dnsmon

DNS Server Monitoring

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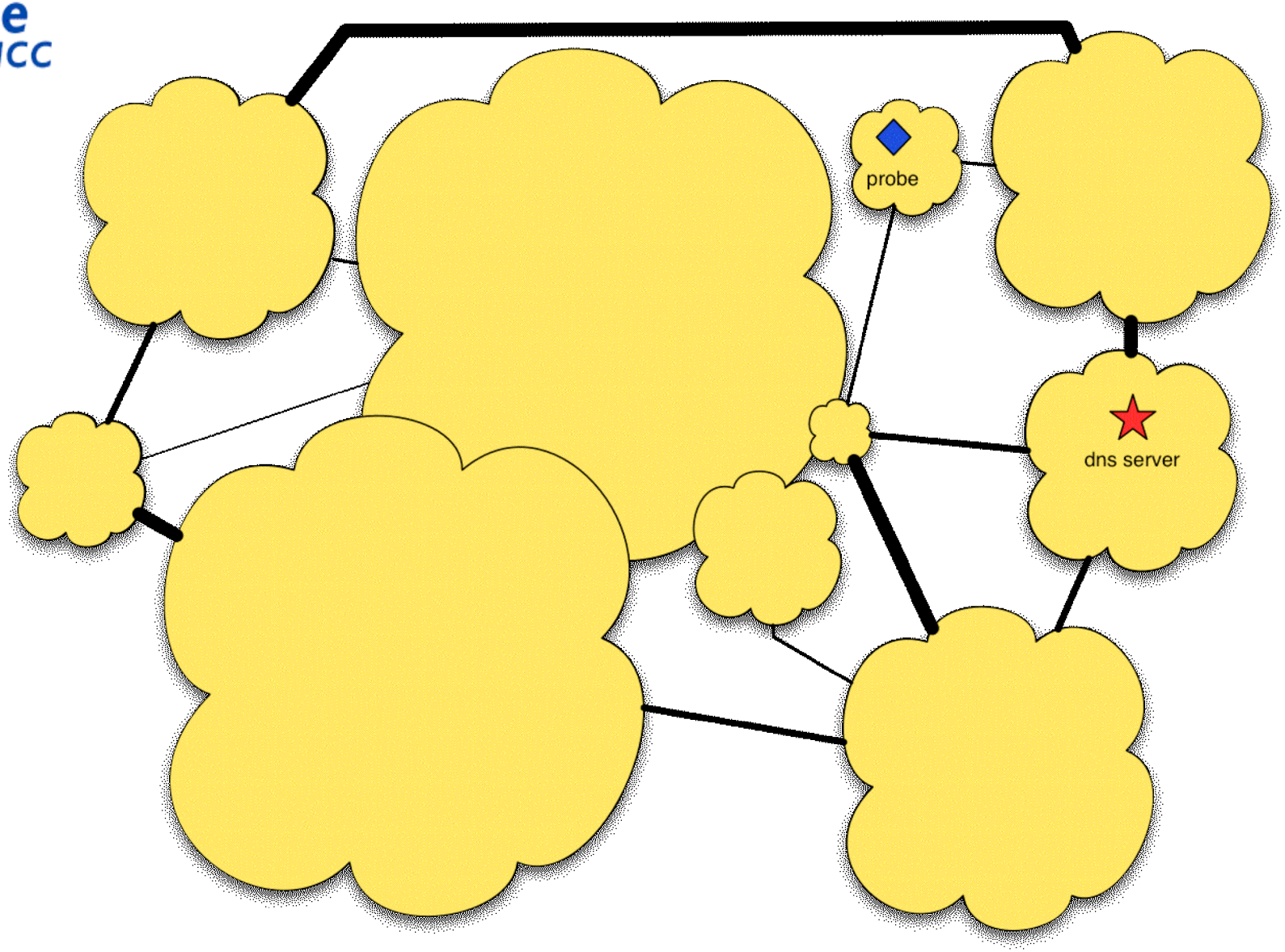
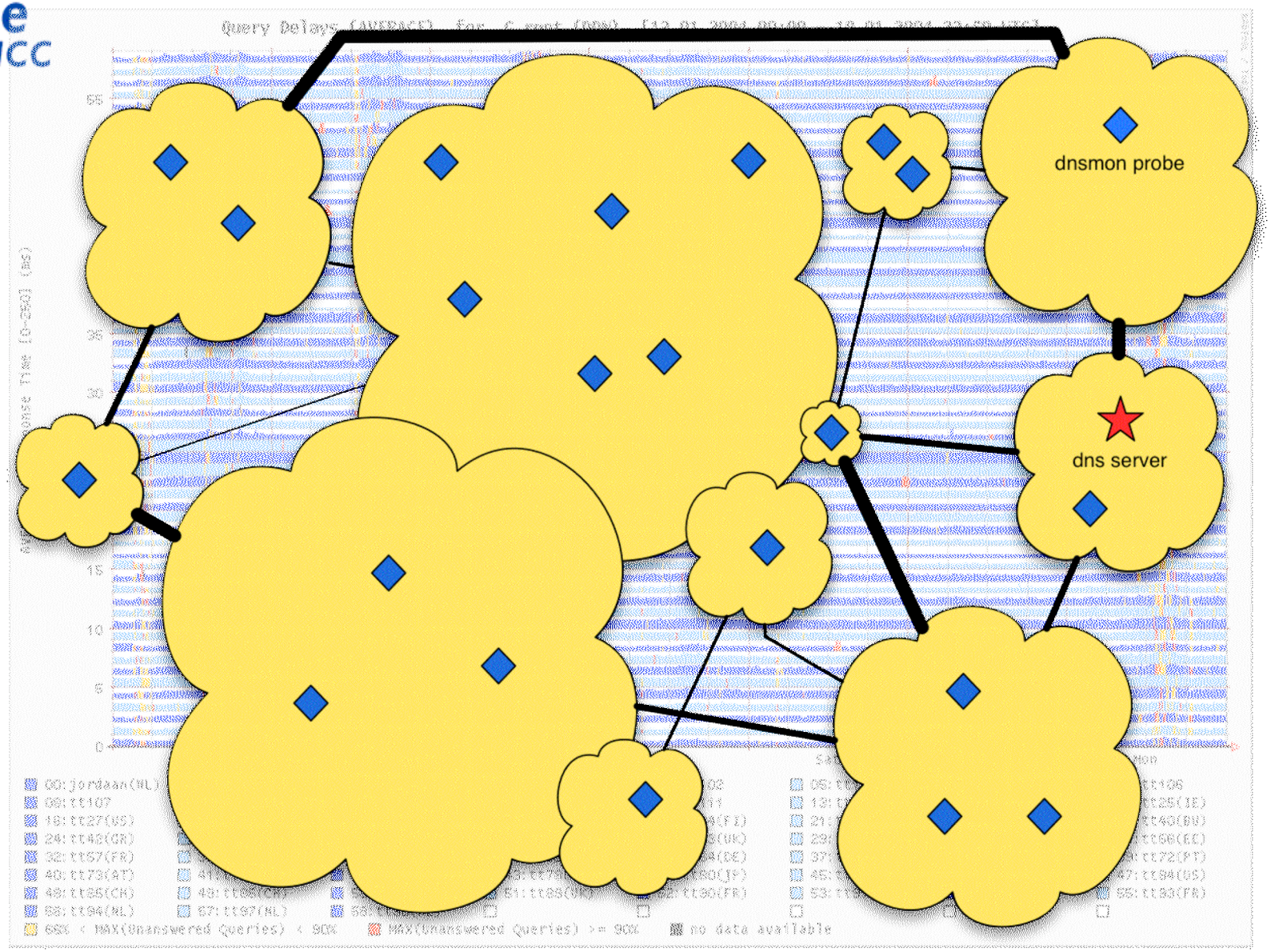
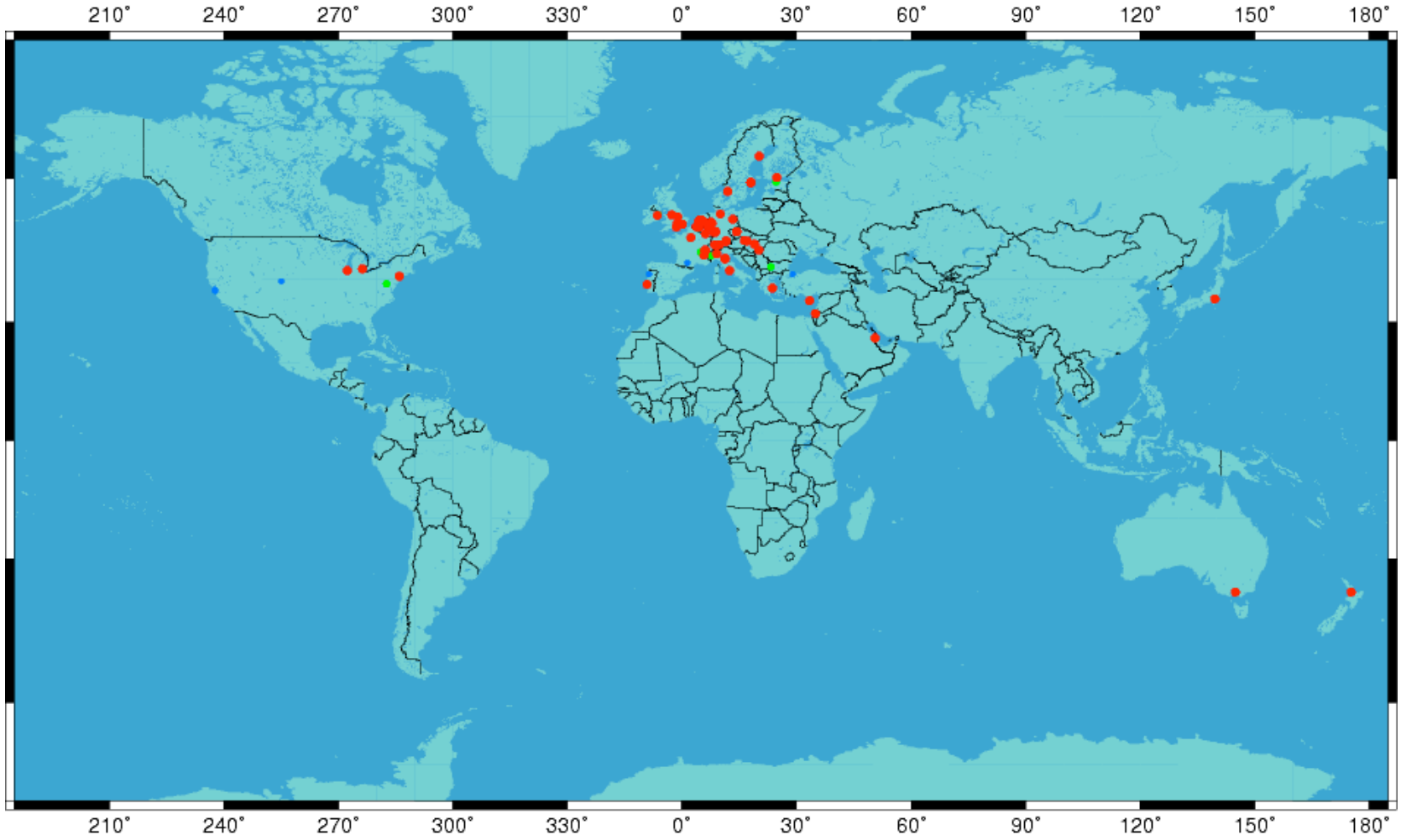
dnsmon

- Monitor DNS servers from many places
- Independent and Objective
- Intuitive Graphical Presentation

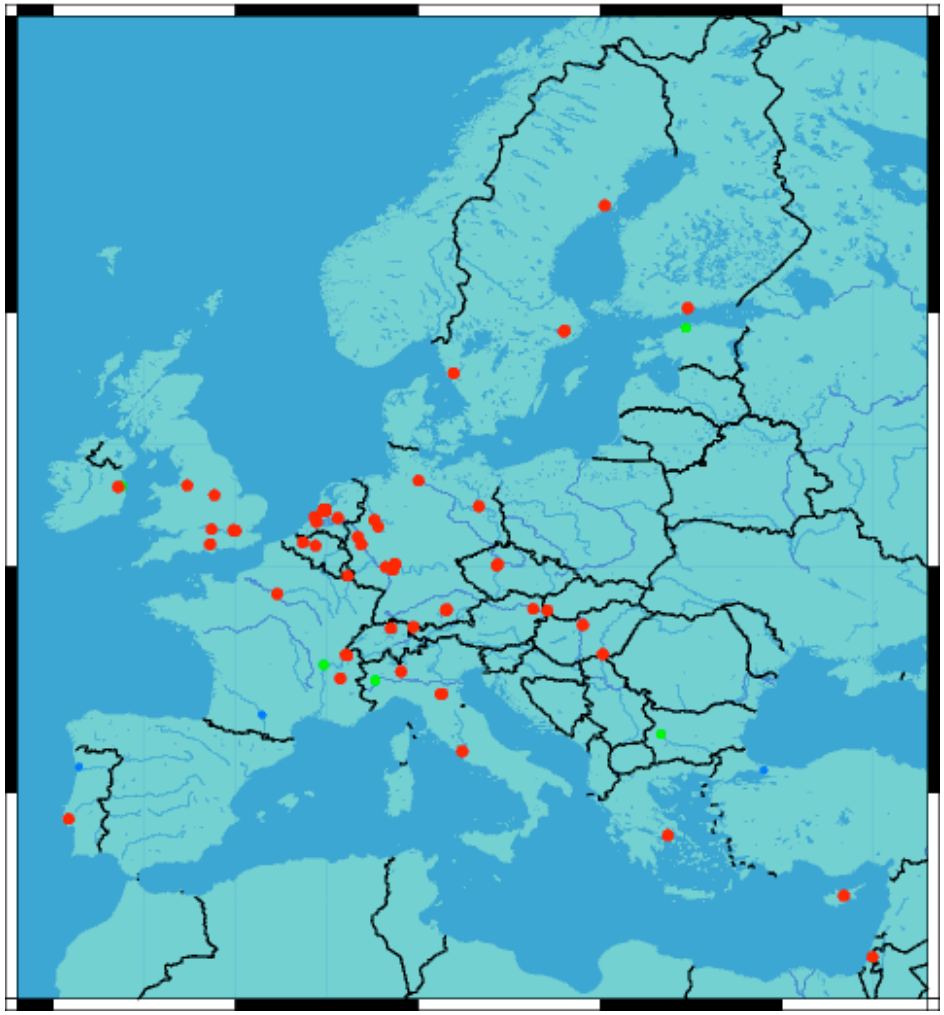

probe
dns server


dnsmon probe
dns server

dnsmon Probe Locations



dnsmon Probe Locations

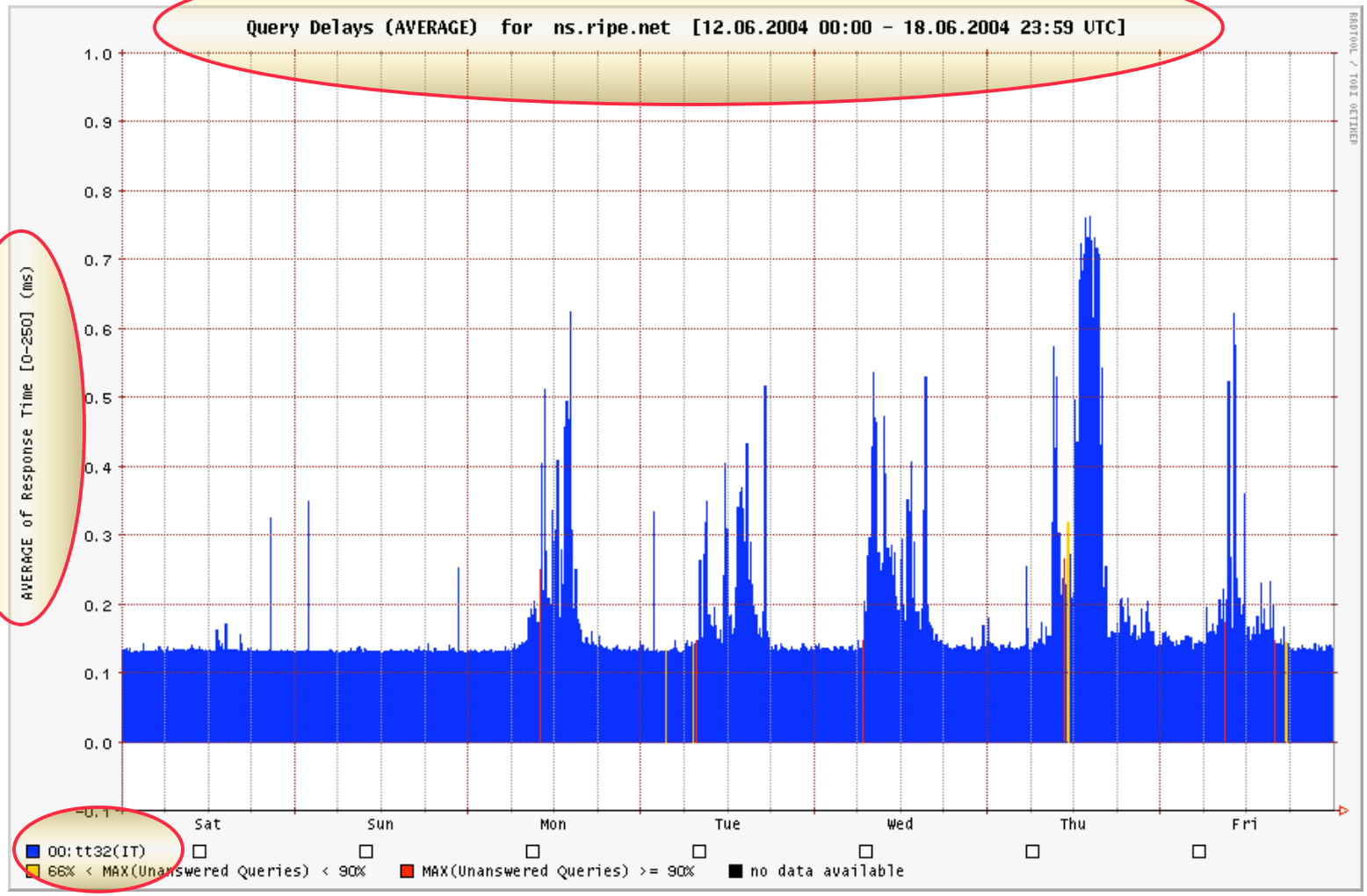


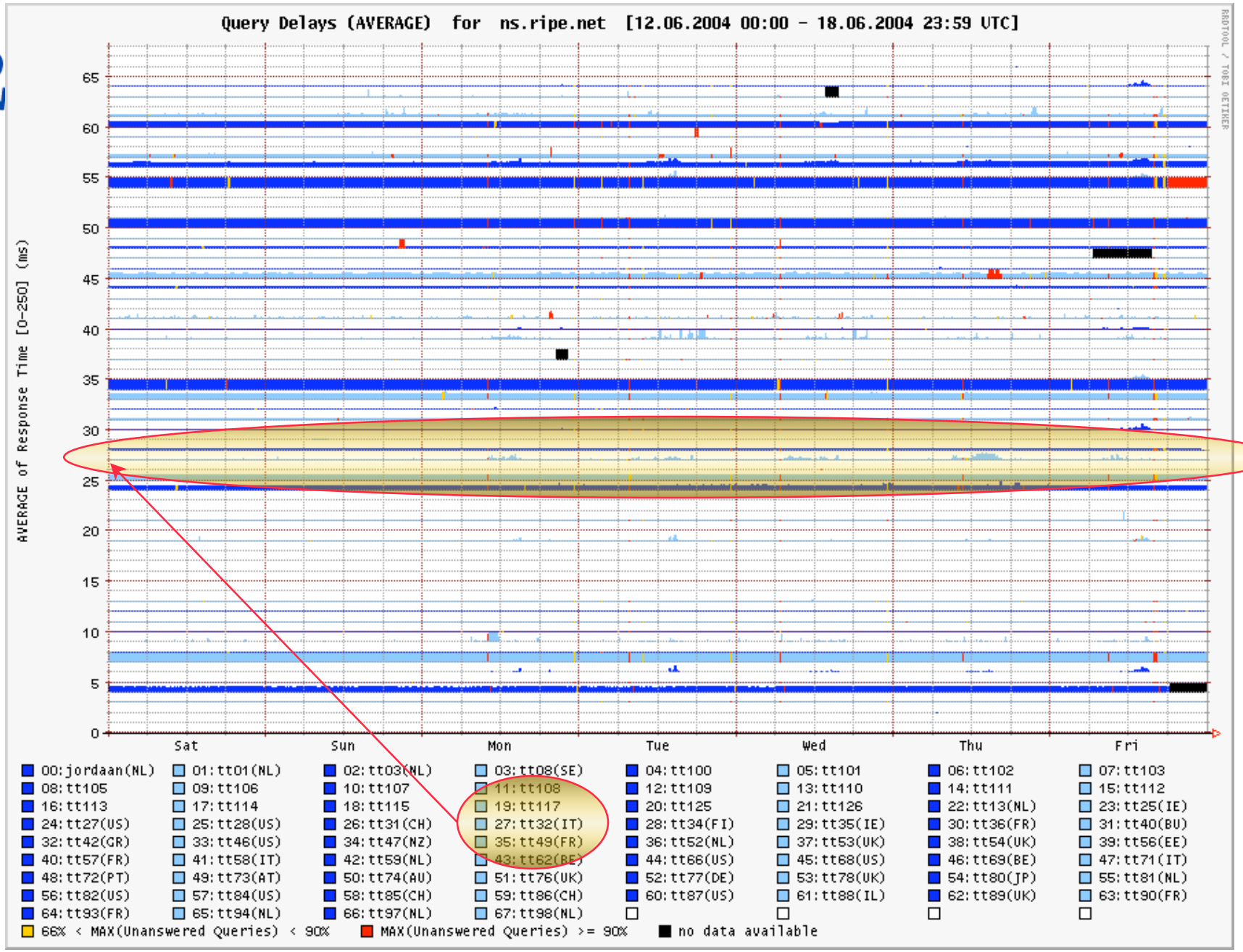
Why Measure This Way?

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

- Better Measurements are Needed
  - From multiple points
  - Real DNS traffic

Single Point Measurement




Query Delays (AVERAGE) for ns.ripe.net [12.06.2004 00:00 - 18.06.2004 23:59 UTC]
AVERAGE of Response Time [0-250] (ms)
0
5
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Sat
Sun
Mon
Tue
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Thu
Fri
00:jordaan(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)
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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:tt56(EE)
40:tt57(FR)
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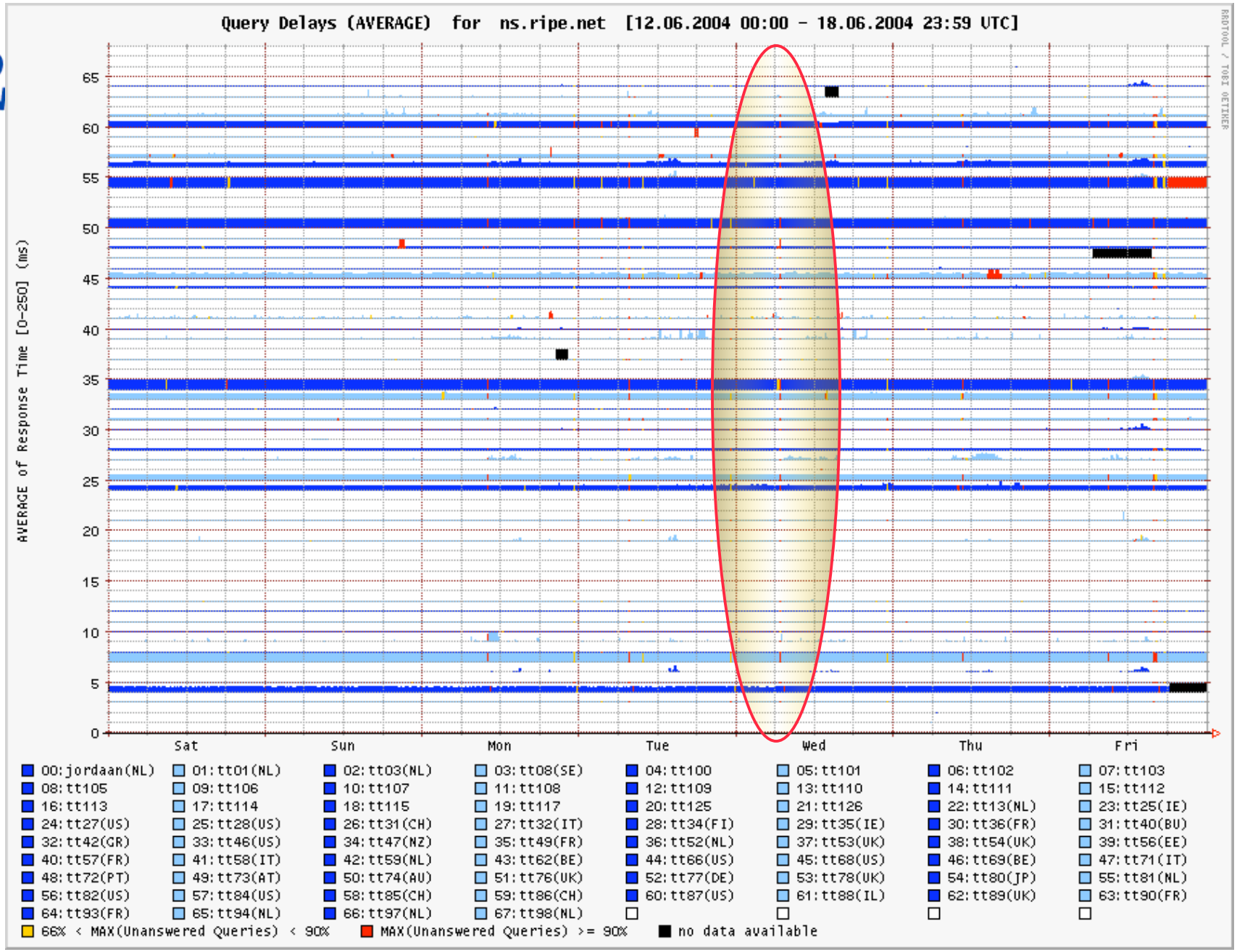
67:tt98(NL)
66% < MAX(Unanswered Queries) < 90%
MAX(Unanswered Queries) >= 90%
no data available


Query Delays (AVERAGE) for ns.ripe.net [12.06.2004 00:00 - 18.06.2004 23:59 UTC]
AVERAGE of Response Time [0-250] (ms)
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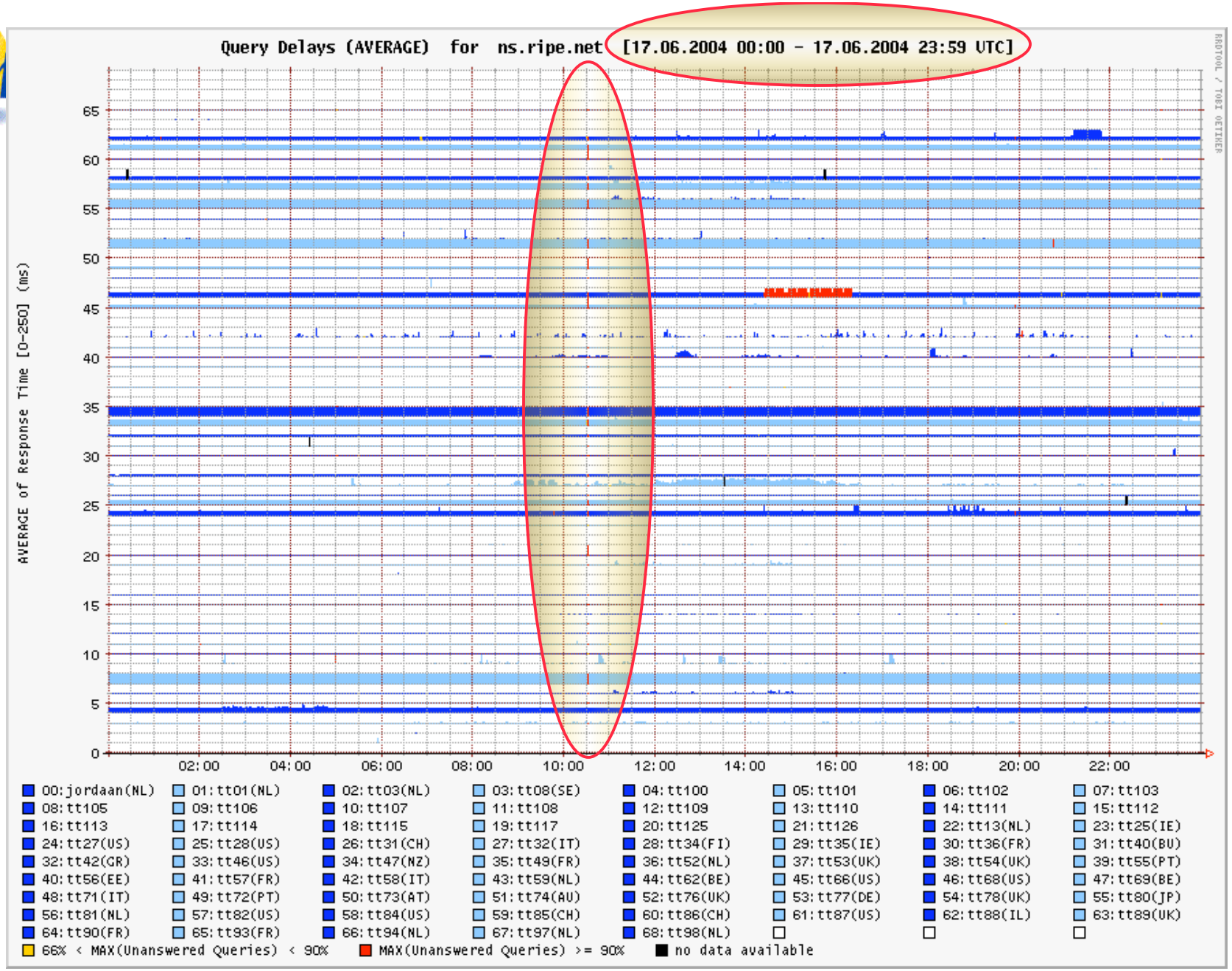
no data available


Query Delays (AVERAGE) for ns.ripe.net [17.06.2004 00:00 - 17.06.2004 23:59 UTC]
AVERAGE of Response Time [0-250] (ms)
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03:tt08(SE)
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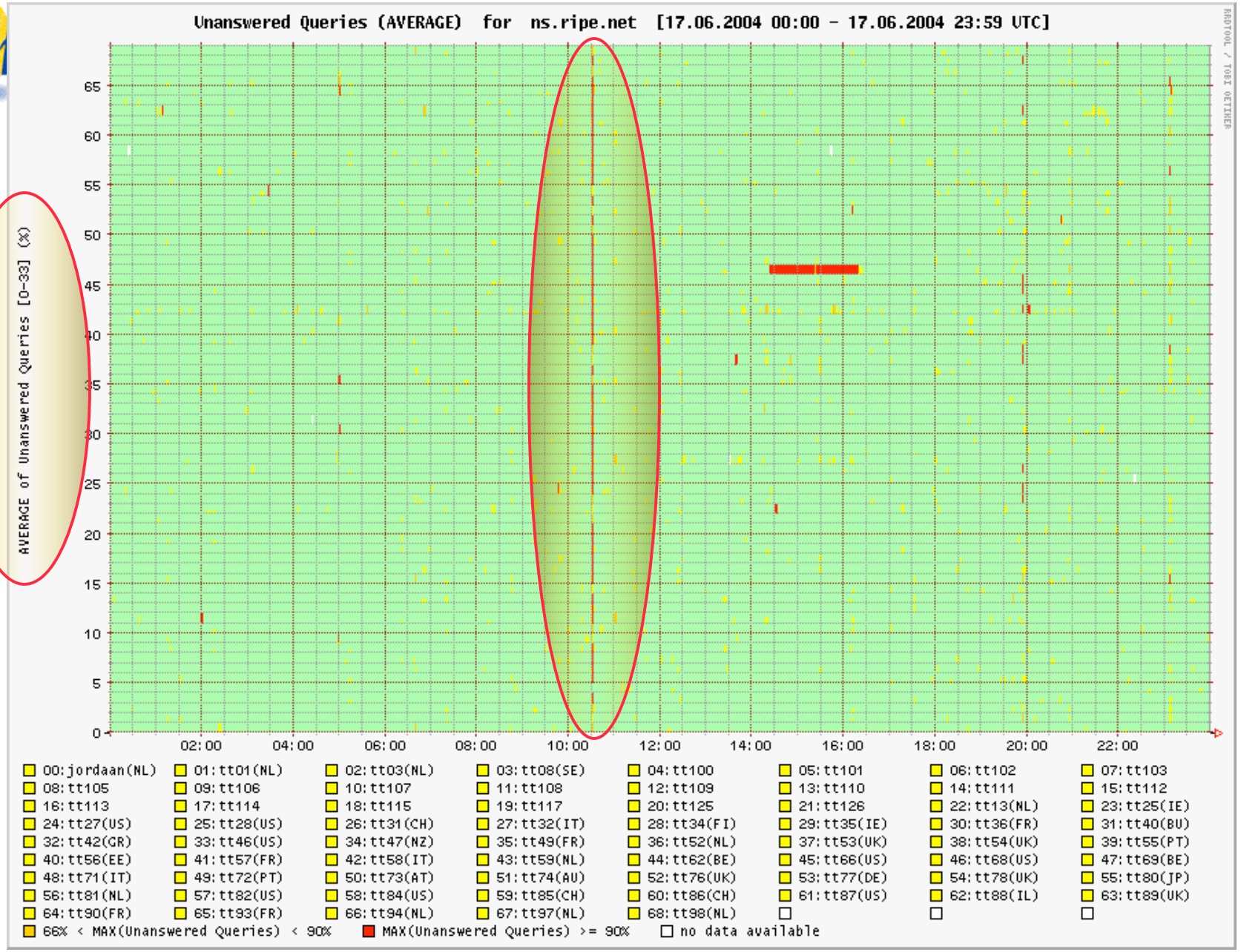
no data available


Unanswered Queries (AVERAGE) for ns.ripe.net [17.06.2004 00:00 - 17.06.2004 23:59 UTC]
AVERAGE of Unanswered Queries [0-33] (%)
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16:00
18:00
20:00
22:00
00:jordaan(NL)
01:tt01(NL)
02:tt03(NL)
03:tt08(SE)
04:tt100
05:tt101
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14:tt111
15:tt112
16:tt113
17:tt114
18:tt115
19:tt117
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24:tt27(US)
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68:tt98(NL)
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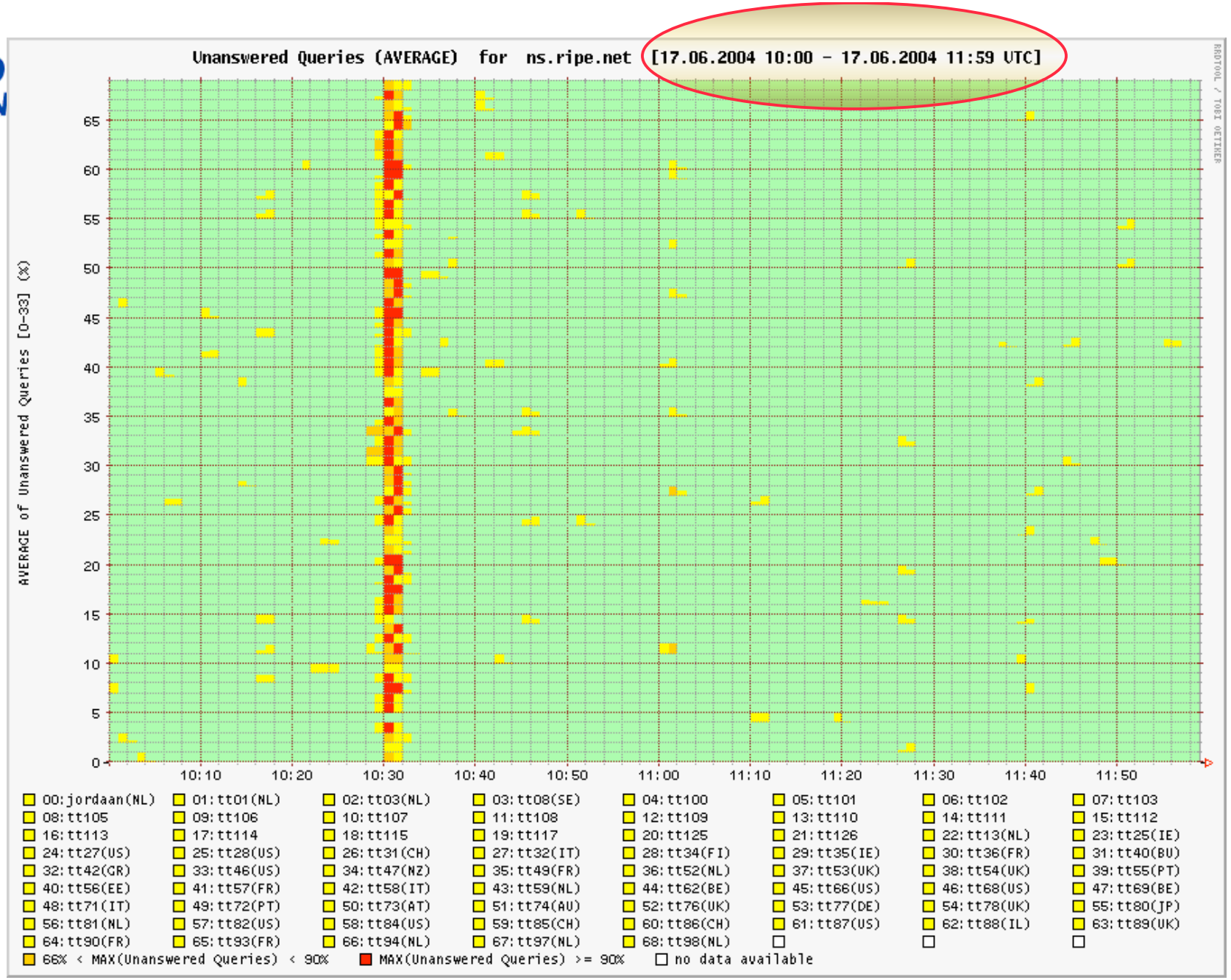
no data available


Unanswered Queries (AVERAGE) for ns.ripe.net [17.06.2004 10:00 - 17.06.2004 11:59 UTC]
AVERAGE of Unanswered Queries [0-33] (%)
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10:30
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11:00
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11:20
11:30
11:40
11:50
00:jordaan(NL)
01:tt01(NL)
02:tt03(NL)
03:tt08(SE)
04:tt100
05:tt101
06:tt102
07:tt103
08:tt105
09:tt106
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13:tt110
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15:tt112
16:tt113
17:tt114
18:tt115
19:tt117
20:tt125
21:tt126
22:tt13(NL)
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24:tt27(US)
25:tt28(US)
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27:tt32(IT)
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29:tt35(IE)
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50:tt73(AT)
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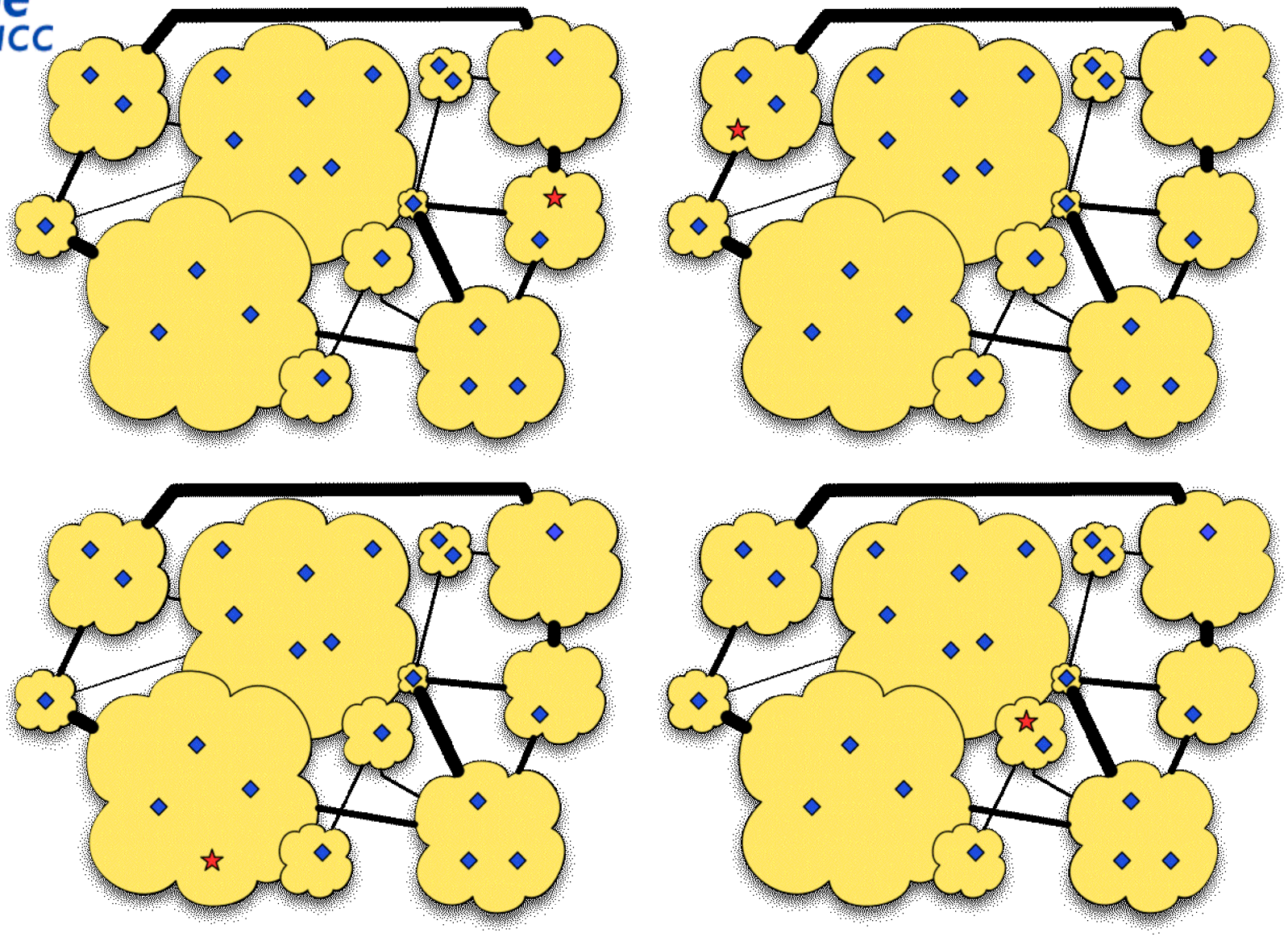
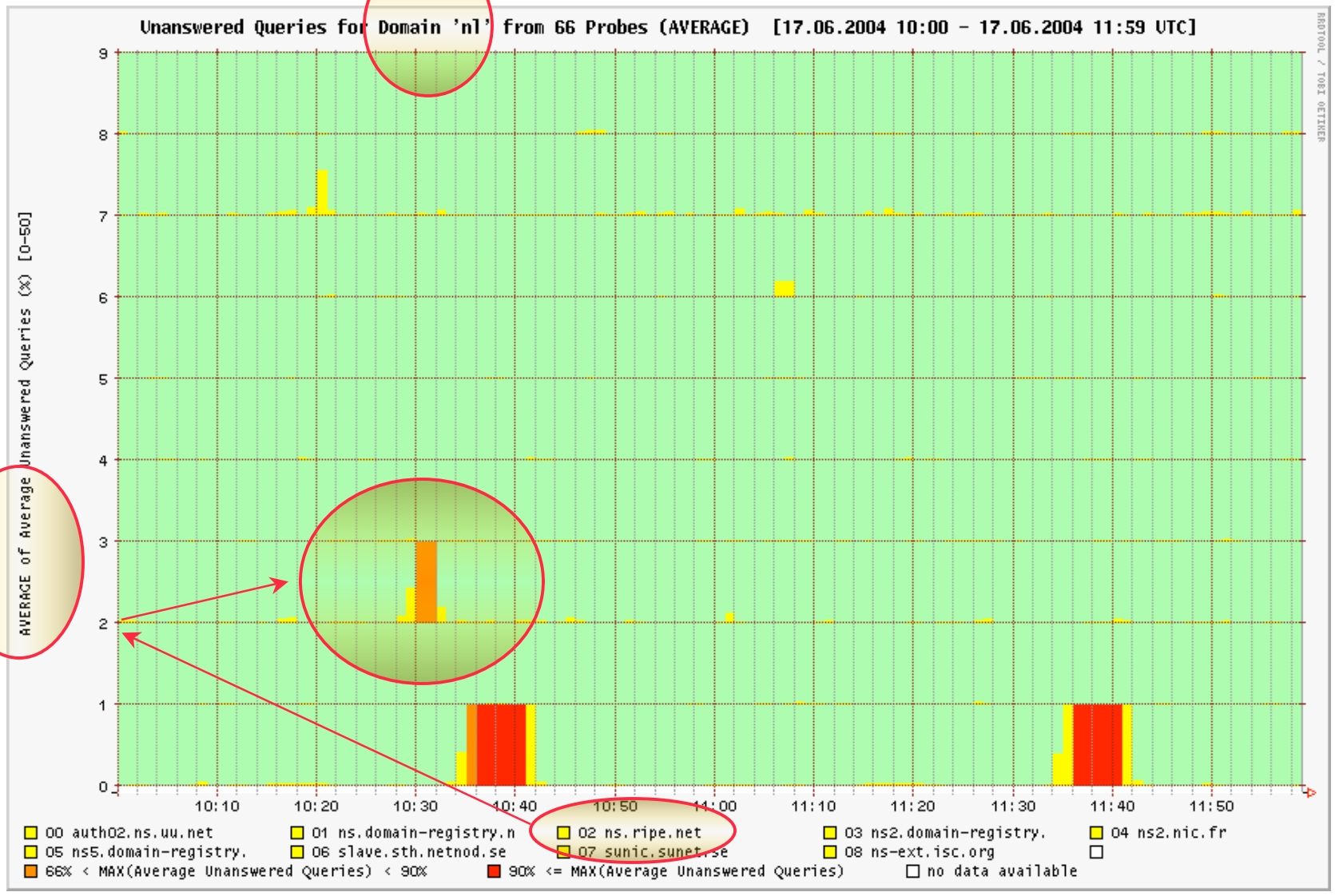
63:tt89(UK)
64:tt90(FR)
65:tt93(FR)
66:tt94(NL)
67:tt97(NL)
68:tt98(NL)
66% < MAX(Unanswered Queries) < 90%
MAX(Unanswered Queries) >= 90%
no data available




Unanswered Queries for Domain 'nl' from 66 Probes (AVERAGE) [17.06.2004 10:00 - 17.06.2004 11:59 UTC]
AVERAGE of Average Unanswered Queries (%) [0-50]
0
1
2
3
4
5
6
7
8
9
10:10
10:20
10:30
10:40
10:50
11:00
11:10
11:20
11:30
11:40
11:50
00 auth02.ns.uu.net
01 ns.domain-registry.n
02 ns.ripe.net
03 ns2.domain-registry.
04 ns2.nic.fr
05 ns5.domain-registry.
06 slave.sth.netnod.se
07 sunic.sunet.se
08 ns-ext.isc.org
66% < MAX(Average Unanswered Queries) < 90%
90% <= MAX(Average Unanswered Queries)
no data available

How to Read the Graphs

- Server View
  - shows quality of service provided by the server to all probes
- Domain View
  - summarises quality of service provided by all servers serving a domain
- (Probe View)
  - shows quality of service provided by all servers at a particular probe location

What is Measured

- Real DNS queries
- Poisson distributed, ~60/hour/server/probe
- From 60+ probes around the world

- Response time
- Server instance ID (anycast, load balancing)
- SOA version number
- Server software version

What is ***Not*** Measured

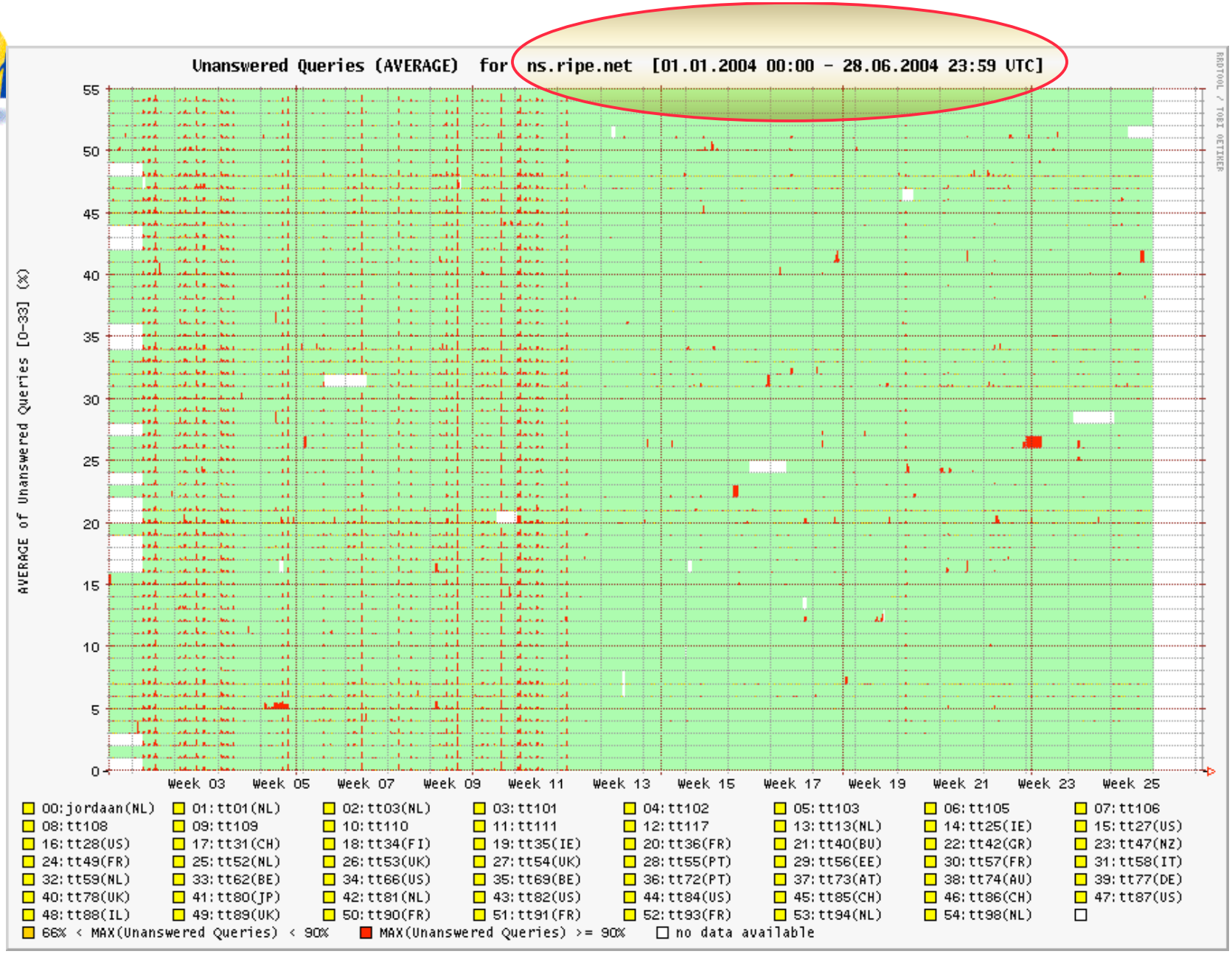
- DNS queries used in actual name resolution
- Total DNS serv***ice*** quality, e.g. ‘user experience’

- global service quality: 60+ points, RIPE region bias

- Effects that last less than about a minute

But still very comprehensive measurements!

Some More Examples


Unanswered Queries (AVERAGE) for ns.ripe.net [01.01.2004 00:00 - 28.06.2004 23:59 UTC]
AVERAGE of Unanswered Queries [0-33] (%)
0
5
10
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45
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Week 03
Week 05
Week 07
Week 09
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
00:jordaan(NL)
01:tt01(NL)
02:tt03(NL)
03:tt101
04:tt102
05:tt103
06:tt105
07:tt106
08:tt108
09:tt109
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11:tt111
12:tt117
13:tt13(NL)
14:tt25(IE)
15:tt27(US)
16:tt28(US)
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18:tt34(FI)
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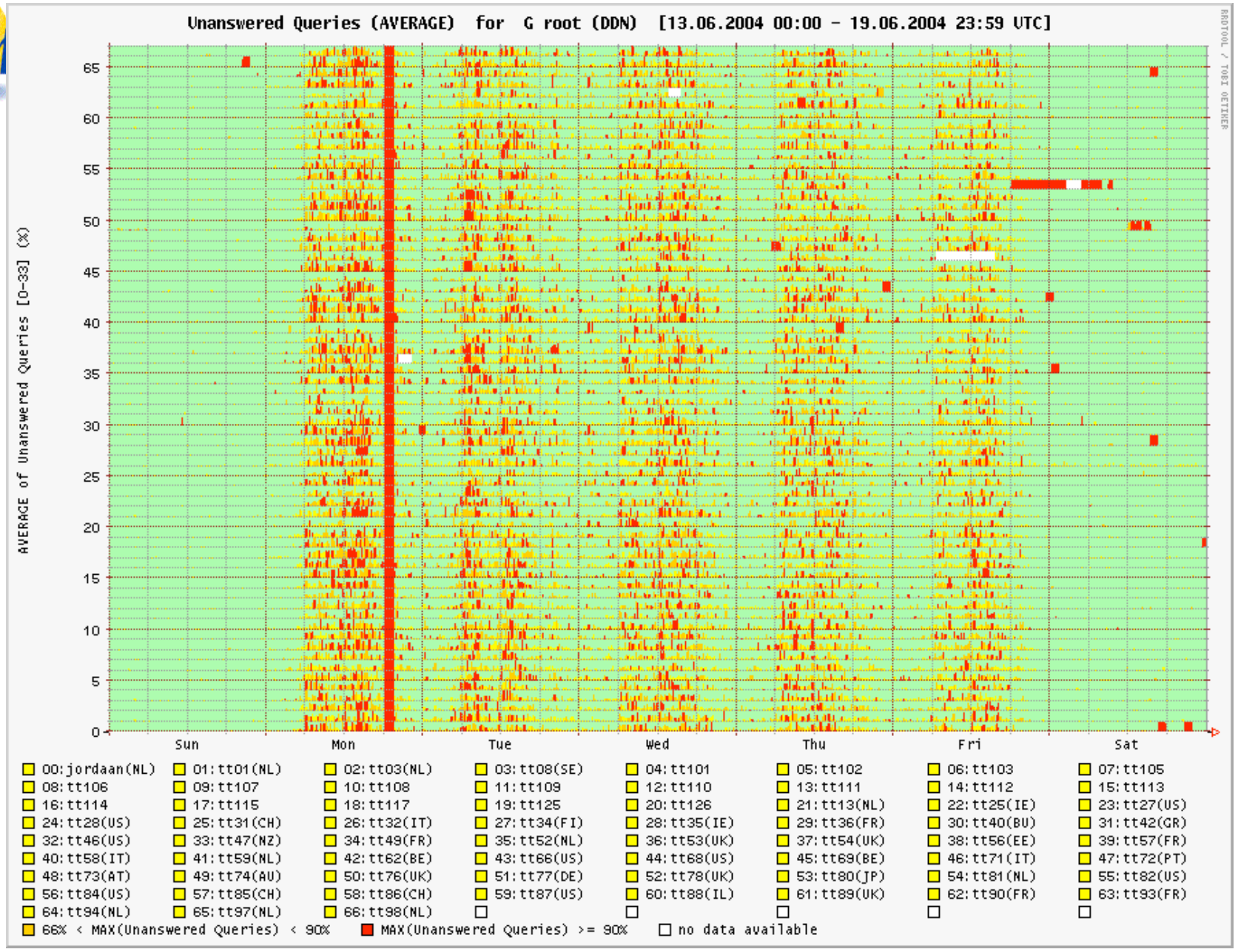
53:tt94(NL)
54:tt98(NL)
66% < MAX(Unanswered Queries) < 90%
MAX(Unanswered Queries) >= 90%
no data available


Unanswered Queries (AVERAGE) for G root (DDN) [13.06.2004 00:00 - 19.06.2004 23:59 UTC]
AVERAGE of Unanswered Queries [0-33] (%)
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Wed
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Fri
Sat
00:jordaan(NL)
01:tt01(NL)
02:tt03(NL)
03:tt08(SE)
04:tt101
05:tt102
06:tt103
07:tt105
08:tt106
09:tt107
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11:tt109
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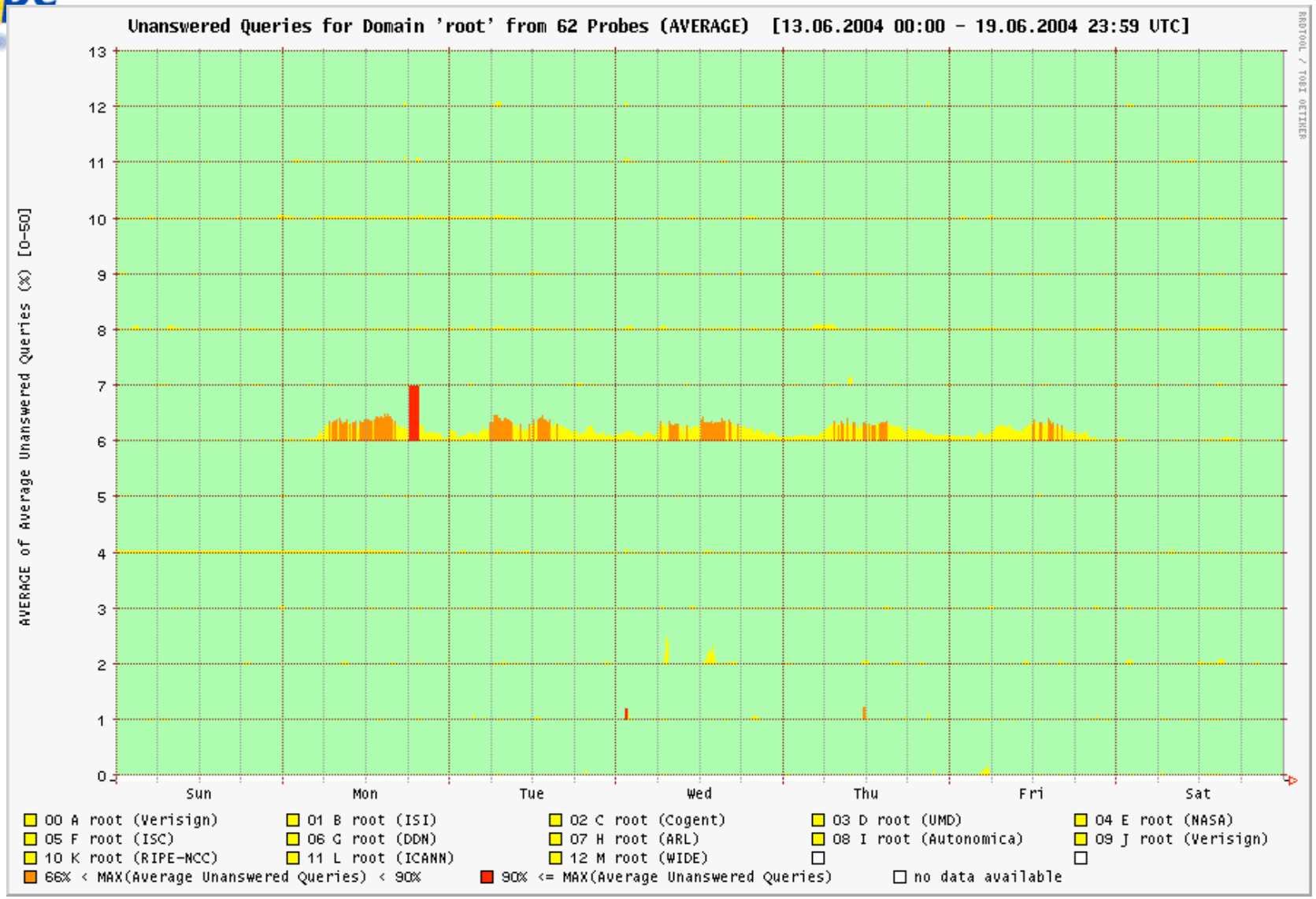
MAX(Unanswered Queries) >= 90%
no data available


Unanswered Queries for Domain 'root' from 62 Probes (AVERAGE) [13.06.2004 00:00 - 19.06.2004 23:59 UTC]
AVERAGE of Average Unanswered Queries (%) [0-50]
0
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Sun
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Wed
Thu
Fri
Sat
00 A root (Verisign)
01 B root (ISI)
02 C root (Cogent)
03 D root (UMD)
04 E root (NASA)
05 F root (ISC)
06 G root (DDN)
07 H root (ARL)
08 I root (Autonomica)
09 J root (Verisign)
10 K root (RIPE-NCC)
11 L root (ICANN)
12 M root (WIDE)
66% < MAX(Average Unanswered Queries) < 90%
90% <= MAX(Average Unanswered Queries)
no data available

http://dnsmon.ripe.net

<dnsmon@ripe.net>