

Operational use of TT-35

Brian Nisbet
Network Engineer
HEAnet
noc@heanet.ie

RIPE-48,
3rd – 7th May 2004

Agenda

- Current Network Management Suite in HEAnet.
- Advantages of TTM.
- Troubleshooting with TTM
- Other network management properties.
- Conclusion

Network Management

- Current suite includes:
Nocol, Netsaint, Smokeping, MRTG and, of course, TTM.
- Smokeping and TTM are the only methods of gaining external information on latency & performance/packet loss rather than just up/down.

TTM Advantages

- TTM provides vast amounts of information on latency, jitter etc. and in addition it holds far more detail for a lot longer.
- Accurate end to end timing.
- Array of different options for viewing data.
- All views/outputs customisable.
- Useful for per incident and ongoing troubleshooting/investigation.
- Supports IPv4 & IPv6.

Troubleshooting with TTM

- Alerted by email
- Check the TTM summaries
- Drill down to Delay plots
- Choose 24hrs, 7days, 1 month, six months
- Traceroutes
- Plots on Demand
- Inbound delays

This message has extra line breaks. To remove, click here.

From: ttraffic@tt35.ripe.net Sent: Wed 28/04/2004 23:40
To: henk@ripe.net
Cc:
Subject: Testbox ALARM SET on tt35.ripe.net

```
The testbox alarm program on tt35.ripe.net found:

TB 108 proto IPv4 at 1083192001 ALARM SET    old: Go Up, new: Alarm
TB 108 proto IPv4 at 1083192001 Long: 20381 18.0/ 19.5/ 21.0 Short:    59
21.0/ 21.5/ 23.0

This message has been sent to: tt108, tt35

Satellite conditions on tt35.ripe.net:
Wed Apr 28 22:00:10 2004:Satellites seen from 20040428 210000 to 220000: 0 0
4 32 20 0 0 0 0 0

To see how the delays developed in the last days, open this URL:
http://tt35.ripe.net:10259/cgi-bin/multiple.cgi?&tt108=160.218.10.85&delay=delay&loss=loss&RRD\_START=20040426%2022:40&RRD\_END=start%2B2days

Access to this page is limited to the owner of tt35.ripe.net,
please contact tt-ops@ripe.net with any access errors

For an explanation of this email please see http://www.ripe.net/test-traffic/General/alarm.html
```



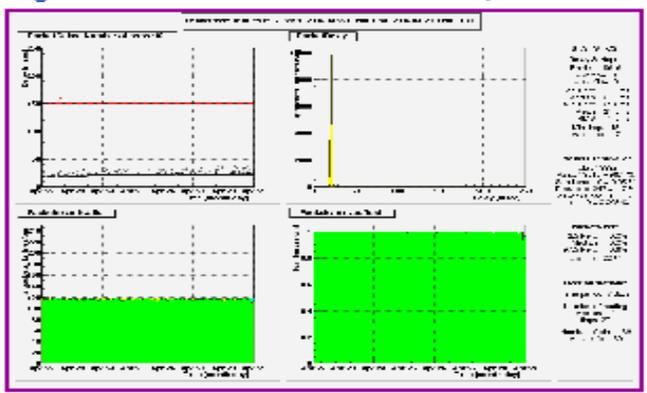
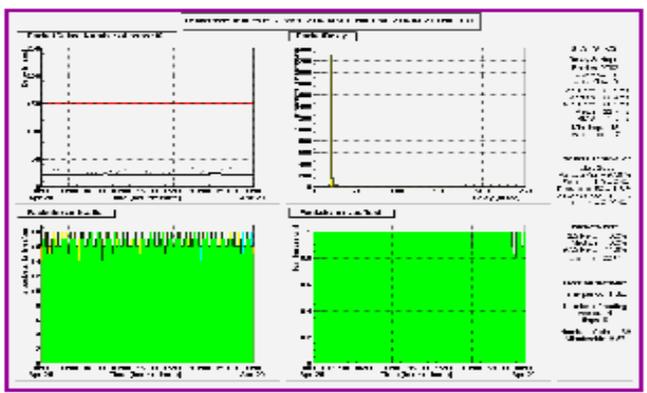

Test Traffic Delay Plots

**TT108 - Eurotel Praha, Prague, CZ
to
TT35 - HEAnet, Dublin, IE**

Last 24hrs

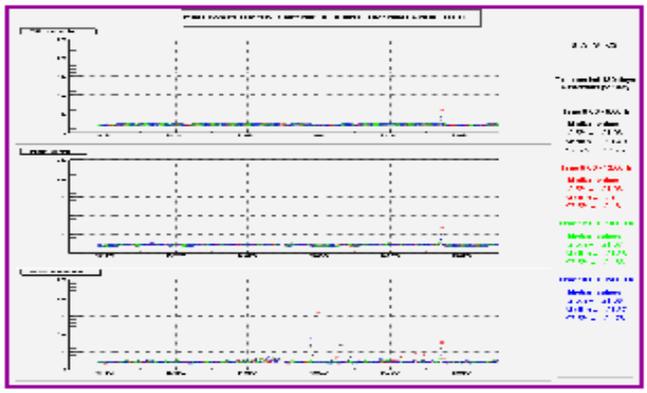
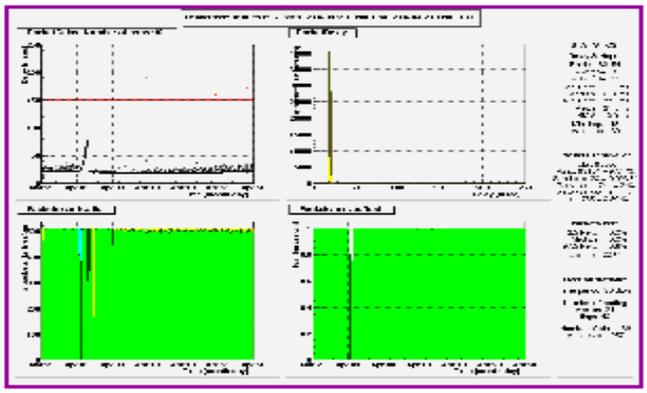
Click Image to Enlarge

Last 7 days



Last 30 days

Last 6 months

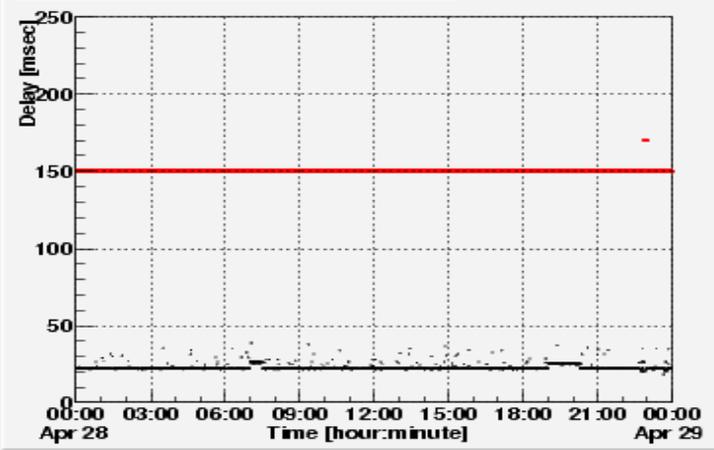


tt108 to tt35 - Last 24 hours

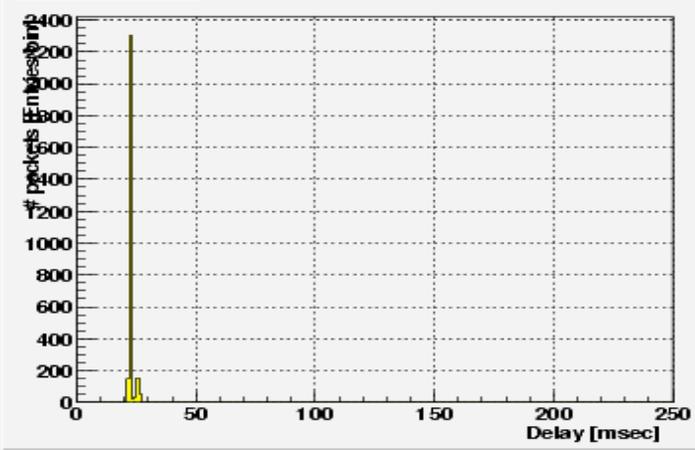
[[collected traceroutes](#)] [[Change time interval, min/max delay](#)] [[help about the plots](#)]

Delays from tt108 to tt35. Start: 2004-04-28 00:00 End: 2004-04-29 00:00 UTC

PacketDelay, Number of hops*10

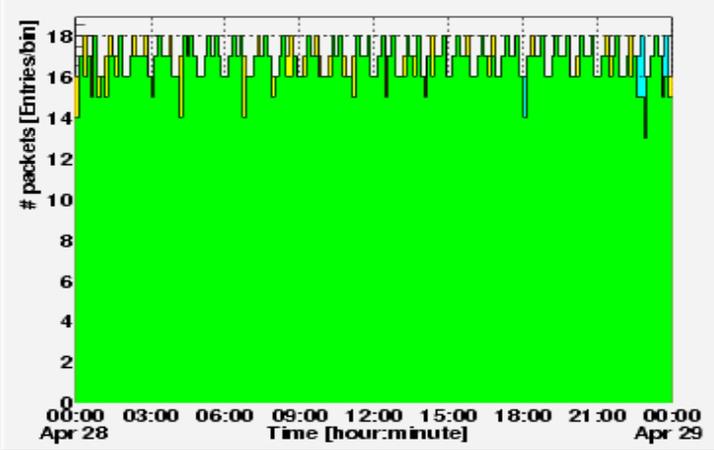


PacketDelay

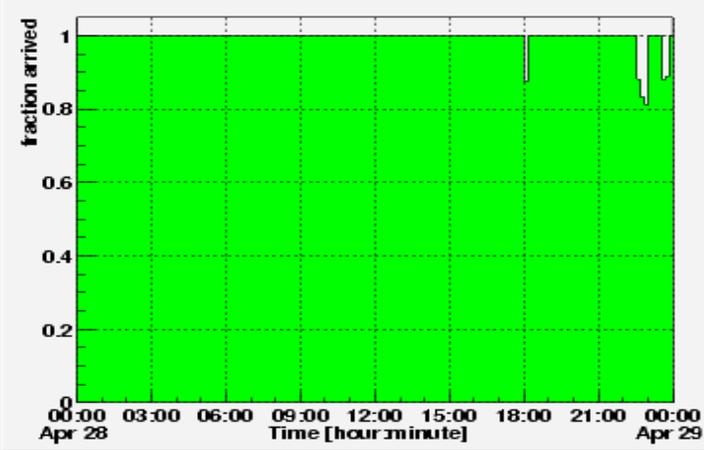


STATISTICS:
Delay & Hops:
 Entries: 2792
 Overflow: 0
 Underflow: 0
 2.5 Perc: 21.9ms
 Median: 22.4ms
 97.5 Perc: 26.3ms
 Mean: 22.7ms
 RMS: 1.6ms
 Min. hops: 15
 Max. hops: 17

Packets sent/valid



Packets arrived/lost



Packets sent/valid:
 Total: 2856
 Valid: 2792 = 97.8 %
 Send bad: 0 = 0 %
 Recv bad: 50 = 1.8 %
 2 Clocks bad: 0 = 0 %
 Lost: 14 = 0.49 %

Packets lost:
 2.5 Perc: 0.0%
 Median: 0.0%
 97.5 Perc: 11.8%
 Uptime: 100 %

Over-all statistic:
 Time period: 1 day
 Number of routing vectors: 4
 flaps: 9
 Number of bins: 168
 Minutes/bin: 8.57

Query Traceroute Database [tt108 - tt35]

SRC:

DST:

Start Date Start Time UTC Resolve IPs yes no

End Date End Time UTC Sort on

Traces in IP AS For IPv4 IPv6 test traffic Show diffs yes no

[[See delay](#) or [jitter](#) plots for this time period] [[swap source and destination](#)]

Click [here](#) for an explanation regarding the Query Traceroute Database CGI, or go to the [legend](#) instead.

Dates	Route Id	Occurrences	Hop	IP Address	Host name	AS Num (s)
From 2004/04/27 23:46:39 To 2004/04/28 06:54:06	4011268	90	1	160.218.10.2	Hostname not found	28725
			2	160.218.2.65	Hostname not found	28725
			3	166.49.183.9	t3a1-fa1-0-0.cz-pra.eu.bt.net	5400
			4	166.49.163.154	aps154-cz-pra.de-fra.concert.net	5400
			5	166.49.172.25	t2a5-ge6-0.de-fra.eu.bt.net	5400
			6	166.49.163.182	ixp1-p8-0.de-fra.eu.bt.net	5400
			7	80.81.192.39	ge-1-1-0.ar2.fra3.gblx.net	6695
			8	67.17.65.57	pos11-0-2488M.cr2.FRA2.gblx.net	3549
			9	67.17.64.46	pos1-0-2488M.cr1.LON3.gblx.net	3549
			10	67.17.66.6	so0-0-0-2488M.ar1.DUB1.gblx.net	3549
			11	208.48.23.54	HEAnet-2.so-3-0-0.ar1.dub1.gblx.net	3549
			12	193.1.195.161	deimos-gige5-3.cwt.core.hea.net	1213
			13	193.1.195.85	hyperion-gige5-0.bh.core.hea.net	1213
			14	193.1.196.122	mantova-gige1-2.bh.access.hea.net	1213
			15	193.1.198.10	tt35.ripe.net	1213

Dates	Route Id	Occurrences	Hop	IP Address	Host name	AS Num (s)
From 2004/04/28 22:57:08 To 2004/04/28 23:58:29	4011268	14	1	160.218.10.2	Hostname not found	28725
			2	160.218.2.65	Hostname not found	28725
			3	166.49.183.9	t3a1-fa1-0-0.cz-pra.eu.bt.net	5400
			4	166.49.163.154	aps154-cz-pra.de-fra.concert.net	5400
			5	166.49.172.25	t2a5-ge6-0.de-fra.eu.bt.net	5400
			6	166.49.163.182	ixp1-p8-0.de-fra.eu.bt.net	5400
			7	80.81.192.39	ge-1-1-0.ar2.fra3.gblx.net	6695
			8	67.17.65.57	pos11-0-2488M.cr2.FRA2.gblx.net	3549
		(Removed)		64.215.195.229	Hostname not found	3549
		(Removed)		67.17.74.153	pos2-0-2488M.cr2.FRA2.gblx.net	3549
			9	67.17.64.46	pos1-0-2488M.cr1.LON3.gblx.net	3549
			10	67.17.66.6	so0-0-0-2488M.ar1.DUB1.gblx.net	3549
			11	208.48.23.54	HEAnet-2.so-3-0-0.ar1.dub1.gblx.net	3549
			12	193.1.195.161	deimos-gige5-3.cwt.core.he.net	1213
			13	193.1.195.85	hyperion-gige5-0.bh.core.he.net	1213
			14	193.1.196.122	mantova-gige1-2.bh.access.he.net	1213
			15	193.1.198.10	tt35.ripe.net	1213

[homepage](#) | [what's new](#) | [whois db](#) | [search](#) | [site map](#) | [f.a.q.](#)

Test Traffic Measurements

Plots on Demand

SRC:	<input type="text" value="tt108: Eurotel Praha, Prague, CZ"/>					
DST:	<input type="text" value="tt35: HEAnet, Dublin, IE"/>					
Min Delay (ms):	<input type="text" value="0"/>	Start Date	<input type="text" value="20040428"/>	Start Time	<input type="text" value="00:00"/>	UTC
Max Delay (ms):	<input type="text" value="250"/>	End Date	<input type="text" value="20040429"/>	End Time	<input type="text" value="00:00"/>	UTC
Output format:	<input checked="" type="radio"/> gif <input type="radio"/> PostScript <input type="radio"/> PDF <input type="radio"/> ascii		<input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6			
Plot type:	<input checked="" type="radio"/> delay <input type="radio"/> trends <input type="radio"/> jitter		When clicking on plot, <input type="text" value="Zoom 6x"/> times			
<input type="button" value="Submit"/>						

NOTE : plots are generated in real time; depending on the requested period, it can take 10 to 90 seconds to create the image. The daily generated (last day/week/month) plots are available from the [main TTM results page](#) We also have a [world map](#) with locations of the boxes

- [tt107](#) (IPv6) DANTE, Geneva, CH
- [tt108](#) Eurotel Praha, Prague,
- [tt109](#) SUNET, Umea, SE
- [tt110](#) SUNET, Goteborg, SE
- [tt111](#) NetCologne GmbH, Colog
- [tt112](#) Service Industriels de
- [tt113](#) KPN Telecom B.V., Amst
- [tt114](#) KPN Telecom BV, Rotter
- [tt115](#) KPN Telecom B.V., Den
- [tt117](#) Johannes Gutenberg-Uni

Click on the test-box number for a full map

Delays:

Losses:

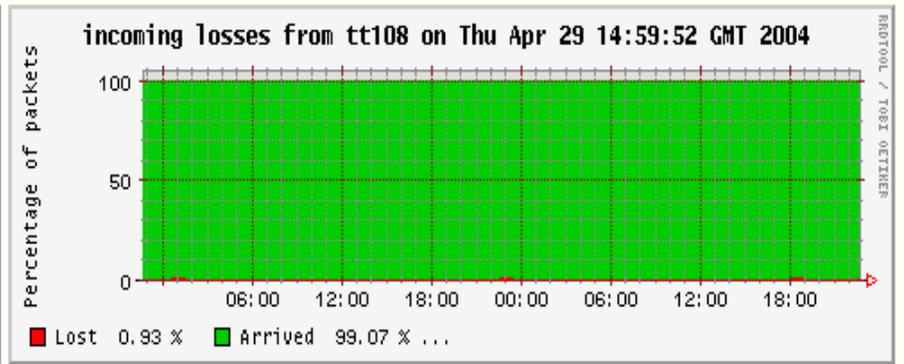
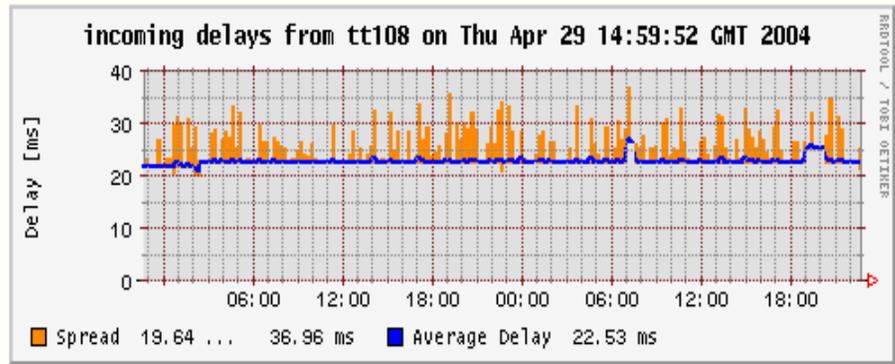
Start: Length:

Height: Width:

Y-range delay: to

Loss plots: Loss Only Loss and Arrived

Draw



- [tt107](#) (IPv6) DANTE, Geneva, CH
- [tt108](#) Eurotel Praha, Prague, CZ
- [tt109](#) SUNET, Umea, SE
- [tt110](#) SUNET, Goteborg, SE
- [tt111](#) NetCologne GmbH, Colog
- [tt112](#) Service Industriels de
- [tt113](#) KPN Telecom B.V., Amst
- [tt114](#) KPN Telecom BV, Rotter
- [tt115](#) KPN Telecom B.V., Den
- [tt117](#) Johannes Gutenberg-Uni

Click on the test-box number for a full map

Delays:

Losses:

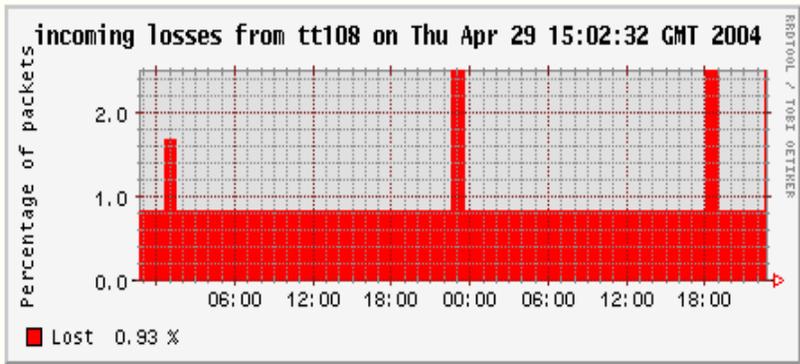
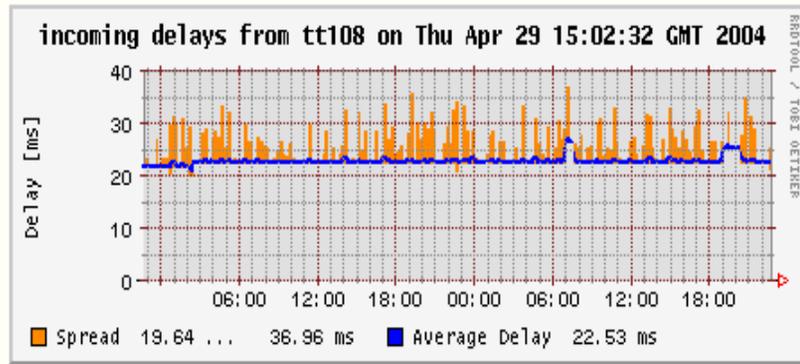
Start: **Length:**

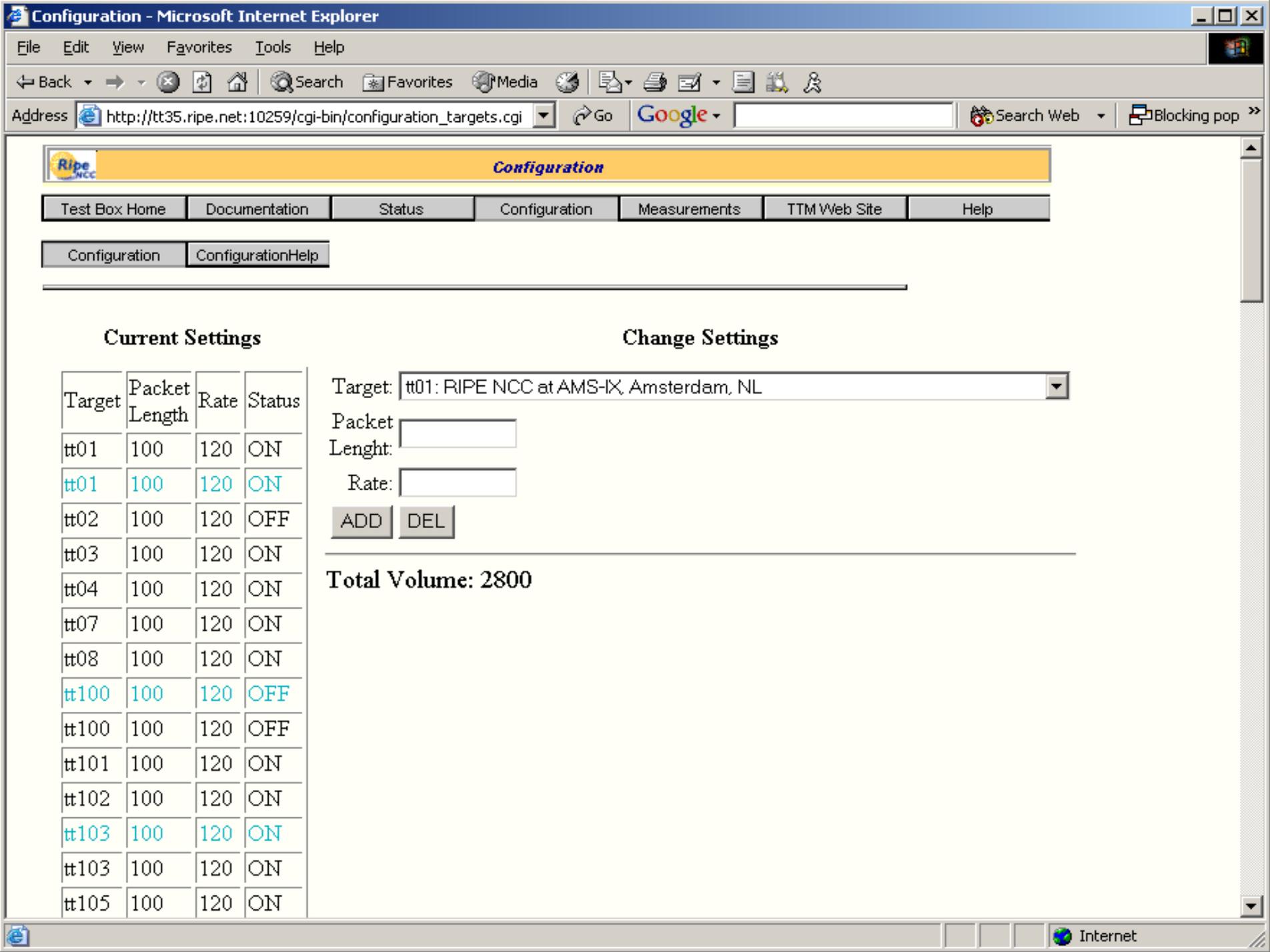
Height: **Width:**

Y-range delay: to

Loss plots: Loss Only Loss and Arrived

Draw





Configuration

Test Box Home Documentation Status Configuration Measurements TTM Web Site Help

Configuration ConfigurationHelp

Current Settings

Target	Packet Length	Rate	Status
tt01	100	120	ON
tt01	100	120	ON
tt02	100	120	OFF
tt03	100	120	ON
tt04	100	120	ON
tt07	100	120	ON
tt08	100	120	ON
tt100	100	120	OFF
tt100	100	120	OFF
tt101	100	120	ON
tt102	100	120	ON
tt103	100	120	ON
tt103	100	120	ON
tt105	100	120	ON

Change Settings

Target: tt01: RIPE NCC at AMS-IX, Amsterdam, NL

Packet Length:

Rate:

ADD DEL

Total Volume: 2800

Ripe NCC Configuration

Test Box Home Documentation Status Configuration Measurements TTM Web Site Help

Configuration ConfigurationHelp

Current Settings

Change Settings

Target	Packet Length	Rate	Status
tt01	100	120	ON
tt01	1500	1500	*
tt02	100	120	OFF
tt03	100	120	ON
tt04	100	120	ON
tt07	100	120	ON
tt08	100	120	ON
tt100	100	120	OFF
tt100	100	120	OFF
tt101	100	120	ON
tt102	100	120	ON
tt103	100	120	ON
tt103	100	120	ON

Target:

Packet Length:

Rate:

Total Volume: 18796.6666666667

Conclusion

- Wide variety of tools within Test-traffic suite allows for very detailed troubleshooting.
- Alert emails give very immediate indications that a change has occurred.
- Incredibly accurate metrics.
- Very handy Stratum1 NTP Server.
- 24-hour delay plots great for historical diagnostics, less useful for immediate troubleshooting.
- Need more boxes in the mesh!