


|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

|                                      |                                                                                                                                       |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Project Number:                      | <b>IST-2001-32603</b>                                                                                                                 |
| Project Title:                       | <b>6NET</b>                                                                                                                           |
| CEC Deliverable Number:              | <b>32603/ DANTE/DS/1.4/A1.4</b>                                                                                                       |
| Contractual Date of Delivery to CEC: | <b>30-March-2002</b>                                                                                                                  |
| Actual Date of Delivery to CEC:      | <b>April-2002</b>                                                                                                                     |
| Title of Deliverable:                | <b>Procedures for the approval and scheduling of 6NET tests</b>                                                                       |
| Work Package:                        | <b>WP1</b>                                                                                                                            |
| Type of Deliverable*:                | <b>R</b>                                                                                                                              |
| Deliverable Security Class**:        | <b>PU</b>                                                                                                                             |
| Editors:                             | János Mohácsi                                                                                                                         |
| Contributors:                        | Vincent Berkhout, Tim Chown, Bruno Ciscato, Rob Evans, Ionnais Kappas, Sabine Kühn, János Mohácsi, Roberto Sabatino, David Sutherland |

\* Type: P – Prototype, R – Report, D – Demonstrator, S- Specification, O - Other

\*\* Security Class: PU – Public, PP – Restricted to other programme participants (including the Commission), RE – Restricted to a group defined by the consortium (including the Commission), CO – Confidential, only for members of the consortium (including the Commission)


**Abstract:**

This document gives

- The description of the procedures to be followed and implemented and for the approval and schedule of experiments on 6NET testbed.

**Keywords:**

IPv6, Experiment, Scheduling, Test approval.

|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

## Procedures for approval and scheduling of 6NET tests

|                                                                   |  |          |
|-------------------------------------------------------------------|--|----------|
| <b>PROCEDURES FOR APPROVAL AND SCHEDULING OF 6NET TESTS</b> ..... |  | <b>2</b> |
| <b>1 INTRODUCTION</b> .....                                       |  | <b>2</b> |
| <b>2 PROCEDURES AND ENTITIES</b> .....                            |  | <b>3</b> |
| 2.1 TYPE OF TESTS .....                                           |  | 3        |
| 2.2 TEST SCHEDULE .....                                           |  | 4        |
| 2.3 WORKING DAYS .....                                            |  | 4        |
| 2.4 SECURED CONFIGURATION .....                                   |  | 4        |
| 2.5 CALENDAR FOR 6NET EXPERIMENTS .....                           |  | 4        |
| 2.5.1 <i>Operation of calendar</i> .....                          |  | 4        |
| 2.5.2 <i>Test quotas</i> .....                                    |  | 4        |
| 2.6 CONFIGURATION MANAGEMENT .....                                |  | 5        |
| 2.7 PROPOSAL FOR THE TEST.....                                    |  | 5        |
| 2.8 APPROVAL OF PROPOSED TESTS .....                              |  | 5        |
| 2.9 PREPARATION OF DETAILED TEST PLAN.....                        |  | 6        |
| 2.9.1 <i>Discussion of detailed test plan</i> .....               |  | 6        |
| 2.10 TESTS ARE RUNNING.....                                       |  | 7        |
| 2.11 REPORT ABOUT THE TESTS.....                                  |  | 7        |
| 2.12 CONFIGURATION CHANGE PROPOSAL IF IT IS NECESSARY .....       |  | 7        |
| <b>3 SUMMARY</b> .....                                            |  | <b>7</b> |
| <b>4 APPENDIX:</b> .....                                          |  | <b>8</b> |
| BOOKING OF 6NET EXPERIMENT.....                                   |  | 8        |

### 1 Introduction

For problem free testing in the 6NET environment it is requires some amount of cooperation and guidelines to be followed by each participant. 6NET network itself is not a production network, but a pilot environment for the future IPv6 operational network. This means that service disruption and degradation is possible. But the participants have to know in advance the tests that might cause problems.

Tests and networking experiments, which require special network conditions or which might exclude other users will need to be justified, approved and scheduled. This document tries to describe the necessary procedures.

## 2 Procedures and entities

The defined test procedures, entities and their roles are represented on the Figure 1.

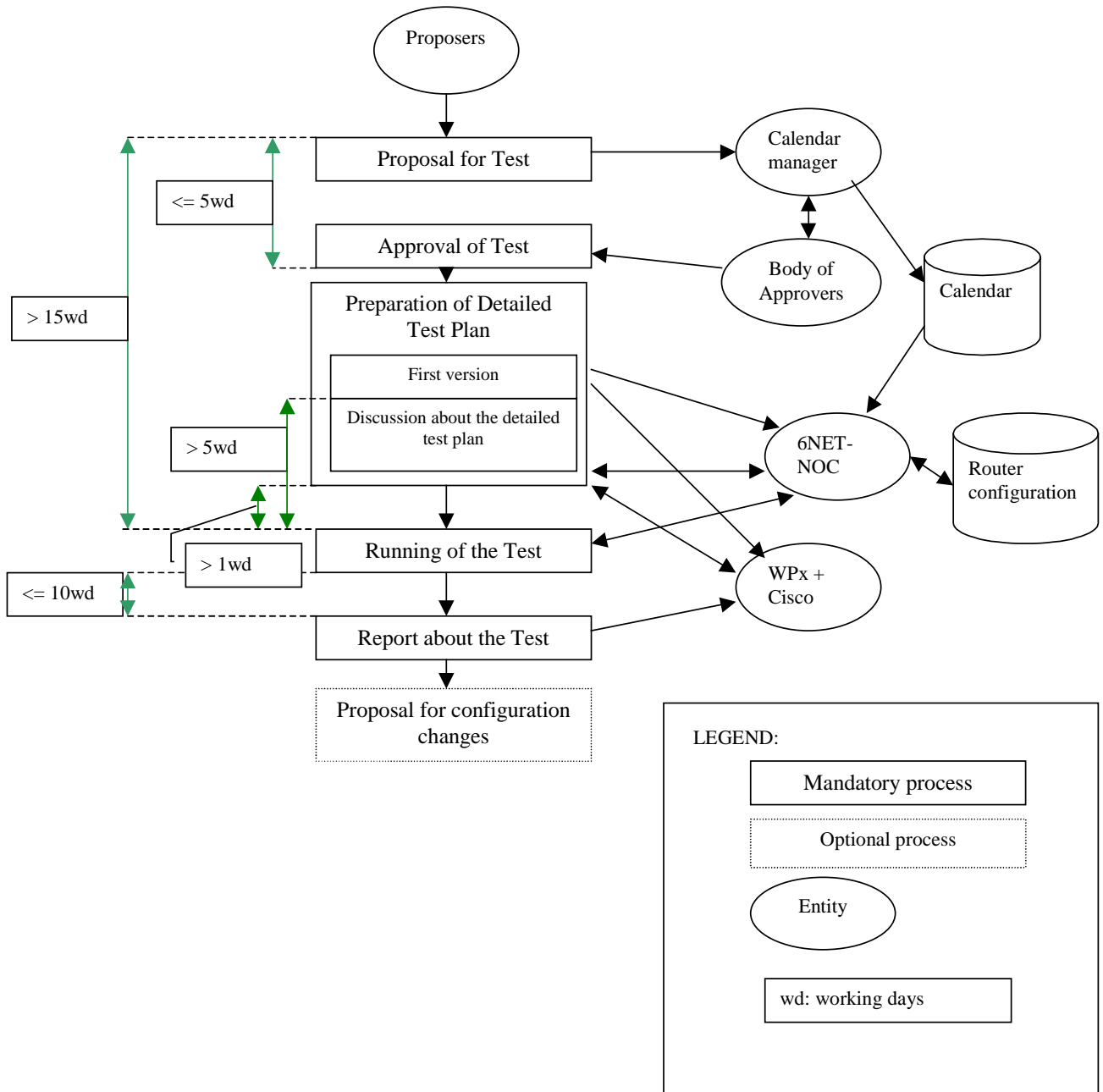



Figure 1 Test procedures

### 2.1 Type of tests

In general, there are two types of tests:

1. Tests that use standard features and configuration on the routers, and hence can co-exist with other tests.

|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

2. Tests that need experimental IOS versions or features, and which prevent 'normal' tests happening on part or the entire network.

Scheduling of (1) should be easier than (2). The procedures are also describing how to gracefully handle the second type of test with first type of tests.

In addition to the test weeks, every 6 months the WP leaders can allocate 'demo' weeks, when no tests are running, but the participants can use the 6NET network for demonstration purpose.

## **2.2 Test schedule**

Tests are allocated in weekly basis. If one test last more than one week, testers can allocate more than one week up to the defined number of consecutive weeks.

## **2.3 Working days**

Working days are all weekdays from Monday to Friday (5 days/week) with the exception of New Year's day, Good Friday, Easter Monday and Christmas days.

## **2.4 Secured configuration**

The secured configuration by definition is the configuration of the routers, where secure sensitive elements (like encrypted passwords, community strings) are chopped out.

## **2.5 Calendar for 6NET experiments**

### **2.5.1 Operation of calendar**

There is a web accessible calendar, where a test proposal can be made. This calendar has to be manageable easily by the work-package leaders. All the test participants should be able to submit new test proposals.

The calendar keeps up-to-date information about the approved and scheduled tests.

The test proposers first submit their booking. (Preferably via the web). If approved the test is allocated and marked on the calendar.

This calendar must only be accessible to the project participants (e.g.: password protected).


The 6NET NOC should be aware of the calendar and the scheduled tests. They should be able to plan the allocation of resources for the tests based on these informations.

The calendar pages are accessible on the main 6NET web server, maintained by TERENA.

### **2.5.2 Test quotas**

A preallocation mechanism is implemented to reasonably estimate the week allocation for tests and other purpose every 6 months. Work-package leaders every 6 months are discussing and specifying the following:

- Certain number of weeks for each WP for disruptive tests.
- Certain percentage/number of weeks that cannot be booked. They are allocated for free testing, that does not require any special configuration and does not disruptive for the 6NET network
- Certain weeks that is allocated for demonstration purpose.

|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

Cisco is announcing IOS features, EFT images for the 6NET community based on the NDA, and much earlier than in the production IOS images. Testers can use this information and the project plan to discuss the preallocation.

These preallocations are no strict, but they are providing a reasonable guideline. If testers of certain workpackage want to allocate more than their preallocation, it can be possible, but the decision is totally left to the Body of Approvers.

## **2.6 Configuration management**

The 6NET NOC keeps track of the configuration of the 6NET core routers. They are responsible of all the configuration work and they always know which configuration should be used for operating the router (baseline configuration).

The secured versions of the currently used baseline router configurations are available to the project participants. These documents have to be protected by some form of passwording scheme.

The 6NET NOC will be able to roll back the configuration into a stable state and check the working state of the 6NET network.

The 6NET NOC will use a router configuration management tool at their home location. The secured version of the configuration will be accessible via web interface that is password protected. The 6NET-NOC might use for this purpose the rancid router configuration management tool, CVS, TFTP and cvsweb.cgi tool for interface CVS database to the web.

## **2.7 Proposal for the test.**

After allocation of the test quotas (section 2.2) each test has to have a concrete schedule. Each participant has to submit a proposal for its tests via the web or via e-mail by supplying the following information:

Description of test: What to test? How long it takes? The test starting and ending dates? What are the objectives of the test? Who is responsible for the test? The necessary test environment, and resources.

See Appendix for an example (a form that they might have to fill out).


Ideally the proposers should submit their test proposals more than 15 working day before the starting date of the test, but it is possible to shorter this limit. This procedure guarantees that no later than 5 working days after the submission the proposal approved or refused, and if it approved can be ready for discussion and scheduled accordingly. However the final time schedule depends on the Body of Approvers and the test allocation at given time.

## **2.8 Approval of proposed tests**

Each submitted proposal for test has to be evaluated by a Body of Approvers (the workpackage leaders + NCC). NCC is responsible for technical evaluation of tests, but the workpackage leaders take the final decision.

The criteria for evaluation:

- value of the test for the 6NET project
- relevance for the 6NET project
- timing of the test

|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

- equipment needed for the test
- how soundly the test is planned.
- relative importance of this proposal to the other proposal if there is not enough slot for a tests
- IOS feature availability for the test

The decision has to be made no later then 5 working day after the submission of the proposal. This decision has to be communicated to the proposers and maintainer of the calendar on the same day.

If the proposal is accepted, then a test is scheduled. There is no way to modify the final allocation. If the testers cannot start the test on their selected date their test allocation lost. They then have to resubmit their proposal.

Proposed procedure of approval:

1. The Body of Approvers explicitly states the acceptance of the proposal in 5 working days (1 week). They also state the test start date.
2. If no decision has been made at the deadline, then proposers and "chair" of body of approvers take an ad hoc decision, the test automatically might be accepted and scheduled.

## **2.9 Preparation of detailed test plan**

The detailed test plan has to be prepared by testers describing:

- Detailed test objectives.
- Detailed configuration changes regarding the baseline configuration.
- Monitoring requirements.
- Detailed test environment.
- Necessary support from Cisco and 6NET-NOC.
- Detailed description about the test environment and required resources.

They should estimate and specify the amount of: configuration work, monitoring work

This first detailed version of test plan has to be ready at least 5 working days before the test is scheduled.

The detailed test plan has to be sent to 6NET-NOC, NCC, and WP mailing to be aware of the nature of tests.

### **2.9.1 Discussion of detailed test plan**


The testers have to submit their detailed test plan to the corresponding work-package mailing list for discussion at least 5 working day before the test begin.

Cisco has to check the detailed test plan for readiness of routers and router software for the described test.

Work-package participants should comment the test plan. If they found some potential problem in it, they have to report it on the mailing list

The person, who is responsible for the test has to read the feedback and decide if they should take a further action (e.g.: modify test plan).

The detailed test plan and its feedback have to be sent to 6NET-NOC to be aware of the nature of the tests. Since 6NET-NOC is not subscribed to any WP mailing list, 6NET-NOC has to be included in the e-mail-thread when important configuration or operational changes happen in the test.

|                |                                                                                |                                                                                    |
|----------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and<br>scheduling of 6NET tests |  |
|----------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|

No major configuration changes could be requested on the detailed test plan later than 1 working day before the scheduled test.

If some configuration changes are necessary regarding to the baseline configuration at the University or NRN domain, then the proposers have to take the necessary actions to schedule it and make it happen.

If everybody is happy about the test and there is no serious objection on the mailing lists, then the test can begin.

### ***2.10 Tests are running***

The procedures, which have to be followed by the 6NET-NOC and the participants during the tests, are described in the D1.2 document. (Operational procedures for 6NET)

### ***2.11 Report about the tests***


Testers should report their results for the 6NET project. They should do it especially if they found something strange or unusual. Some preliminary reports have to be issued on the work-package mailinglist no later than 10 working days after end of the test.

### ***2.12 Configuration change proposal if it is necessary***

If the testers have found more optimal configuration than the current baseline configuration, then they can submit proposal for NCC and 6NET NOC for configuration changes.

## **3 Summary**

This document describes the procedures that have to be followed by 6NET participants and 6NET-NOC to successfully allocate, and run experiments on 6NET pilot network. These procedures are evolving over the time, based on the experiences.

|                |                                                                             |                                                                                    |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| IST-2000-32603 | Deliverable 1.4<br>Procedures for the approval and scheduling of 6NET tests |  |
|----------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|

#### 4 Appendix:

## Booking of 6NET experiment

|                                       |                                                                                                                                                                              |  |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Name of the test:                     | <input type="text"/>                                                                                                                                                         |  |
| Objective of the test:                | <input type="text"/>                                                                                                                                                         |  |
| Description of the test:              | <input type="text"/>                                                                                                                                                         |  |
| Duration of the test:                 | 1 week <input type="button" value="v"/>                                                                                                                                      |  |
| Start date of the test:               | <input type="text"/>                                                                                                                                                         |  |
| Workpackages:                         | <input type="button" value="WP0"/> <input type="button" value="WP1"/> <input type="button" value="WP2"/>                                                                     |  |
| Requirements:                         | Additional test HW/SW: <input type="text"/><br>IOS versions: <input type="text"/><br>6NET locations: : <input type="text"/><br>Additional requirements: <input type="text"/> |  |
| Responsible for test:                 | E-mail: <input type="text"/><br>Name: <input type="text"/>                                                                                                                   |  |
| <input type="button" value="Submit"/> |                                                                                                                                                                              |  |