6meter:
Measuring Real Global IPv6 Traffic

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Introduction

- 6meter application is intended to **count packets and bytes** of different kinds of **IPv6 traffic**
- Its objective is just to listen on a given interface for network packets and update each traffic counter
- Writes the counter values on a text file in order to have permanent record of the counters and to process the data to obtain useful reports
- **IPv4 traffic is also measured**, all included in just **one category**. This is done to allow comparisons of IPv6 vs. IPv4 traffic
- C + pcap library
- Tested on Linux platform

Types of traffic

- 6meter considers the following categories of traffic:
  - Native IPv4
  - Native IPv6
  - 6to4
  - Teredo (Data and Signaling)
  - Proto-41
  - IPv6 GRE IPv4
  - ULA (ULA-C and ULA-L)
  - Site-local
  - Multicast
  - Others
- Also classifies the traffic on source address (6Bone, AfriNIC, APNIC, ARIN, LACNIC, RIPE NCC)

Capturing packets (I)

- 6meter listen on **promiscuous mode** so all packets that reach the listening interface will be processed. This means that in a switched LAN all multicast traffic and only 6meter-running-host directed Unicast traffic will be captured
- The **recommended** configuration in a switched LAN is to connect the listening interface to a **mirrored port**, that receives all LAN's traffic, both Unicast and Multicast. This will improve accuracy (in case of Multicast traffic being sent along with Unicast traffic) and coverage of the statistics

Capturing packets (II)

- 6meter <device> (<run_time>|<run_time>=0 <output_time>) <output_file>

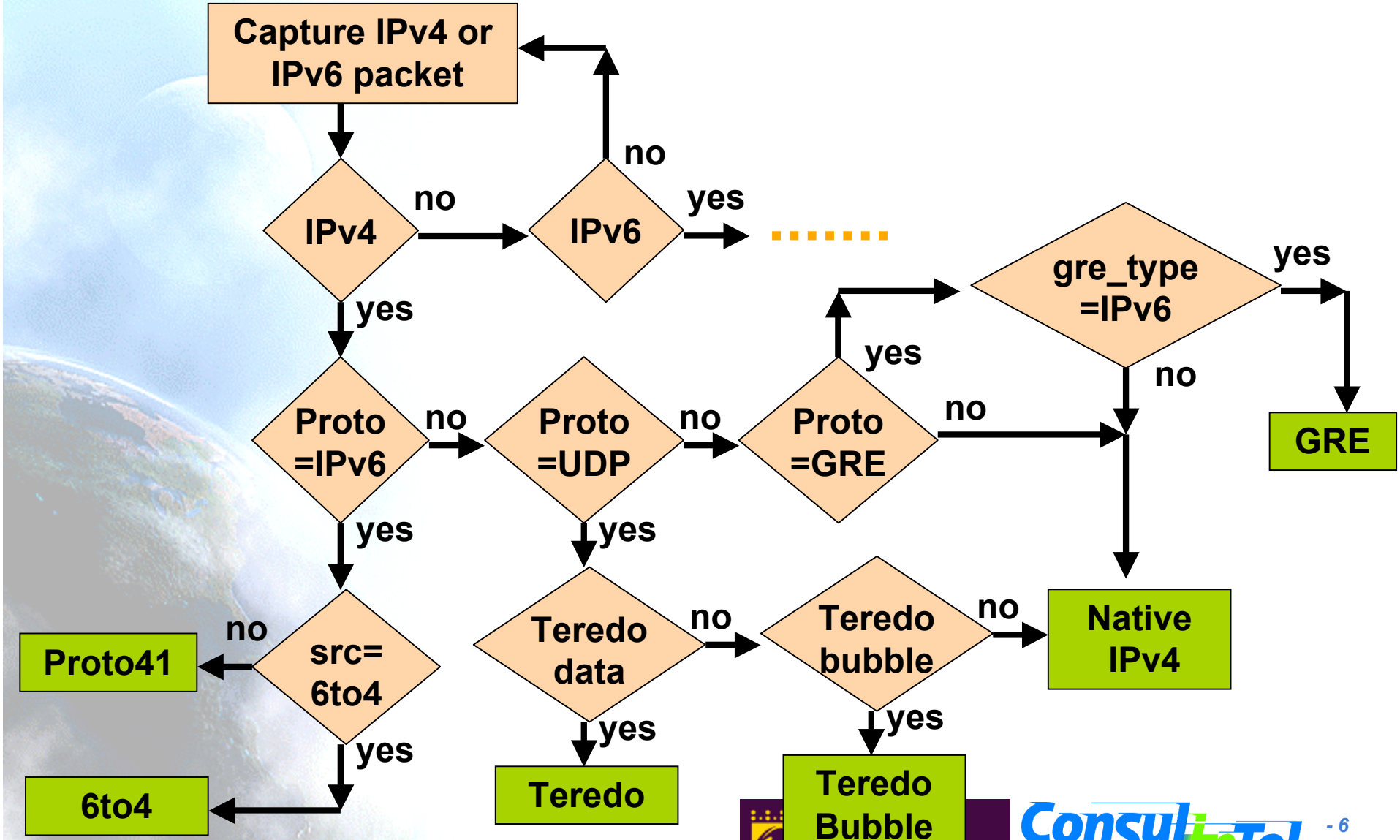
<device> : Interface on which listen for packets. E.g. eth0 on Linux.
<run_time> : Time in seconds (>0) 6meter should listen, then exits.
<run_time>=0 <output_time> : A value of zero (0) means run indefinitely. Statistics will be put on a file in a periodic way each <output_time> (>0) seconds.
<output_file> : Output file to where the results are written. The date and time is appended to file name.

- EXAMPLES:

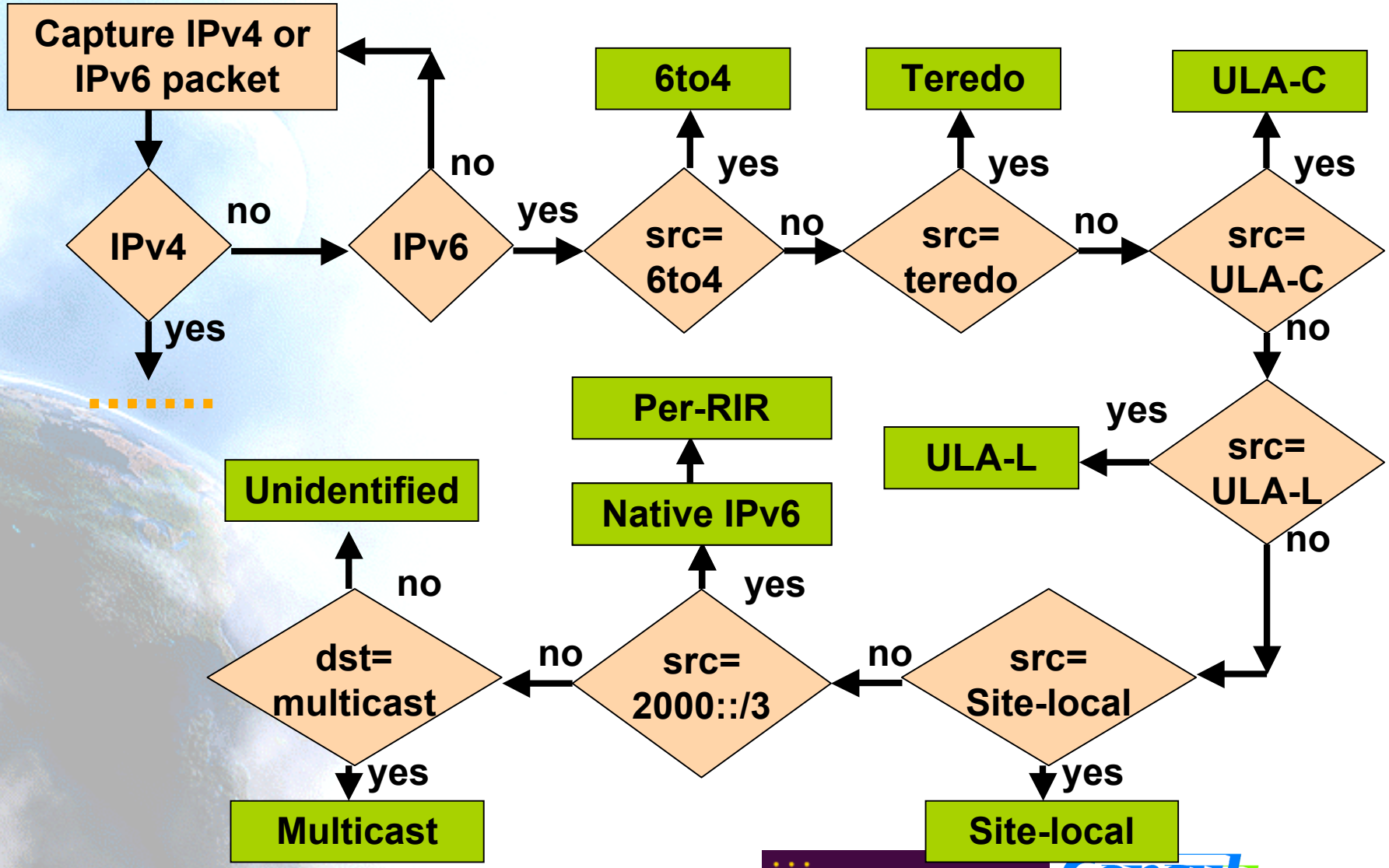
6meter eth0 300 6meter_output_file : 6meter will capture packets on eth0 for 5 minutes and at the end put the result in 6meter_output_file_<date>_<time>

6meter eth0 0 600 6meter_output_file : 6meter will run indefinitely capturing packets on eth0 and update 6meter_output_file_<date>_<time> each 10 minutes

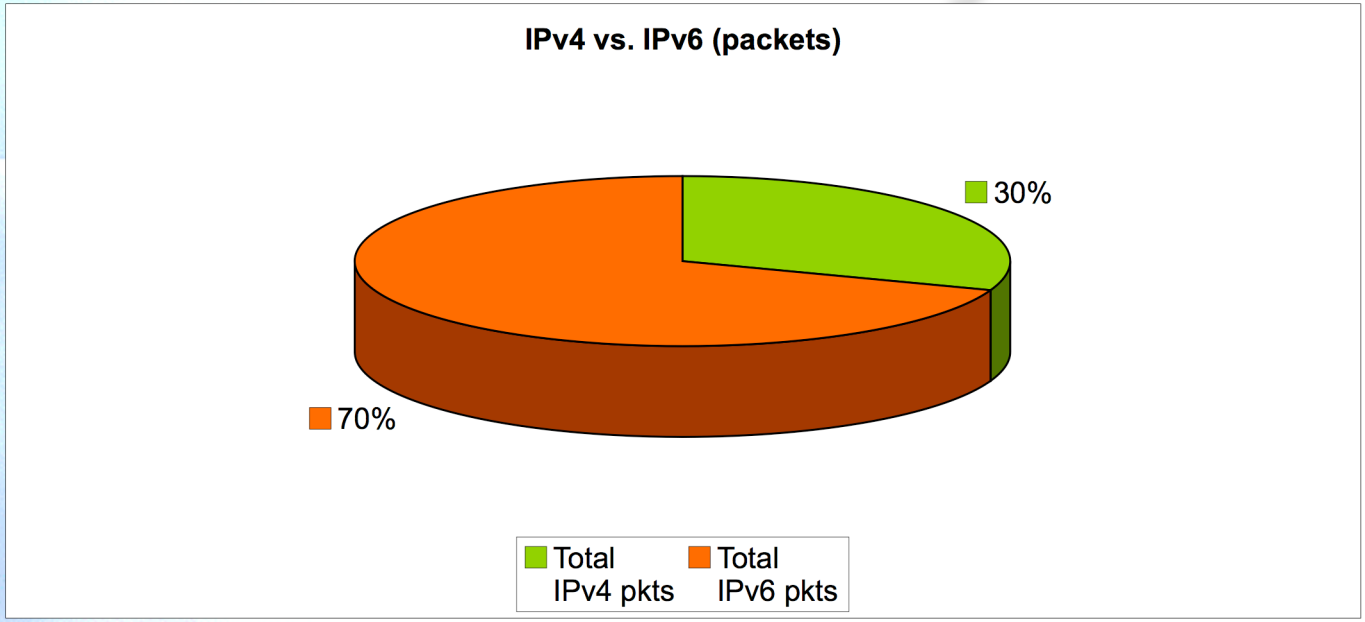
Capture Algorithm: IPv4 pkts

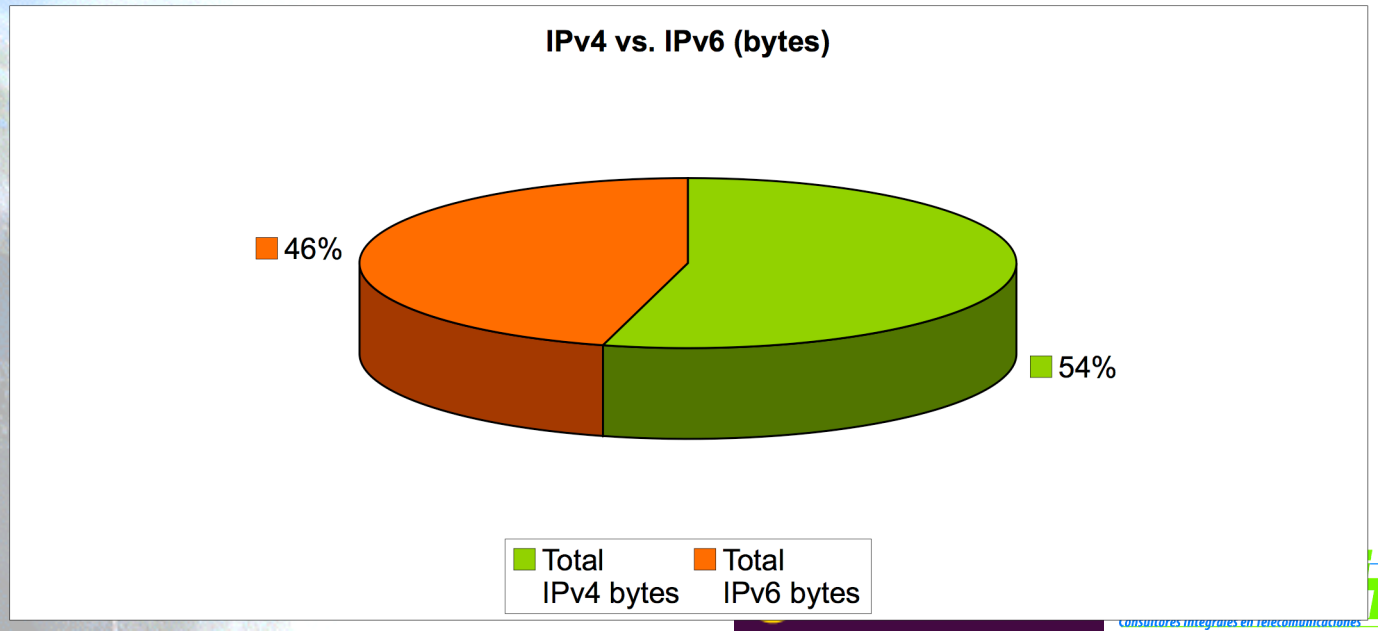


Capture Algorithm: IPv6 pkts

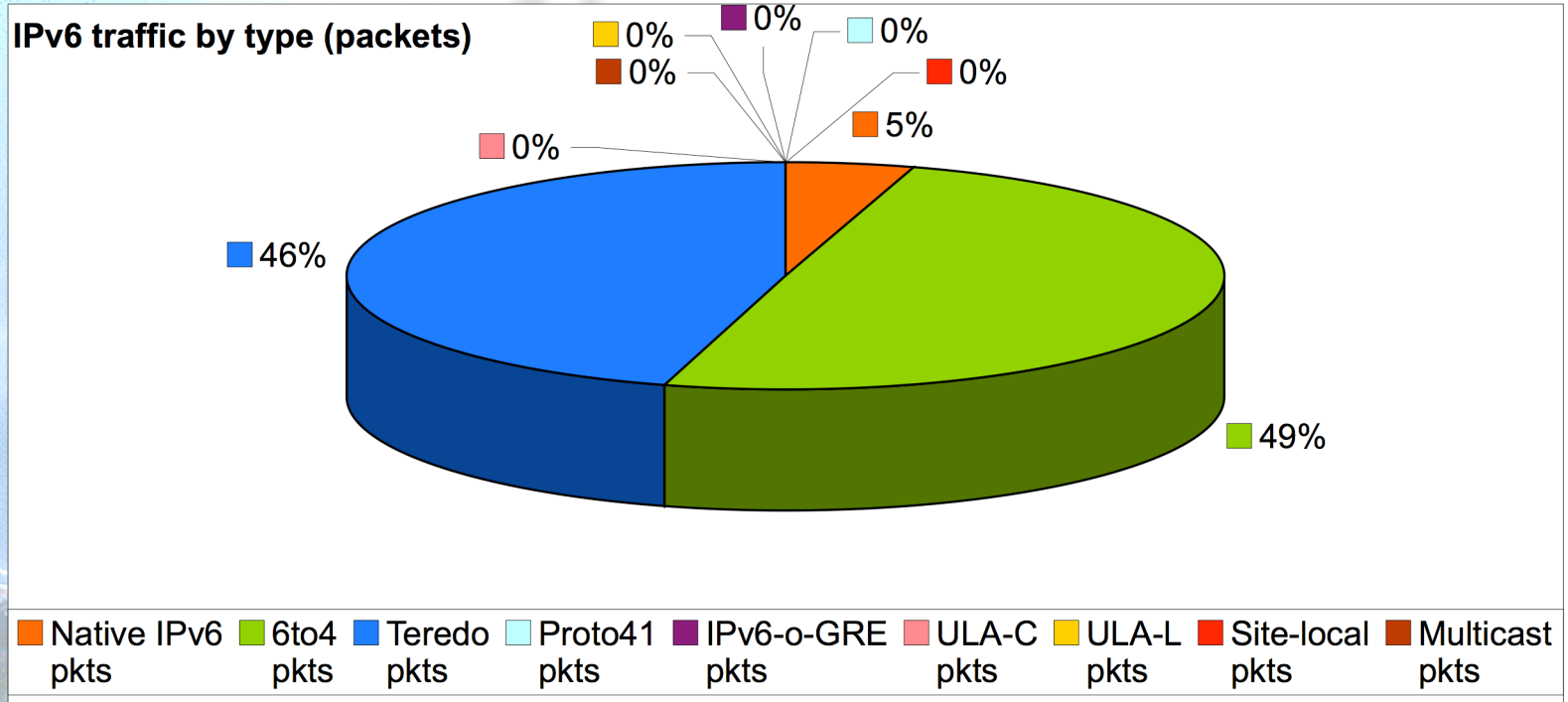


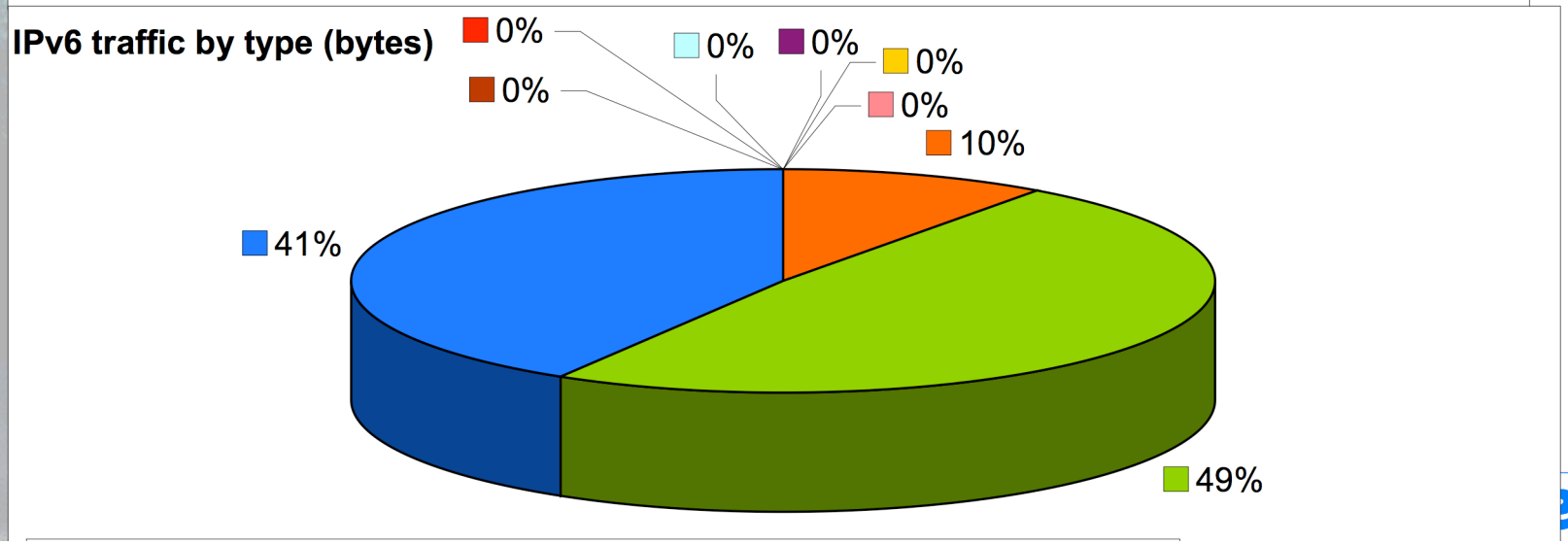
Packets + Bytes



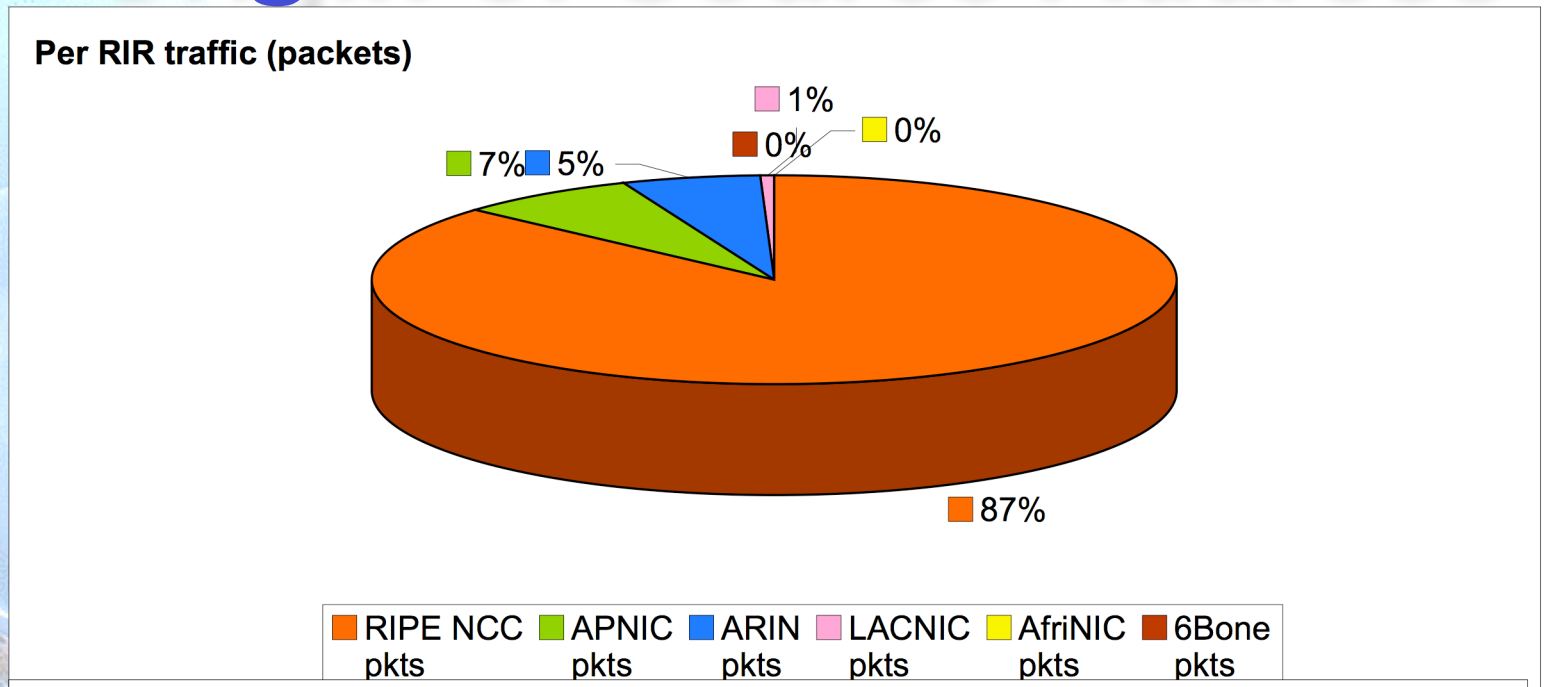


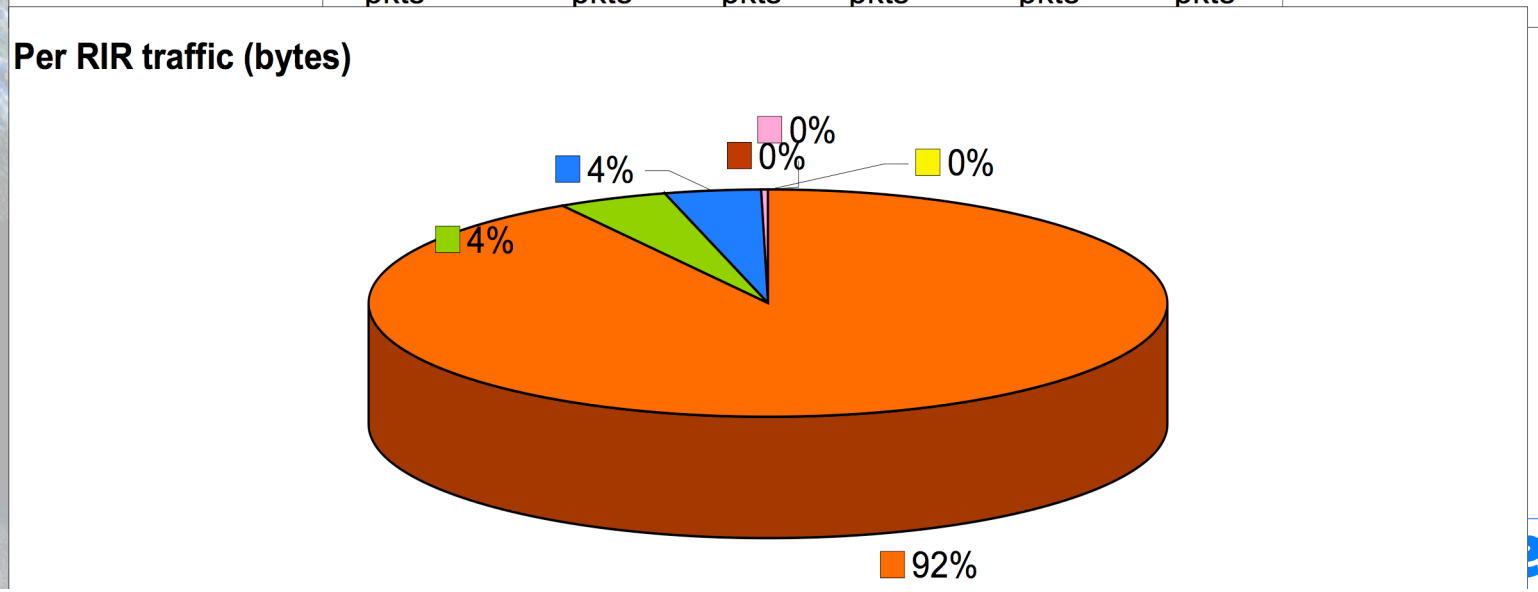
Types of Traffic



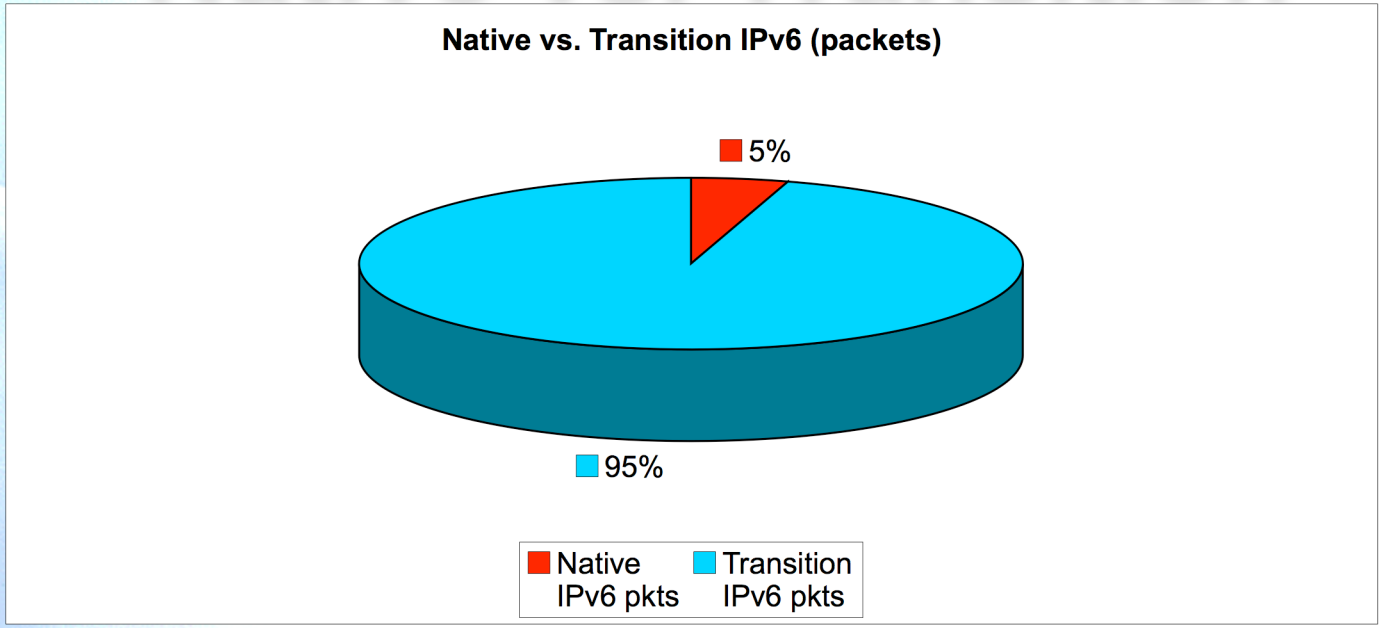


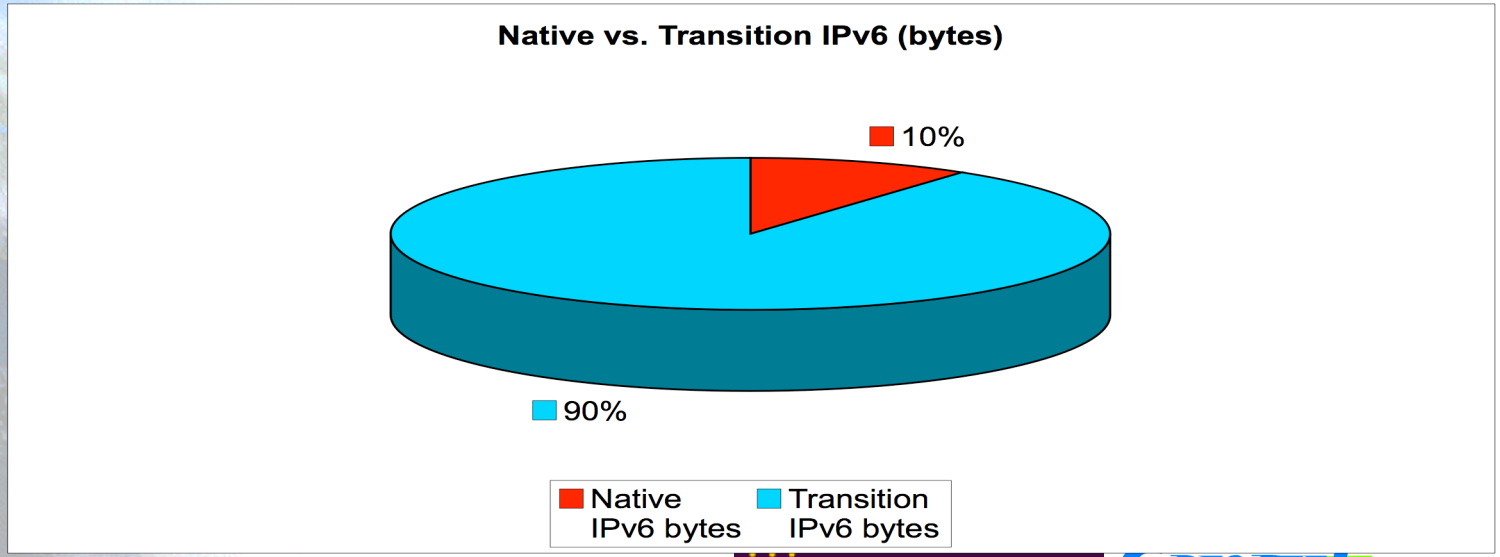
Origin of Source Address



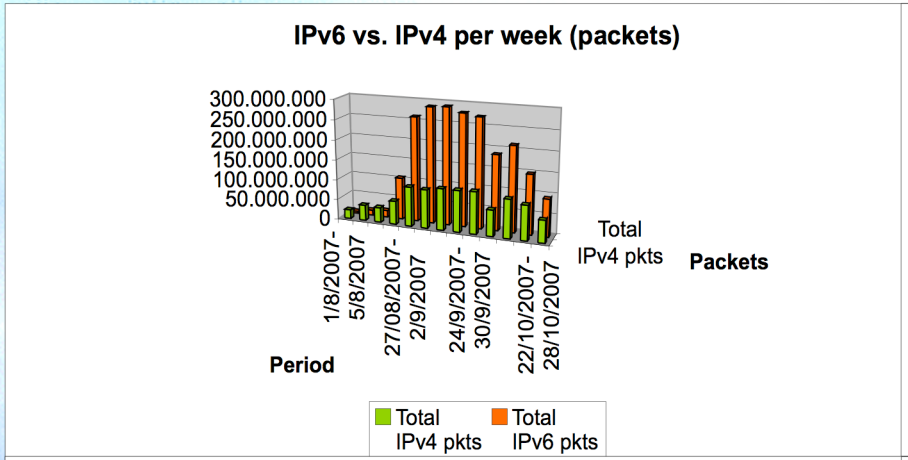


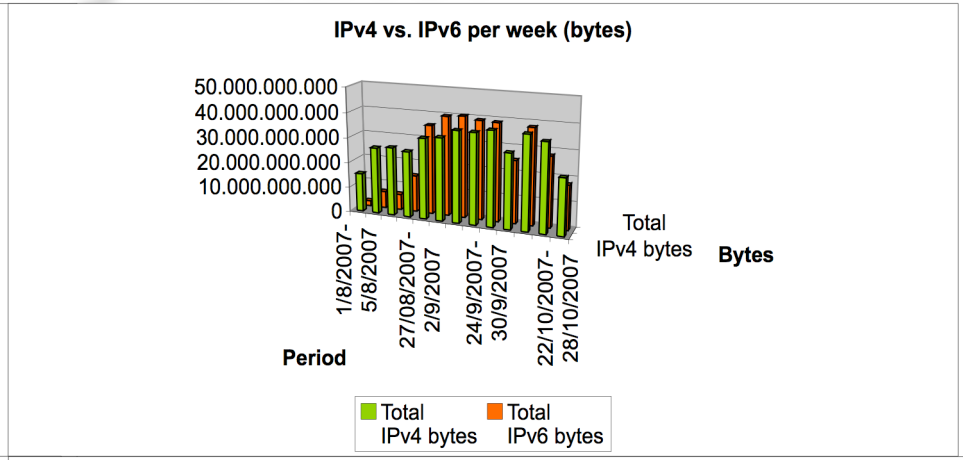
Native vs. Transition

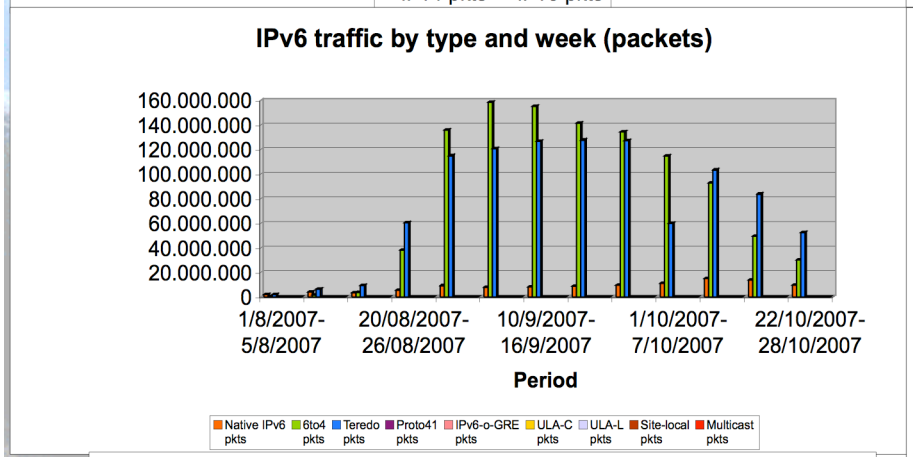


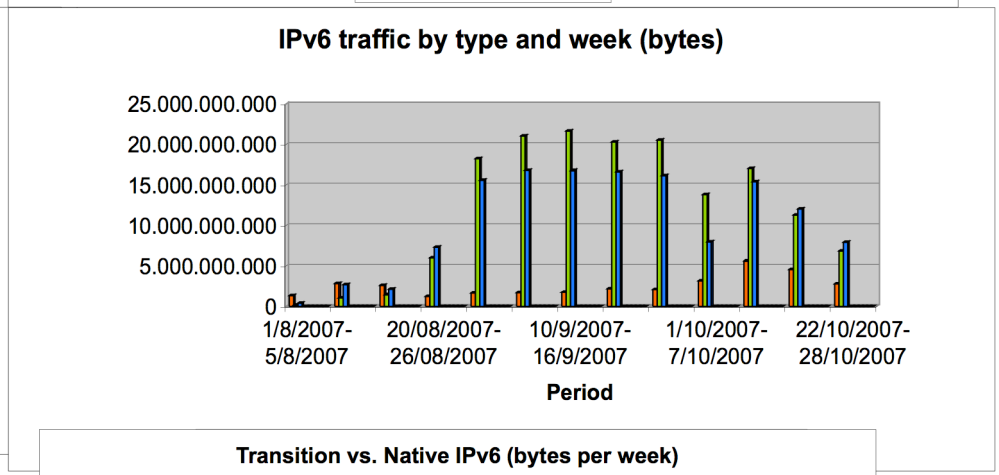


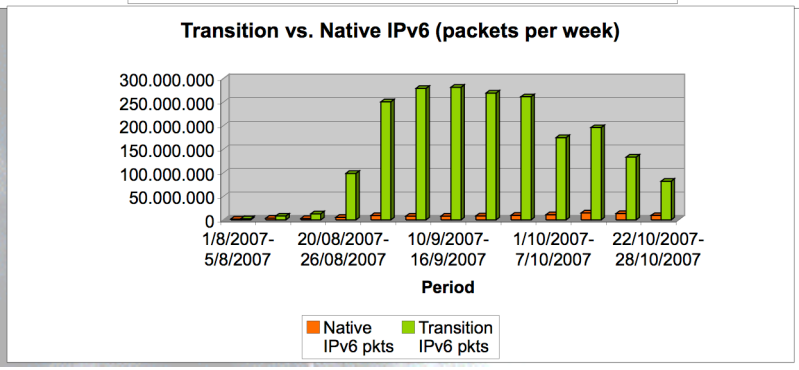
Weekly Stats.

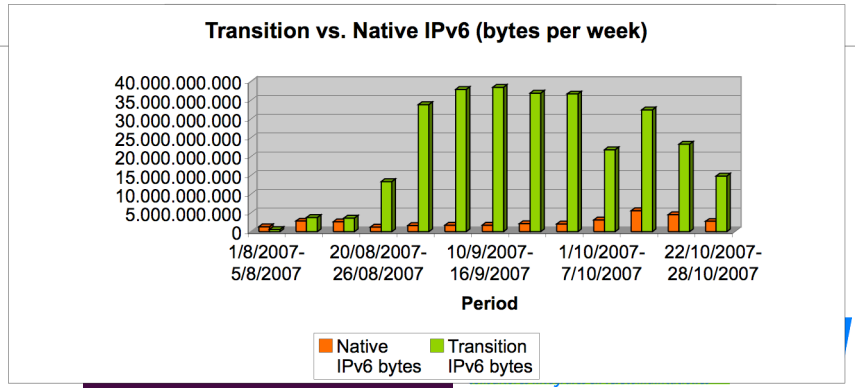












Thanks !

Contact:

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The IPv6 Portal:

http://www.ipv6tf.org