



DNSMON

DNS Server Monitoring

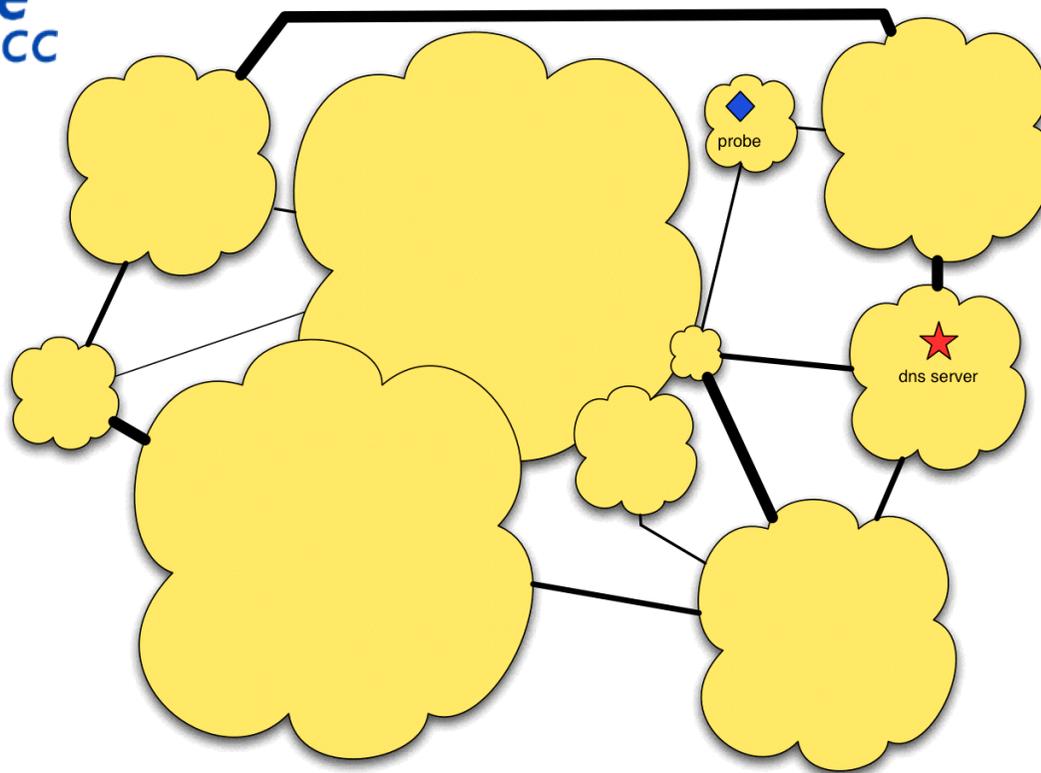
RIPE NCC

March 23, 05



DNSMON, Goals

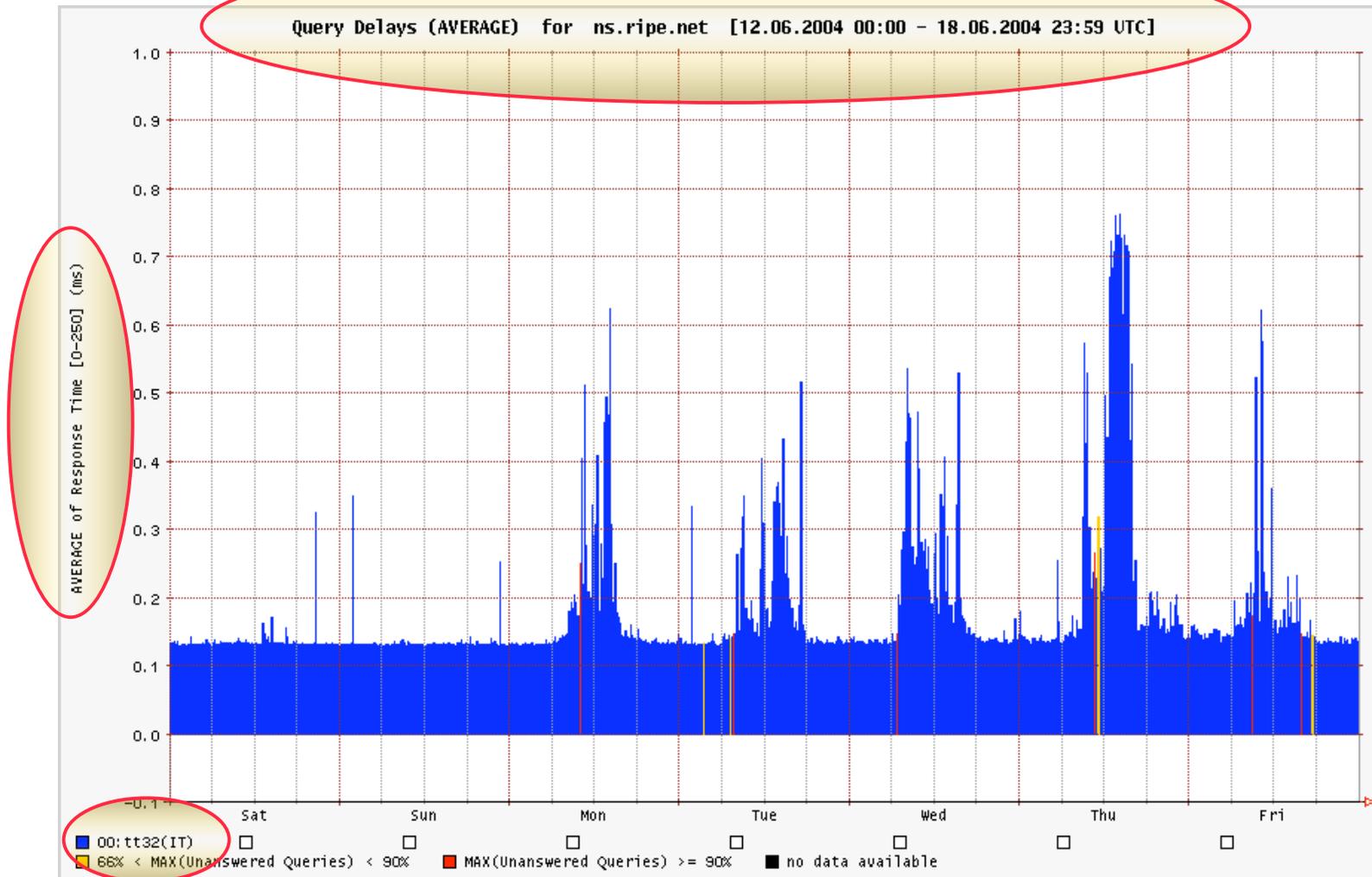
- Monitor DNS servers from many places
- Independent and Objective
- Novel and Interactive Presentation



- There are lots of bad measurements out there!
 - Ping - what does it measure??
 - From single locations ...
- People (press, regulators) use them!

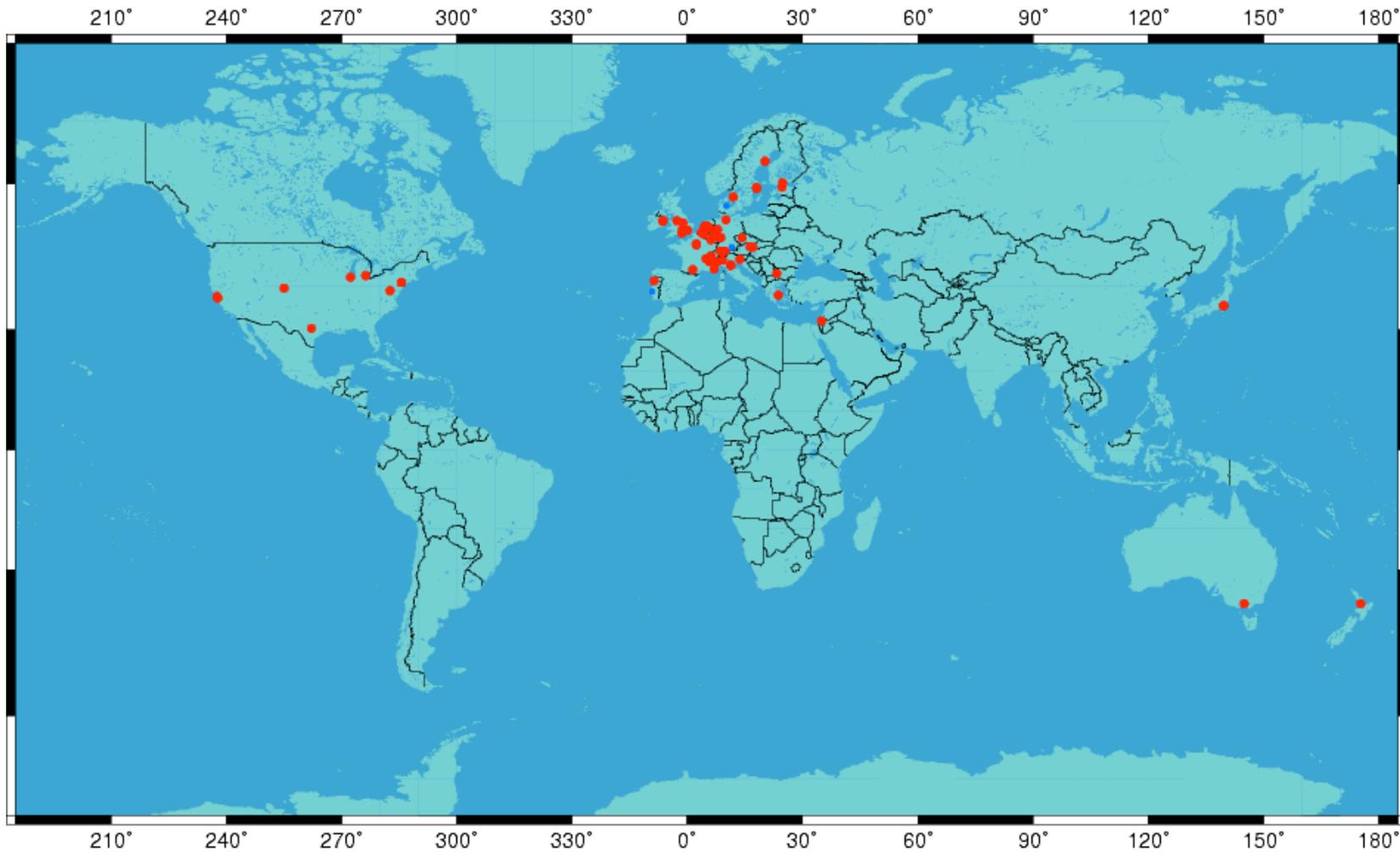


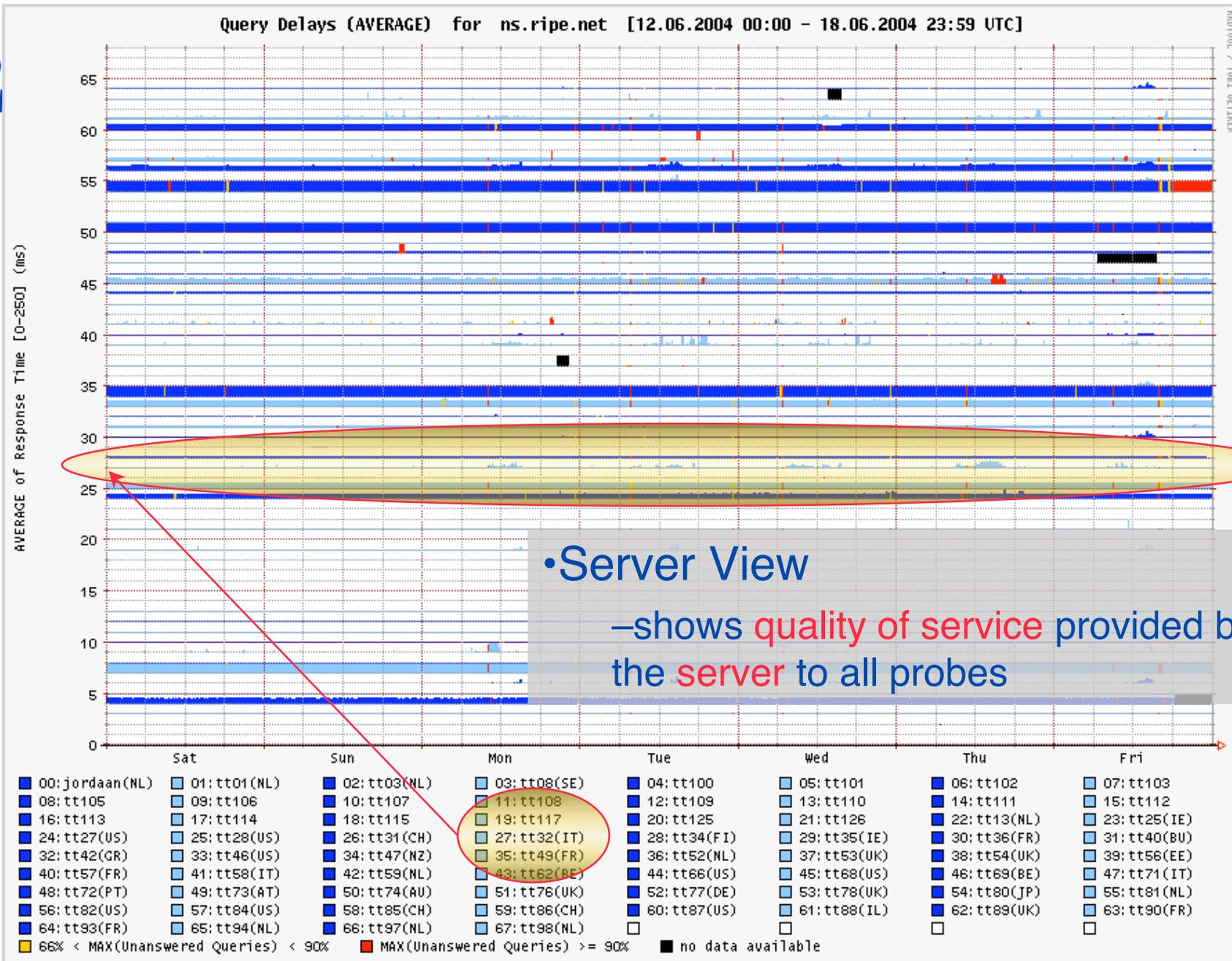
The Basic Building Block: Single Point Measurement

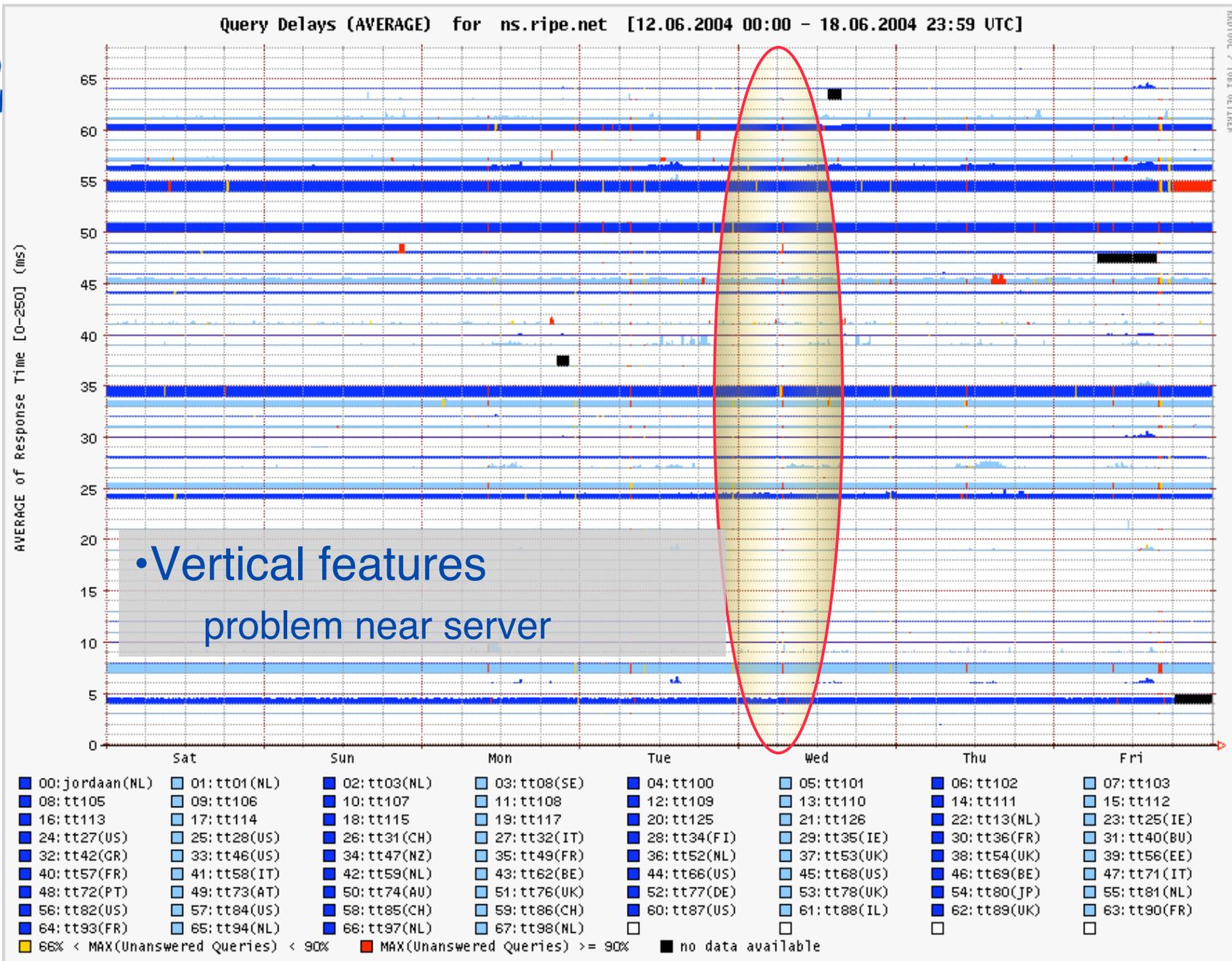


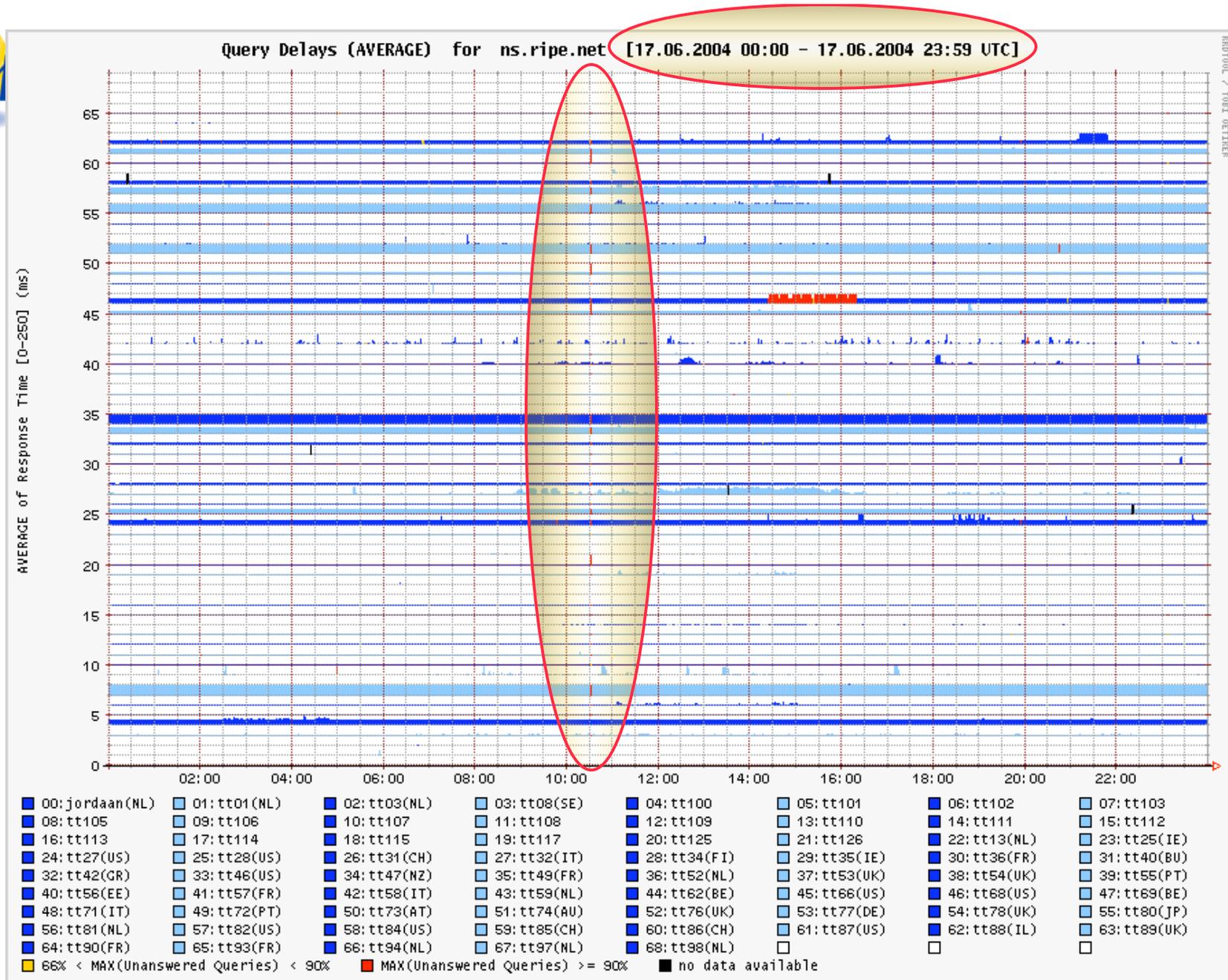


dnsmon Probe Locations





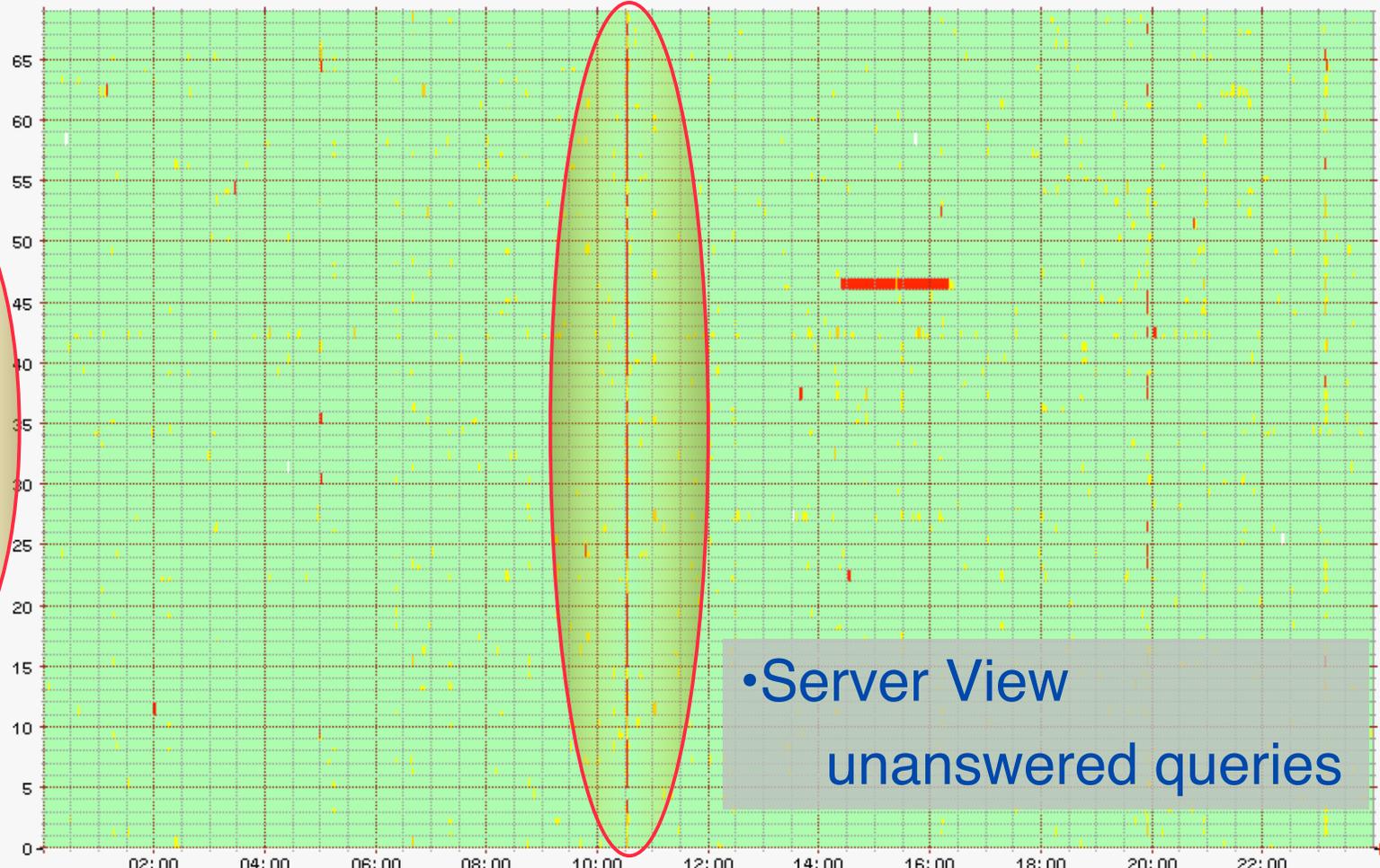






Unanswered Queries (AVERAGE) for ns.ripe.net [17.06.2004 00:00 - 17.06.2004 23:59 UTC]

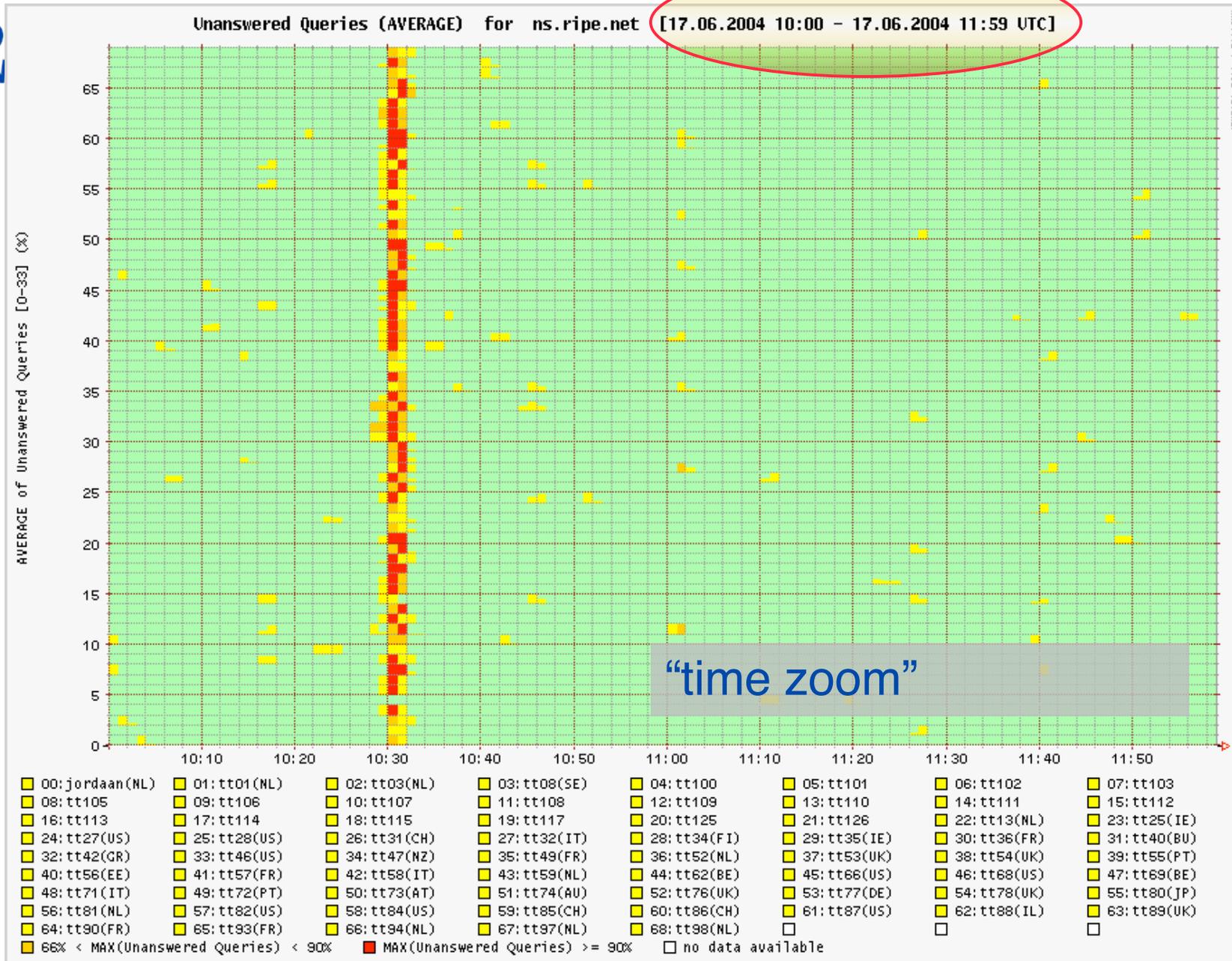
AVERAGE of Unanswered Queries [0-33] (%)

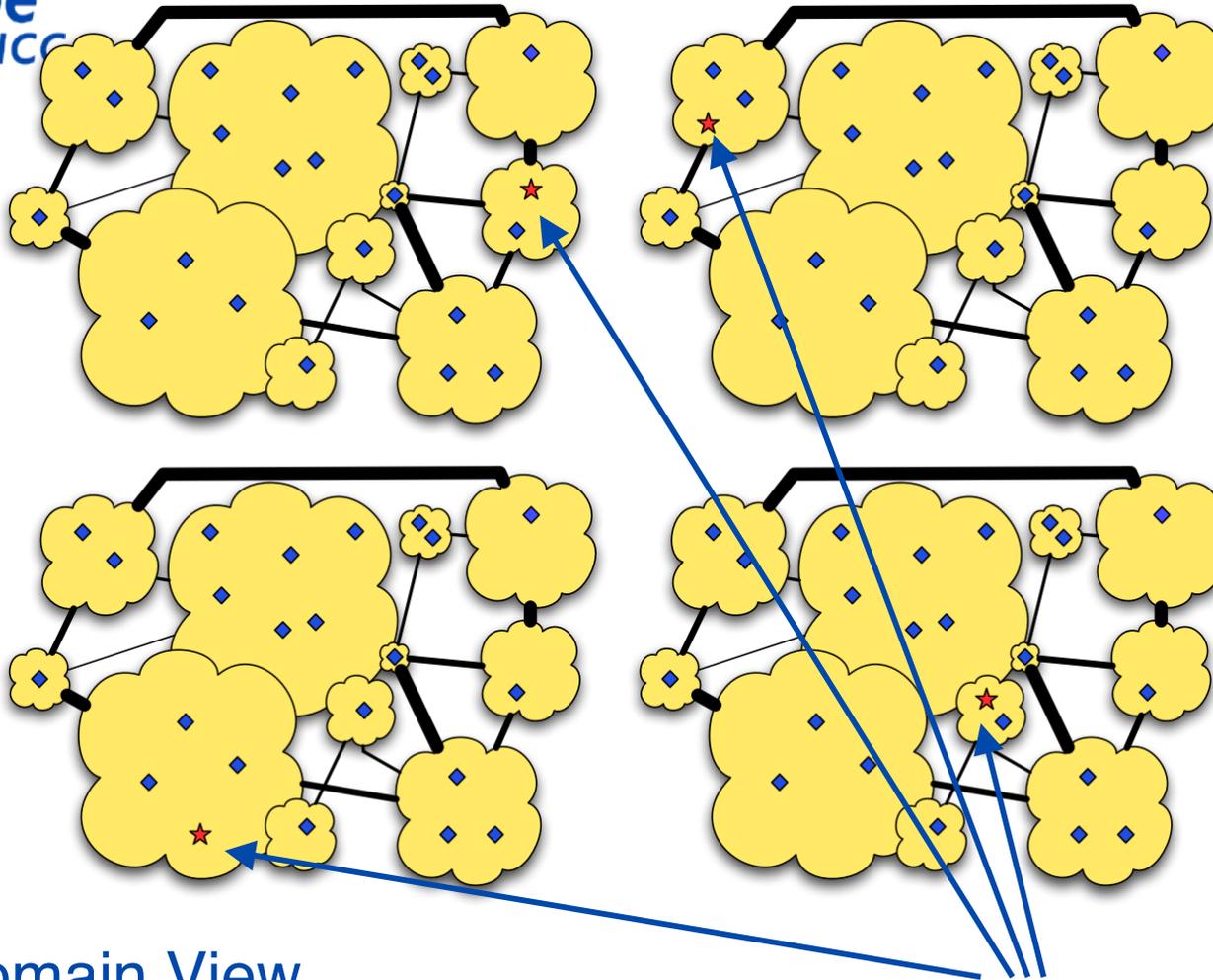


00: jordan(NL)	01: tt01(NL)	02: tt03(NL)	03: tt08(SE)	04: tt100	05: tt101	06: tt102	07: tt103
08: tt105	09: tt106	10: tt107	11: tt108	12: tt109	13: tt110	14: tt111	15: tt112
16: tt113	17: tt114	18: tt115	19: tt117	20: tt125	21: tt126	22: tt13(NL)	23: tt25(IE)
24: tt27(US)	25: tt28(US)	26: tt31(CH)	27: tt32(IT)	28: tt34(FI)	29: tt35(IE)	30: tt36(FR)	31: tt40(BU)
32: tt42(GR)	33: tt46(US)	34: tt47(NZ)	35: tt49(FR)	36: tt52(NL)	37: tt53(UK)	38: tt54(UK)	39: tt55(PT)
40: tt56(EE)	41: tt57(FR)	42: tt58(IT)	43: tt59(NL)	44: tt62(BE)	45: tt66(US)	46: tt68(US)	47: tt69(BE)
48: tt71(IT)	49: tt72(PT)	50: tt73(AT)	51: tt74(AU)	52: tt76(UK)	53: tt77(DE)	54: tt78(UK)	55: tt80(JP)
56: tt81(NL)	57: tt82(US)	58: tt84(US)	59: tt85(CH)	60: tt86(CH)	61: tt87(US)	62: tt88(IL)	63: tt89(UK)
64: tt90(FR)	65: tt93(FR)	66: tt94(NL)	67: tt97(NL)	68: tt98(NL)			

66% < MAX(Unanswered Queries) < 90%
 MAX(Unanswered Queries) >= 90%
 no data available

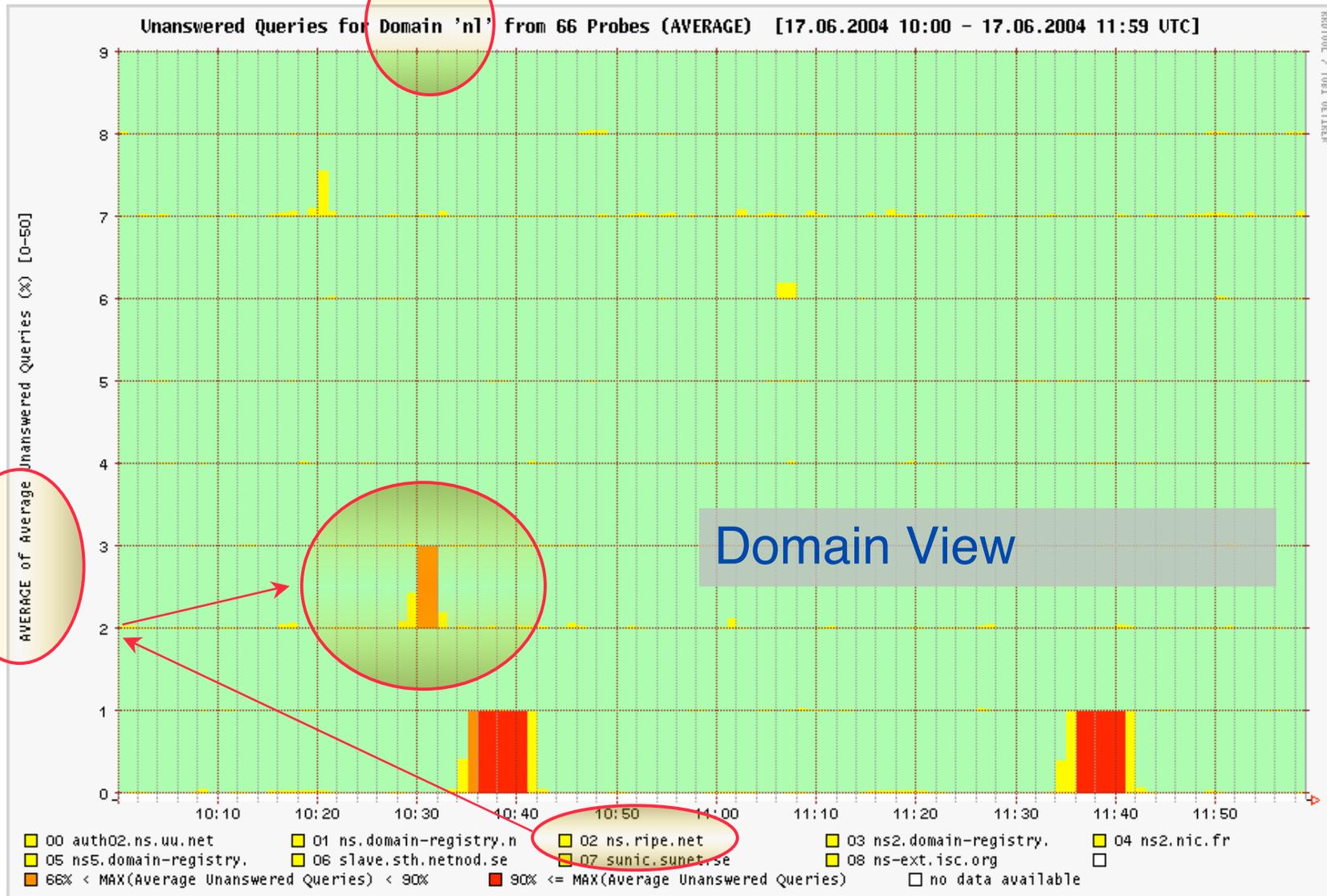
•Server View
unanswered queries





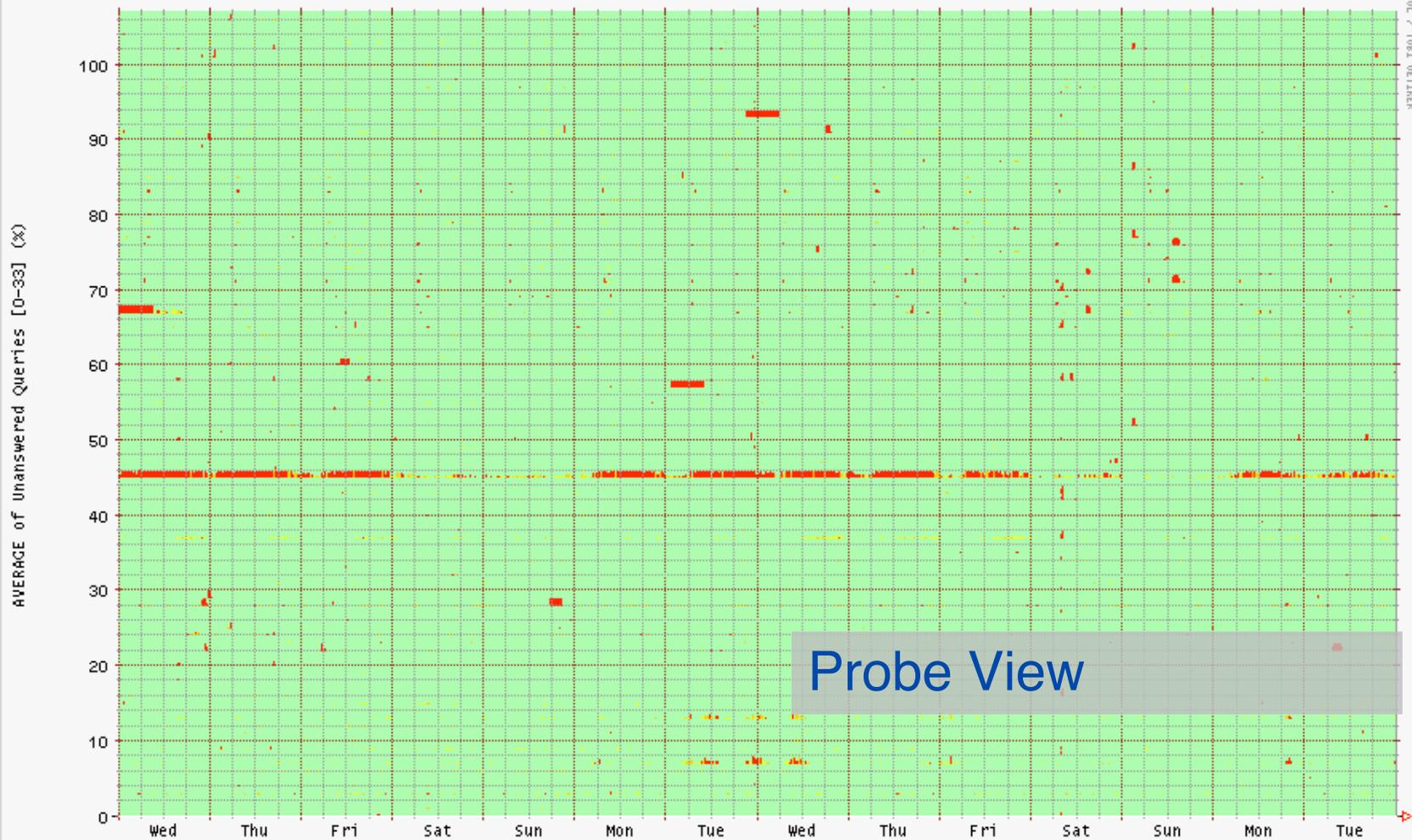
•Domain View

–summarises quality of service provided by all servers serving a domain





Unanswered Queries (AVERAGE) measured at tt01.ripe.net [02.02.2005 00:00 - 15.02.2005 23:59 UTC]



- | | | | |
|------------------------|------------------------|-------------------------|----------------------------|
| 00: a.dns.jp | 01: a.gtld-servers.net | 02: a.nic.de | 03: a.ns.dns.be |
| 04: a.ns.se | 05: a.root-servers.net | 06: amsterdam.ns.dns.be | 07: b-old.root-servers.net |
| 08: b.dns.jp | 09: b.gtld-servers.net | 10: b.nic.fr | 11: b.ns.dns.be |
| 12: b.ns.se | 13: b.root-servers.net | 14: brussels.ns.dns.be | 15: c.de.net |
| 16: c.dns.jp | 17: c.gtld-servers.net | 18: c.ns.dns.be | 19: c.ns.se |
| 20: c.root-servers.net | 21: cctld.tix.ch | 22: cheops.anu.edu.au | 23: d.dns.jp |
| 24: d.gtld-servers.net | 25: d.ns.se | 26: d.root-servers.net | 27: dns-hcm01.vnnic.net.vn |
| 28: dns.princeton.edu | 29: dns1.equant.net | 30: dns1.vnnic.net.vn | 31: dns2.equant.net |
| 32: dns3.equant.net | 33: domreg.nic.ch | 34: e.dns.jp | 35: e.gtld-servers.net |
| 36: e.ns.se | 37: e.root-servers.net | 38: f.dns.jp | 39: f.gtld-servers.net |
| 40: f.nic.de | 41: f.ns.se | 42: f.root-servers.net | 43: g.gtld-servers.net |
| 44: q.ns.se | 45: q.root-servers.net | 46: h.gtld-servers.net | 47: h.root-servers.net |



What is *Not* Measured

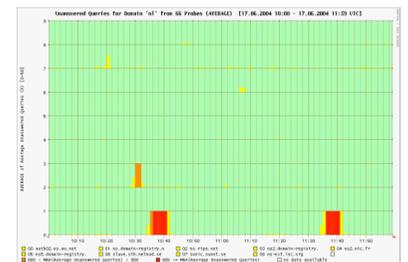
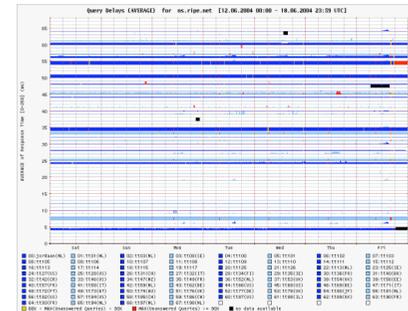
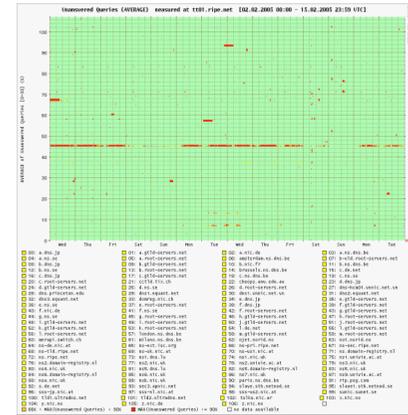
- DNS queries used in actual name resolution
- Total DNS serv*ice* quality, e.g. ‘user experience’
- global service quality: 60+ points, RIPE region bias
- Effects that last less than about a minute

But still very comprehensive measurements!



DNSMON Users

- Network Operators
 - LIR, ISP and other RIPE NCC members
 - Paid for development and beta service
- TLD Administrators
- Internet Community
 - Including governments and regulators





Participate as TLD Administrator

- Obtain data about quality of core service
- Service improvements
- Documentation of (non)-problems
- Demonstrate service quality to the public
- Should be paying part of production service operating cost
 - €2000-6000/year, depending on size
- Every TLD administrator world-wide



Service for TLD Administrators

- Non-exclusive
 - RIPE NCC Membership also a paying user
- Benefits
 - Credible third party monitoring
 - *Web site and help desk* service level guarantees
 - Guarantee of 12 months service continuity
 - Presence on dnsmon web site
 - Visibility of support
 - Comments on data (to be implemented)
 - "Real Time" data
 - Influence development



Participate as a Network Operator

- Have to install a test box in your network
 - DNSMON
 - Network performance (delay, loss, jitter, ...)
 - RFC2679-2680
 - NTP server
- Independently monitor critical service
 - Can identify interesting TLD's
- Better understand customer problems
- Have to buy a probe and service contract
 - €2500 hardware, €1000/year service
- Available for everybody (LIR, ISP, ...)



Service for Network Operators

- Non-exclusive
 - TLD Administrators are also a paying user
- Benefits
 - as for the TLD admin's plus
 - other network measurements
 - NTP server



Internet Community

- Regulators, researchers, ISP's without a TB,
...
- Monitor Key Infrastructure
 - Go to the site and look at the plots
 - Raw data available for analysis on request
- Data delayed by 2 hours
- Free
- Support on best effort basis

<http://dnsmon.ripe.net>



Time Line

- Currently ‘public beta’
 - Has provided useful service for > 1year
 - Operated by developers
- Production service March 1, 2005
 - Operated by service people
 - Current version
- Requests for features are welcomed



More information

- Sites:
 - <http://dnsmon.ripe.net>: DNSMON site
 - <http://www.ripe.net/ttm>: TTM site
- Documentation (<http://www.ripe.net/ripe/docs>):
 - RIPE324: DNSMON for TLD Administrators
 - RIPE297: TTM/DNSMON service for LIR's
 - TTM Glossy
- Email:
 - ttm@ripe.net



Questions, Discussion

