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| Abstract: Deliverable D3.3.9 is produced after part of Euro6IX network infrastructure is up and running. The main goal of these documents is to report regarding the Euro6IX networks status, deployment state and usage by internal activities as well as public events, in this case related to the M9 (September 2002). |
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Revision History

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| v0.1 | 18/10/2002 | Document creation | Carlos Ralli Ucendo (TID) |
| v1.0 | 21/10/2002 | Network status Statistics added | Carlos Ralli Ucendo (TID) |
| v1.1 | 23/10/2002 | PSC review and final edits | Jordi Palet (Consulintel) |

Executive Summary

This D3.3.9 deliverable has been produced in the context of activities A3.1 and A3.2.

Activity A3.1 covers the deployment of the local networks attached to the different Euro6IX IXs nodes. Activity A3.2 deals with all deployments related to Euro6IX Backbone network.

Deliverables D3.3.x are being produced every month, and this document corresponds to month number 9 (September 2002).

D3.3.9 aims to summarize the status and usage of the different Euro6IX networks and services during September 2002.

As a first approach, the structure of these network usage reports is the following:

- First section (Current Network Status) is intended to clarify which links have been already deployed and which concrete networks have been attached.
- Second section (Network Stability and Global Traffic Reports) is intended to show the reachability of all network sections as well as a global view of the total traffic exchanged in Euro6IX network.
- Third section (Detailed Network and Services Usage in Events/Trials) is intended to show and analyze the traffic produced in some internal trials and in all public events where Euro6IX contributes in any way.

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1. INTRODUCTION

Euro6IX project has, as a key goal, to accelerate the introduction of IPv6 protocol in Europe. To reach this purpose, an appropriate architecture will be researched in order to design, develop, deploy and validate the first Pan-European pre-commercial IPv6 Internet Exchanges Network.

The network will connect regional and strategic neutral IPv6 Internet Exchanges across Europe in order to achieve higher levels of robustness and service quality than currently offered by IPv4 Networks.

The project will give the possibility to test advanced network services and IPv6 enabled applications that need to be properly monitored and reported, as part of the deployment activity, as is actually done in production networks.

2. CURRENT NETWORK STATUS

This section is intended to update and clarify which links have been already deployed and which concrete networks have been attached to Euro6IX backbone.

2.1 Remarkable news Related to Euro6IX Network & Services

In this period (September 2002, M9) the relevant news include:

- VODAFONE local site link to MAD6IX is still being configured due a physical layer problem (E1, 2 Mbps link). This link is intended to be working on the 3rd week of October.
- MAD6IX-LON6IX is an STM-1 link and it is already up and running. The capacity of this link could be increased from the planned 34 Mbps up to 155 Mbps, if necessary. BGP4+ session is being configured and expected to work on the 3rd week of October.
- MAD6IX-LIS6IX was up and running but the BGP4+ sessions are being configured and expected to work during the 3rd week of October.
- LON6IX-PAR6IX link is up and running as well as BGP4+ sessions between them.
- 6NET connectivity is being configured during these days in LON6IX (UK6IX) POP.
- Some services are being deployed during these days: Statistics (Consulintel and TID), IRC (Consulintel, TID, UoS, UPM and other partners) and network monitoring (Magalia) among others.

2.2 Status of International Links

As stated first in D3.3.7 and after in D3.3.8 all international links were planned for end of M7 (July 2002) but since finally all of them are going to be sponsored by Telcos related to consortium partners, some delays were expected (2-3 months depending in each Telco internal procedures).

No alternative measures for these links have been taken since the work and cost for establishing temporal links is not worth enough compared to the benefit of having the links on M7.

All the Telcos are trying their best to have the links deployed before the IST2002 event, as a project demonstration will be done there. Several links are very important, because they will allow also the connectivity of Euro6IX to 6NET.

The updated status of the links is as follows:

- **LIS6IX-MAD6IX:** Up and running.
- **MAD6IX-LON6IX:** Up and running.
- **LON6IX-PAR6IX:** Up and running.
- **PAR6IX-BER6IX:** PAR6IX-Frankfurt still not working (official date of establishment confirmed), and expected to be ready for the IST2002.
- **BER6IX-TOR6IX:** It will be ready by November 10th.
- **TOR6IX-ZUR6IX:** It will be ready by November 15th.

- **TOR6IX-MAD6IX:** It has been delayed until the beginning of the 2003, due to problems found to get the required infrastructure of the whole link.

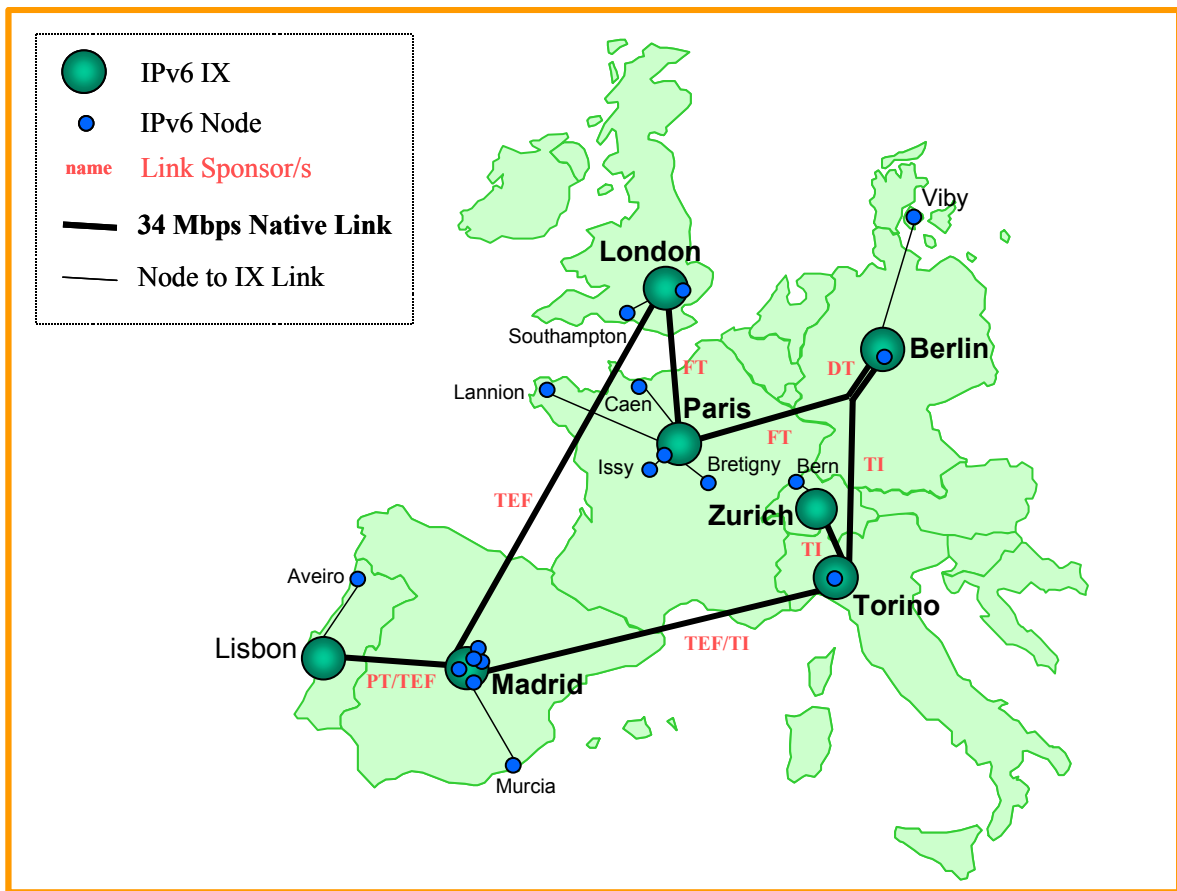


Figure 2-1: Planned Euro6IX international links as of September 2002

3. NETWORK STABILITY AND GLOBAL TRAFFIC REPORTS

This section is intended to compile the traffic statistics diagrams automatically generated in order to have a global view of the Euro6IX network usage.

The following subsections show the global statistics systems that have been identified as necessary to characterize the Euro6IX network usage each month.

3.1 Hosts/Networks Reachability Statistics from TID

The "ping_stat" tool automatically generates these statistics.

This tool has been developed by TID in the context of the LONG project and allows checking the reachability of network elements by executing "ping" to a list of IPv6 addresses every 15 minutes. The results are transferred to another machine using the "wget" IPv6 enabled tool. This second machine shows through a WEB interface the graphics generated using the information retrieved each 60 minutes.

It has been noted that other partners have similar tools already deployed (i.e. TILAB). These partners are suggested to show their own statistics in the WEB servers located in their premises.

This system has been installed successfully at TID's Euro6IX local network and statistics are being shown in <http://stat6.tid.euro6ix.org/statistics/> to consortium members.

All local sites currently reachable from TID (Consulintel, UMU, UPM, ...) and IX nodes (MAD6IX, LIS6IX and LON6IX) had provided a stable host/router interface, which is checked by "ping_stat" tool. As links became up and stable, more host/router interfaces will be added.

As an example, statistics of Monday October 21st are shown below in the next two figures.

The first one represents the status of the link in terms of losses. Just by having a look at this figure, it is possible to detect any failure in the network. For instance, today's graphics show how connectivity from TID to UPM (and consequently to UMU) and from TID to LON6IX had been lost during the weekend. These problems have been solved around 12:00 PM (Madrid local time). It is planned to incorporate some kind of alarm to be sent via e-mail to the network administrator of every network willing to receive such an alarm.

The second one represents the delays from TID network to every network. When delay diagram is not painted, it is because losses are 100%, i.e. link is not available.

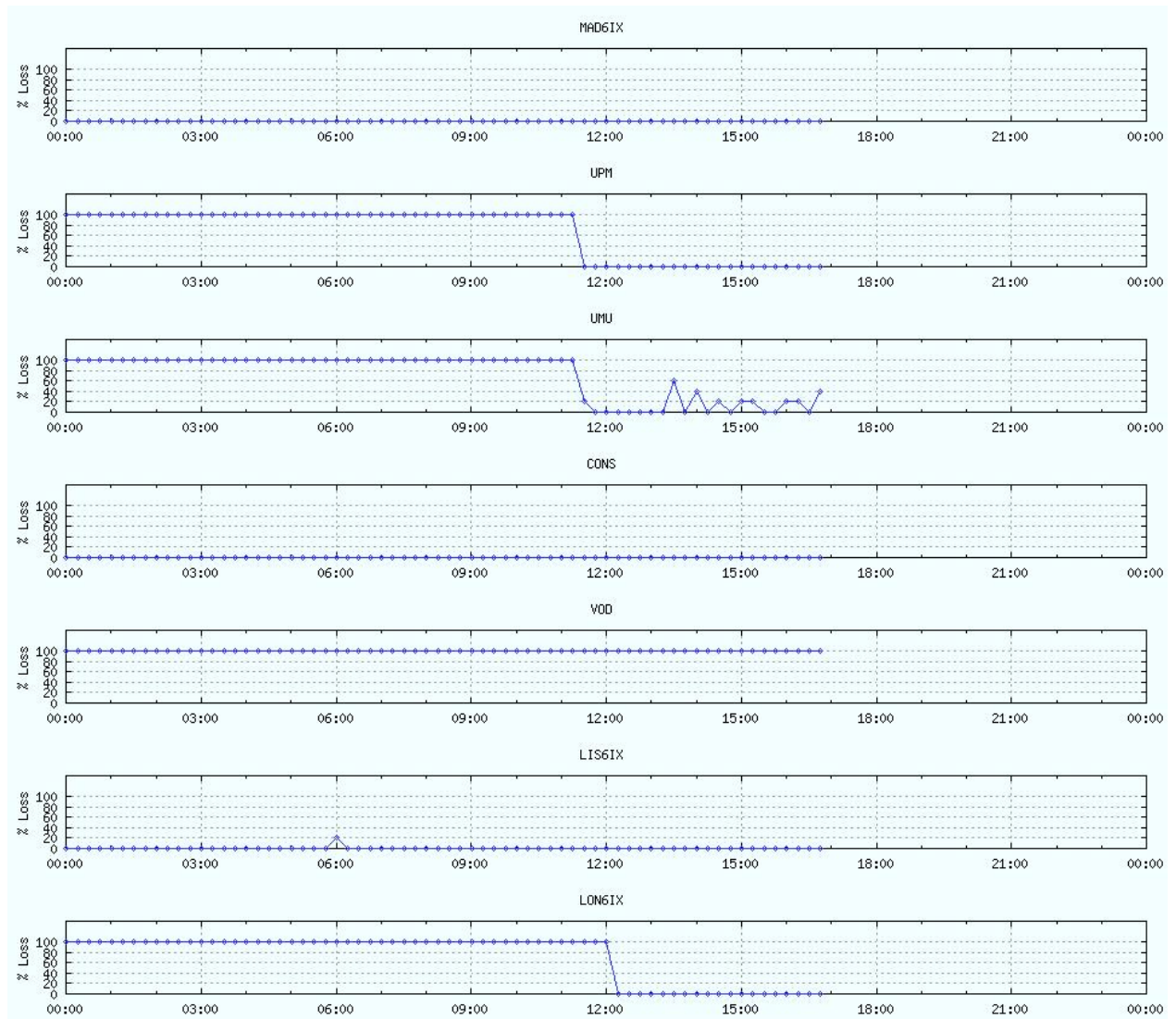
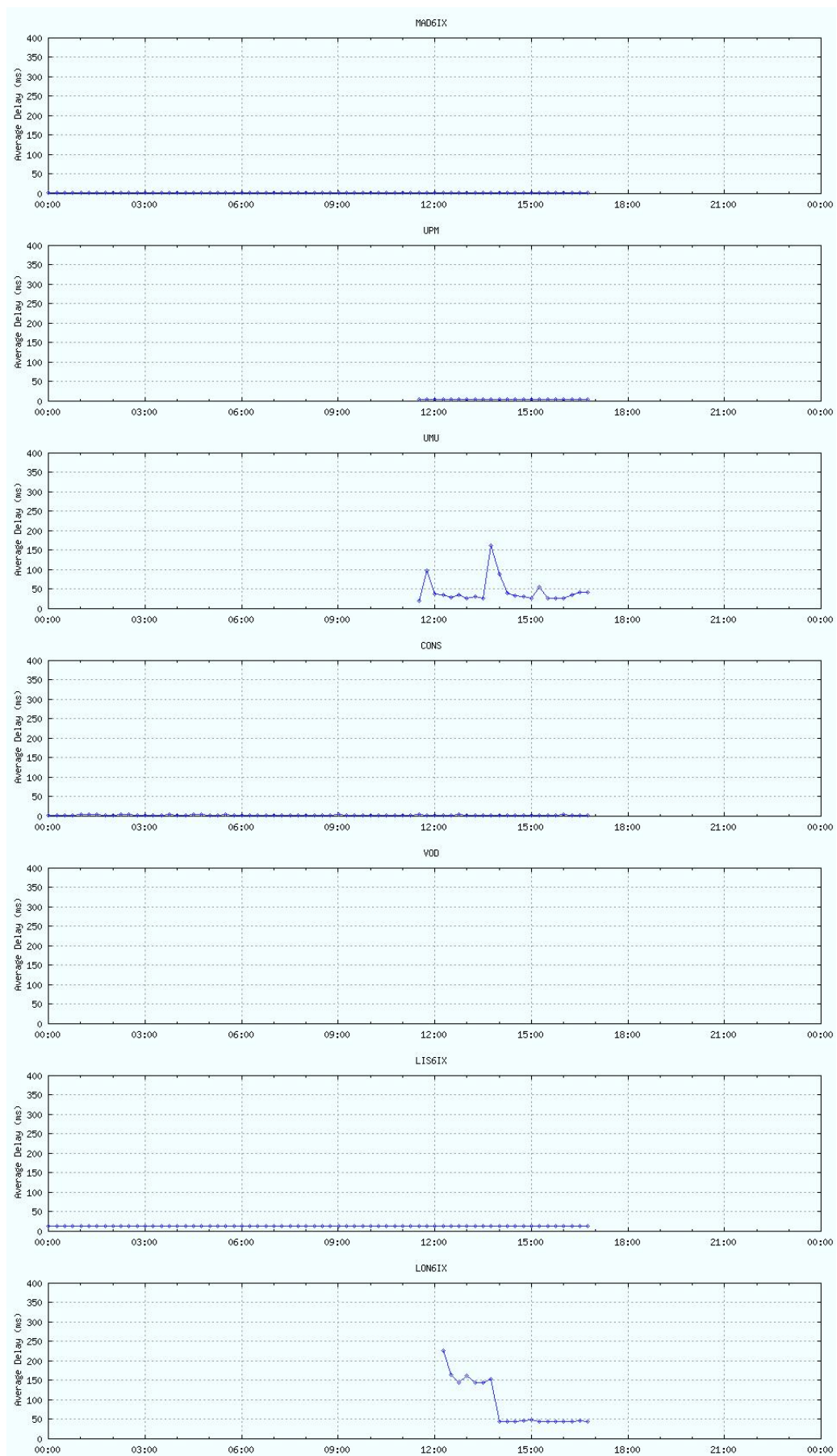


Figure 3-1: October 21st Network Losses

**Figure 3-2: October 21st Network Delays**

3.2 Links Traffic Measurement Statistics

No Links Traffic Measurement system has been still defined.

In the future, this section will compile the traffic sent by Euro6IX international and national links. It will include also the traffic sent and received in the links connecting Euro6IX to other IPv6 backbones.

A concrete definition of such a system should be ready by January 2003.

3.3 Euro6IX Services Statistics

The Euro6IX Statistics Service shows the availability of Euro6IX network in <http://stat6.tid.euro6ix.org/statistics> for consortium members.

In the future, this section will include concrete servers statistics related to the usage of a set of stable services implemented in Euro6IX.

As an example, this section will contain the statistics related to IPv6 accesses to Euro6IX official WEB page, that are already being logged in advance to the start of the project, so it can be processed and displayed at any time.

4. DETAILED NETWORK AND SERVICES USAGE IN EVENTS/TRIALS

This section is intended to study and analyze the network traffic generated in the following situations:

- **Internal Trials:** Internal Euro6IX trials performed in the context of activity A4.3 will generate traffic within the Euro6IX networks. In some of these trials, the detailed study and analysis of the traffic generated could be interesting. In such cases, particular diagrams and statistics will be shown in this section although they could be included in the general statistics showed in previous sections.
- **Public Events:** After a public event has been performed, the traffic processed by the network during it must be studied and analyzed. The study must be focused in the traffic obtained as a result of this concrete event.

During September 2002 there was no relevant event with the participation of Euro6IX. The actual work related to Events and Trials consists mainly in the preparation of the IST2002 event.

5. SUMMARY AND CONCLUSIONS

Up to end of September 2002, several links of the Euro6IX network are active and fully operational, and the network usage reporting activity is being continued.

There are just a few links still under development and the delay from its planned date in the contract (from M7 to middle M11) is due to the use of links sponsored by the Telcos.

The usage of such links represents a more realistic scenario and also save budget that could be used for other activities as stated in the Euro6IX technical annex (section 11).