

RIPE 63

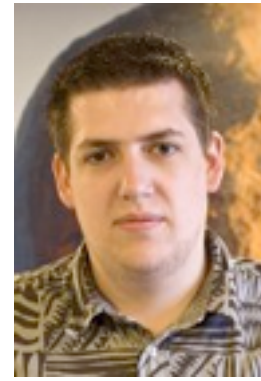
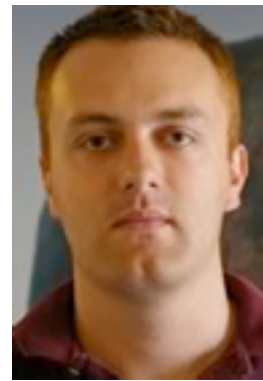
Technical Report

Erik Romijn <eromijn@ripe.net>

Introduction

The Technical Team

Ben, Brian, Christian, Darius, Erik,
John, Menno, 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, IRC, etc.
 - Webcasts / recordings
 - (Wireless) network
 - Presentation system
 - Services centre

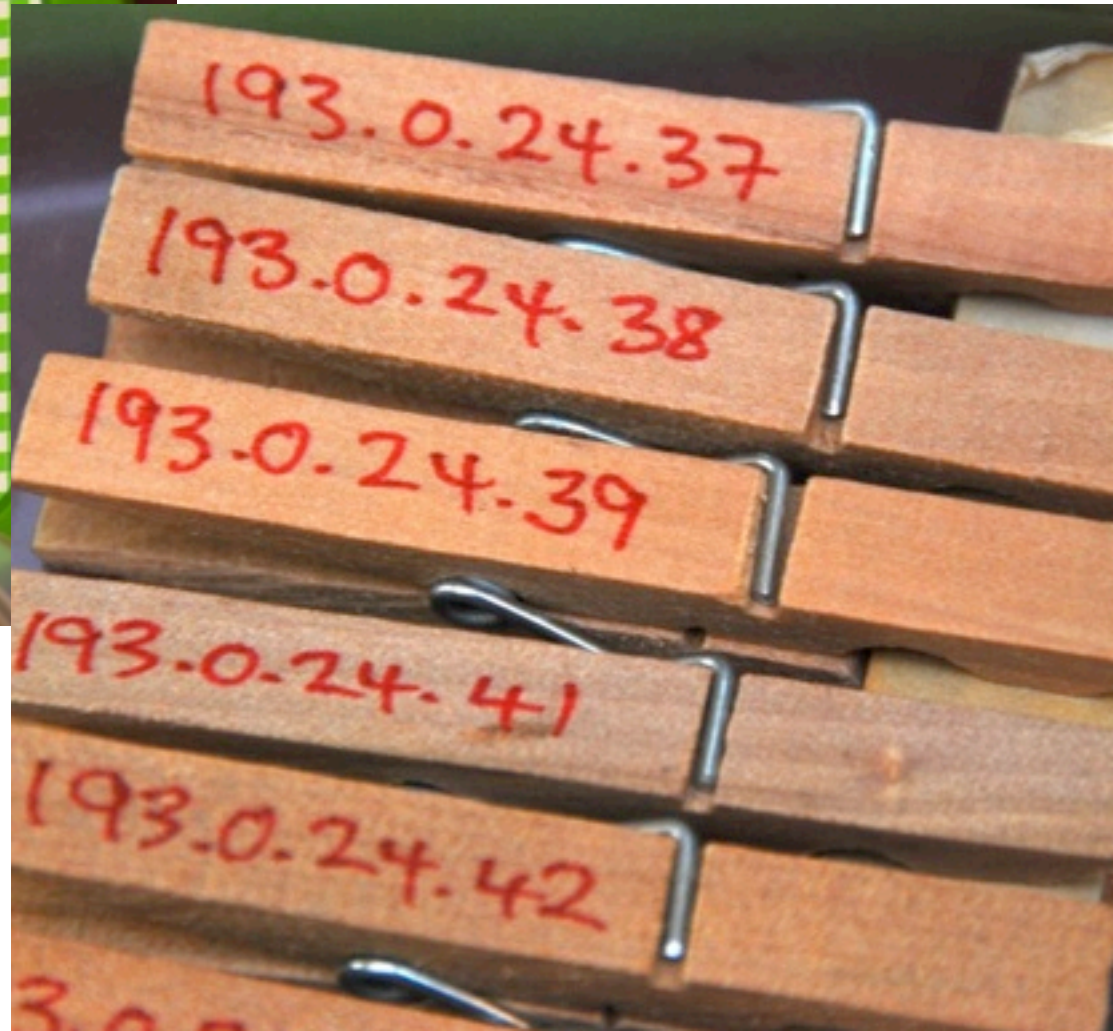
What do we do?

RFC2322 Clothes Pegs

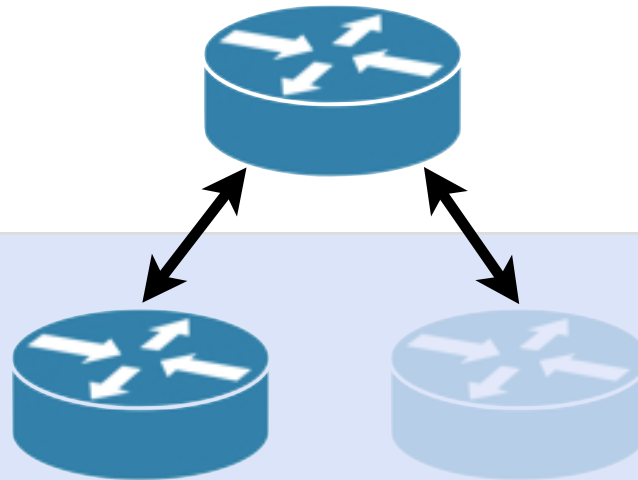
Netmask = 255.255.252.0

Gateway = 193.0.24.1

Resolver = 193.0.24.2



Network setup



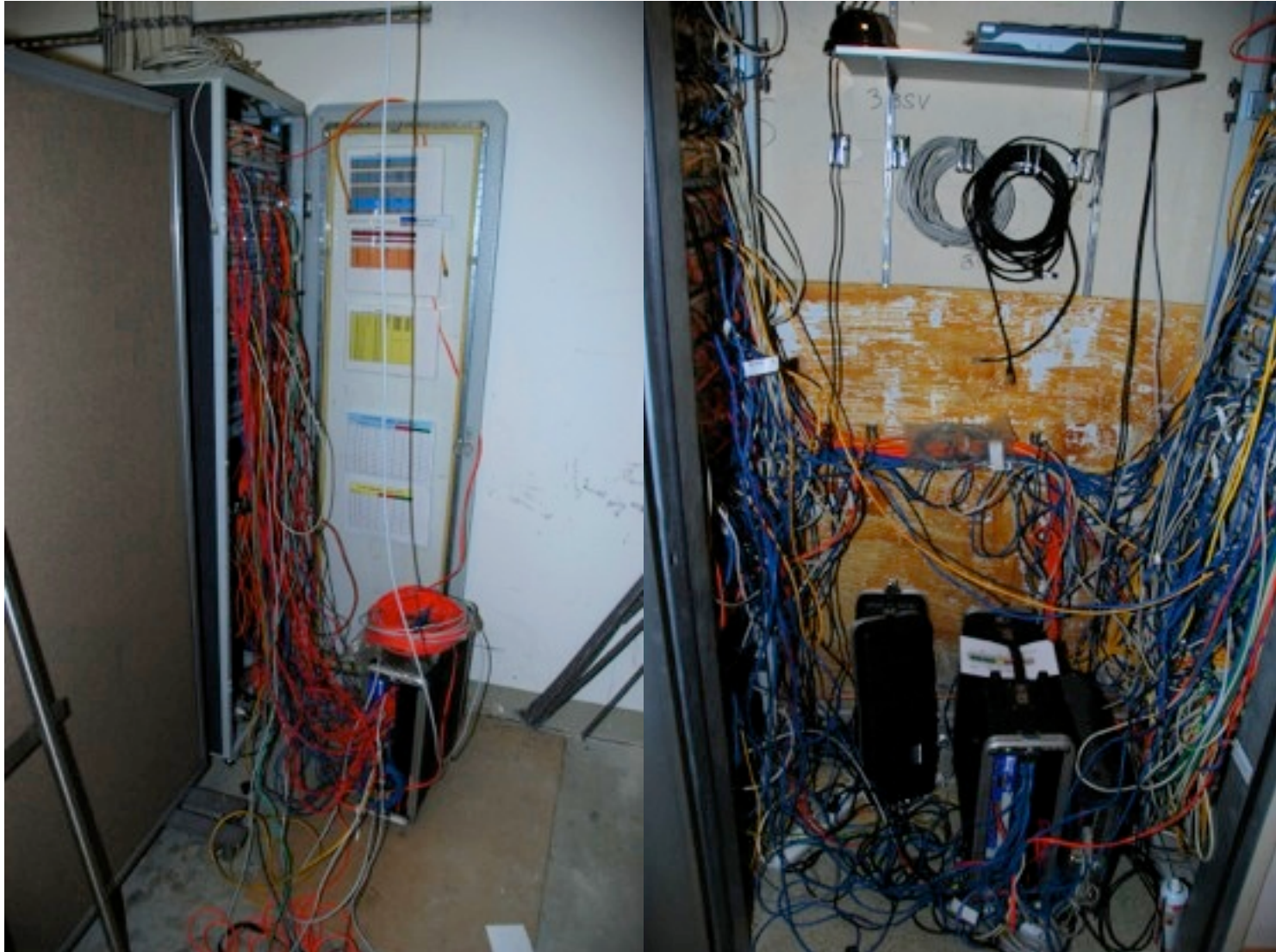
RIPE meeting
venue

Public network
Wireless
Terminal room

Service network
Streaming
TTM / Rosie

Private network
Network mgt

Network setup



New setups

Router advertisement monitoring

- At RIPE62, quite some issues with rogue RAs
- For RIPE63: *ramon* used for rogue RA monitoring
- Filtering would only have been possible on switches, so it would localise the problem
- Monitoring followed by manual blocking

Router advertisement monitoring: bingo (1)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: 6to4-advertised

Date: October 30, 2011 12:43:07 PM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisement for 2002:c100:1901:c::/64
the source address was fe80::1d62:bc8f:542f:6fe0%eth0 with mac 00:1f:3b:13:9c:5f

Router advertisement monitoring: bingo (2)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: 6to4-advertised

Date: November 1, 2011 11:14:49 AM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisment for 2002:5637:1616:b::/64
the source address was fe80::804e:acc3:4f13:a19b%eth0 with mac c0:f8:da:17:24:27

Router advertisement monitoring: bingo (2)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: 6to4-advertised

Date: November 1, 2011 11:14:49 AM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisement for 2002:5637:1616:b::/64
the source address was fe80::804e:acc3:4f13:a19b%eth0 with mac c0:f8:da:17:24:27

Router advertisement monitoring: bingo (3)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: unknown-prefix

Date: November 1, 2011 1:36:37 PM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisement for [/]+
the source address was fe80::288c:82de:eb60:60ed%eth0 with mac 00:24:d7:18:53:18

Router advertisement monitoring: bingo (3)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: unknown-prefix

Date: November 1, 2011 1:36:37 PM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisement for **/]+**
the source address was fe80::288c:82de:eb60:60ed%eth0 with mac 00:24:d7:18:53:18

Rogue 6to4

- Windows laptop announcing 6to4 RA
- Shouldn't affect anyone, because native is preferred
- Very difficult to find, despite not being Apple

```
host goaway {  
    hardware ethernet ...::...:53:18;  
    deny booting;  
}
```

Router advertisement monitoring: bingo (3)

From: bitbucket@ripe.net

Subject: [opsmtg] rogue RA detected: unknown-prefix

Date: November 1, 2011 1:36:37 PM GMT+01:00

To: Operations Management



ramond received a forbidden router-advertisement for **/]+**
the source address was fe80::288c:82de:eb60:60ed%eth0 with mac 00:24:d7:18:53:18

Issues encountered

IPv6 printing



~~IPv6 printing~~



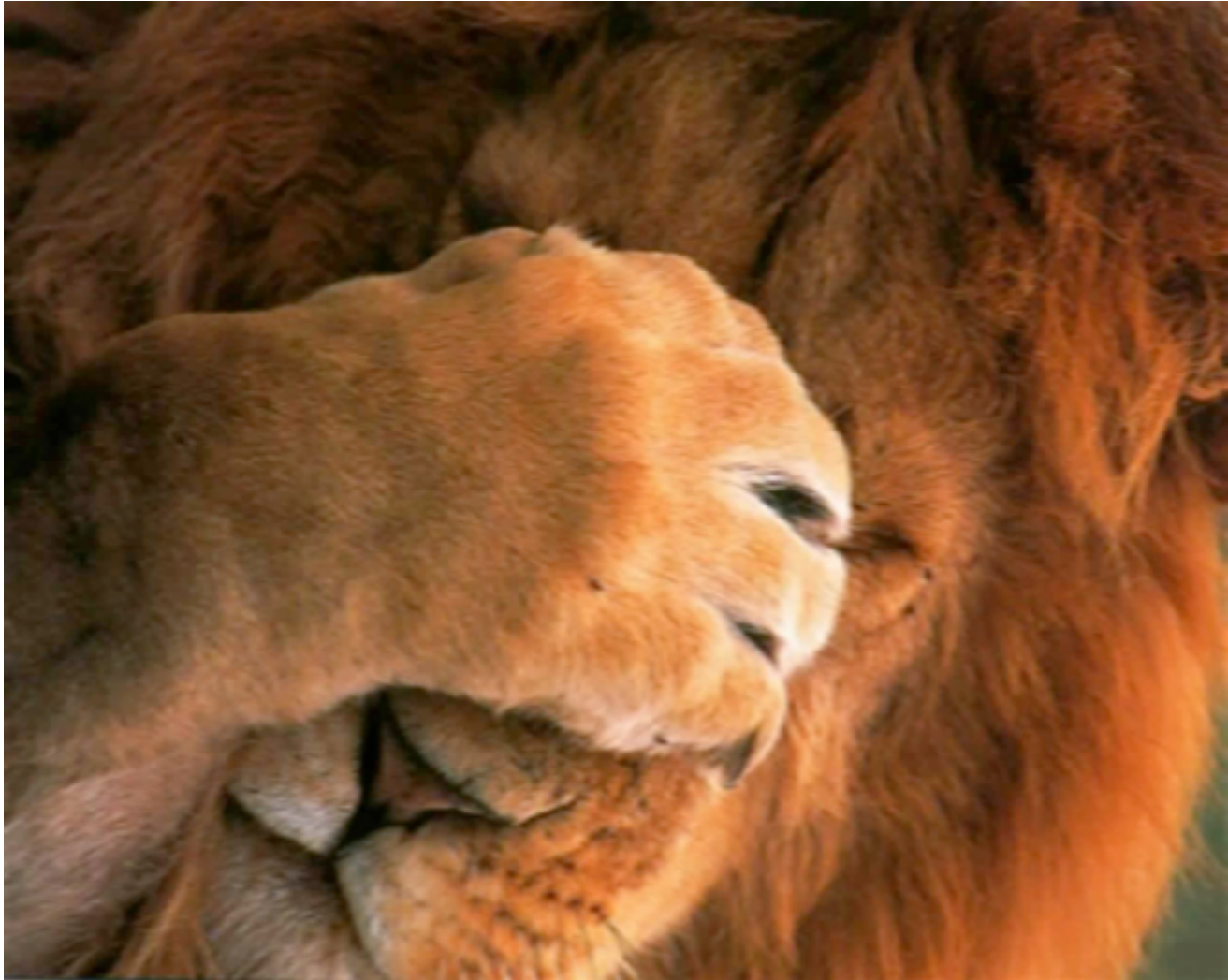
Power



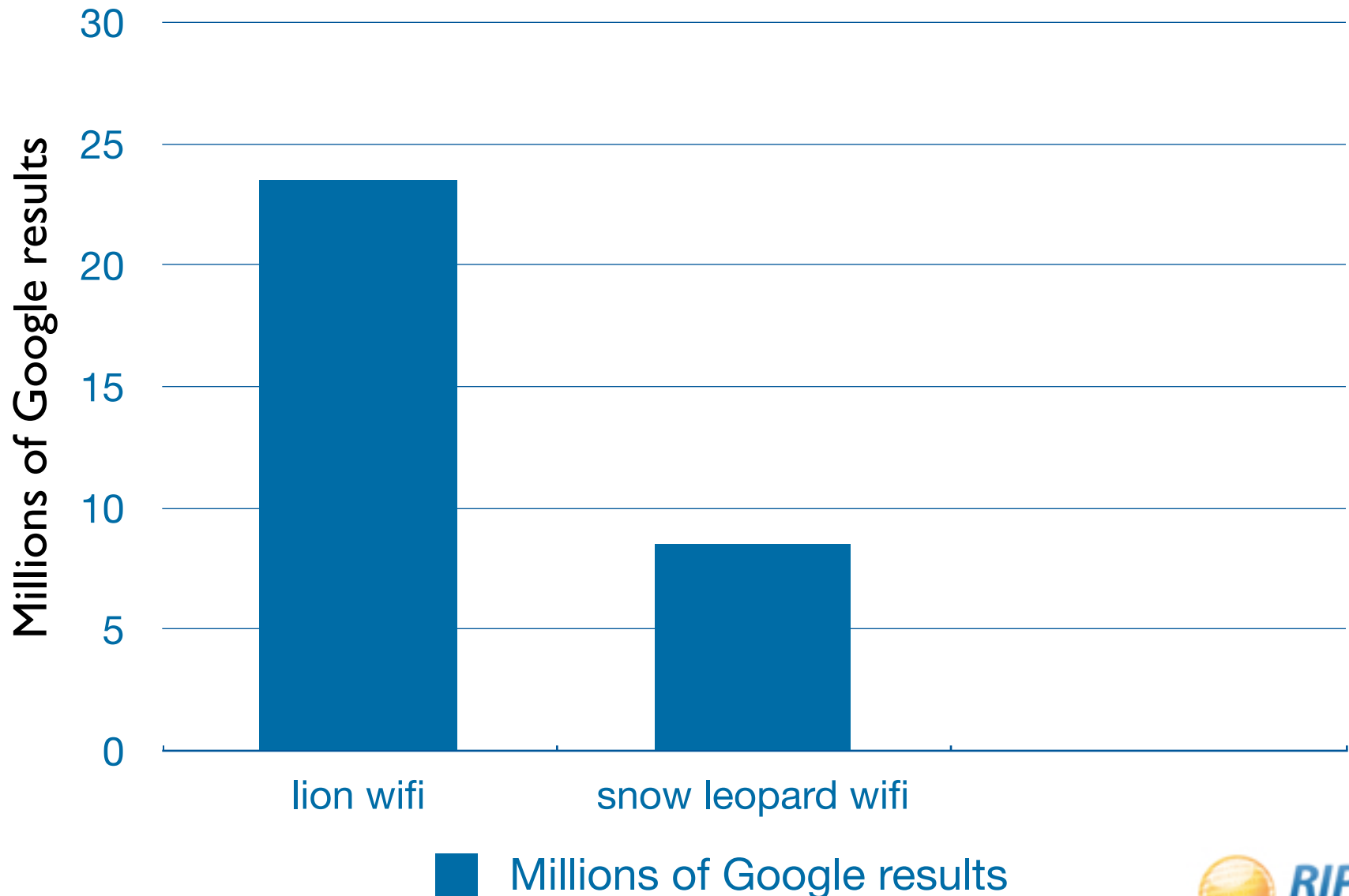
Issues with Mac OS X Lion



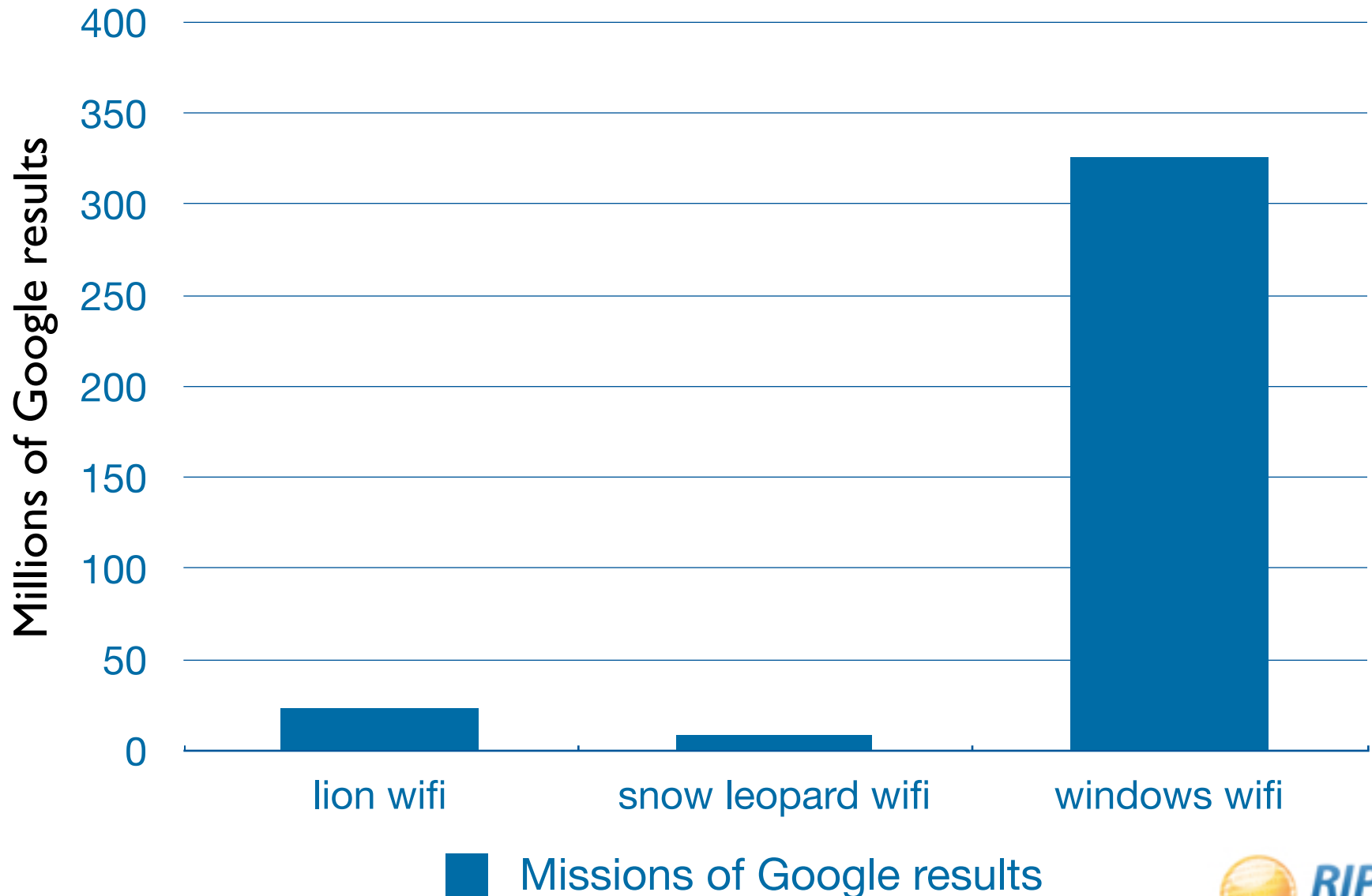
Issues with Mac OS X Lion



Issues with Mac OS X Lion



Issues with Mac OS X Lion



Wireless interference

- Symptom: mostly continuous packetloss and high latency
- Three fixes:
 - Slightly reduced access point density
 - Some hotel wifi was still enabled
 - Access point on AV desk

Wireless interference



Wireless interference



Wireless interference



Access point lockups

- Pretty good connectivity most of time
- Suddenly, complete loss of connectivity
- Stays for 30-120 seconds, then returns to normal

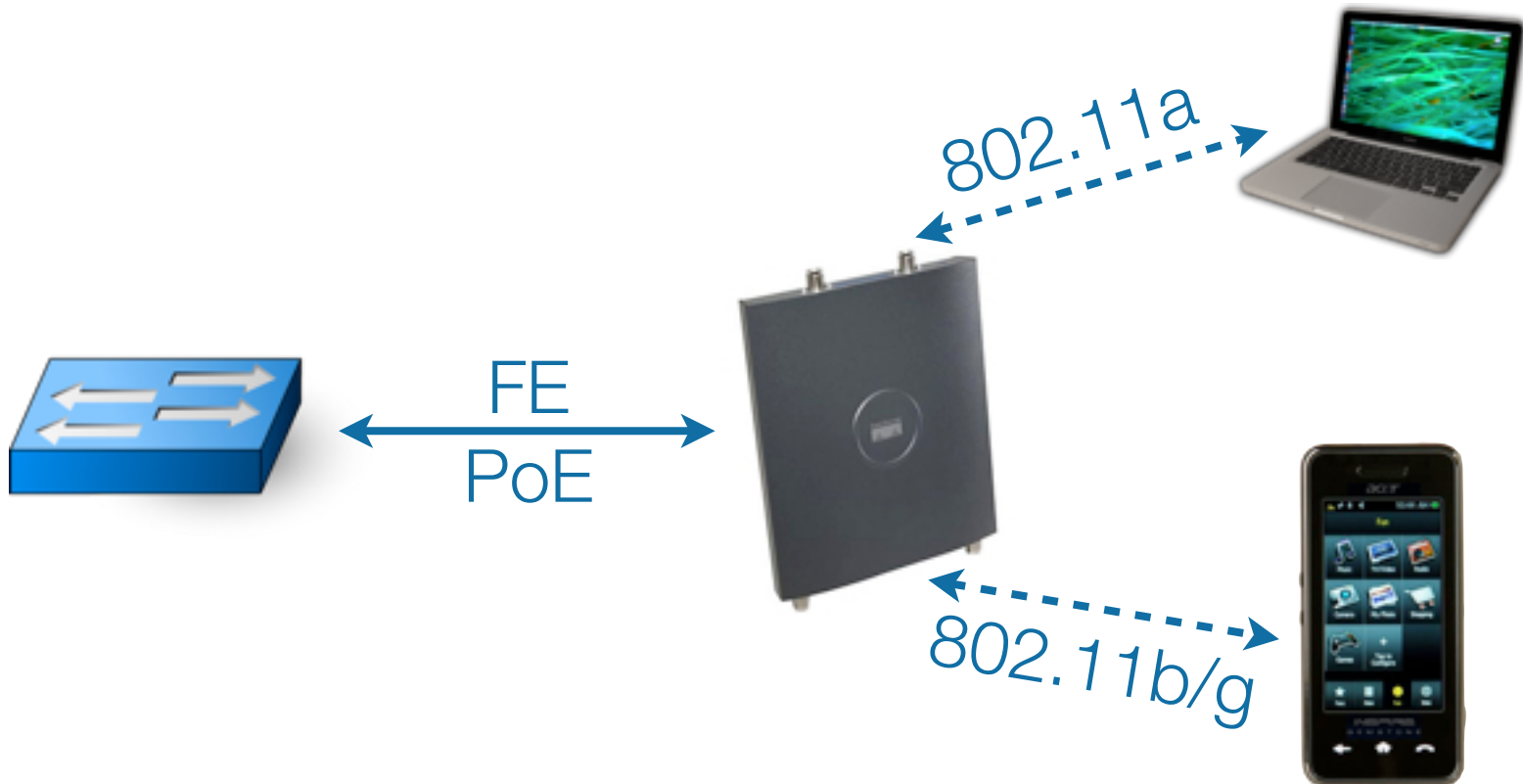
Access point lockups



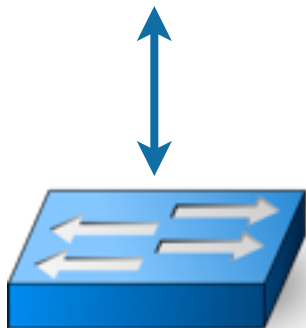
Access point lockups



Access point lockups



Access point lockups



FE
PoE



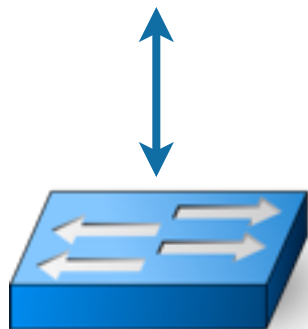
802.11a



802.11b/g



Access point lockups



FE
PoE

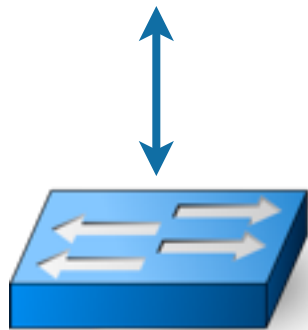


802.11a

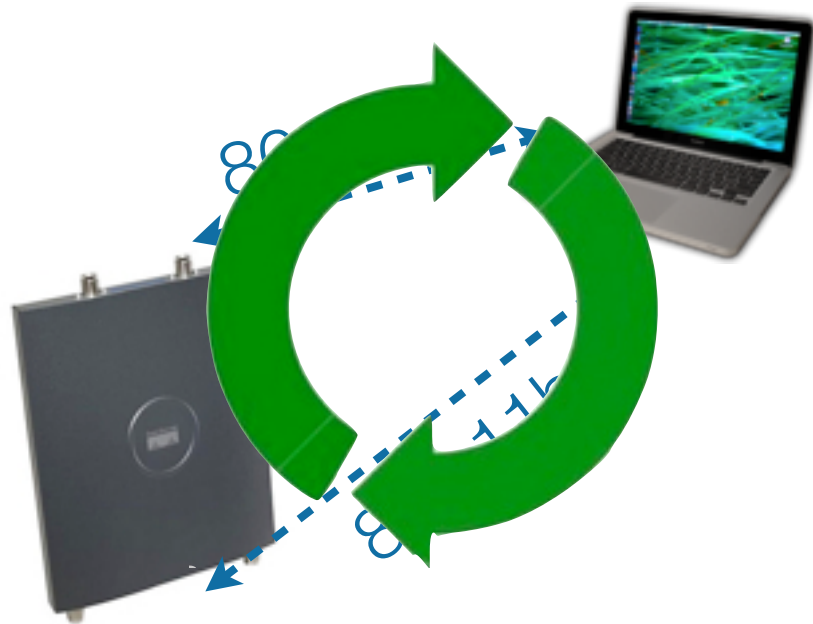
802.11b/g



Access point lockups



FE
PoE



Access point lockups: attempted solutions

- Complete loss of connectivity for 30-120 seconds
- Not directly a radio issue: no wired ping either
- No flap of the ethernet line protocol
- No reboot
- No suspicious logs
- No high CPU usage
- Seemingly aggravated by higher load

Access point lockups: attempted solutions

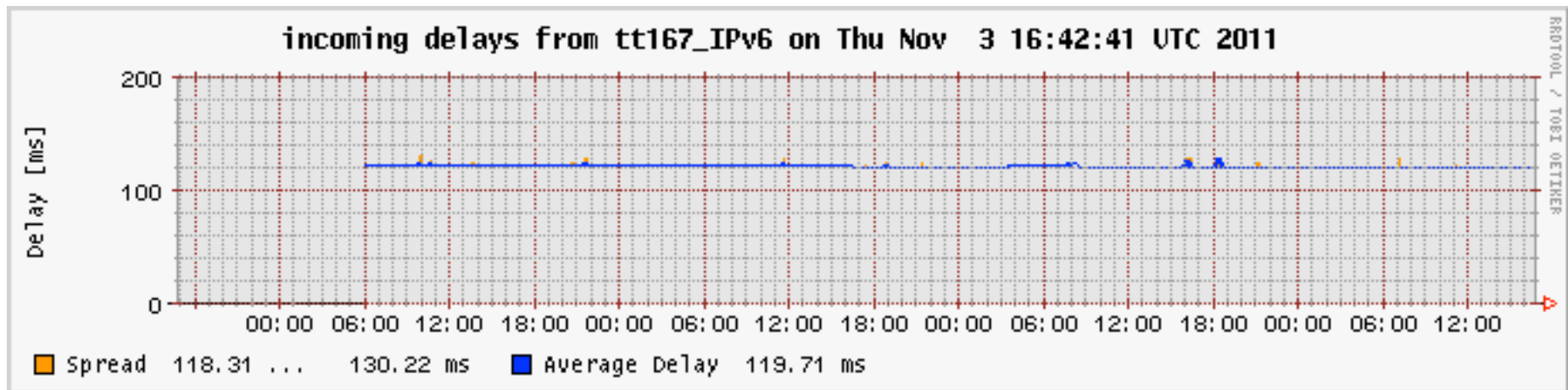
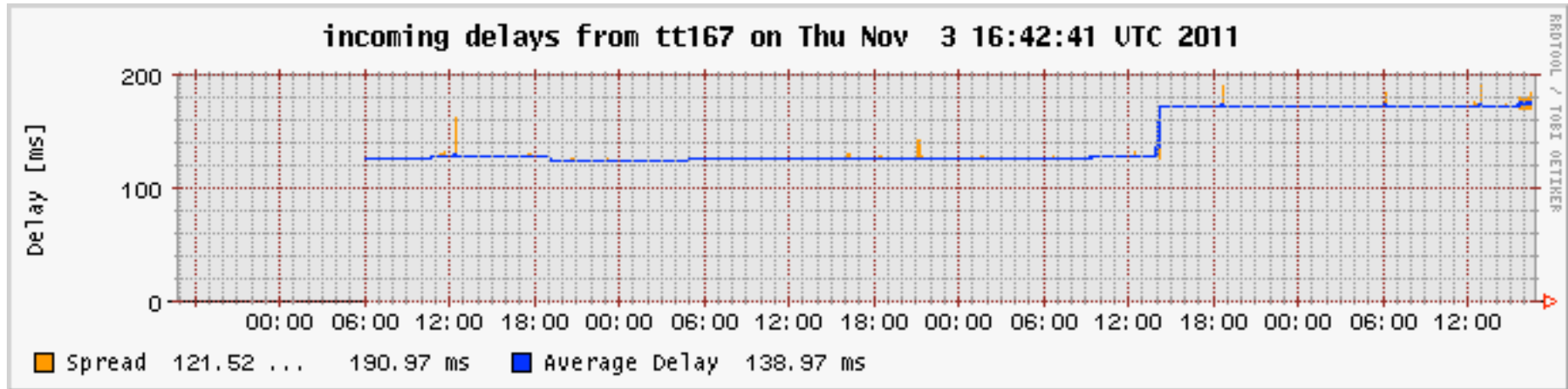
- No software or config changes to APs
- No particular client, MAC range or vendor seen often before failure
- Not related to dual radio
- Port-protection does not resolve it
- Discussed with quite some attendees: no ideas
- Best guess: obscure bug triggered by new client hardware/software

Stats

TTM Observations

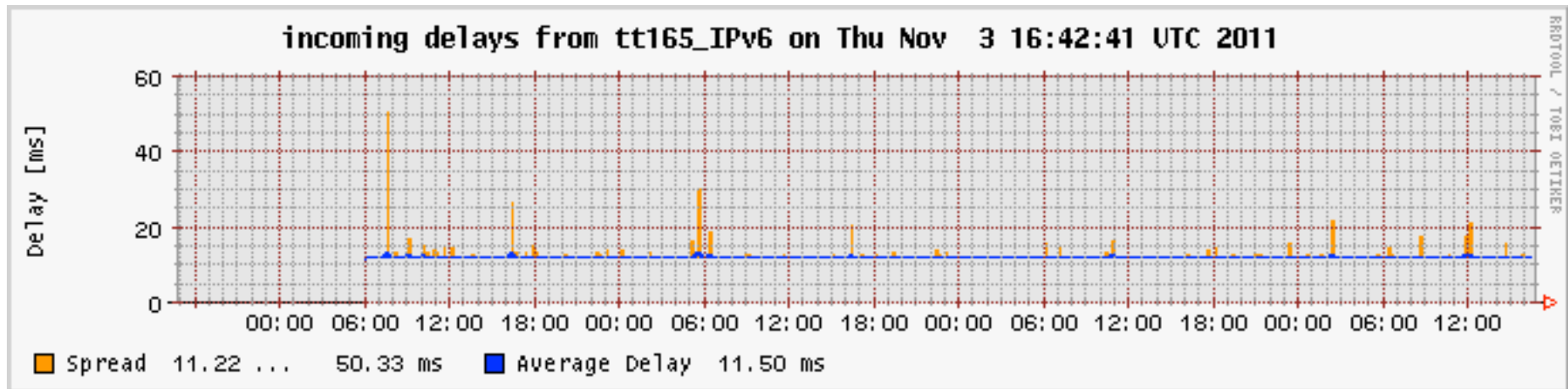
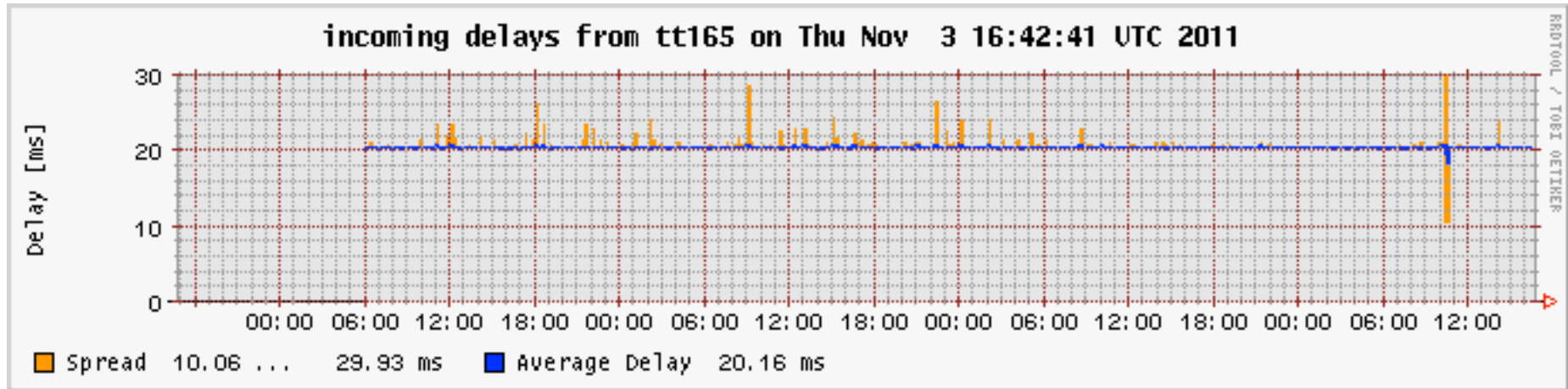


TTM Observations



The Chinese University of Hong Kong:
lower IPv6 than IPv4 latency

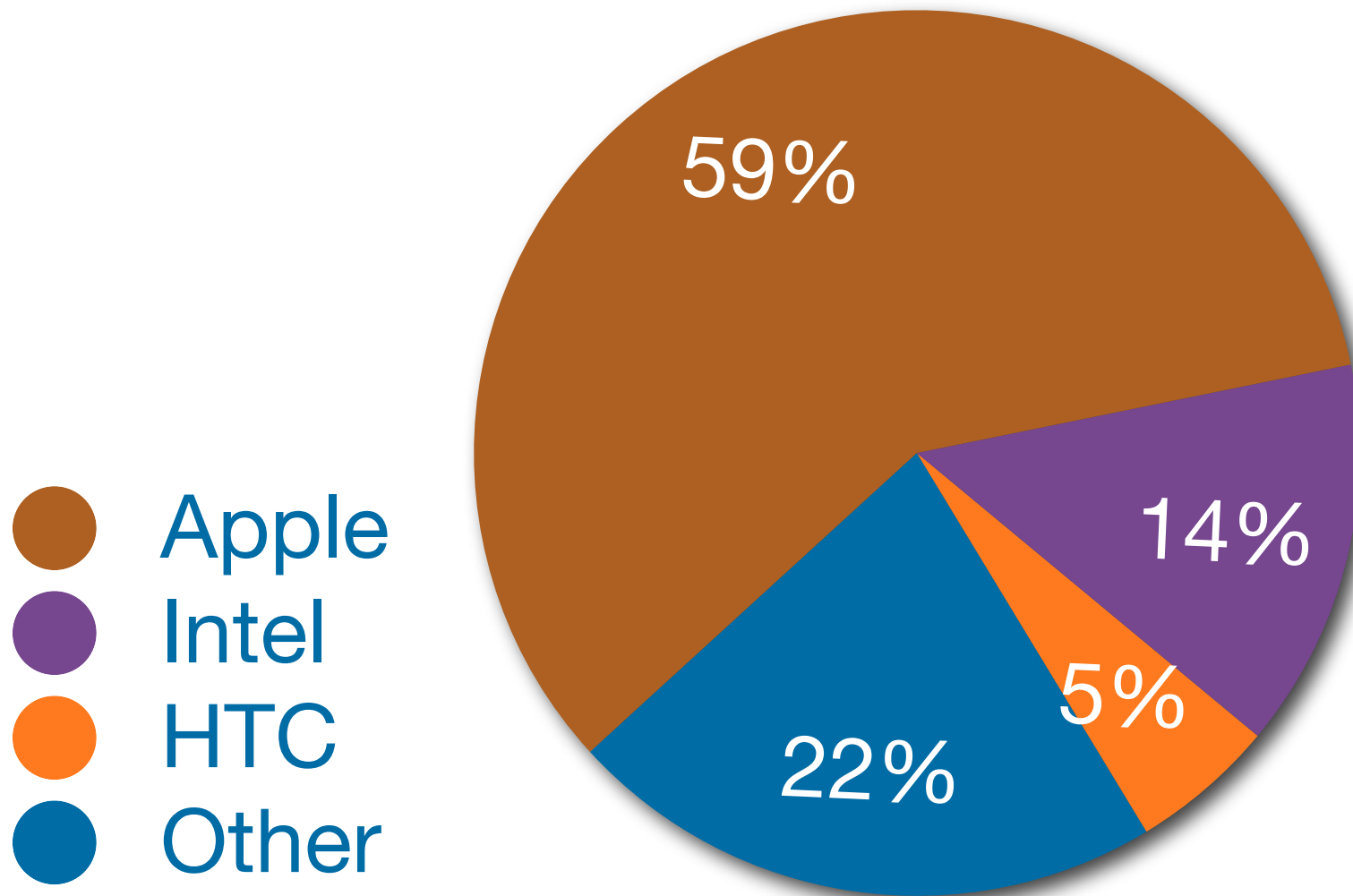
TTM Observations



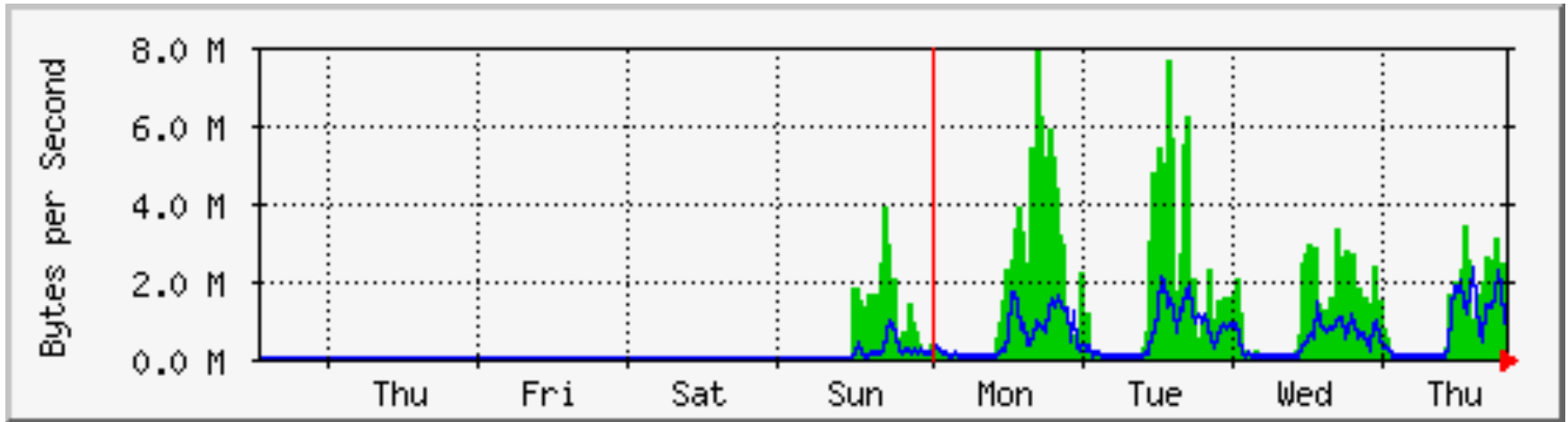
RIPE NCC:

IPv6 50% latency of IPv4

DHCP lease vendors



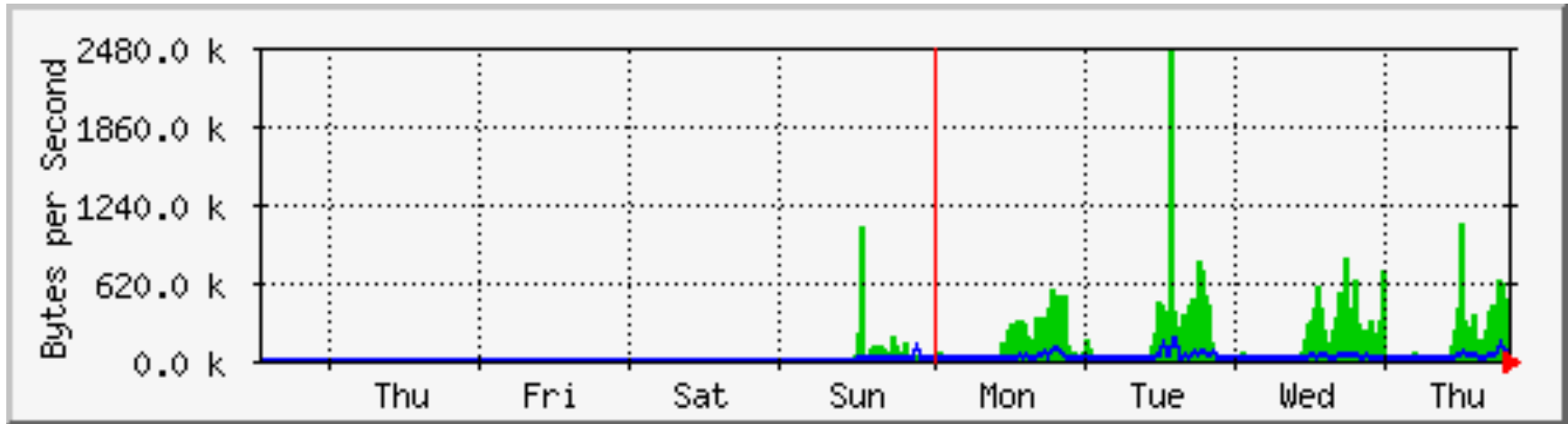
Uplink traffic



Peak: 64 Mbit/s in, 16 Mbit/s out

Average: 11 Mbit/s in, 4 Mbit/s out

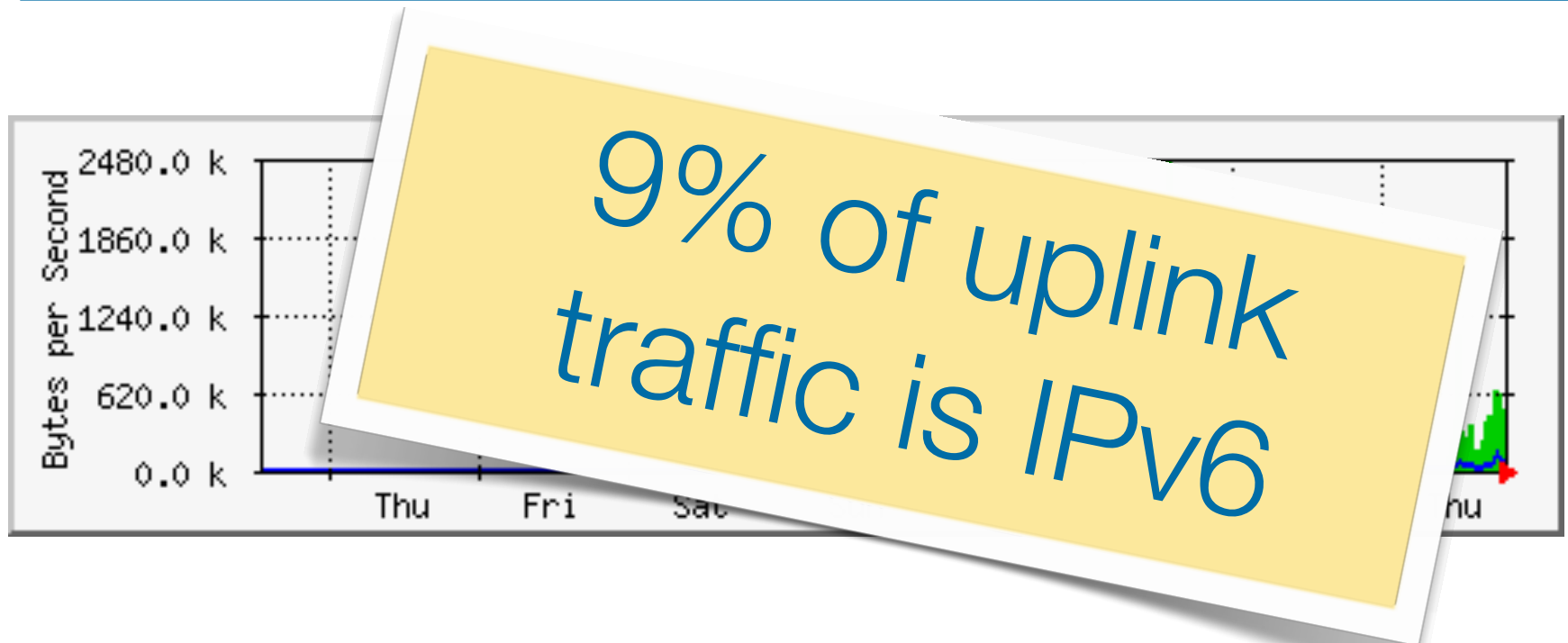
IPv6 traffic



Peak: 6.5 Mbit/s in, 750 kbit/s out

Average: 1.4 Mbit/s in, 144 kbit/s out

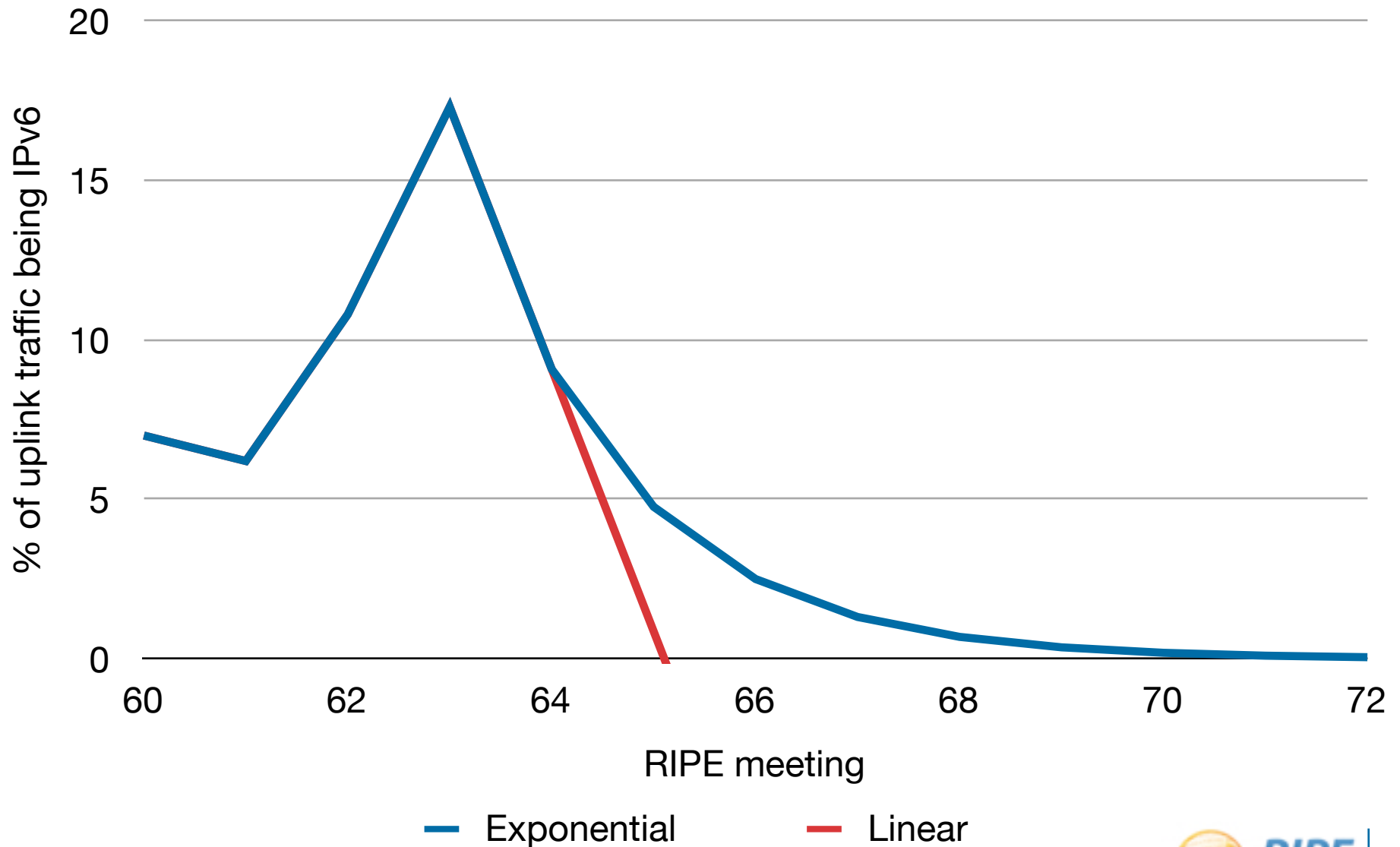
IPv6 traffic



Peak: 6.5 Mbit/s in, 750 kbit/s out

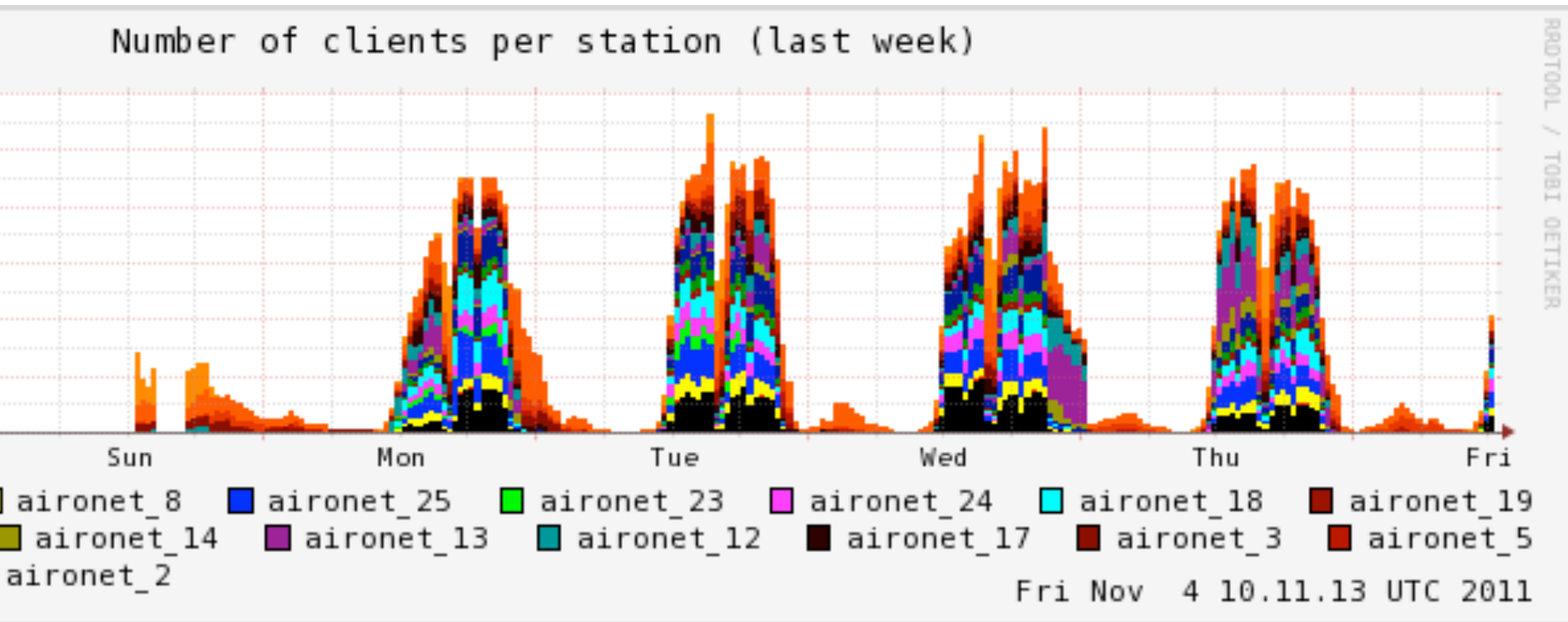
Average: 1.4 Mbit/s in, 144 kbit/s out

IPv6 traffic on the RIPE meeting network



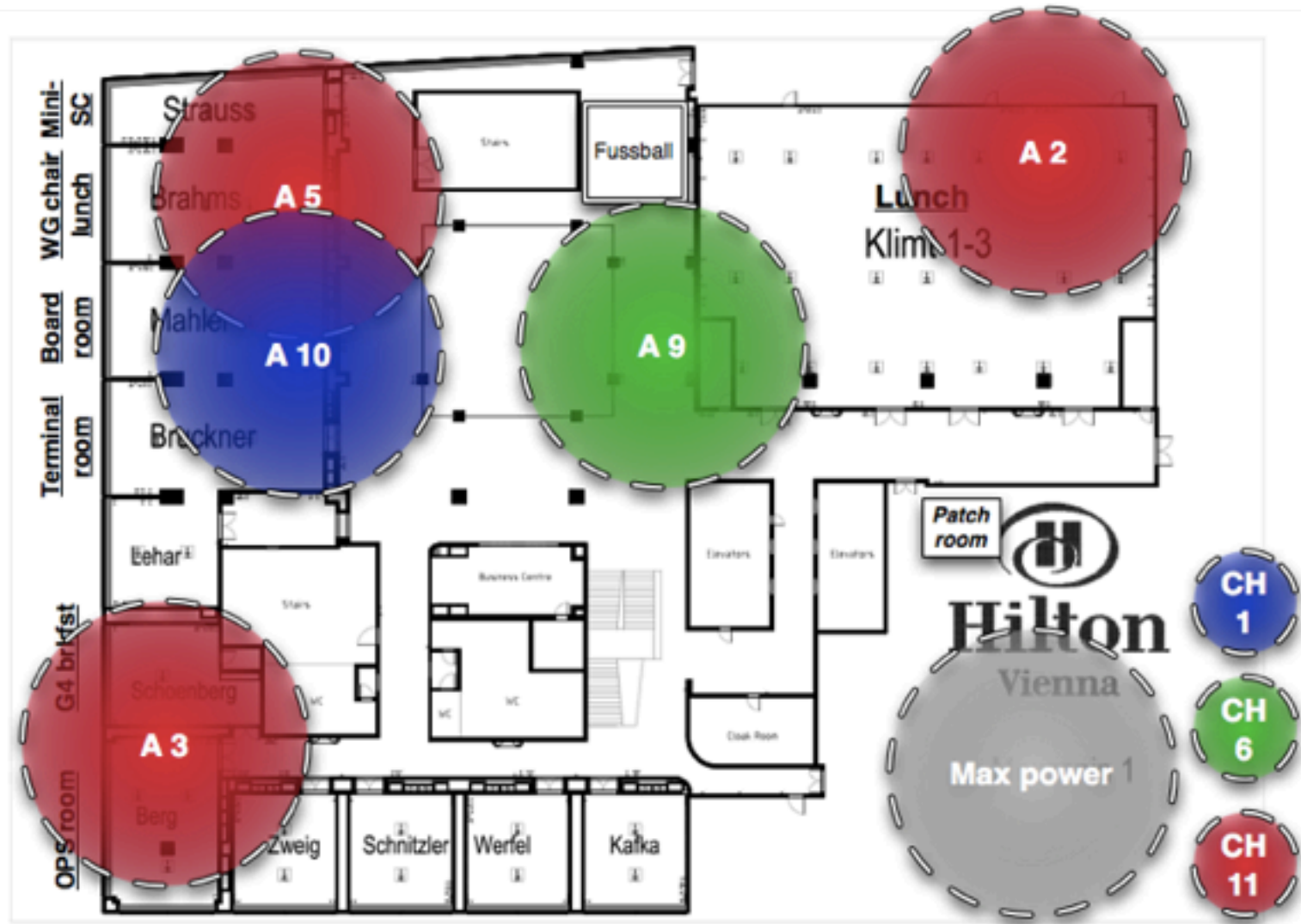
Wireless

19 base stations deployed

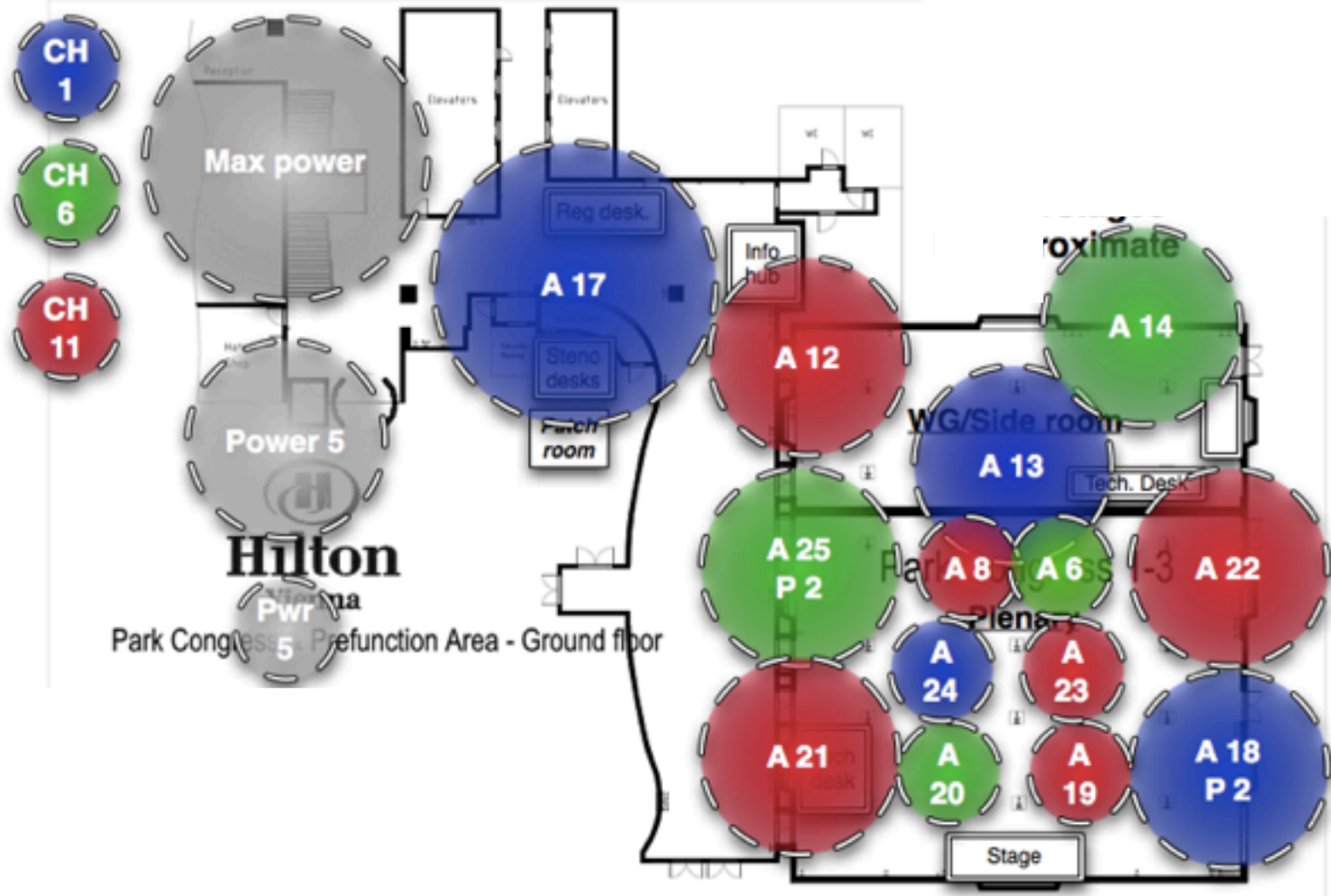


Peak: 500 associations

Access point deployment



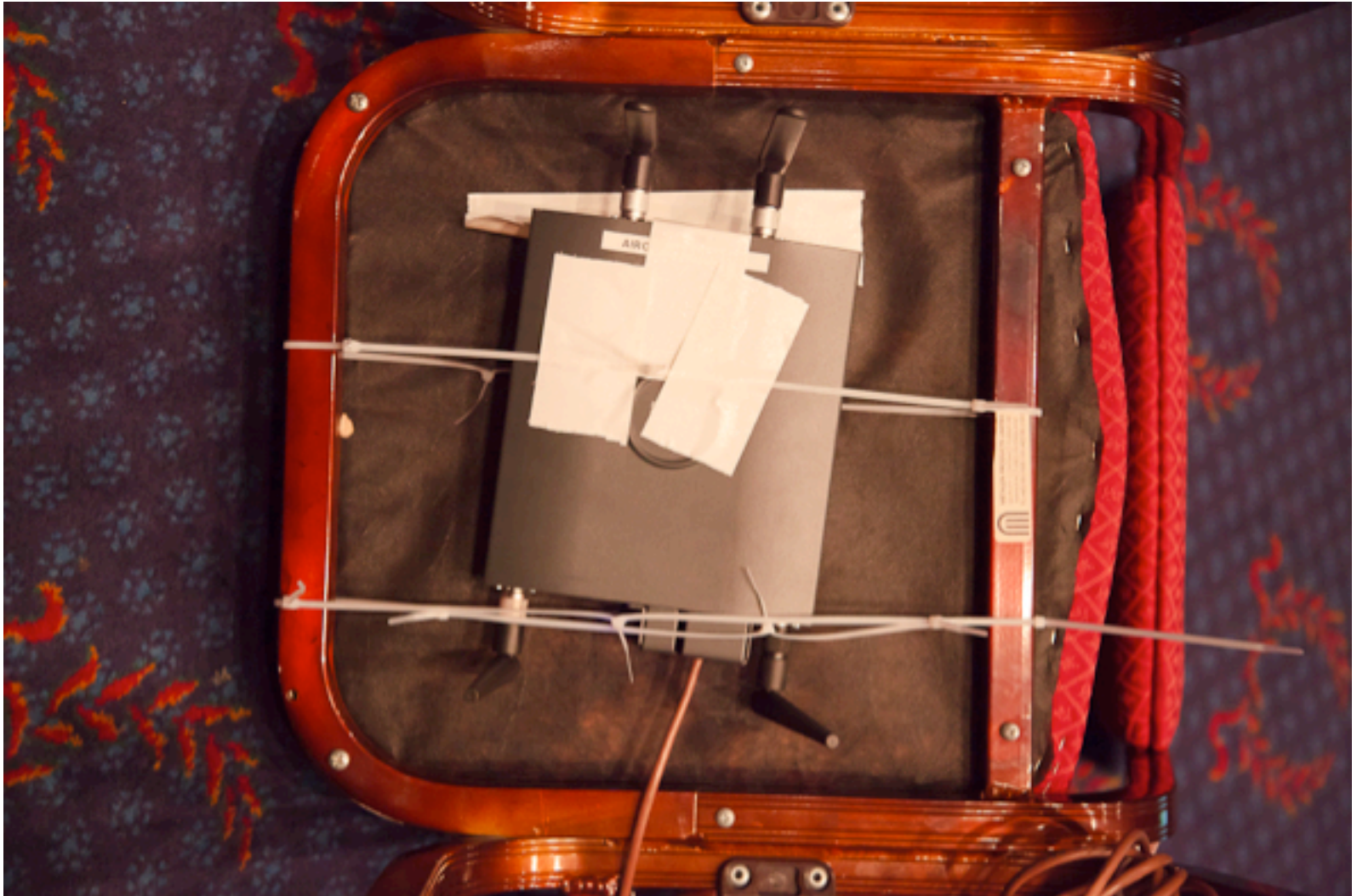
Access point deployment



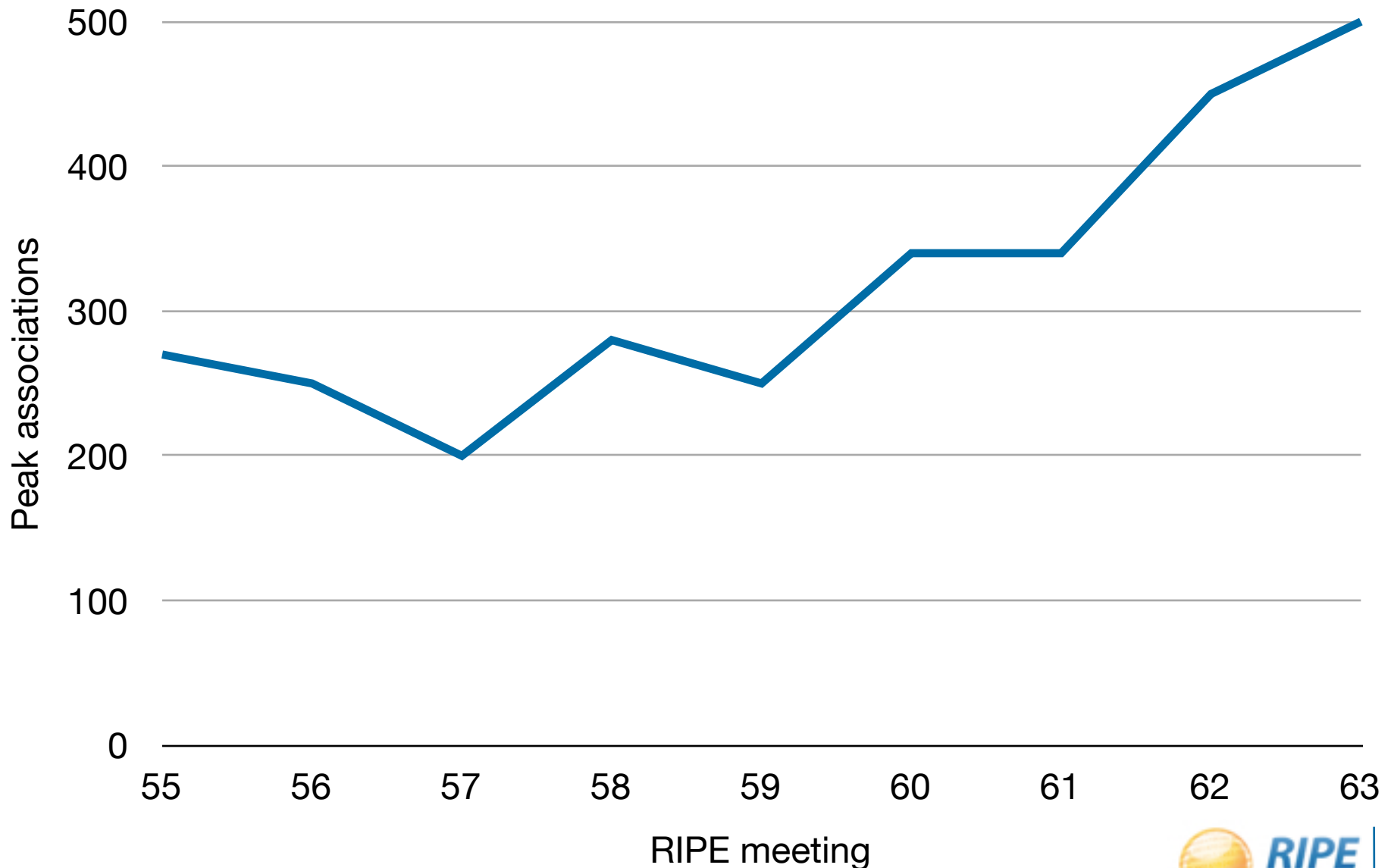
High-density access point distribution



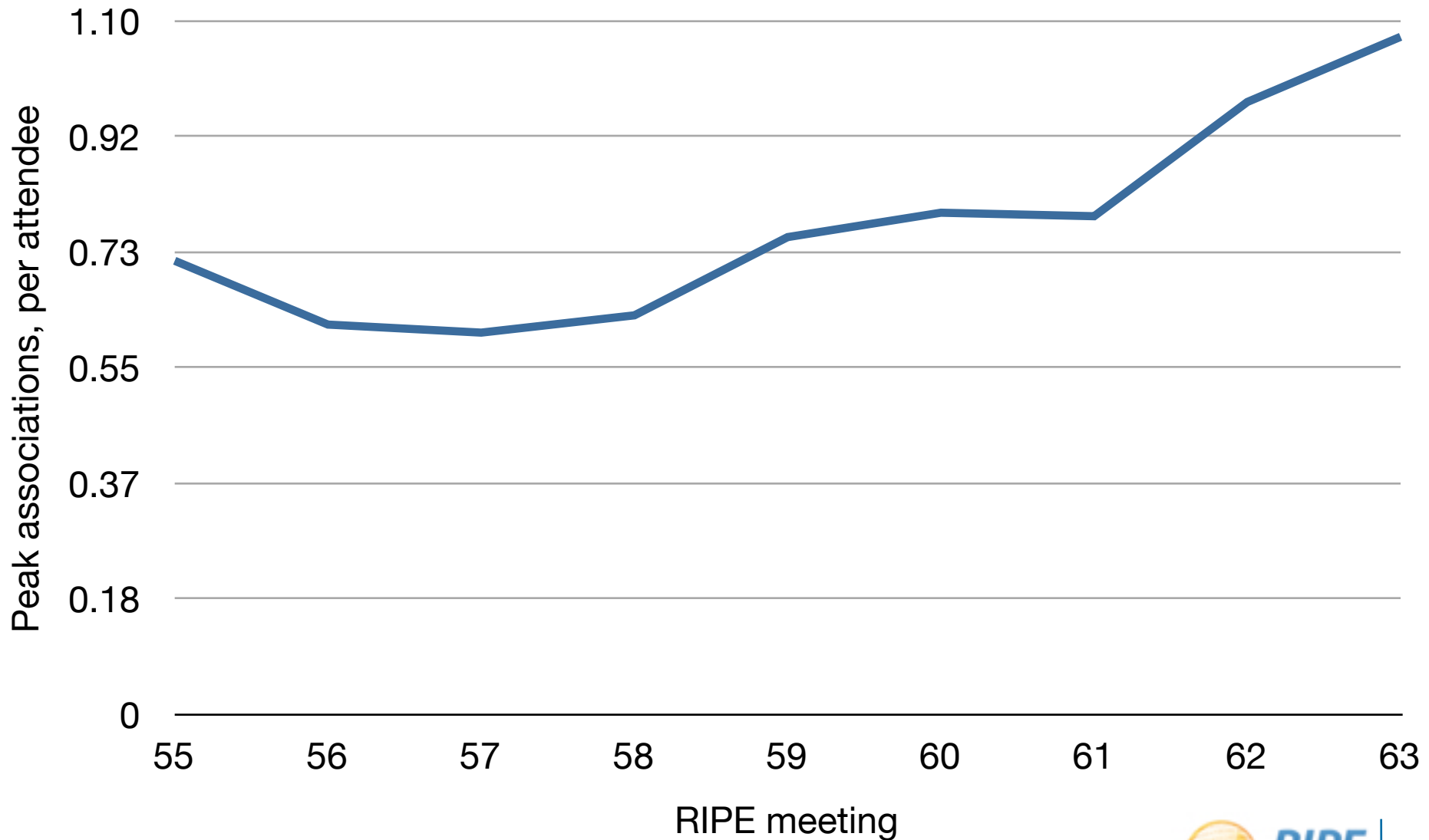
High-density access point distribution



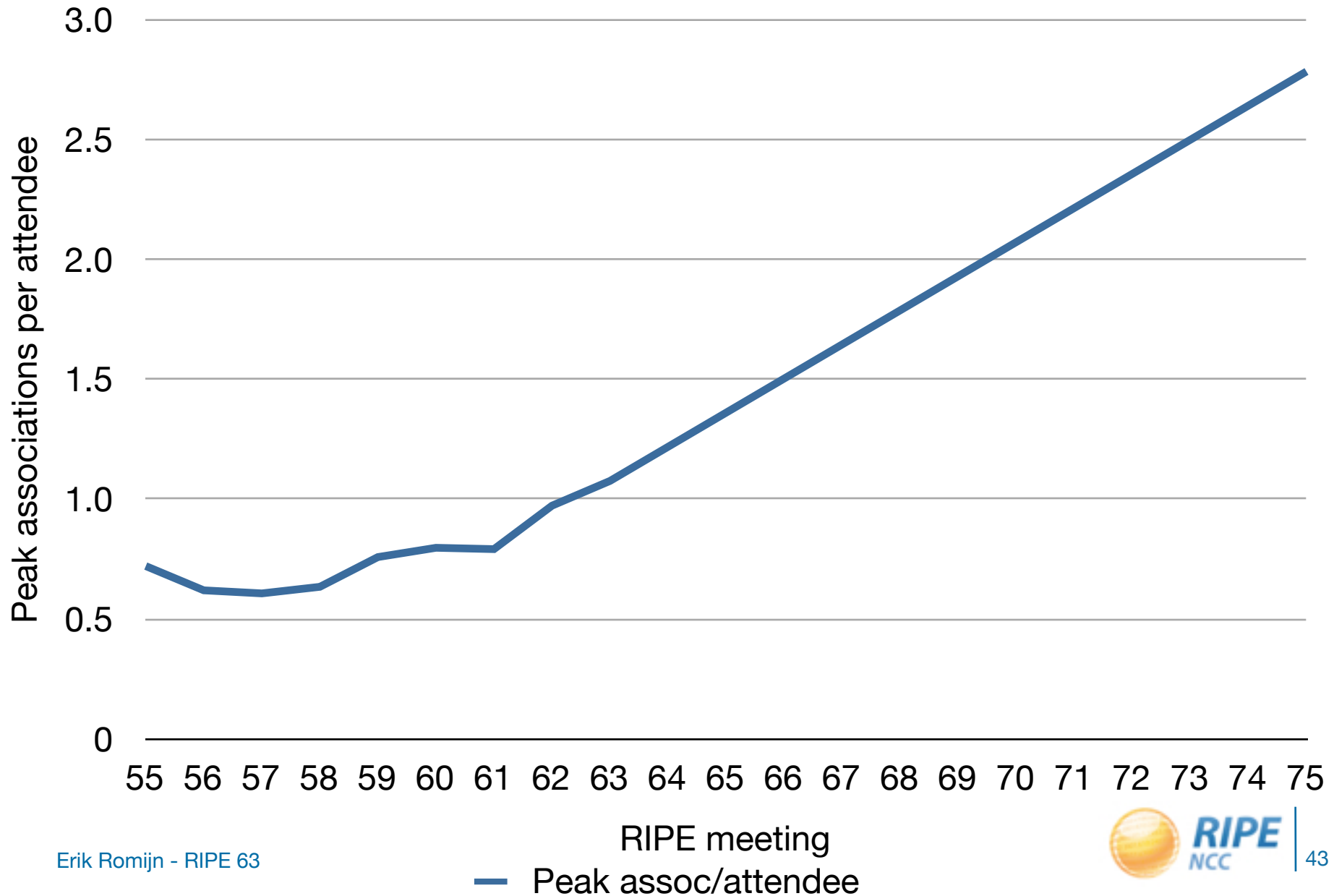
Wireless trend: peak associations



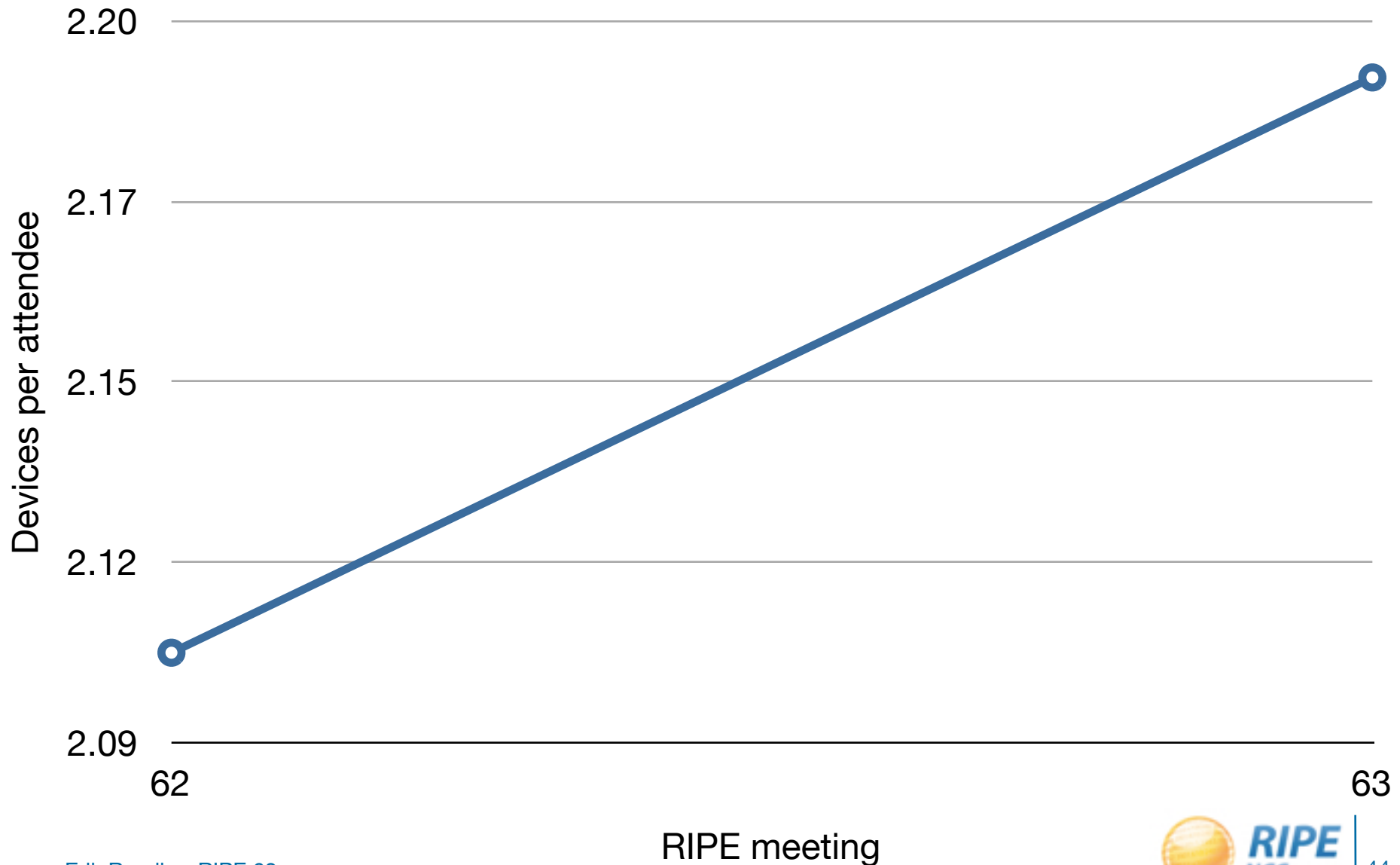
Wireless trend: peak assoc. per attendee



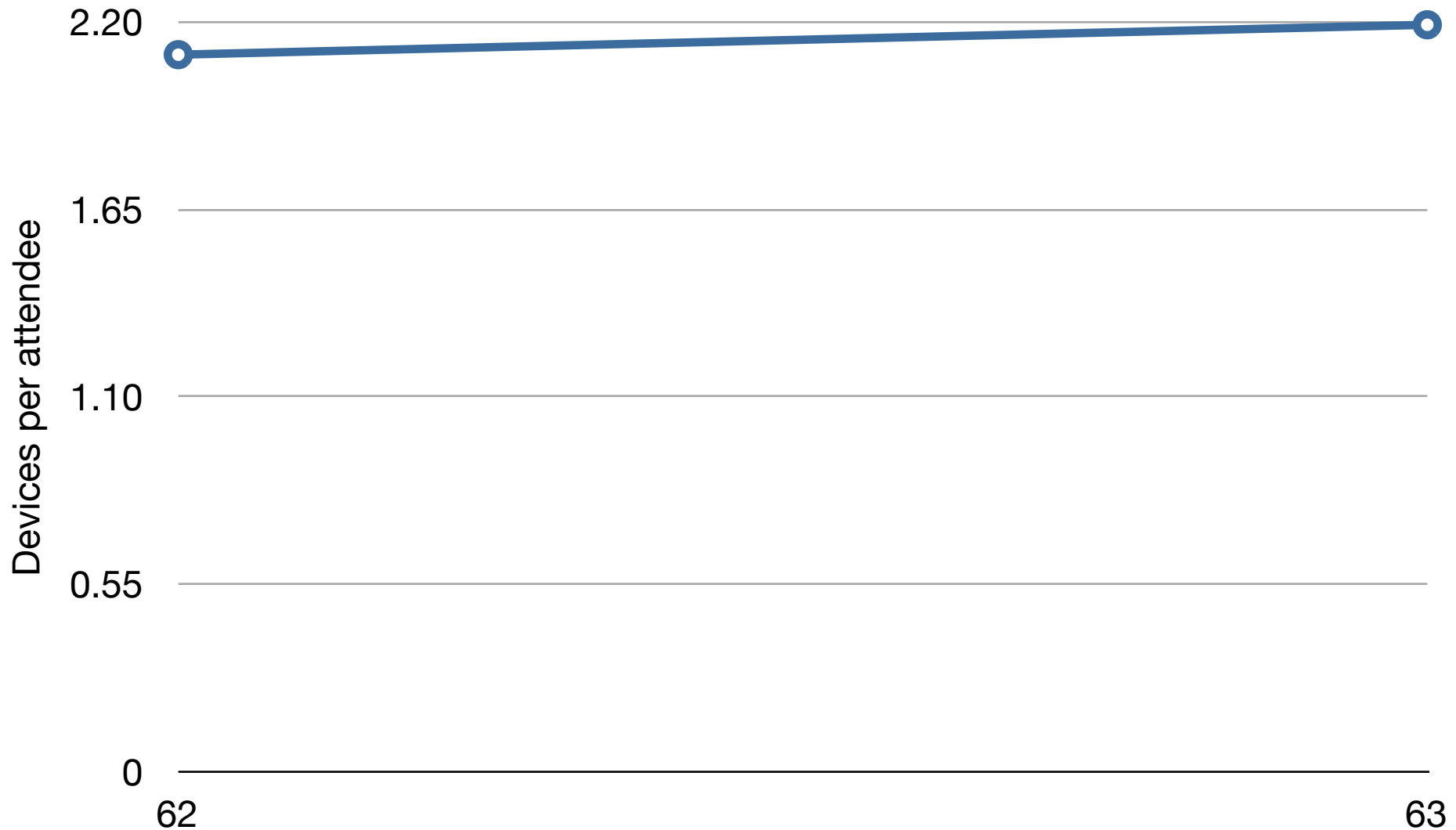
Wireless projection: peak assoc. per attendee



Wireless trend: devices per attendee



Wireless trend: devices per attendee



See you in Ljubljana!



See you in Ljubljana!

Questions?

Erik Romijn

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