

Test-Traffic Measurements Service (TTM) measures key parameters of the connectivity between your site and other points on the Internet, in particular delay and packet-loss, with additional measurements being developed. TTM allows you to comprehensively and continuously monitor the connectivity of your network to other parts of the Internet.

TTM uses dedicated measurement devices (test-boxes) that generate a small amount of traffic. TTM will not put any significant load on your network infrastructure. Also, TTM will not look at any data on your network, ensuring your privacy.

TTM is a full service offering. The measurement devices, test-boxes, are operated as black boxes by the RIPE NCC staff. Once a test-box is installed, support from the customer's staff is limited to operations requiring physical access to the equipment.

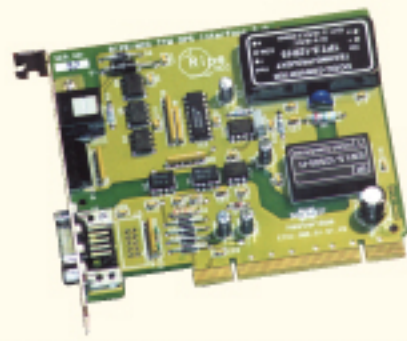
TTM has been proven by more than 3 years of operational experience. A dedicated team at the RIPE NCC is working full time to improve the product and to adapt it to the user's needs. TTM users and other experts can make their future requirements known and participate in the open process of the RIPE TT Working Group.

## Installing a test-box

TTM test-boxes consist of a measurement computer and a GPS antenna. They are easy to install. All you need is rack space, a connection to your network near a border router and a suitable place for a GPS antenna. The GPS antenna can be connected to the computer using up to 250m of standard CAT5 cable, that can be routed via existing patch panels if necessary. No special cables are needed. Test-boxes are pre-configured. All you have to do, is to switch the machine on and measurements will start.

## Unique features

- Other than techniques based on echoing probes such as "ping", TTM measurements are one-way and can analyse asymmetric effects.
- TTM metrics are those developed by the IETF in an open process.
- TTM measurements are on the network level and therefore independent from applications.
- TTM measurements are independent of the underlying network, we do not use active network elements to monitor themselves.
- TTM allows you to comprehensively and continuously monitor the connectivity of your network to other parts of the Internet.
- TTM provides trend analysis that makes it possible to address problems pre-emptively.
- TTM will allow your NOC staff to trouble shoot problems after the fact and take action to prevent them from re-appearing.
- To date, more than 50 test-boxes have been installed at network sites globally. This number is expected to grow to 100 in early 2001 and up to 200 in late 2001. Installing a test-box at your site therefore immediately provides you with performance data to sites all over the world.
- TTM is provided by the RIPE NCC, a neutral and impartial organisation. All results will reflect true network performance without being biased by commercial interests.



## Products

### The following products based on the TTM data are available

- Access, for you and your customers to a protected web-site with daily plots, showing delays and losses between sites.
- Access to "plots on demand", a service that generates analysis plots based on user parameters.
- Access to a data-base with routing information.
- Email notification of unexpected changes in the network, warning you before your customers complain.
- Access to the raw data, allowing your NOC staff to analyse problems in detail.

### Other products are being developed

- Trend analysis of the data, allowing you to predict future demands for network connectivity.
- Network performance scores.
- Provision of more data in real-time and other delivery methods for alarms.

Additional products and services will be developed based on user feedback.

### NTP-server

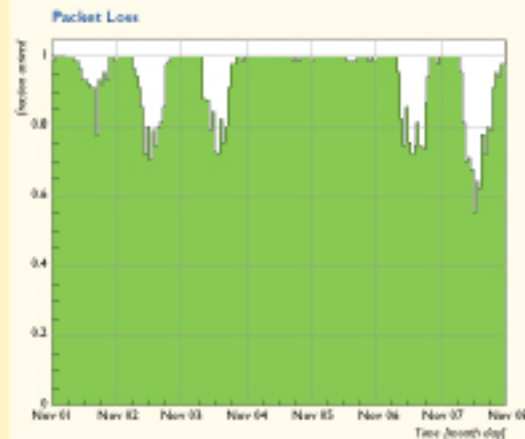
- A test-box can be used as reference clock for the computers on your network. They are stratum-1 NTP servers, providing time-stamps with an accuracy of the order of 10µs.

### Applications of the data include

- Verification of the performance of the network operated by the host site or its upstream providers, with the possibility to react to problems before the host's customers complain.
- Find current as well as future bottlenecks in your networks.
- As these devices are operated by a neutral organisation, the data can be used as an independent verification of Service Level Agreements (SLA's) between your organisation and a third party.

The RIPE NCC offers various ways to integrate the output of the test-boxes with existing monitoring systems and is always interested to collaborate with customers to develop interfaces to other monitoring systems.

## Applications



Plot showing the packet loss between 2 test-boxes.