6IX backbone
- Connectivity to IPv4 network for DUAL stack working demonstration
- 10/100 Mbit/s Ethernet
- IPv4 Address needed: Yes for dual stack working
- IPv6 Address needed: Yes

Further Requirements

PC2 had both Linux and Windows 2000 operating systems installed but only one of them at the same time was used. This PC served for showing both Linux and Windows services and applications.

8.1.2 Demonstration of services and Audio/Video Streaming on Windows

The main objectives of this demonstration were:

- To show the working of the commonest Internet services like web, ftp or peer-to-peer applications over IPv6 networks on Windows.
- To show the working of the audio and video streaming over IPv6 networks, particularly:
  - High Quality Audio/Video Streaming.
  - QoS streaming marking.
  - QoS streaming with differentiated qualities.
  - Live streaming of the images captured by one web cam connected the streaming server.

In addition of a normal High Quality Video/Audio streaming, another goal is to show a preliminary use of IPv6 QoS functionalities for this kind of streaming services.

In a multihomed Video Streaming server, the clients can access to streams by two separate paths. In the first path, trough Euro6IX, the client can find a video with Best effort treatment, getting a high quality video. In the second path, trough 6Bone, the client can find a video with bandwidth limitation, getting a low quality video.

At the same time, the IPv6 Traffic Class field of the streams is marked for future uses exploiting DiffServ DSCP functions.

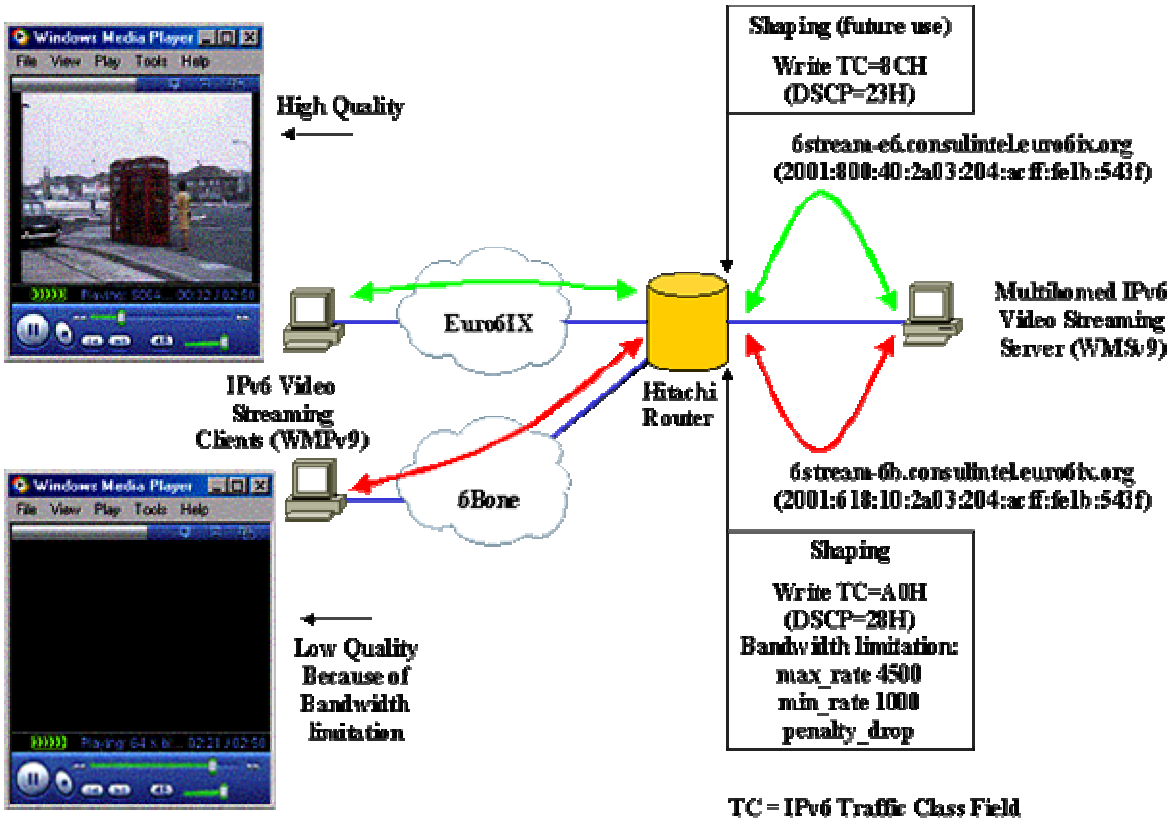

Figure 8-1: Topology for Audio / Video Streaming with QoS Usage

At least, it is recommended to use two PCs for running this demo:

- 1 PC Windows Server working as streaming server with other network services and applications installed.
- 1 PC Windows Client working as streaming player.

Both of them are detailed below.

8.1.2.1 PC3 Windows Server

Demonstration Scenario on PC3

- PC3 was used to show the services and server applications. It was attached to the Eurov6 network and it belonged to the Eurov6 domain.

Client Requirements

- PC2 (running Windows 2000) and PC4 were used for showing streaming services offered by PC3
- PC2 (running both Linux and Windows), PC4 and other PC located outside of Eurov6 domain were used for showing network services offered by PC3.

Server Requirements

- 1 PC (Pentium II, 400 MHz, 128 MB RAM or higher features)
- Operating System: Windows .NET (Windows 2003)
- 1 additional Ethernet card
- 1 USB web cam
- 1 CPE attached through the second Ethernet card for having PLC connectivity.
- Server Applications installed:
  - IPv6 stack enabled
  - WEB service enabled for showing WEB server
  - FTP service enabled for showing FTP server
  - TELNET service enabled for showing TELNET server
  - Windows Media Server Series 9 for showing streaming server
  - Windows Media Encoder Series 9

Network Requirements

- Connectivity to IPv6 network / Euro6IX backbone
- IPv6 DNS resolution for the names assigned to the streaming server.
- IPv6 for Dual stack working demonstration.
- Connectivity to IPv4 network for DUAL stack working demonstration
- 10/100 Mbit/s Ethernet
- Required bandwidth 100 Mbit/s (To allow several clients and several local demos simultaneously)
- IPv4 Address needed: Yes
- IPv6 Address needed: Yes
- 1 IPv6 Router for doing traffic mark tasks in order to provide QoS. This router will be provided for Consulintel.

Further Requirements

The IPv6 router providing QoS was located near of the streaming server at the Eurov6 stand.

8.1.2.2 PC4 Windows Client

Demonstration Scenario on PC4
• It was attached to the Eurov6 network and it belonged to the Eurov6 domain.
Client Requirements

• 1 PC (Pentium II, 300 MHz, 64 MB RAM)
• Operating System: Windows 2000 SP3
• Client Applications installed:
  • IPv6 stack installed
  • MI Explorer 6.0 for showing WEB server
  • Network applications for showing DNS service
  • Ftp client for showing FTP service
  • Telnet client for showing TELNET service
  • SSH client for showing SSH service
  • Windows Media Player series 9 installed under Windows 2000

Server Requirements
• PC4 was used to show the network services and server applications offered by both PC1 and PC3. Furthermore, it was used for showing audio/video streaming offered by PC3.
Network Requirements
• Connectivity to IPv6 network / Euro6IX backbone • Connectivity to IPv4 network for DUAL stack working demonstration • 10/100 Mbit/s Ethernet • IPv4 Address needed: Yes for dual stack working • IPv6 Address needed: Yes

8.1.2.3 Windows Peer-to-Peer applications: 3-Degrees PCs

Demonstration Scenario on PC9 and PC10
• PC9 and PC10 were attached to the Eurov6 network and it belonged to the Eurov6 domain. • They showed the working of a peer-to-peer application using Teredo when a global IPv6 address is not available. • 3º is an application for sharing multimedia files among several users belonging to a user group. The working is simple: when a user wants to share a file, for example an mp3 file, with other users the user must log-in in the .NET area, then he/she selects the folk for sharing the file and he/she starts to play the file. The same file sound in the remote PC of the selected folks.
Client Requirements

• 2 PC (Pentium II, 450 MHz, 128 MB RAM)
• Operating System: Windows XP SP1 (English only)
• Client Applications installed:
  • IPv6 stack enabled
  • Messenger for Windows version 5.0 or higher
  • Windows XP Peer-to-Peer Update (Q810007)
  • 3º Application
  • 1 account at the Microsoft .NET area

Network Requirements
• Connectivity to IPv4 network with a public IPv4 address • 10/100 Mbit/s Ethernet

8.1.2.4 Xiran Demonstration

Objectives of the Demonstration Scenario:

- To show high-performance gigabit audio/video streaming/content delivery using real products on the market over IPv6 networks.
- To show NAT-PT as example of transition mechanism.
- To show a complex scenario integrating different access networks like Ethernet, Fast-Ethernet, Giga-Ethernet and PLC.

Number of PCs, other material and Scenarios:

- 1 clients with linux redhat 7.2 or later with Giga-Ethernet cards (PC5 and PC6)
- 1 client with windows 2000 and with real player client on it (PC8)
- 1 IPv4/IPv6 node making NAT-PT (Hitachi GR2000 2B router)
- 1 CPE for PLC connectivity attached to the NAT-PT node
- 1 STM-1000 box with 1 DPA engine and 2 scsi drives (one for backup), supplied by Xiran
- 7 cables CAT6
- 1 Gbps switch with 8 ports
- 1 Laptop to manage STM-1000 box (PC7)
- 2 Gbps Ethernet cards
- Software:
  - Real Networks simulator
  - Httperf simulator
  - Windows network monitor
  - Linux network monitor
  - Linux CD Red Hat 7.2 (just in case)

Demo Explanation:

The Linux host (PC6) had one Giga-Ethernet card and it ran the httperf client software issuing 3000 http requests to the STM-100 box continuously, simulating multi-user big bandwidth traffic. It was planned that all this traffic traveled over IPv6.

PC5 had a Fast-Ethernet card and it ran Windows playing (on RTP over IPv6) one Real Networks Helix movie out of STM-100. PC5 required Real Player Client. PC5 had the possibility of simulate the traffic generated by 100 clients by mean of running the Real Networks client simulator provided by Xiran.

PC8 was located at an external site and it was attached to a PLC network. It had IPv6 connectivity and it was connected to STM-100 by mean of a NAT-PT node. An external router (Hitachi G2000 2B) was the node that did the NAT-PT mechanism. Path between PC8 and NAT-PT router had IPv6 connectivity. Path between NAT-PT router and STM-100 had only IPv4 connectivity.

8.1.2.5 Panasonic demonstration

Objectives of the Demonstration Scenario:
• To show the usage of the IPv4/IPv6 dual stack Network Camera, which can be performed a remote monitoring. • To show the IPv6 Web Server implemented in the Network Camera, so without any special software or equipments, the camera image can be accessed through Web browser of PC, PDA or mobile phone and not only monitoring camera image but also controlling the camera angle (Pan, Tilt or Zoom) can be performed simply. • Also, to show FTP and SMTP services that the network camera supports, so by using external sensor trigger or preset timer, the camera image can be transmitted to preset FTP sever by FTP and/or the preset e-mail address as attached file. • To show peer-to-peer connections that can be simply realized by using IPv6 address (Global address). • To show the easy Plug & Play set-up realized by supporting RA (router advertisement).
Number of PCs and Scenarios:
• 2 IPv6 Network Cameras which support Outdoor / Pan-Tilt and Indoor / Pan-Tilt + 21x Zoom • 1 IPv6/IPv4 router