



Multicast Monitoring

Final Report

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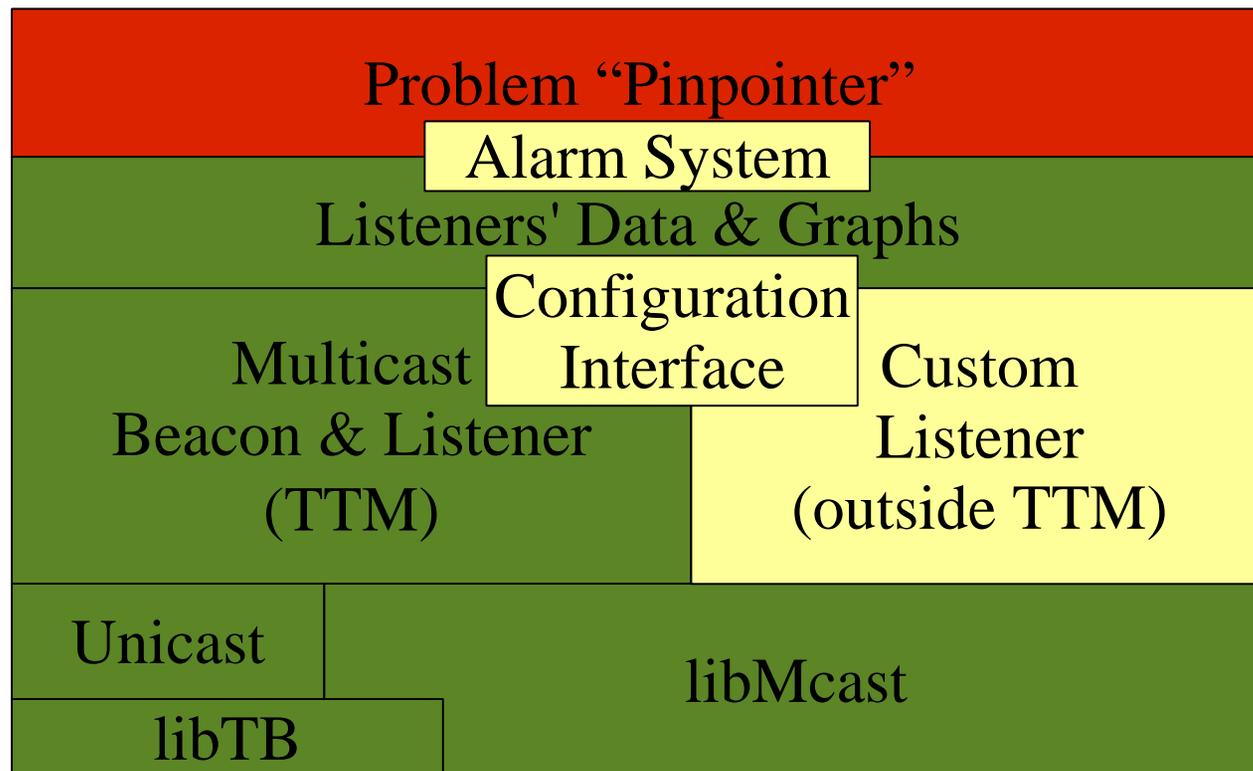


Overview (I)

- Multicast Monitoring on RIPE NCC Test Traffic Boxes
 - RIPE Policy Proposal, April 2006
- Policy suggests
 - Multicast beacons
 - Multicast listeners
 - Raw data for interested parties
 - Pinpointing of problems

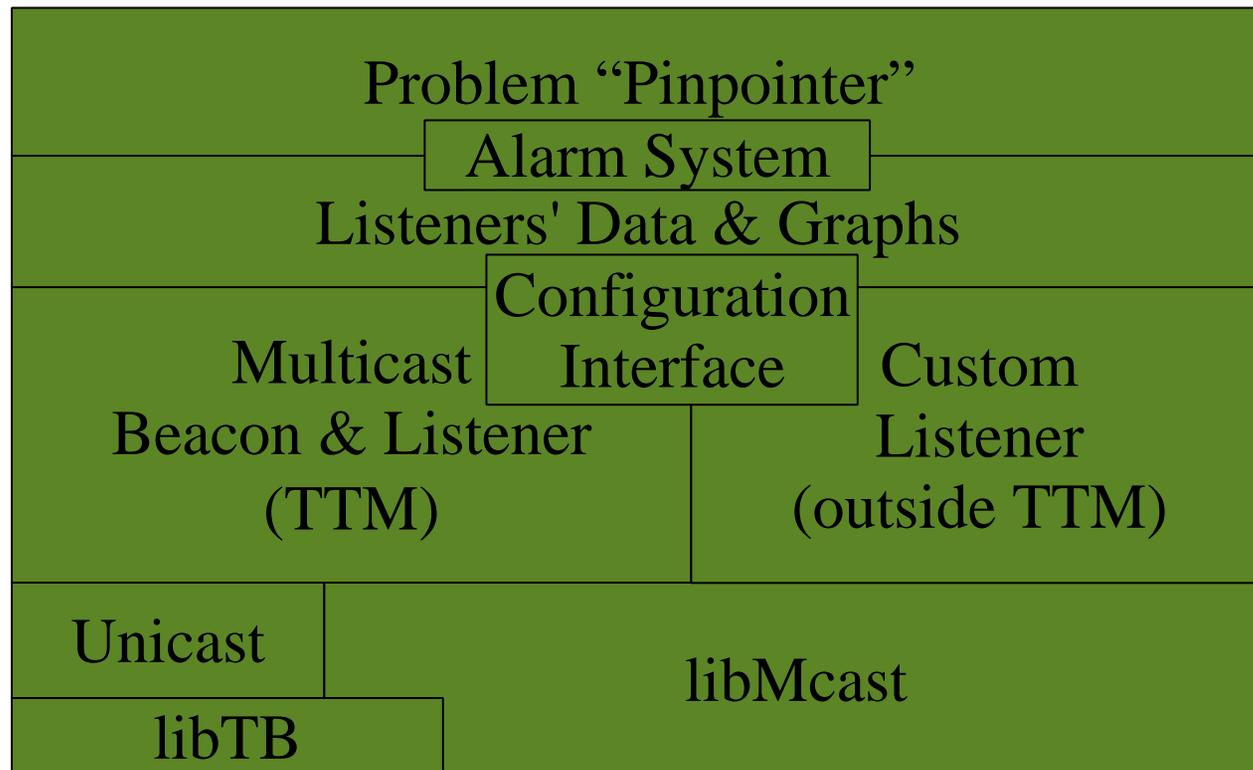
Overview (II)

- Multicast Monitoring Architecture, Status at RIPE 53
 - green: finished, yellow: under construction, red: to be implemented



Overview (III)

- Multicast Monitoring Architecture
 - today: all finished



Timeline

Documentation work	Link-Local testing	Getting familiar with TTM/preparation	July
		Implementing multicast beacon (TTM)	August
		Implementing multicast listener (TTM)	September
		Graphs and TTM specific UI	October
		Alarm system	November
		Custom listener, Alarm integration and UI	December
	Routed testing	Install routed test setup	January
		Implementing problem "Pinpointer"	February
		Overall code review	March
		Move everything in place, finish docs	
		Move into production	

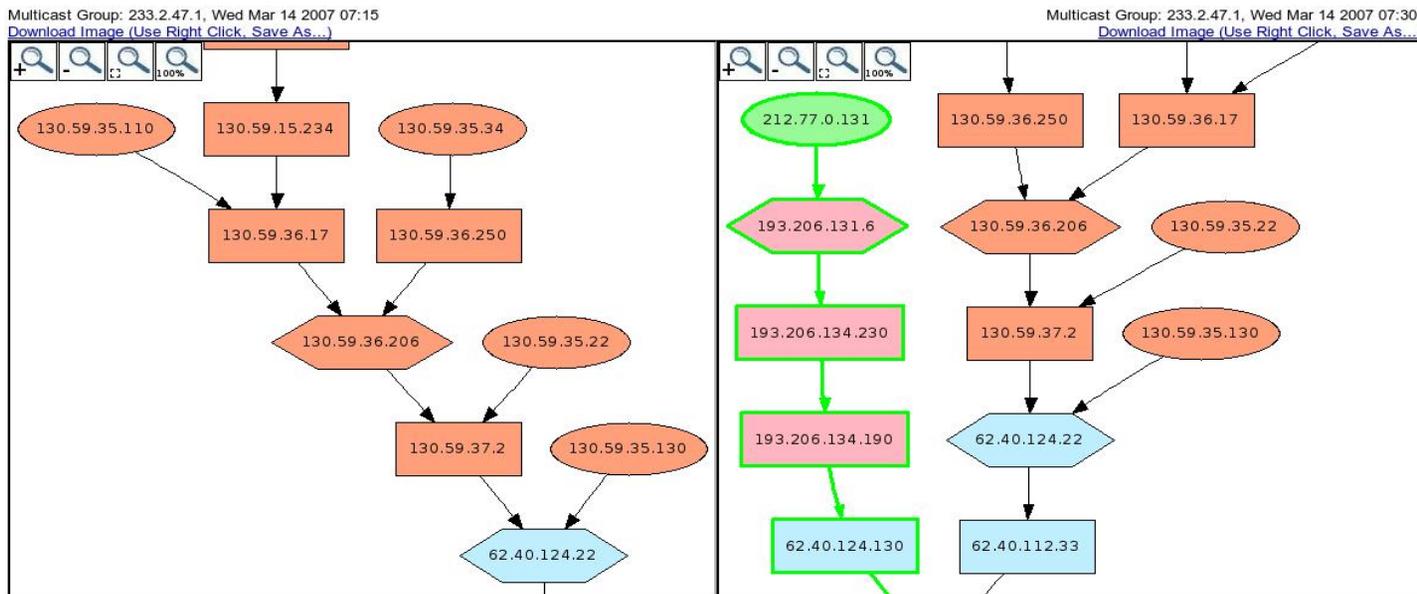
Results (I)

- Multicast Beacon
 - Open, well-known TTM packet format
 - Timestamps from GPS clocks
 - Standard configuration using NCC GLOP addresses
- Listeners
 - Performing one-way delay measurements using GPS-Clocks
 - Supporting measurements inside and outside the TTM network
 - Highly configurable Custom Listener
- Alarms
 - Email notification including links to relevant data

Results (II)

• Problem Pinpointer

- Each textbox tracing the path to configured groups
- Data gathered centrally and clustered by groups and timestamps
- Presented in a convenient user interface



Demo

- Configuration Interface
- Problem Pinpointer
 - [User Interface](#)
 - [Use Case](#)
- Measurement Data

Select Multicasts to be monitored:

224.0.10.17

224.0.10.18

Email Alarm to:

Select Multicast Membership(s):

All Memberships

224.0.10.17

224.0.10.18

Delays:

Losses:

Start: Length:

Height: Width:

Y-range delay: to

Loss plots: Loss Only Loss and Arrived

Multicast	Port	Rate	Time Format	Time Offset	Packet Size	Defined Value(s)	Value Offset(s)	Alarm Email	Delete?
12.12.12.12	12	20	UnixTimestamp	0	100			franz@ripe.net	Delete
12.12.12.12	13	0		0	0			franz@ripe.net	Delete
14.14.14.14	14	14	UnixTimestamp	13	13	ef56,a5	12.1	franz@ripe.net	Delete

Conf. Name	Rate	Time Format	Time Offset	Packet Size	Defined Value(s)	Value Offset(s)	Delete?
TTM-Data	20	UnixTimestamp	0	100			Delete
TestConfig	14	UnixTimestamp	13	13	ef56,a5	12.1	Delete

Add a Listener:

Multicast Address:

Port:

Alarm Email:

Predefined:

Config Name:

Expected Rate (Packets/10 Minutes):

Timestamp Format:

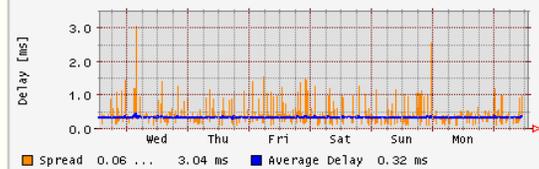
Timestamp Offset:

Packet Payload:

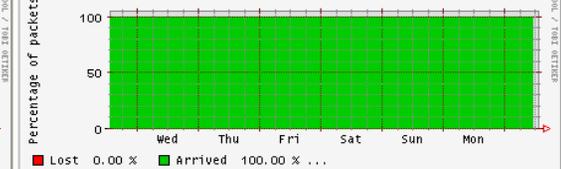
Defined Value(s) (hex):

Value Offset(s) (bytes):

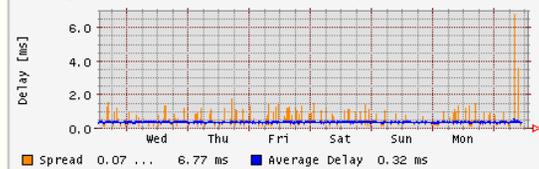
incoming delay from 224.0.10.17 on Tue Sep 26 13:04:14 UTC 2006



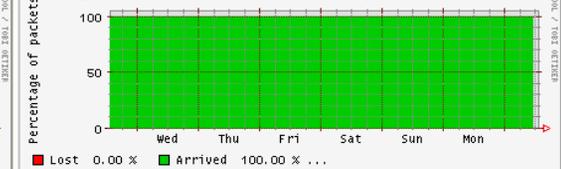
incoming loss from 224.0.10.17 on Tue Sep 26 13:04:14 UTC 2006



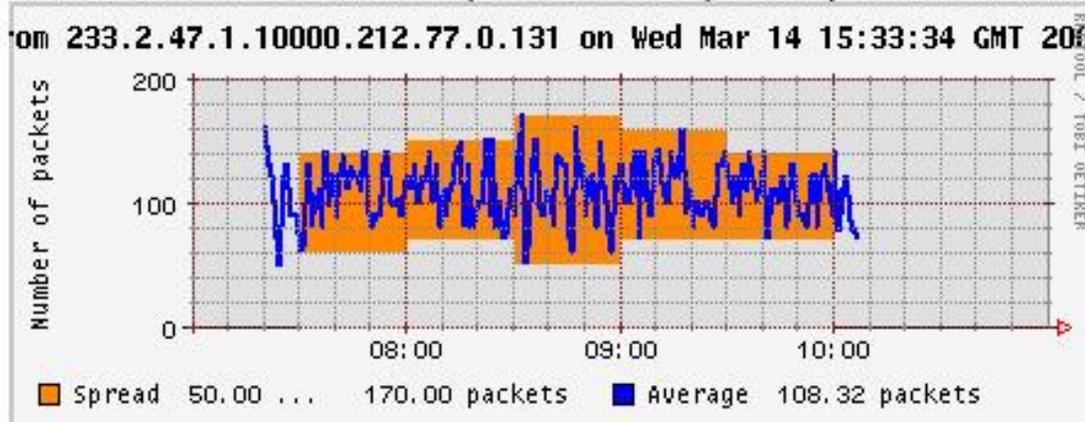
incoming delay from 224.0.10.18 on Tue Sep 26 13:04:14 UTC 2006



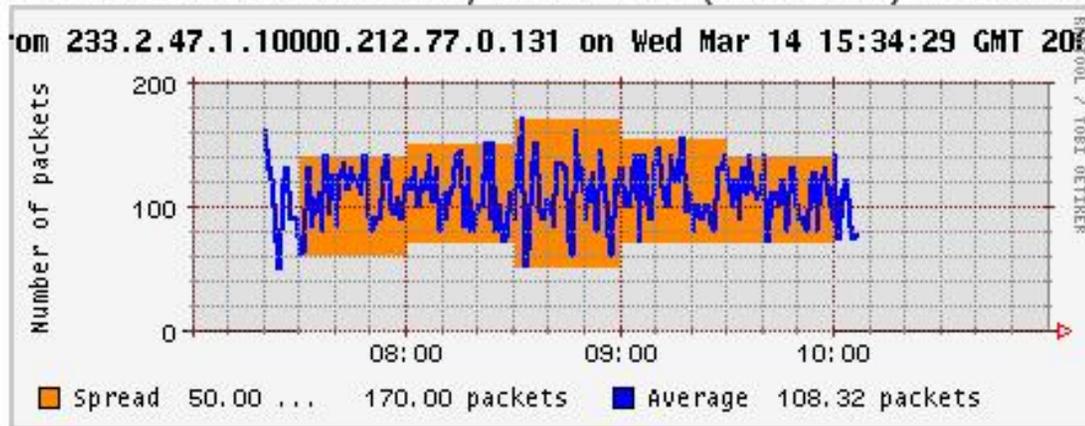
incoming loss from 224.0.10.18 on Tue Sep 26 13:04:14 UTC 2006



- Plots from a debeacon in Italy towards tt73 (Vienna) via 233.2.47.1 14/03/2007:



- Plots from a debeacon in Italy towards tt85 (Switzerland) via 233.2.47.1 14/03/2007:

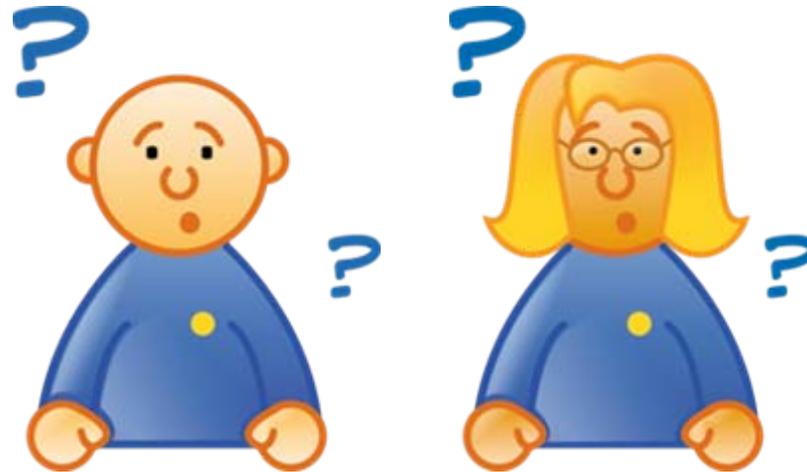




How to get it

- Do you have a testbox?
- Do you have multicast routing on your network?
- Send an email!

tt-ops@ripe.net



Questions?