

Measurement and Instrumentation at K-root

Wolfgang Nagele
RIPE NCC

Current instrumentation

- pcap capture
 - all UDP and TCP queries captured
 - files automatically rotated and compressed every hour
 - data kept for a minimum of 5 days
 - allows us to look at the actual data when “interesting” events occur
 - we upload these traces as part of DITL
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Current Instrumentation (2)

- DSC
 - uses pcap library to capture data
 - unlike tcpdump, DSC produces statistics every minute
 - statistics files processed at RIPE NCC offices
 - graphs produced for internal and external use
 - DSC data also uploaded to OARC in near-real-time for members to view
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Current instrumentation (3)

- Nagios checks
 - Used to monitor server health
 - Also used to watch for root zone serial numbers
 - DNSMON
 - shows performance of K-root as seen from various probes
 - can reveal trends and subtle performance degradation
 - anycast reporting shows how often probes switch between K-root instances
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Upcoming Improvements

- pcap capture
 - for TCP, capture both queries AND responses
 - upload as many traces as possible, before and after the introduction of signed root zone
 - DSC
 - add more data sets to watch out for interesting queries, such as DO=1 and BUF=512
 - Nagios
 - distributed monitoring for more reliable checks (difficult to do with anycasted services)
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Tests against a signed root

- Lab setup similar to existing K-root nodes
 - Replay pcap traces against test setup
 - load testing
 - TCP performance and tuning
 - response size distribution
 - effects of restricted PMTU
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Reply Size Testing

- Reply size server at some K-root instances
 - Browser-based code to test client resolver PMTU
 - Try to get an idea of how bad the PMTU problem is
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