

RIPE 61

Technical Report

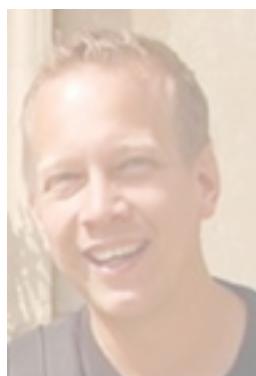
Erik Romijn <eromijn@ripe.net>
Senior Software Engineer



Introduction

The Technical Team

Ben, Benedetto, Brian, Darius, Erik,
Menno, Oleg, Paolo, Răzvan, Sjoerd



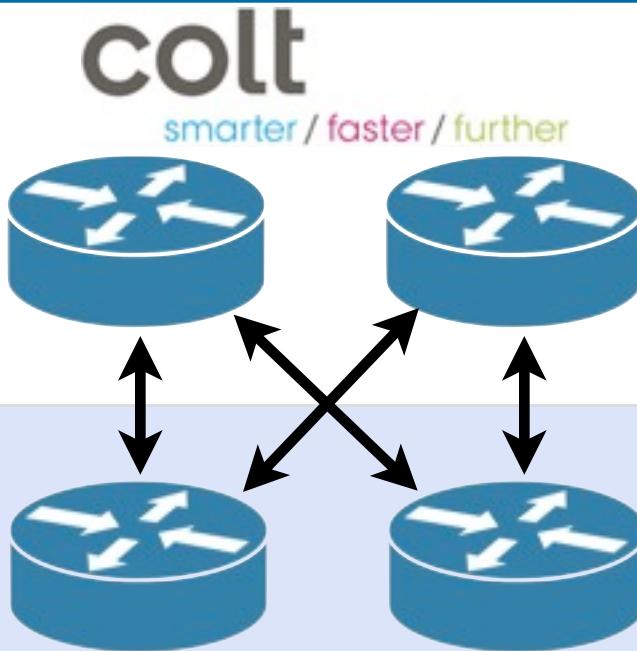
What Do We Do?

- If it has wires, it's ours
 - (except for beamers, lighting, audio and stenography)
- Some highlights:
 - Local servers running DHCP(v6), IRC, ripe61.ripe.net, registration software, ...
 - Webcasts / ~~audio~~cast / recordings
 - (Wireless) network
 - Presentation system
 - Services centre

What do we do?



Network setup



RIPE meeting
venue

Public network

Wireless
Terminal room

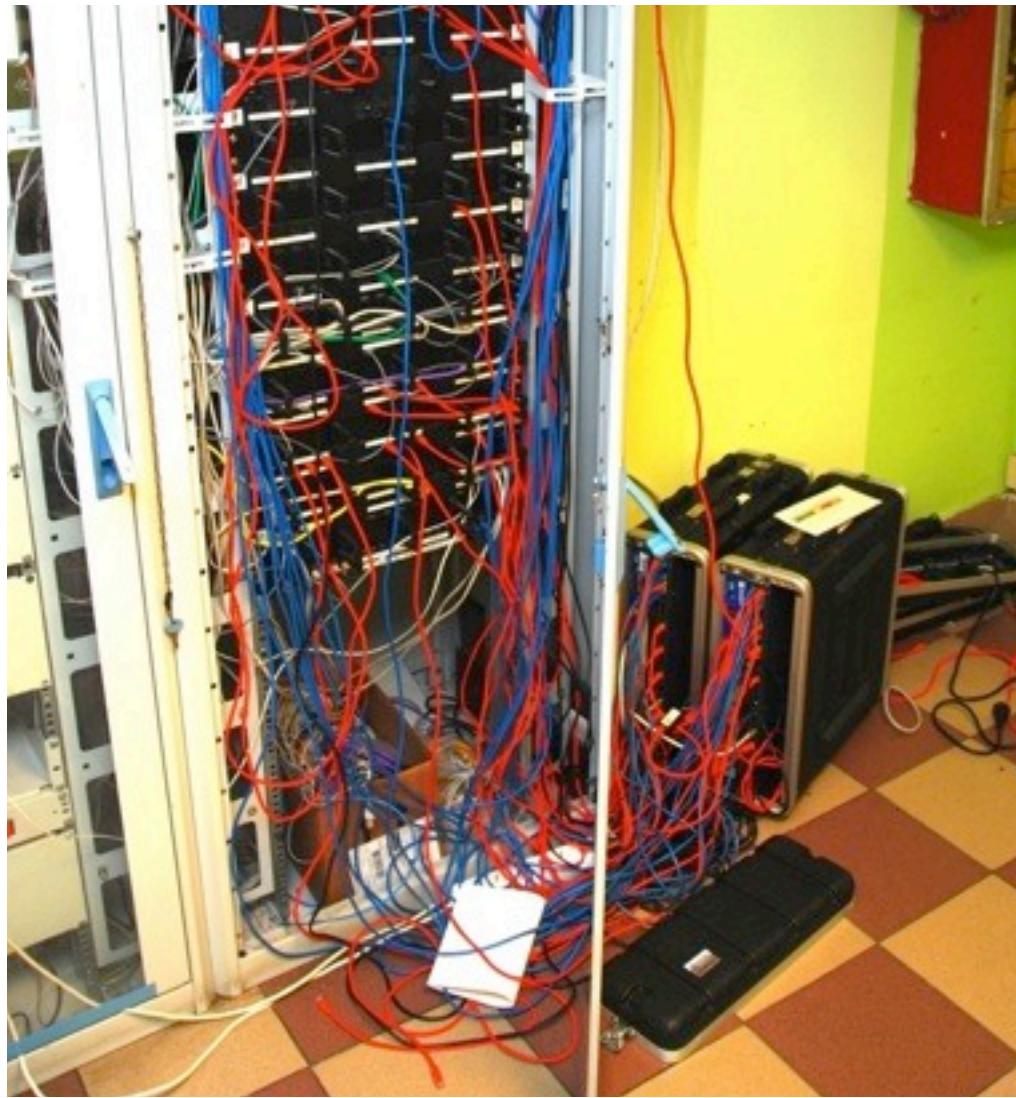
Service network

Streaming
TTM / Rosie

Private network

Registration
Network mgt

Network setup



Network



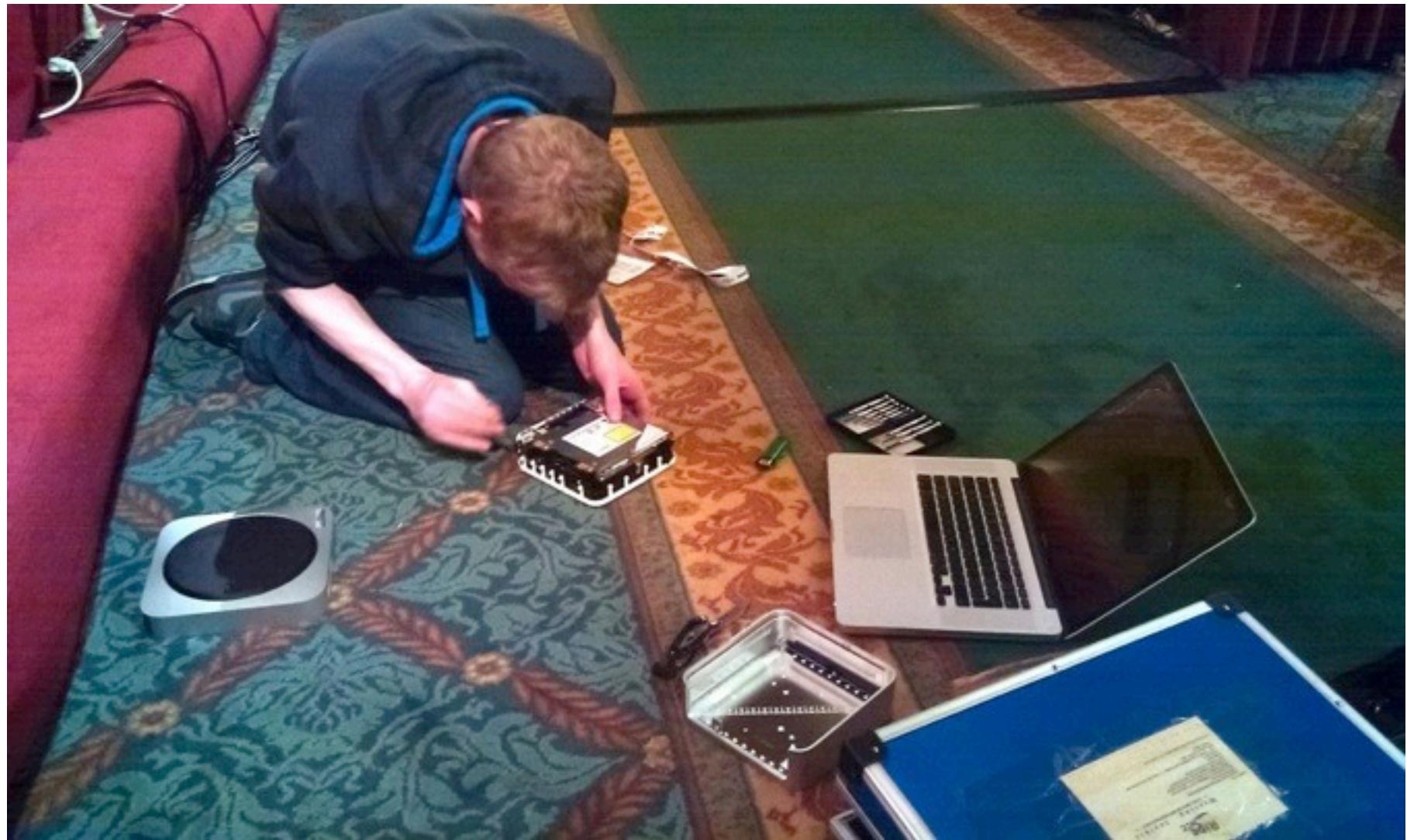
Erik Romijn - R

New setups

Presentation system in side room



Presentation system in side room



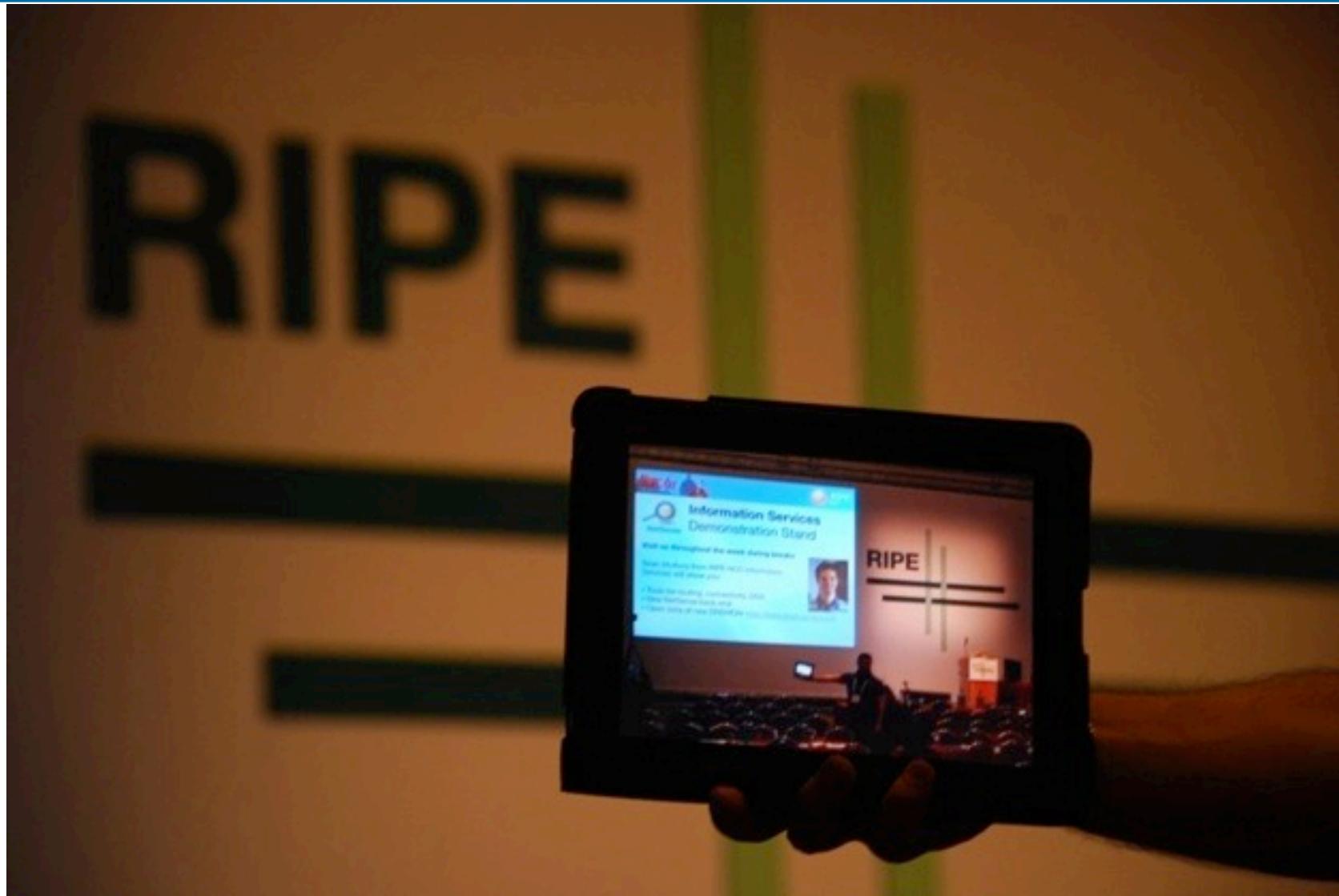
Remote switcher



New servers



iPad/iPhone stream



Video stream for breakout room



Terminal room Mac Mini's



Issues encountered

IPv6 Duplicate Address Detection (DAD)

- An IPv6 stack keeps a new address in tentative state
 - Until DAD is completed
 - This is usually completed after a few seconds
- On the meeting wireless, this sometimes takes up to a minute, having no IPv6 connectivity in that time
- Initial investigations show possible blocking of multicast by the switches in certain conditions
- Thanks to Lorenzo Colitti & Jen Linkova from Google

Other IPv6 issues

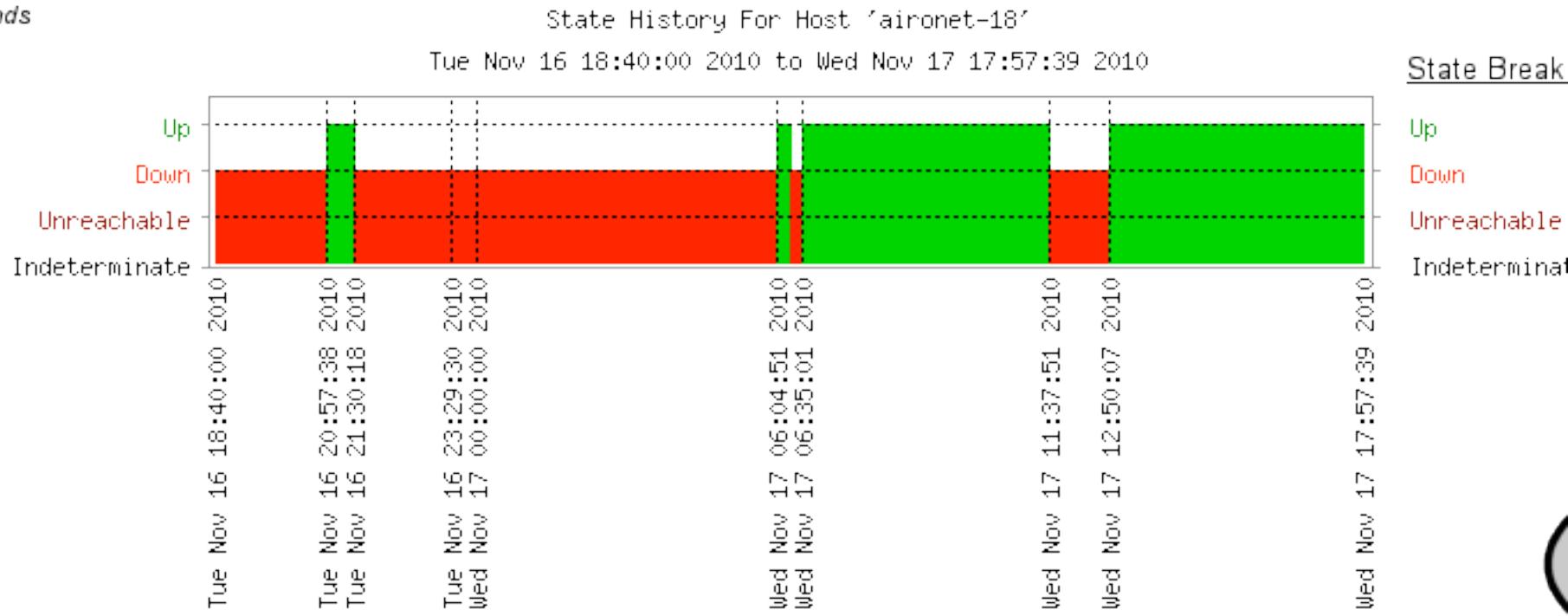
- Several issues in upstreams of upstreams
 - heise.de intermittently unreachable over IPv6
 - packetloss Wednesday morning to/from some destinations
 - beyond our control
- Printer advertising IPv6 on Bonjour, but not actually accepting printing jobs over it
 - Delay of several minutes in printing
 - Removed IPv6 address from printer

Slowness on ripe61.ripe.net

- ripe61.ripe.net intermittently slow in the first couple of days
- Resolved on Tuesday
 - Added extra memory to the virtual machine
 - Added two layers of caching to the webserver
 - WP Super Cache plugin for WordPress
 - APC for PHP caching

Access point reachability

Trends



Stats

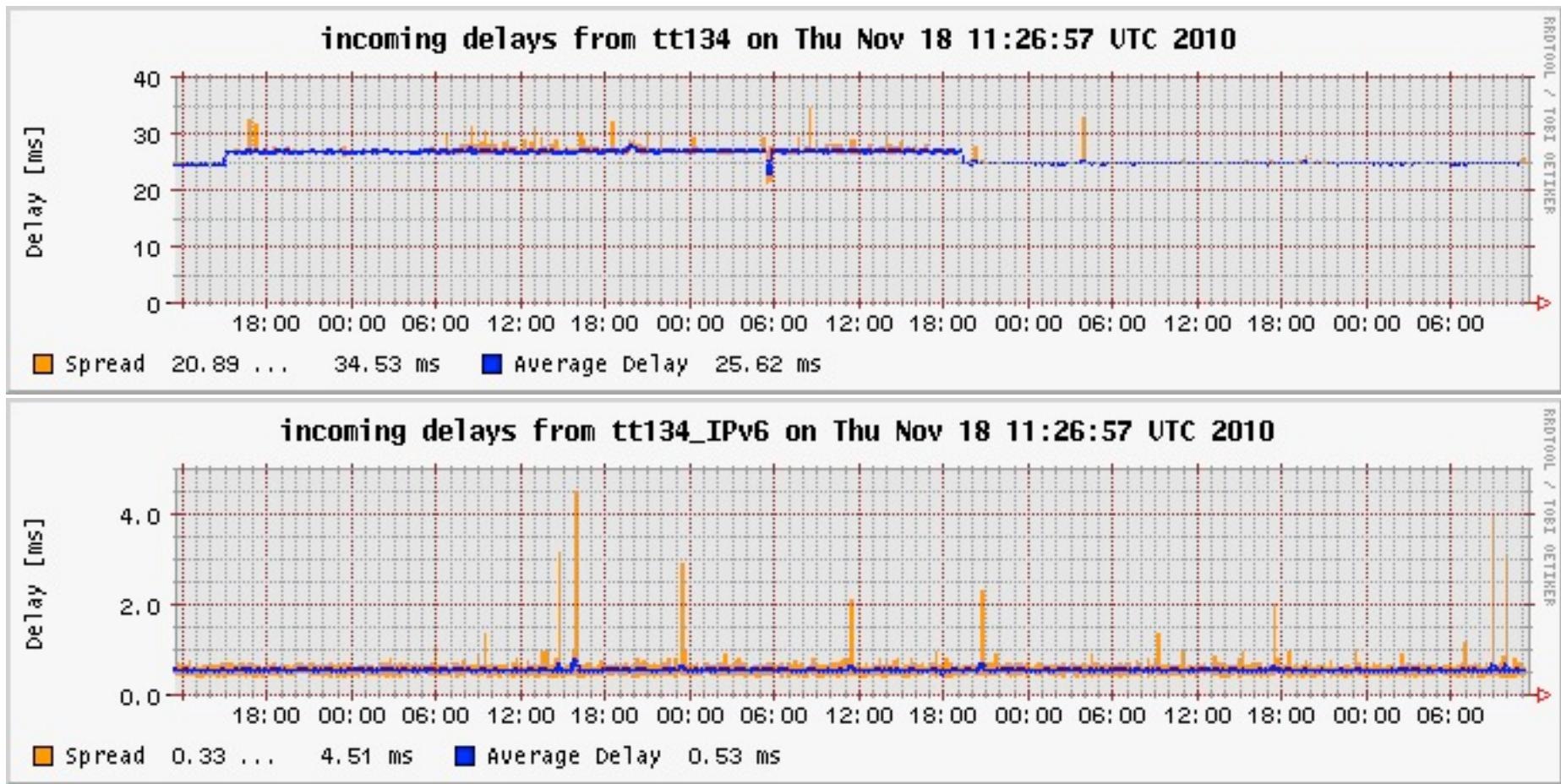
TTM Observations



TTM Observations

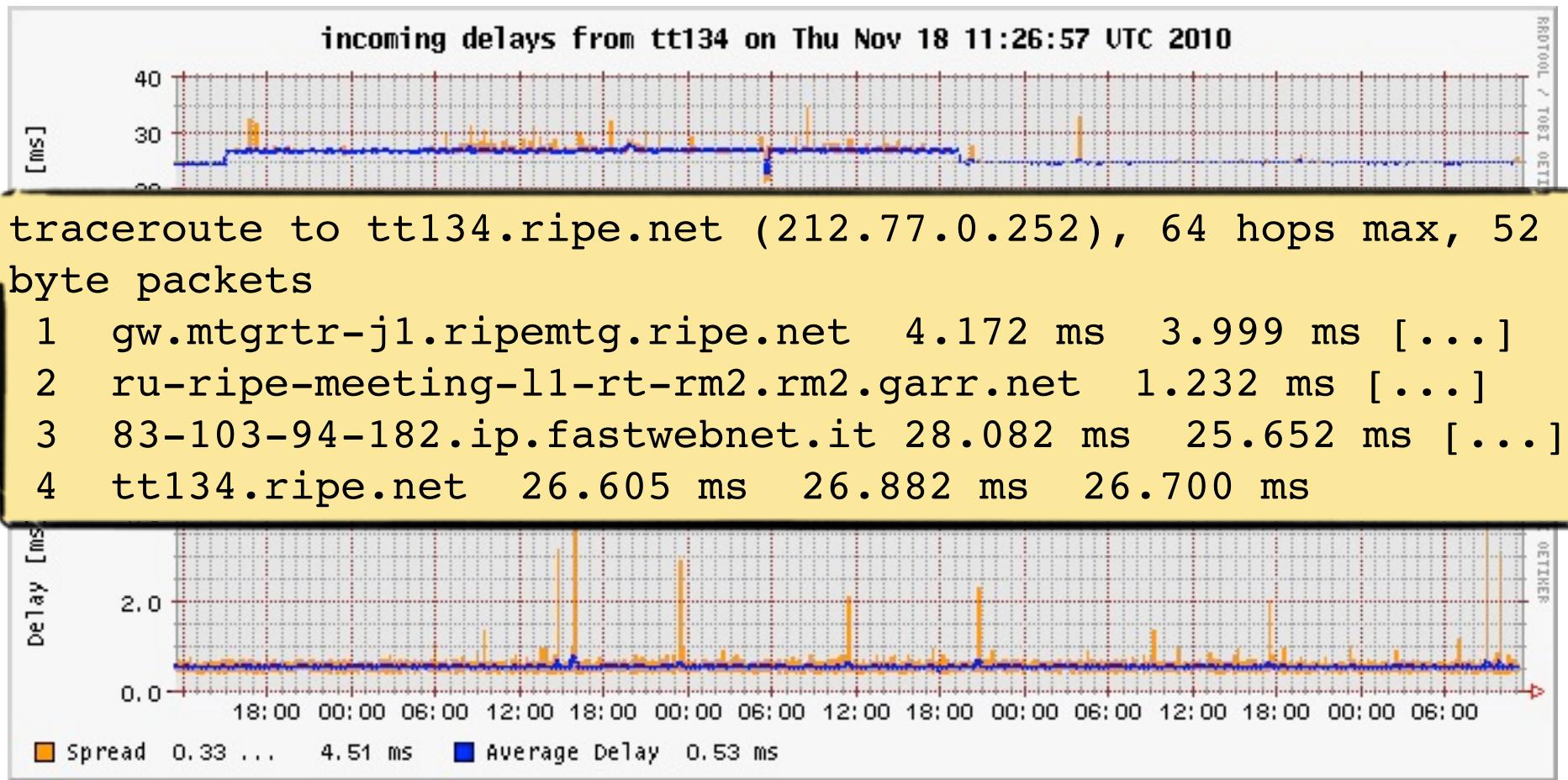


TTM observations



Internet Office of the Holy See:
inbound IPv6 latency 50x lower

TTM observations



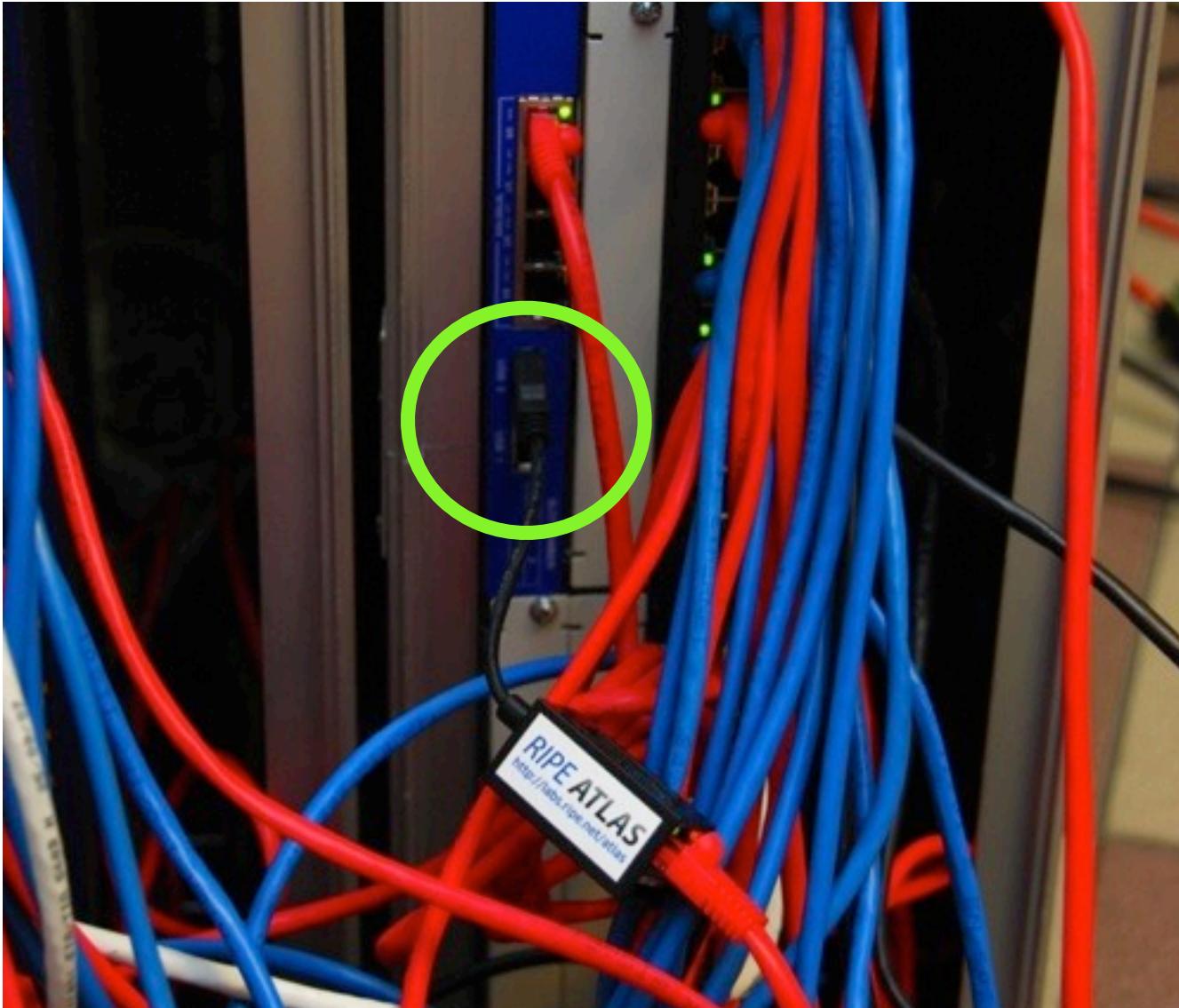
Internet Office of the Holy See: inbound IPv6 latency 50x lower

```
tt134# /usr/local/bin/traceroute6 tt51
traceroute6 to tt51.ripe.net (2001:67c:64:44::51) from
2a01:b8:0:1::2, 64 hops max, 12 byte packets
1 multigigapop-re.vatican.va 0.470 ms 0.427 ms 0.489 ms
2 2001:760:ffff:1c00::11 0.729 ms 10.395 ms 0.694 ms
3 rt-rm2-ru-ripe-meeting-11 3.022 ms [...]
4 tt51 1.105 ms 1.028 ms 1.282 ms
```

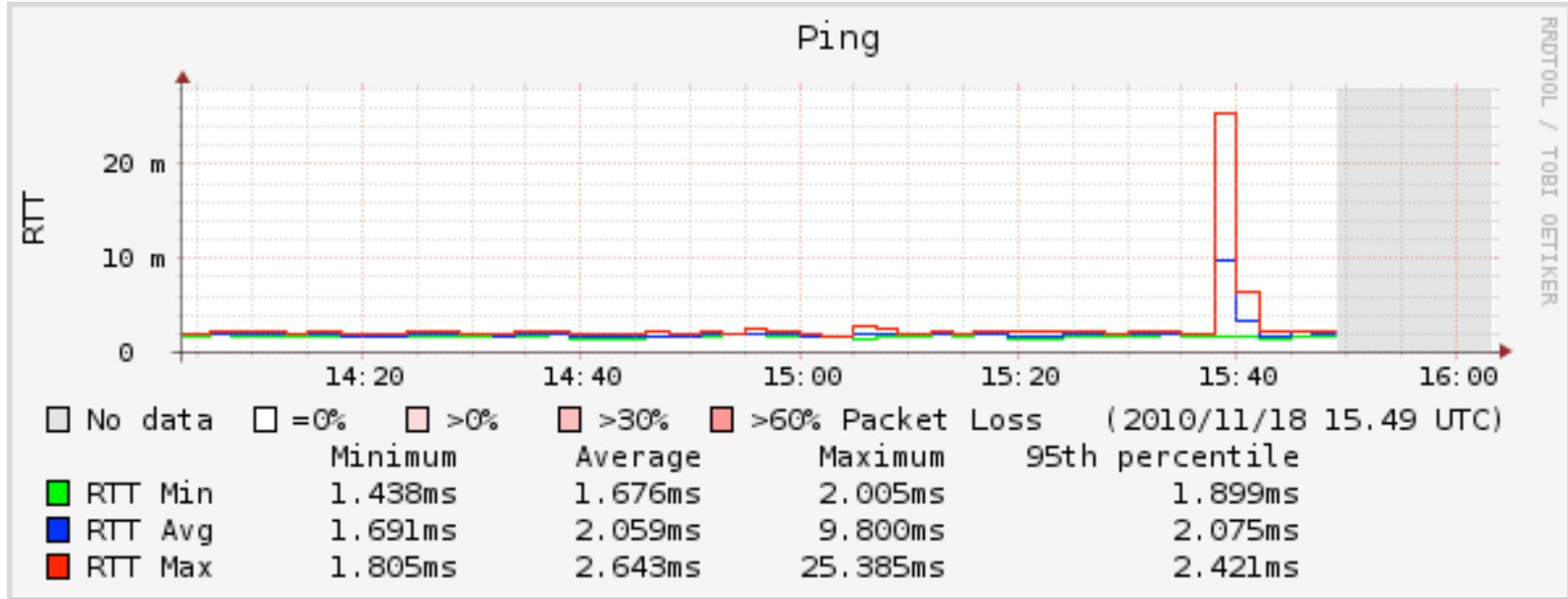
```
tt134# /usr/local/bin/traceroute tt51
traceroute to tt51.ripe.net (193.0.31.51): 1-30 hops, 38 byte
packets
1 multigigapop-re.vatican.va 0.303 ms 0.314 ms 0.224 ms
2 if-0-0-7.core1.RCT-Rome.as6453.net 0.462 ms [...]
3 if-7-0.core3.MLT-Milan.as6453.net 44.5 ms 8.38 ms [...]
4 208.178.58.109 24.5 ms 38.9 ms 25.1 ms
5 Dante-Milan-3.so-5-0-0.ar2.LIN1.gblx.net 24.4 ms [...]
6 rt1-mil-rt-mi2.mi2.garr.net 24.6 ms 24.4 ms 24.5 ms
7 rt-mi2-rt-rm2.rm2.garr.net 24.4 ms 25.0 ms 24.6 ms
8 rt-rm2-ru-ripe-meeting-11.rm2.garr.net 28.1 ms [...]
9 tt51.ripe.net (193.0.31.51) 24.8 ms 24.7 ms 24.9 ms
```

Inbound IPv6 latency 50x lower

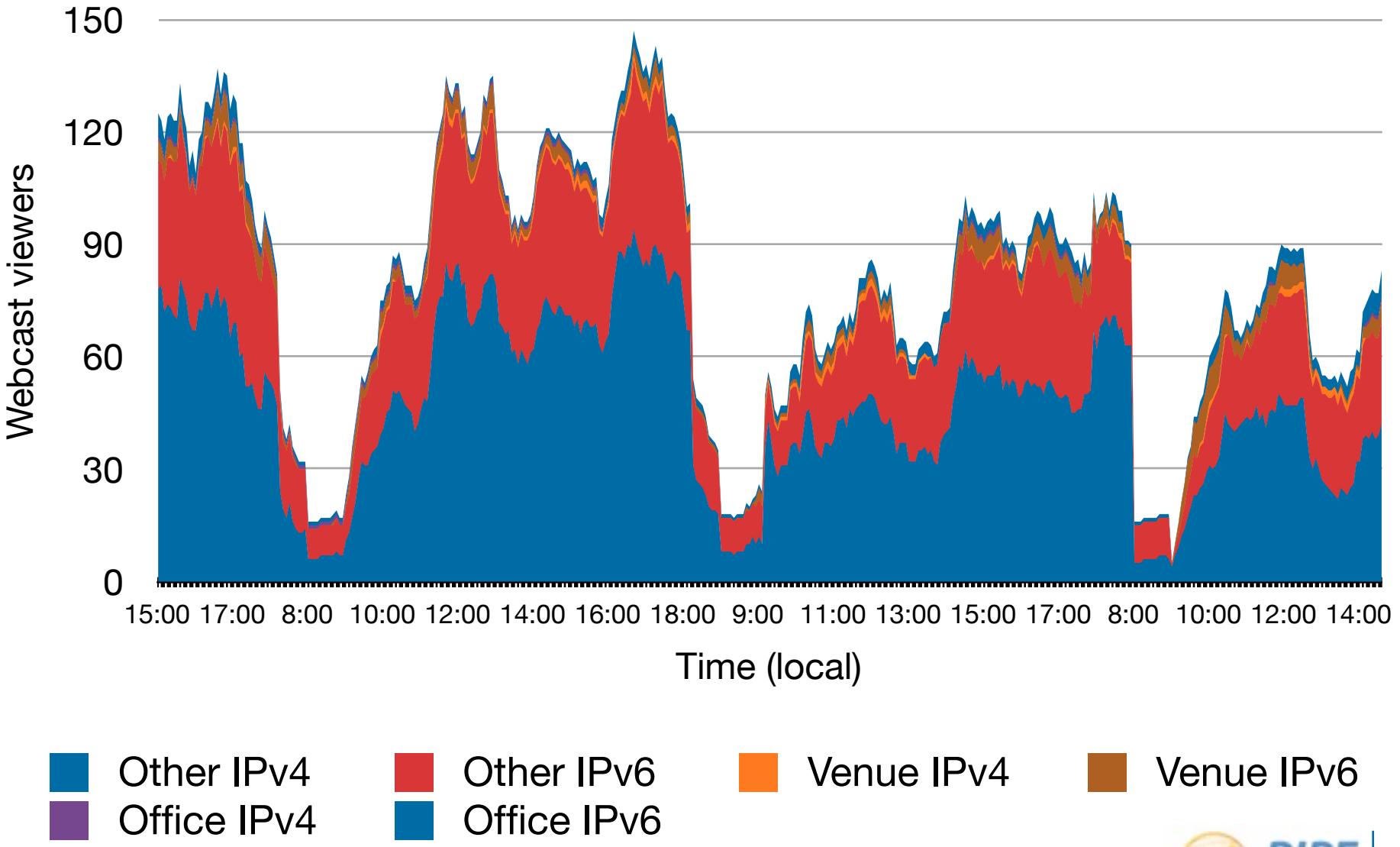
RIPE Atlas monitoring



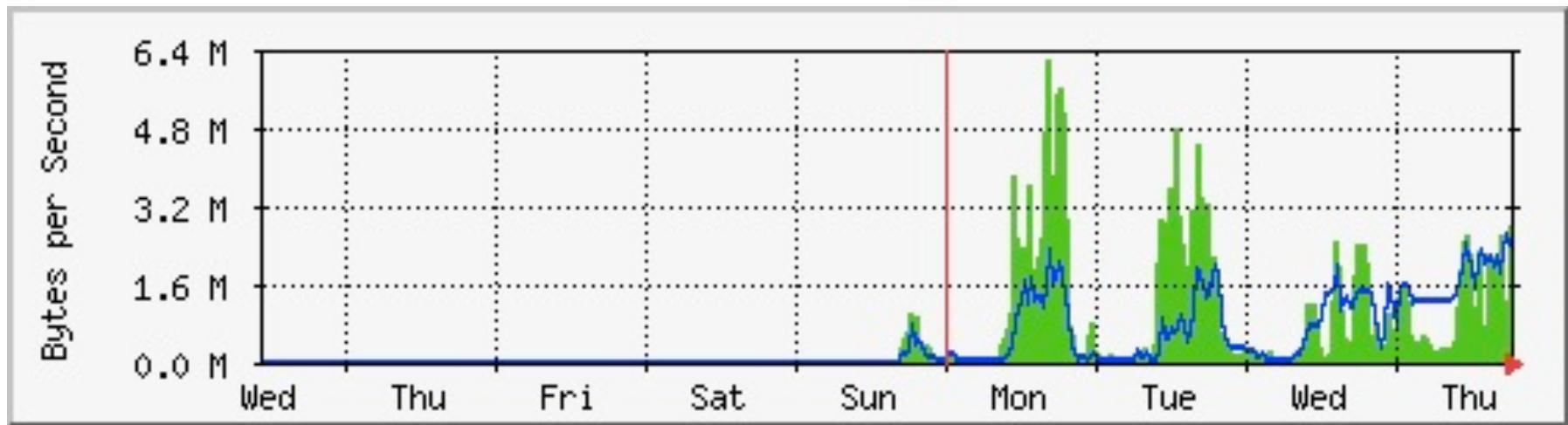
RIPE Atlas measurements: F-root



Webcast



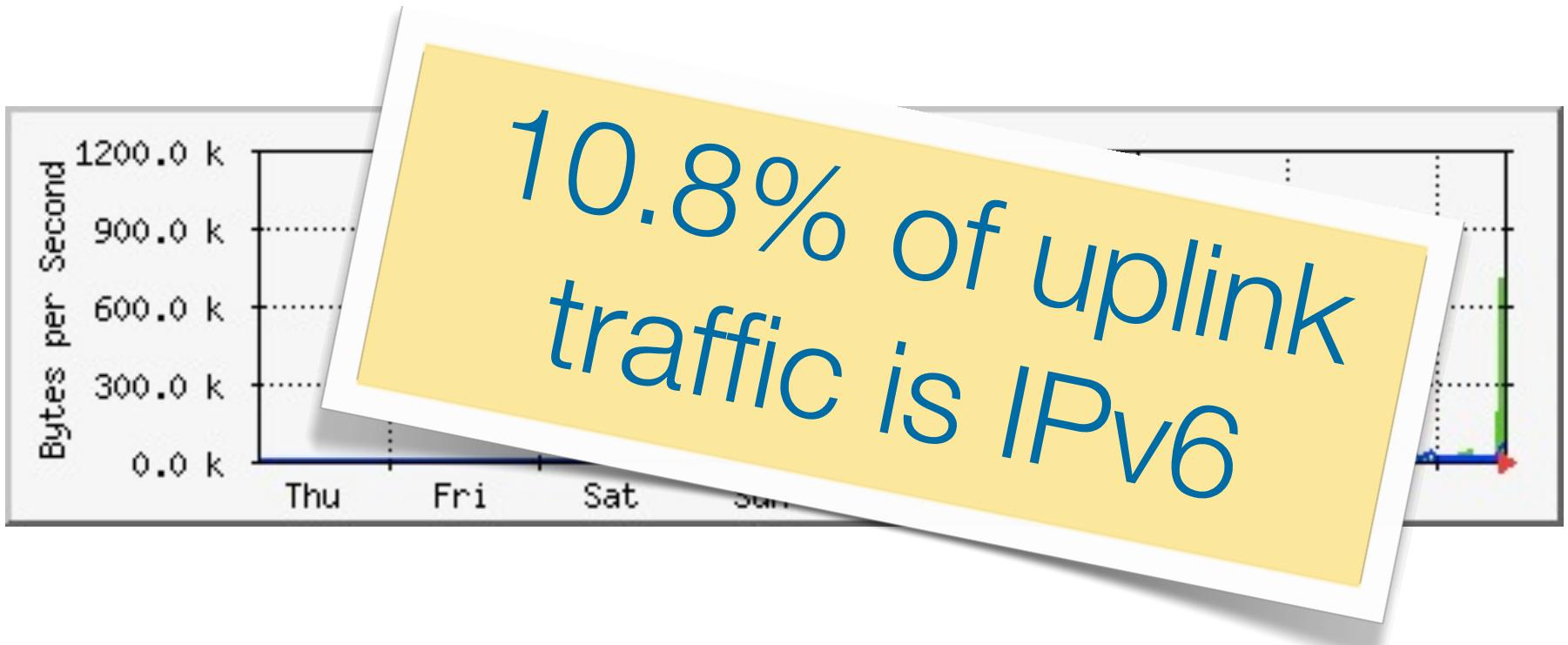
Uplink traffic



Peak: 50 Mbit/s in, 21 Mbit/s out

Average: 8 Mbit/s in, 6.3 Mbit/s out

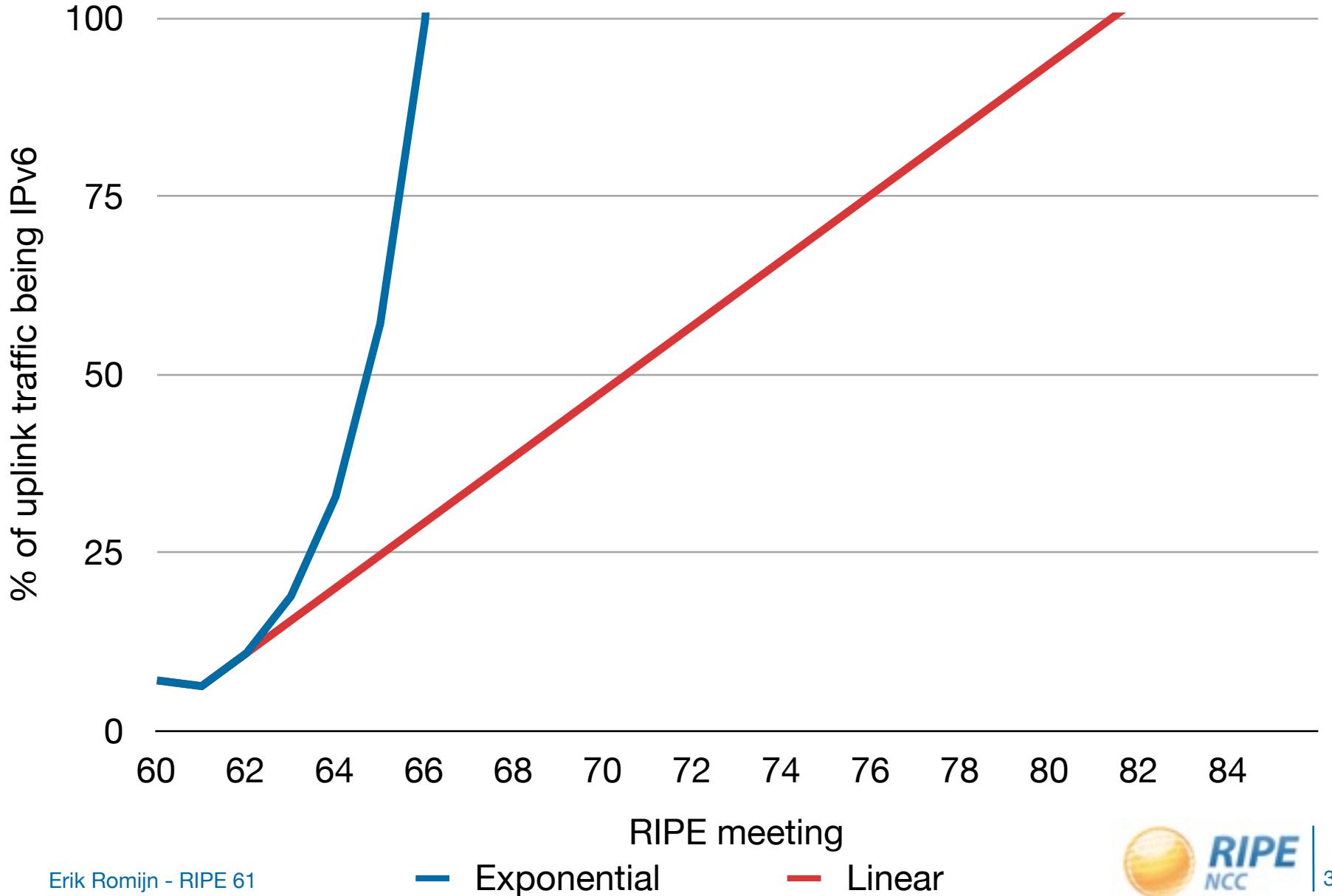
IPv6 traffic



Peak: 9.3 Mbit/s in, 1.6 Mbit/s out

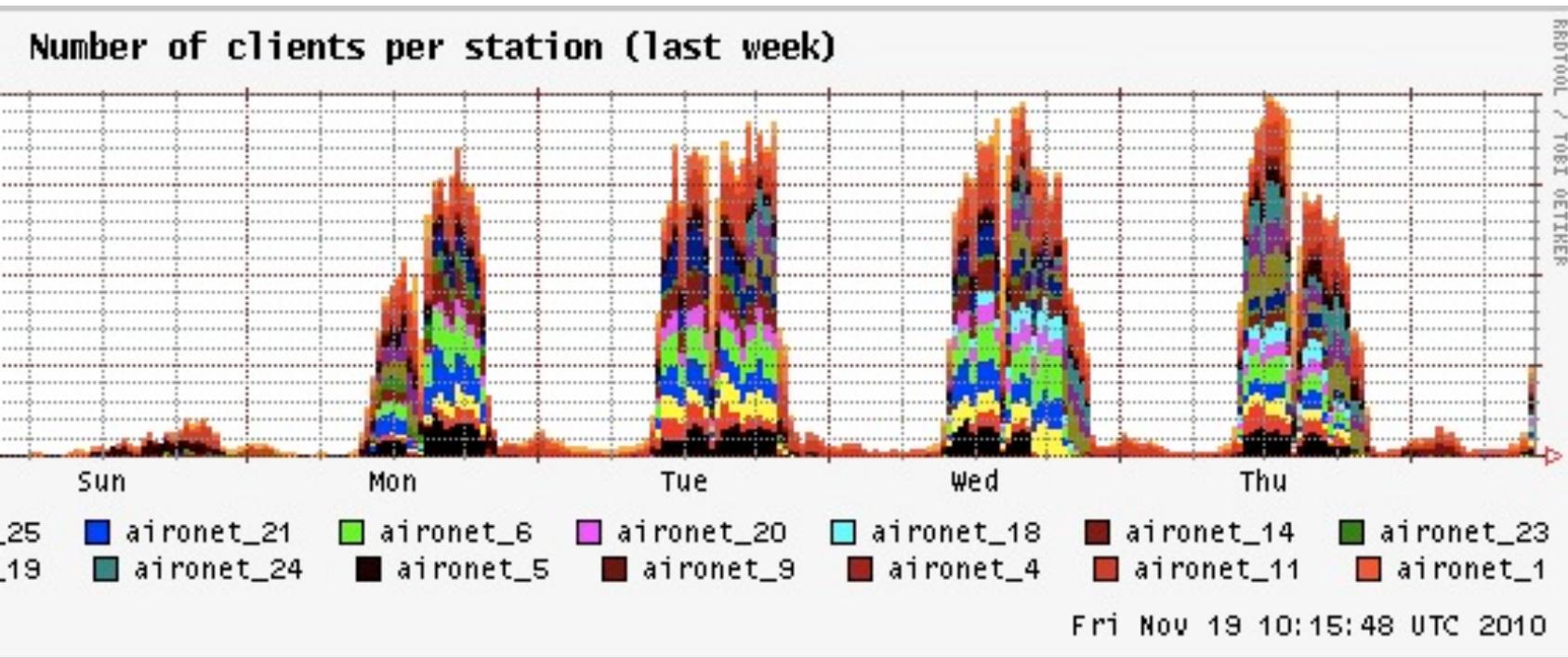
Average: 1.4 Mbit/s in, 208 kbit/s out

IPv6 traffic on the RIPE meeting network



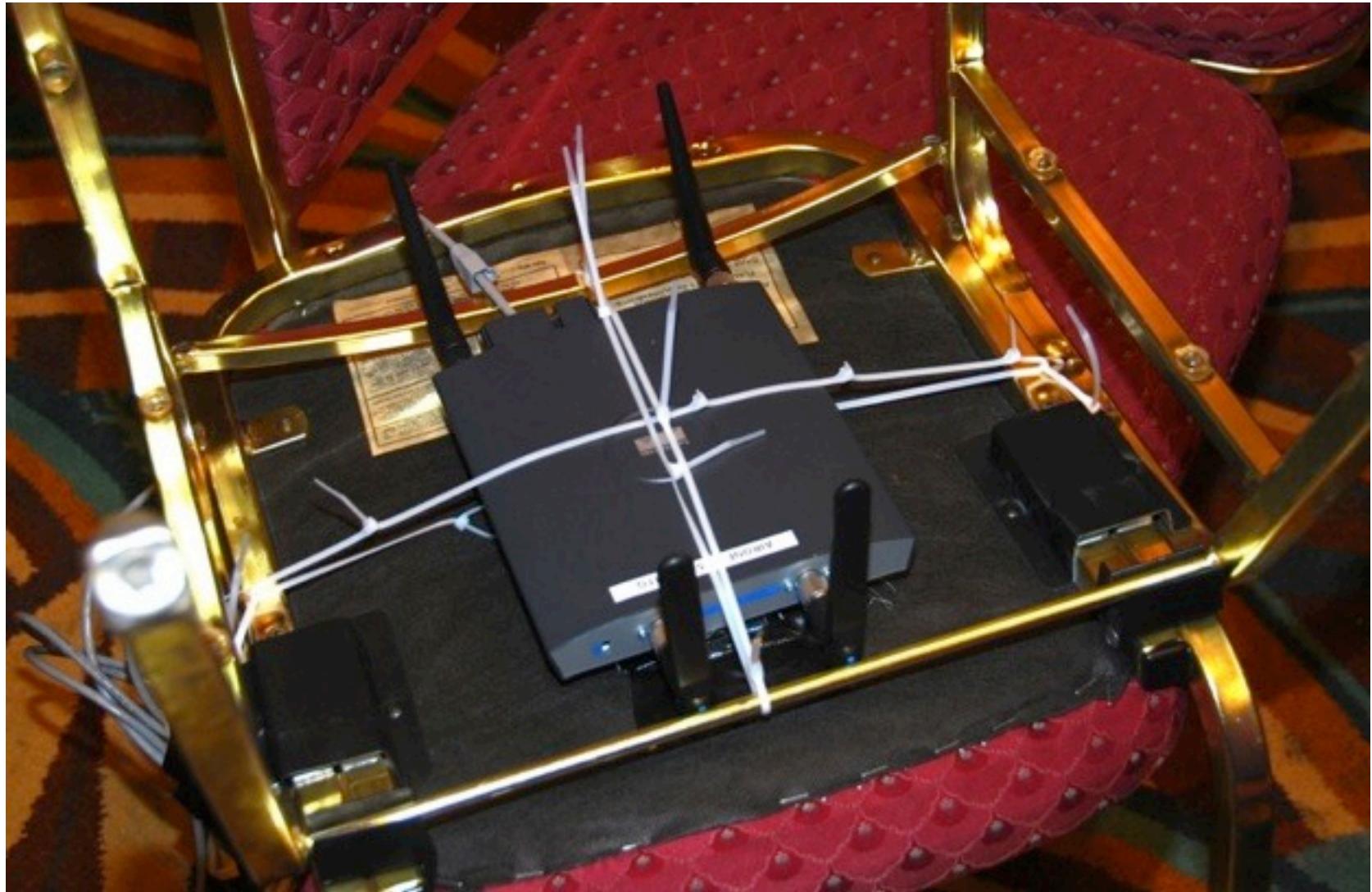
Wireless

24 base stations deployed



Peak: 340 associations

High-density access point distribution



Questions?

Erik Romijn
<opsmtg@ripe.net>

