

# ASN4 and IRRToolset

Dave Wilson

DW238-RIPE

With an eye on 1 Jan 2009...

Backward compatibility looks good

Does it work in real life?

No doubt about local operation working -  
but 23456 reassembly, and ancillary systems?

\* i84.205.80.0/24 193.1.238.129 50 100 0 3257 1103 1125 23456 12654 i

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No doubt about local operation working -  
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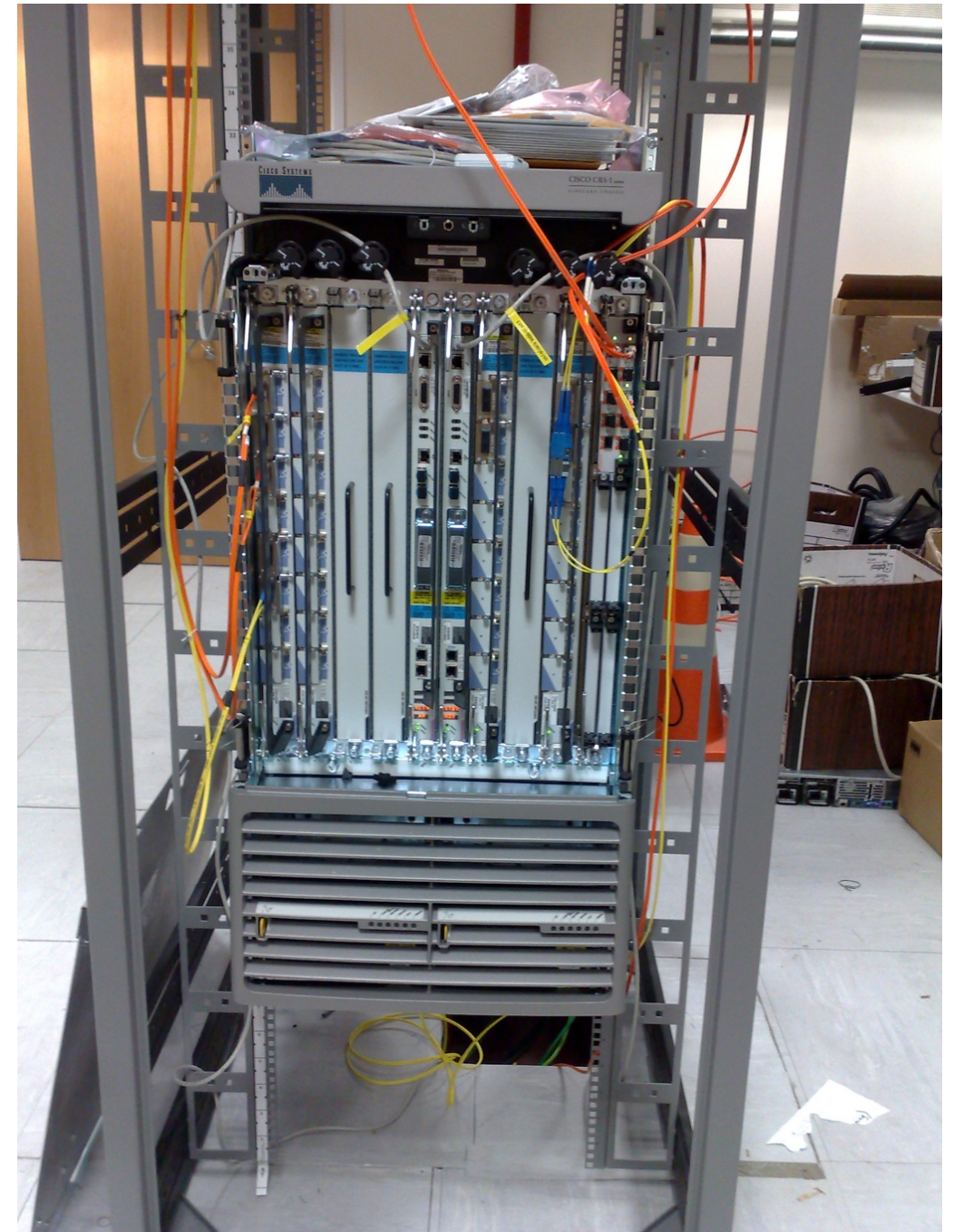
\* 184.205.80.0/24 193.1.238.129 50 100 0 3257 1103 1125 3.5 12654 i

- Get 32-bit ASN and some PI space
- Announce a prefix sourced, alternately, from 16-bit and 32-bit ASN
- Put smokeping instance within that space
- ???
- Non-profit!



Sep 2008

- Assigned AS3.15 and 91.208.44.0/24
- Warn & reassure peers in advance
- Update RIPE DB
- Schedule the routing change



# Updated RIPE DB

24 Sep 2008



24 Sep 2008

route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS3.15

as-set: AS-HEANET  
descr: Autonomous Systems routed by HEAnet  
members: AS1213, AS2128, AS112, AS42310, AS2850



24 Sep 2008

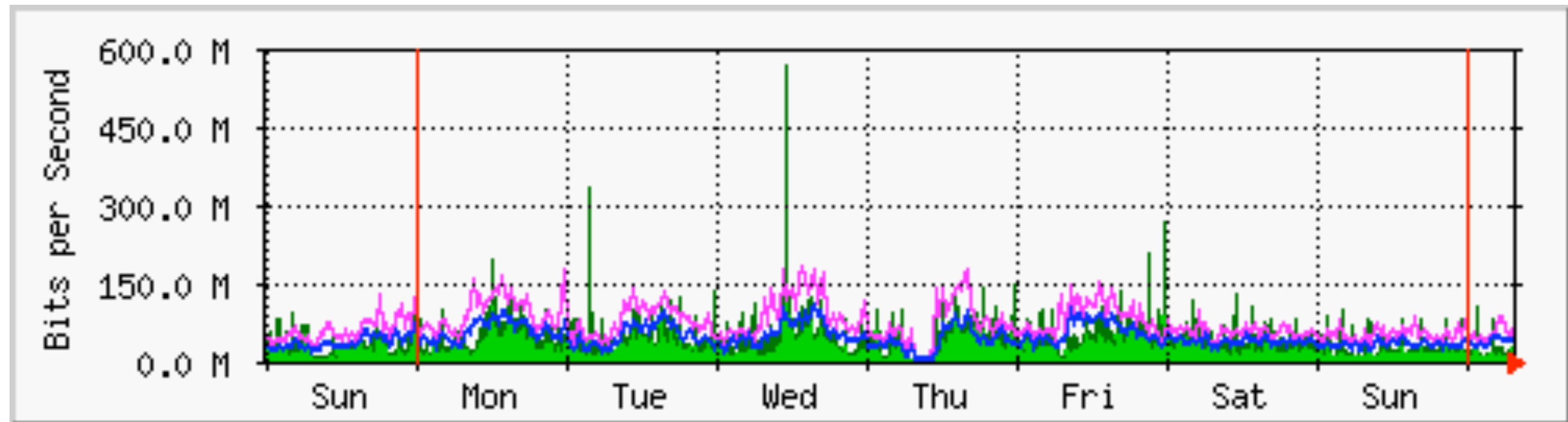
route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS3.15

as-set: AS-HEANET  
descr: Autonomous Systems routed by HEAnet  
members: AS1213, AS2128, AS112, AS42310, AS2850, AS3.15



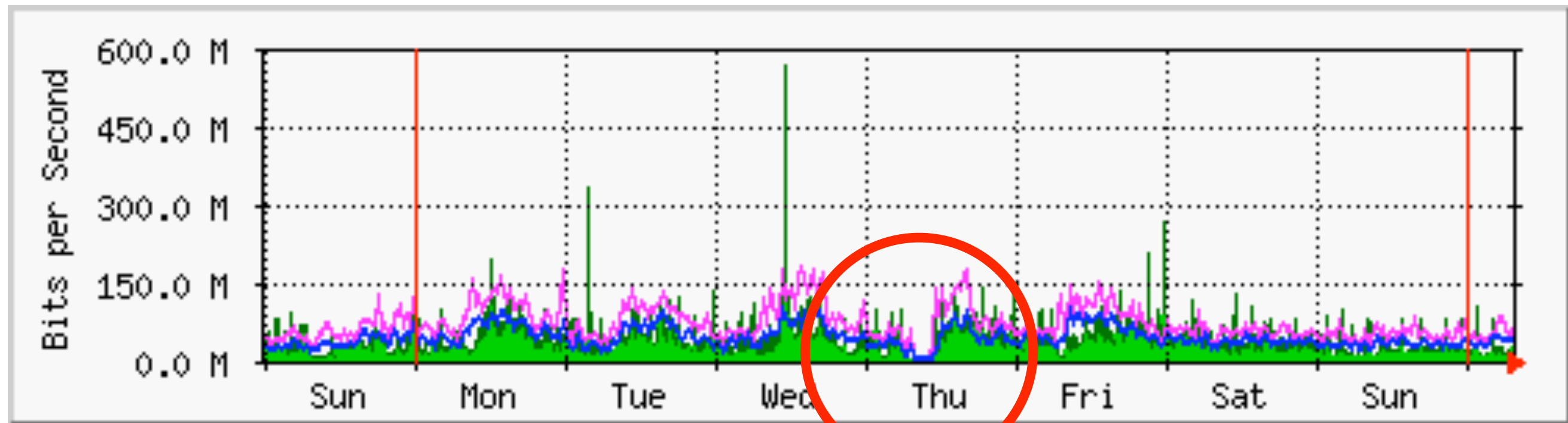
# Oops!

## 25 Sep 2008



# Oops!

## 25 Sep 2008



# What happened?

25 Sep 2008

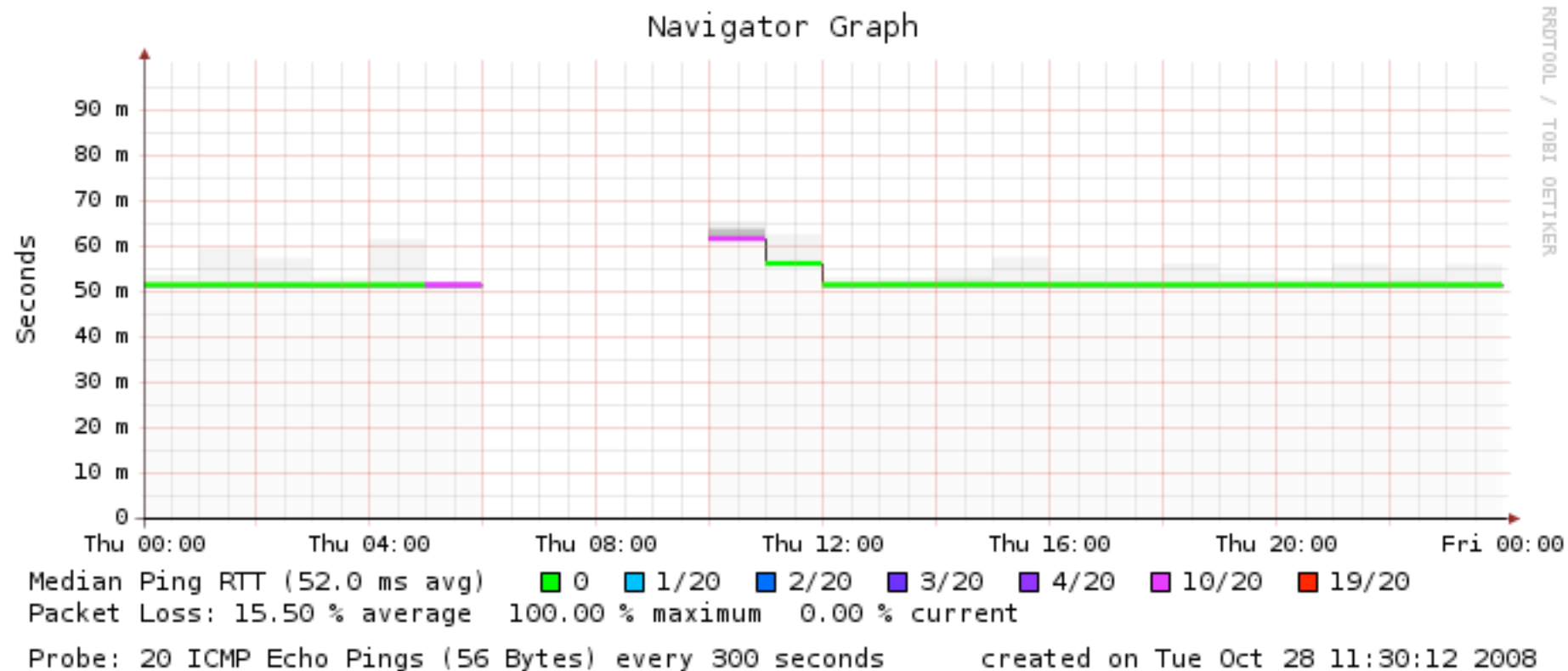
- Added AS3.15 as member: to AS-HEANET
  - syntactically valid change
- Next morning, route-filters get generated
- IRRToolset broke on the dot-notation
- Feeds into some script...
- ...breaks in unpredictable, exciting ways!

# What happened?

25 Sep 2008

No problem, you get crappy rerouting, but the traffic still flows...

...unless upstream applies strict uRPF





25 Sep 2008

as-set: AS-HEANET  
descr: Autonomous Systems routed by HEAnet  
members: AS1213, AS2128, AS112, AS42310, AS2850, AS3.15

route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS3.15

route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS1213

25 Sep 2008

as-set: AS-HEANET  
descr: Autonomous Systems routed by HEAnet  
members: AS1213, AS2128, AS112, AS42310, AS2850

route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS3.15

route: 91.208.44.0/24  
descr: TEMPORARY-HEANET-ASN4-TEST-BLOCK  
origin: AS1213

25 Sep 2008

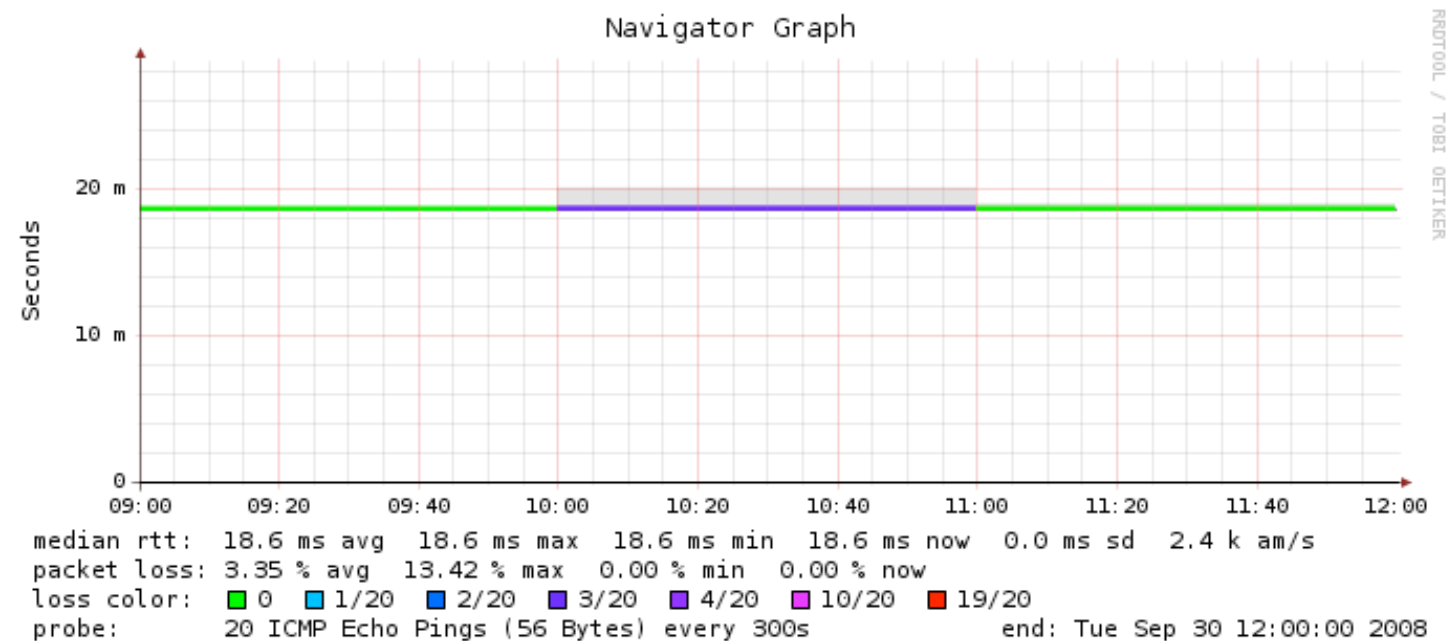
Originated 91.208.44.0/24 - ...1213\$

Set up smokeping targets to all the  
RIPE TTM boxes responding on the day

30 Sep 2008

Withdrew 91.208.44.0/24 - ...1213\$

Originated 91.208.44.0/24 - ...1213 3.15\$

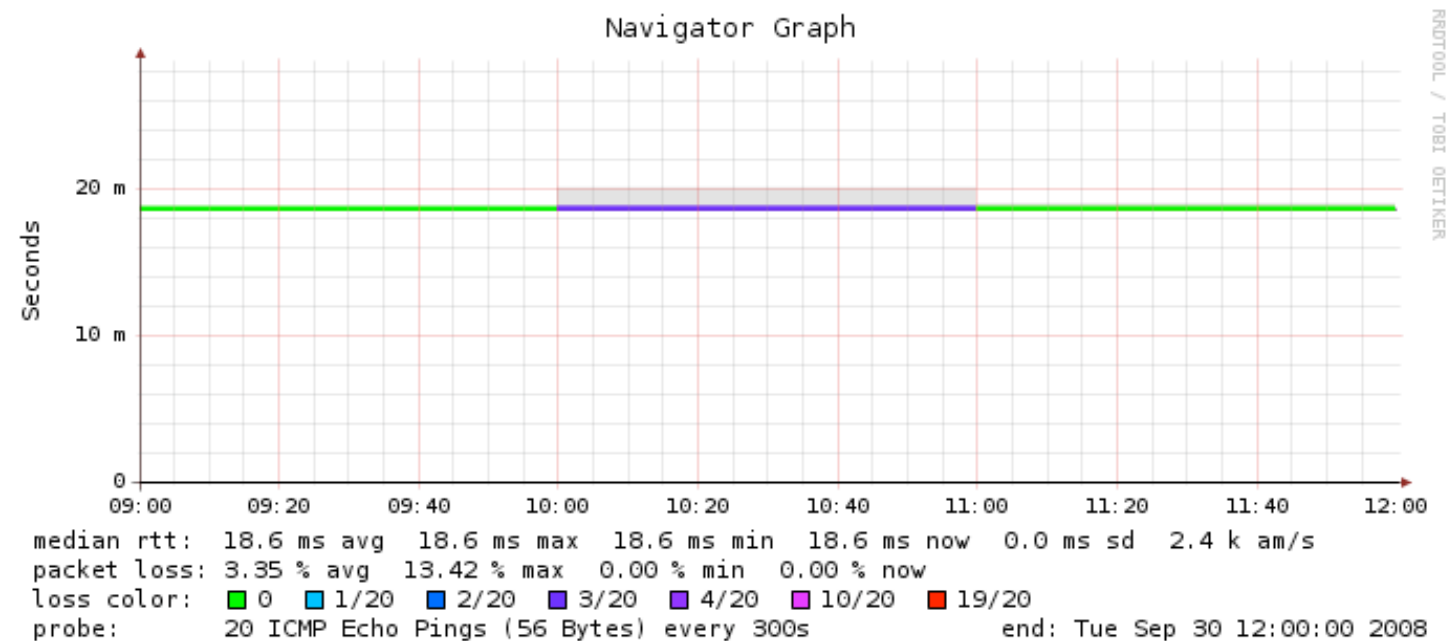




30 Sep 2008

Withdrew 91.208.44.0/24 - ...1213\$

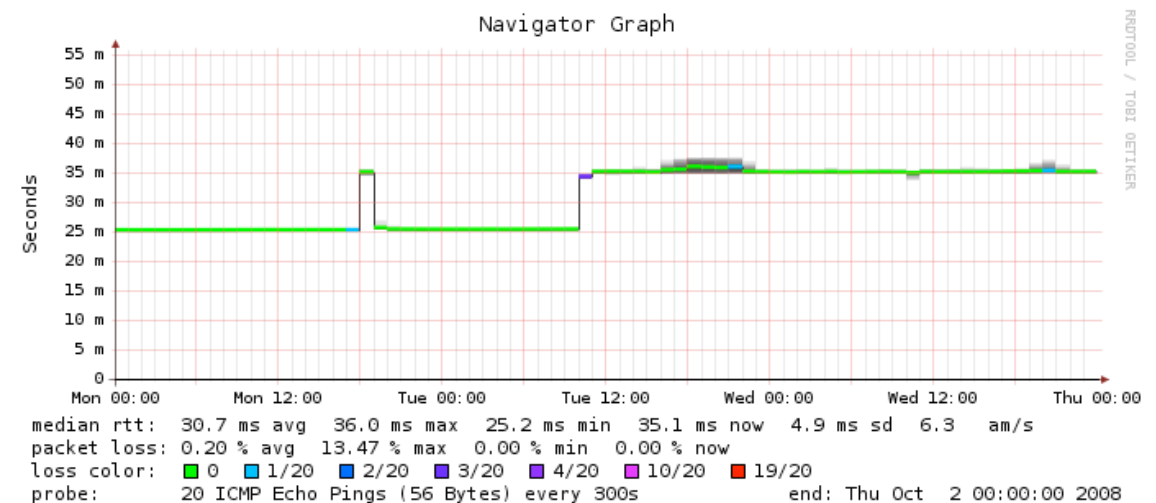
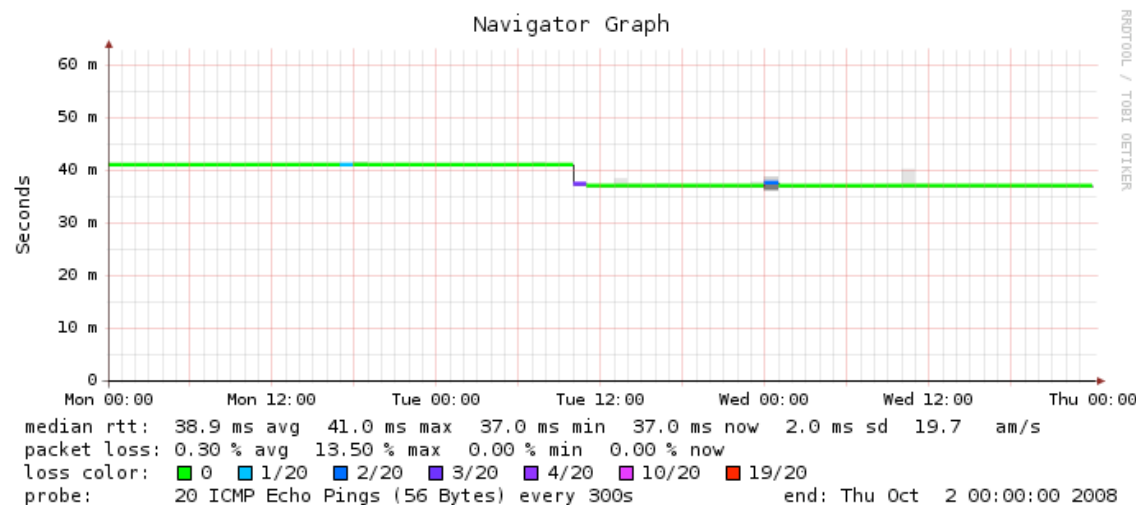
Originated 91.208.44.0/24 - ...1213 3.15\$



World failed to end

30 Sep 2008

## Some interesting effects

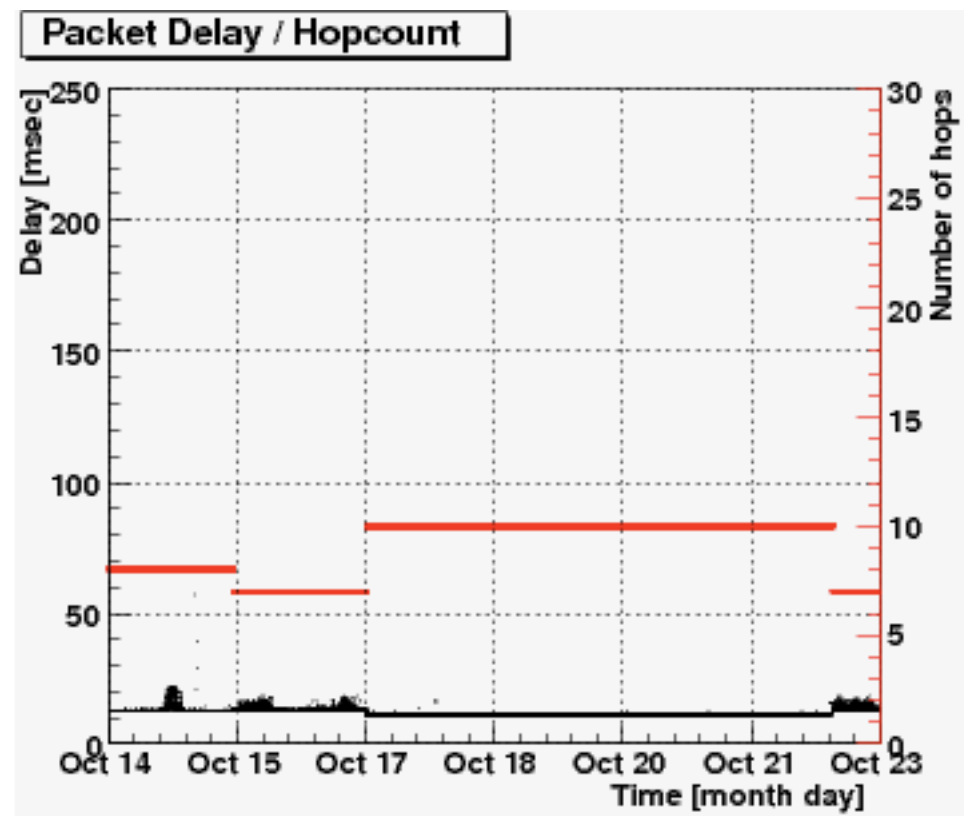


Likely to be BGP announcement order

Hard to correlate with routing

Oct 2008

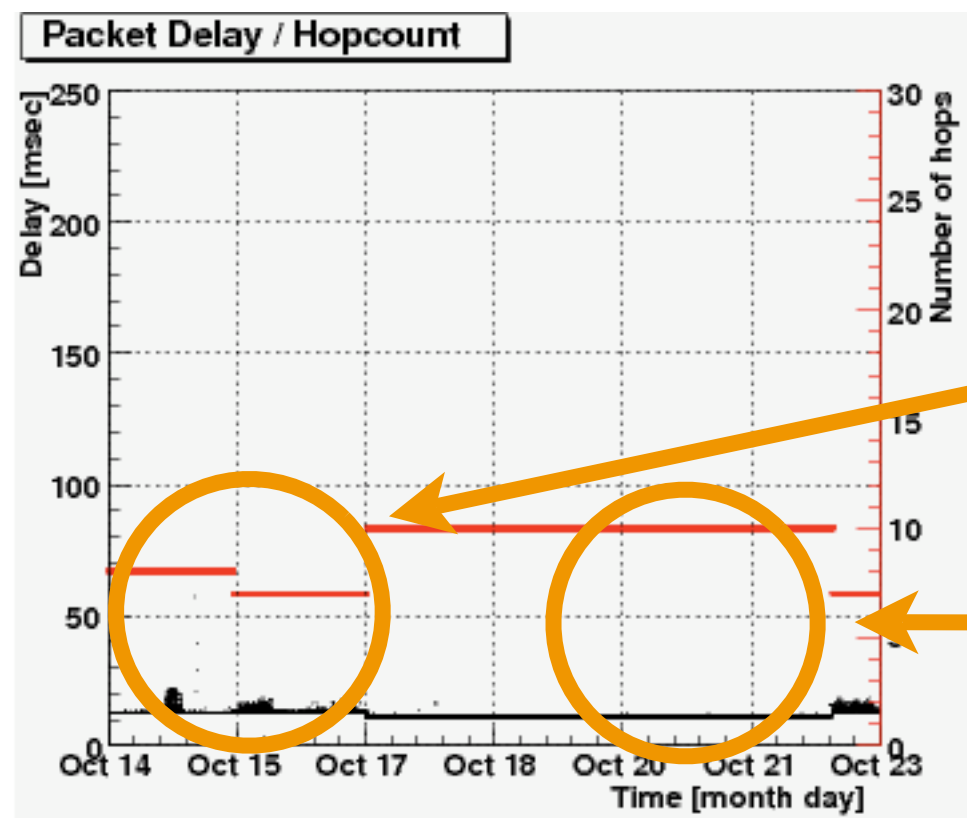
- Instability likely external - need more data
- Have placed TT35 inside 91.208.44.0/24  
**THANK YOU** Franz, Mark and Ruben!



TT52

Oct 2008

- Instability likely external - need more data
- Have placed TT35 inside 91.208.44.0/24  
**THANK YOU** Franz, Mark and Ruben!



TT52

12859 2914 3257 1213

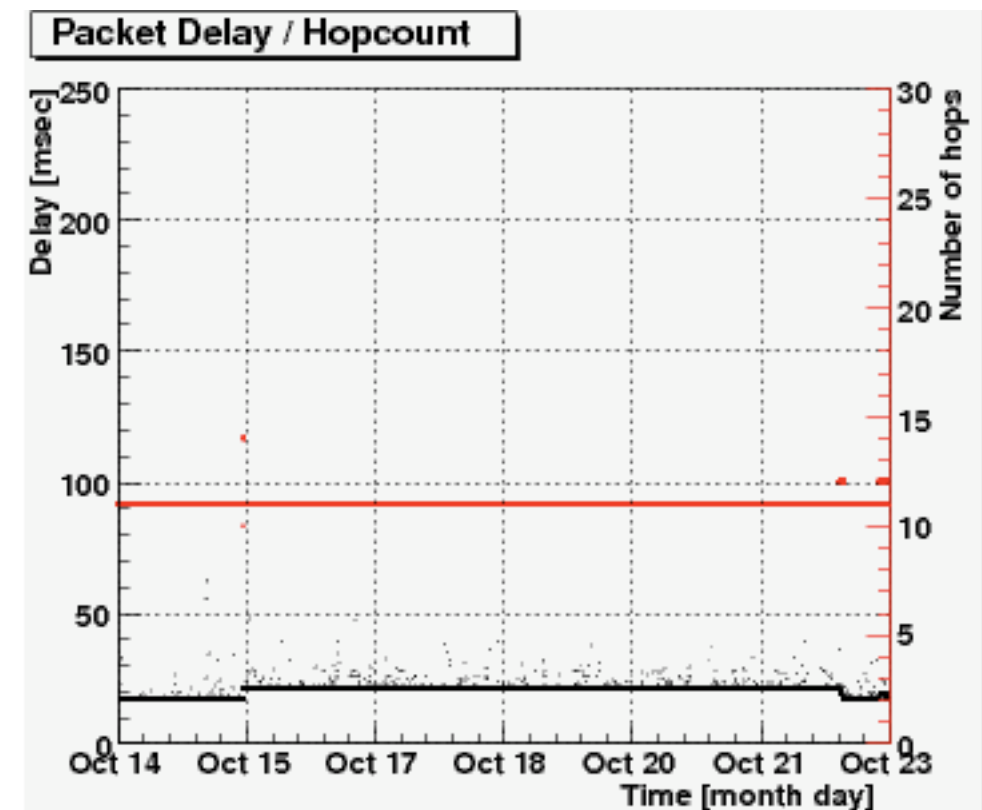
12859 174 3257 1213 3.15



Oct 2008

- Instability likely external - need more data
  - Have placed TT35 inside 91.208.44.0/24
- THANK YOU** Franz, Mark and Ruben!

TT108



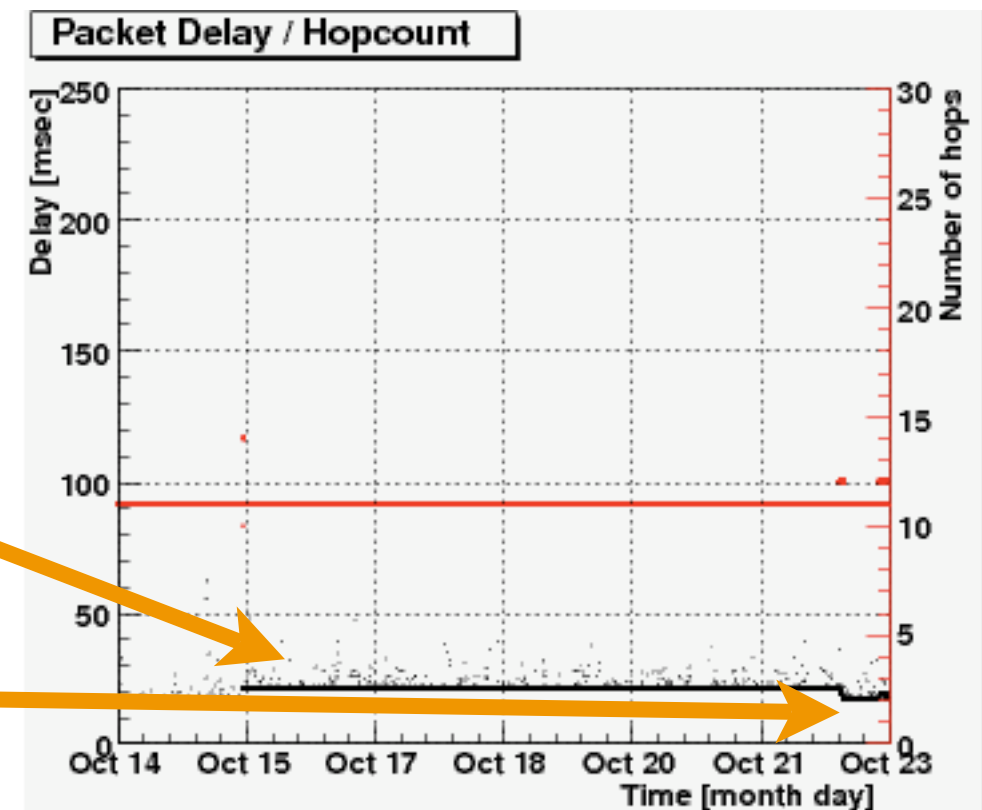
Oct 2008

- Instability likely external - need more data
- Have placed TT35 inside 91.208.44.0/24  
**THANK YOU** Franz, Mark and Ruben!

TT108

28725 5610 12956 3257 1213 3.15

28725 5610 1299 1213



Oct 2008

- Flip a coin once a week
  - originate 91.208.44.0/24 based on this
- Use smokeping to identify funnies, TTM and RIS to diagnose them
- Special attention to effects that are reliably repeatable, but change depending on origin

- ASDOT in RIPE database was a non backward compatible change
- ASPLAIN is currently disallowed in RIPE db
- This can bite you even if
  - you don't use IRRToolset
  - you don't have any 32-bit ASNs

<http://irrtoolset.isc.org/ticket/9>



- Several proposals now suggest ASPLAIN  
(First AS after 65535 is ASI.0 =  $1 * 65536 + 0$ )
- Document suggesting is in last call at IETF
- Anyone who is using code to parse or print ASx.y will have to replace this code

# Thank you!

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DW238-RIPE