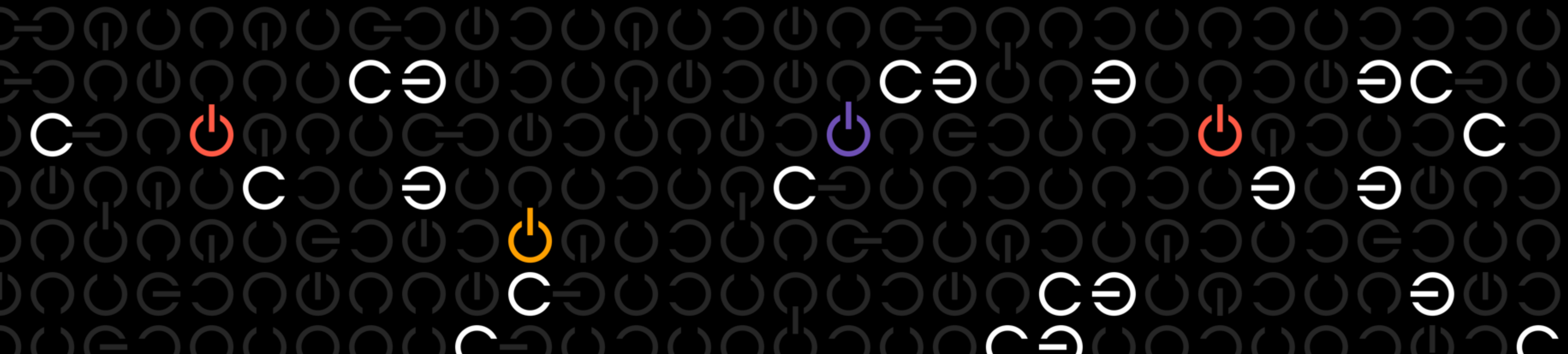




netzwirk machen

leon, will, 2014-12-30



Terminology

sauna |'sɔːnə|

noun

- a small hot room used to house network equipment within CCH

SEE ALSO:

LAN-SCHRANK

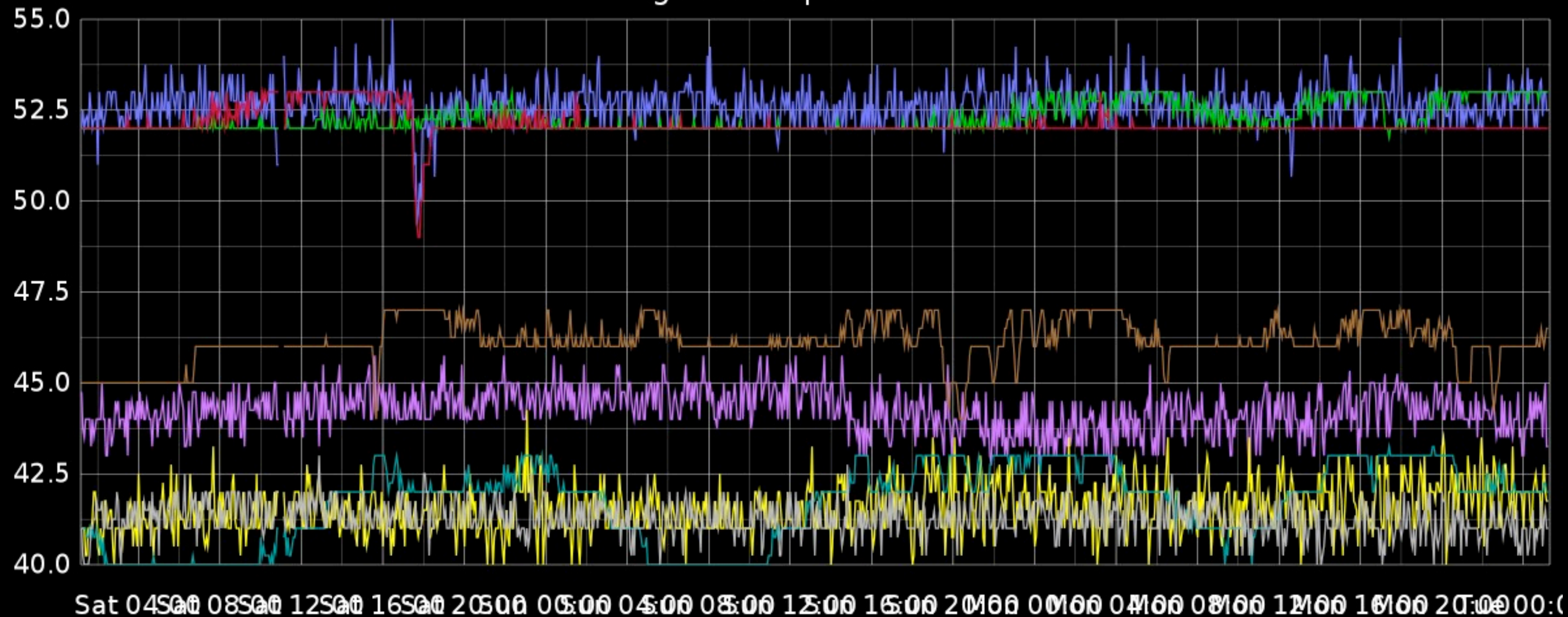
CLEANERS CUPBOARD

IT-CLOSET

ORIGIN early 21st cent.: from Finnish.



Highest Temperatures



sw-sauna (last: 53.0)

mx80-zwerg (last: 53.0)

mx80-nocdc (last: 52.0)

sw-hf1 (last: 44.0)

mx80-alteregie (last: 46.0)

vc-gf1 (last: 41.0)

mx80-colo (last: 42.0)

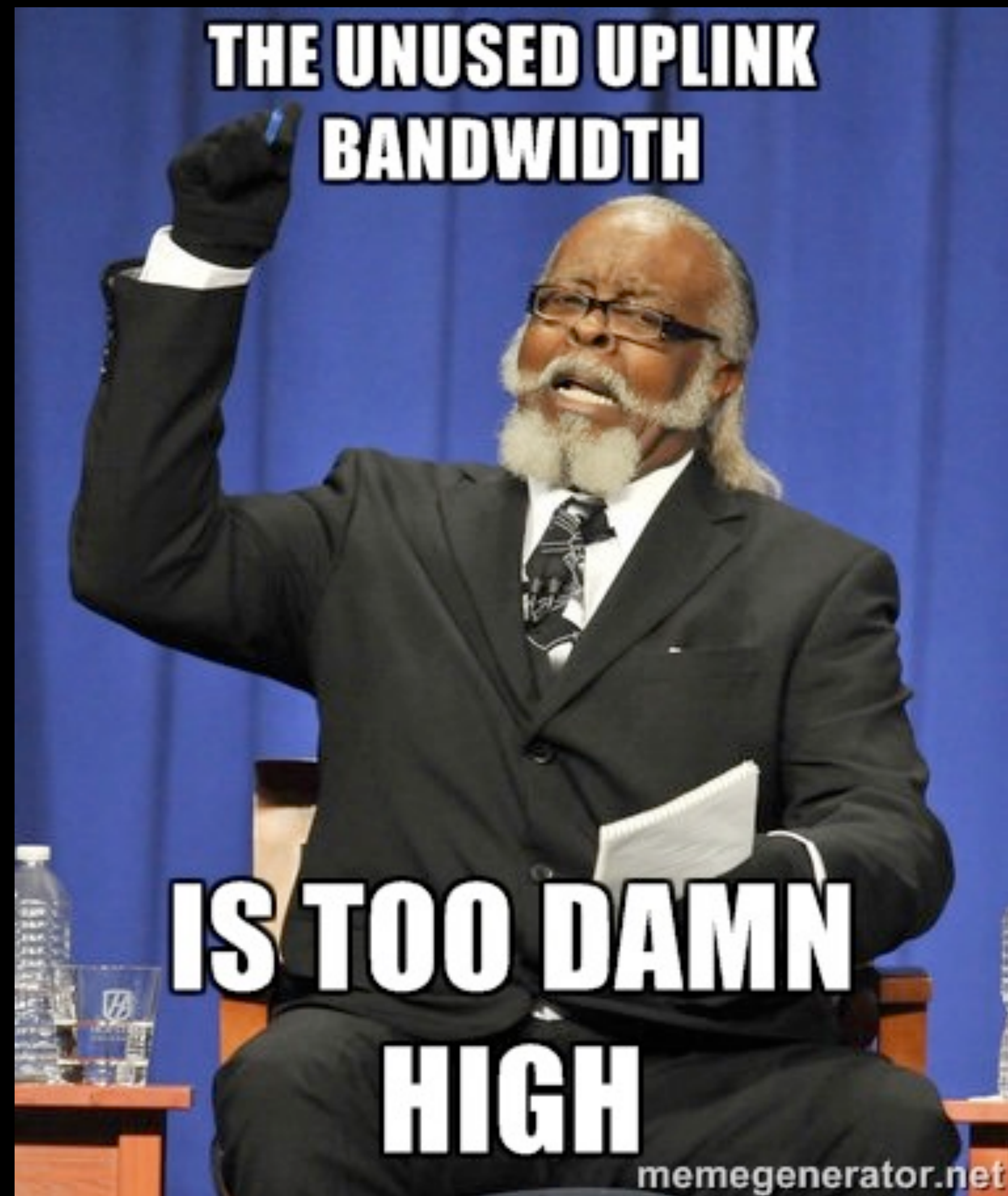
sw-r005 (last: 41.0)

Uplink

- No 100GE this year :(
- But you guys didn't bother to use it properly last time anyway
- n x 10GE is very cheap and easy to configure
- Dark fibre to IPHH datacentre, with DWDM muxes

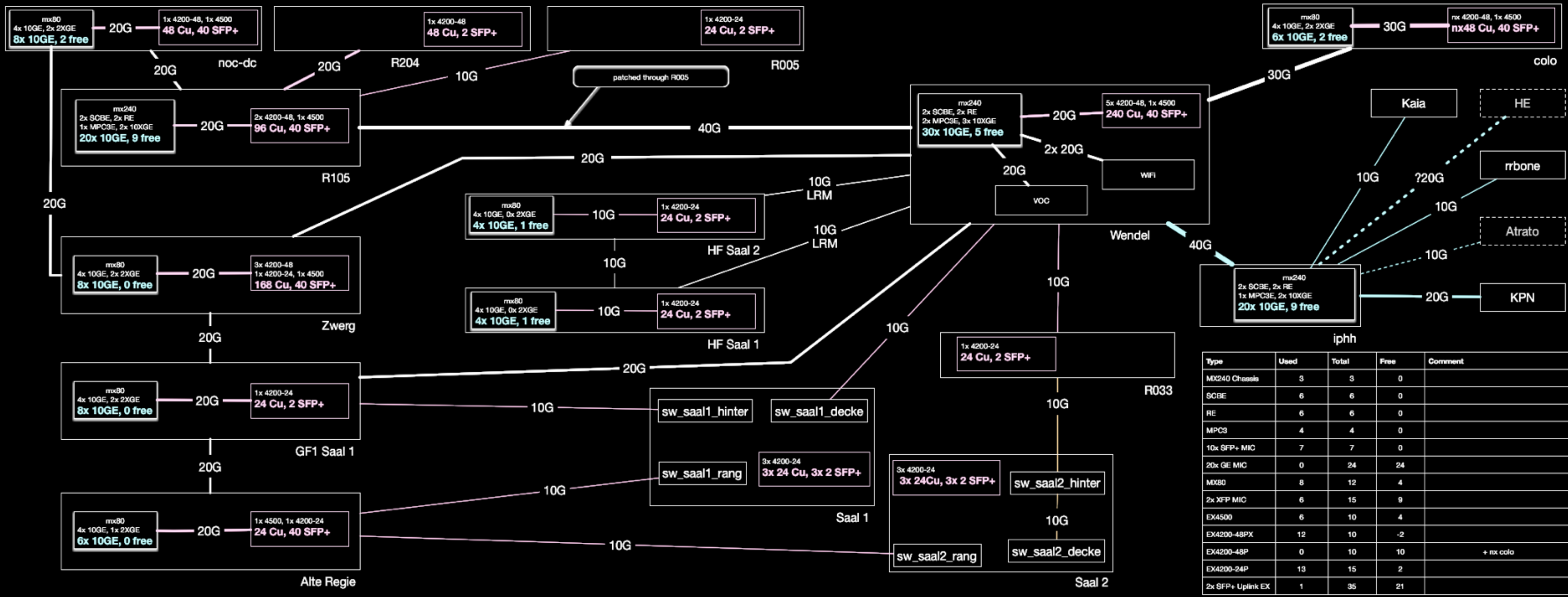
Uplink

- Max: 16.4G out, 8.6G in
- 25% inbound IPv6
- But only 4% outbound



Tried and tested

- Similar to 29C3 and 30C3
- Core network from [Juniper](#) - MX240, MX80, EX-series
- MPLS/VPLS core - with routing distributed as appropriate



Type	Used	Total	Free	Comment
MX240 Chassis	3	3	0	
SCBE	6	6	0	
RE	6	6	0	
MPC3	4	4	0	
10x SFP+ MIC	7	7	0	
20x GE MIC	0	24	24	
MX80	8	12	4	
2x XFP MIC	6	15	9	
EX4500	6	10	4	
EX4200-48PX	12	10	-2	
EX4200-48P	0	10	10	+ nx colo
EX4200-24P	13	15	2	
2x SFP+ Uplink EX	1	35	21	

Colo

- This is a place you can take your machine to be hosted
- It is for computers with **1G+ network connections**, not humans
- 100+ machines
- **15KW power usage**

```
----> https://roundup.congress.ccc.de/roundup/31c3/issue98 >----  
msg328 (view) Author: creo Date: 2014-12-29.20:06:26  
Uhm ... how to start that and I can't believe that I'm writing this...  
A guy that chose to sleep in the COLO yesterday (WTF!?)  
left his sleeping stuff (green isolation mattress, 2 sleeping bags) in  
there, now he's looking for his stuff.  
Did one of you guys cleanse this hellish place and remove it?  
(AND WHO THE F... LET RANDOM PEOPLE SLEEP IN THE COLO?)  
Email:  
DELETED@example.net - he would love to get his stuff back :P  
----< https://roundup.congress.ccc.de/roundup/31c3/issue98 <----
```


Colo

- Much better layout this time!
- Great management by NOC-Helpdesk :)





North Korea and Congress

- Address space:
 - Congress: /16 + /19 (6 IPs per person)
 - DPRK: /22 (0.0004 IPs per person)



- Capacity:
 - Congress: 40-100G
 - DPRK: < 2G ???

 **kay**
@frapzz0r

@mahtin time to change the internet if there are still countries with less bandwidth than a hackerconference

10:34 PM - 29 Dec 14 via [Twitter for iPhone](#)

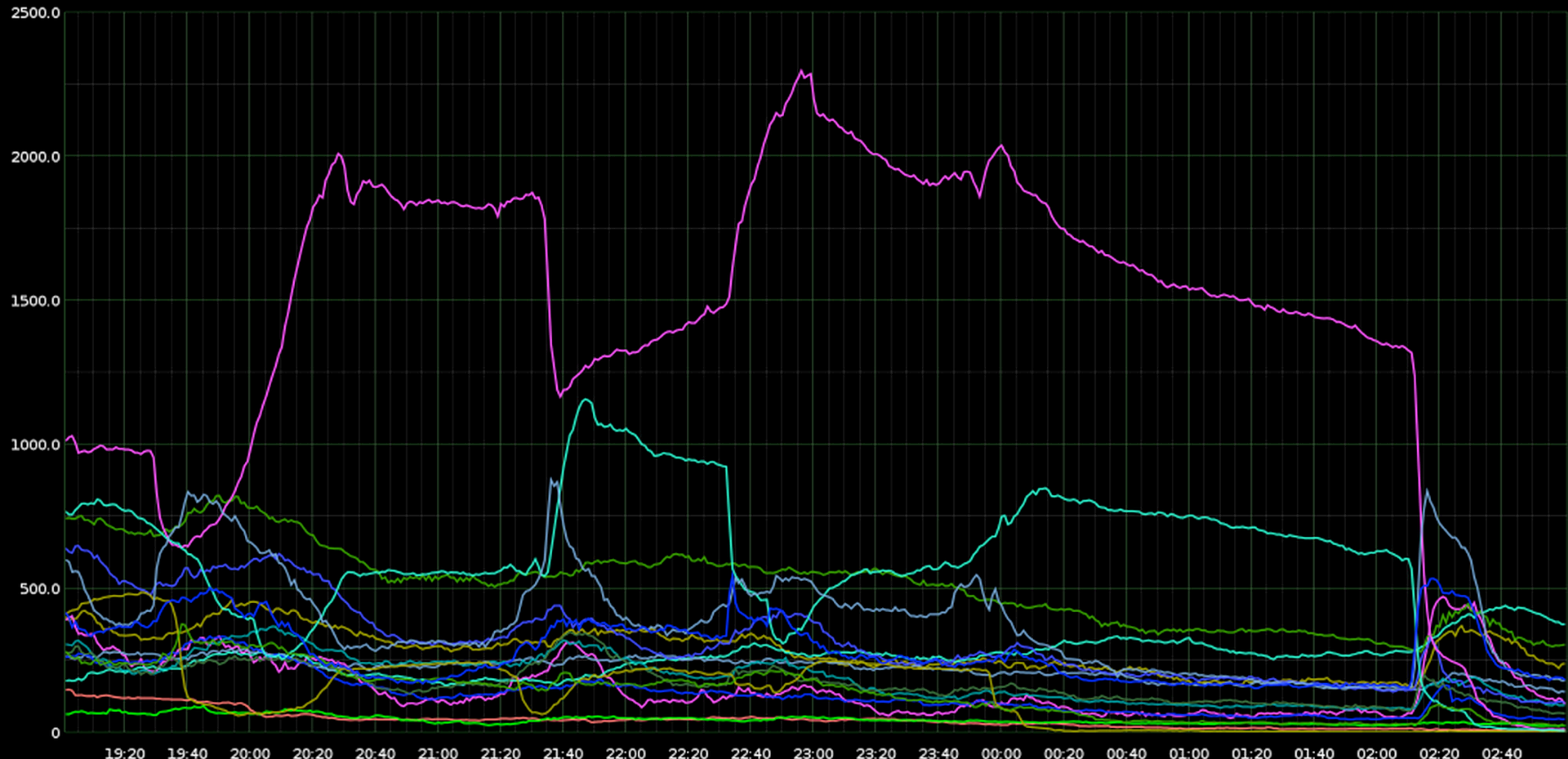
North Korea and Congress

- Traffic from Congress to DPRK
- “Approximately” 0.00 ;)
- Within sampling error



Wireless

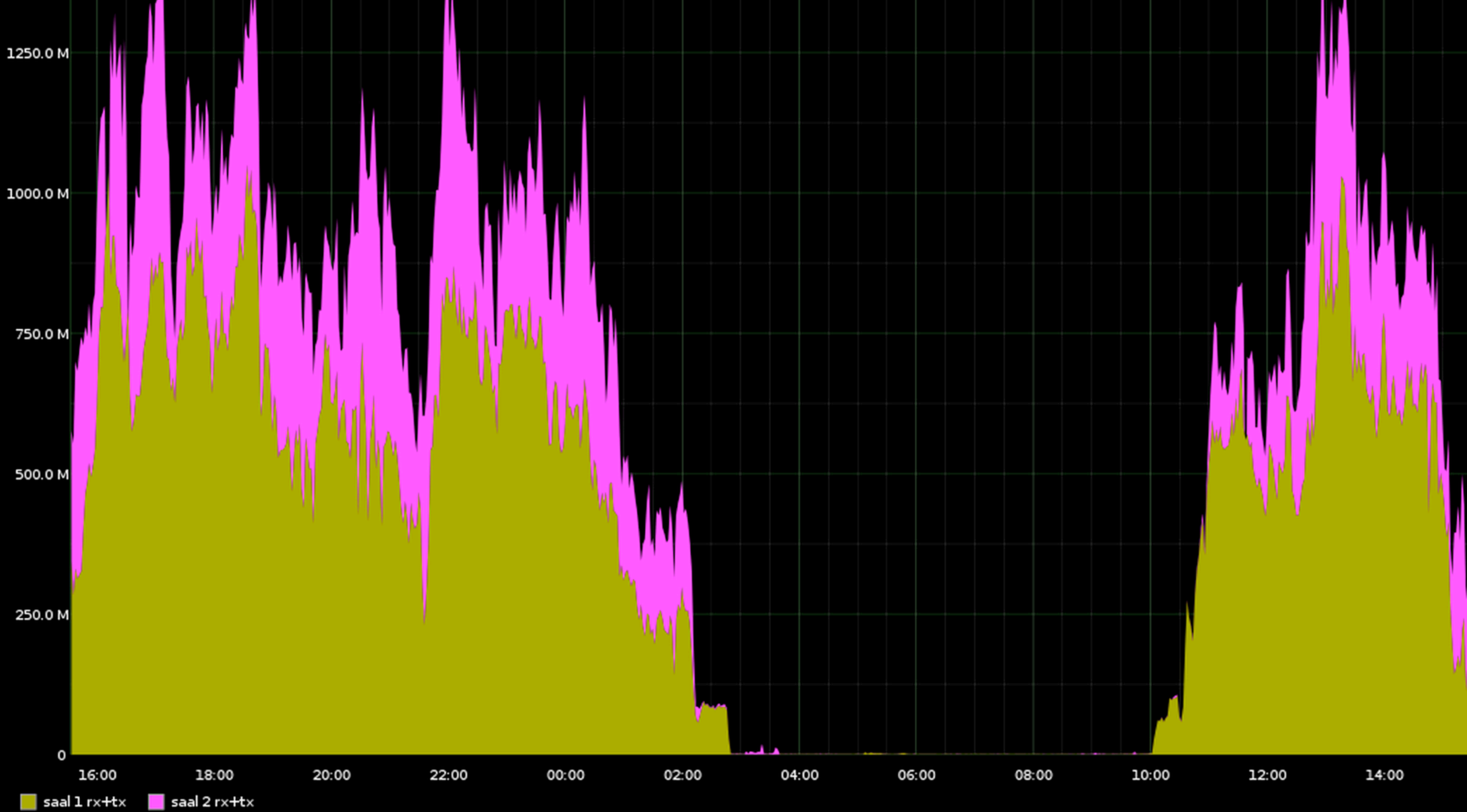
- 2x Aruba 7200 controllers with 10G uplinks
- 125 access points deployed (30C3: 72)
 - 115 serving clients, 10 airmonitors
- Peak of 7800 users (30C3: 5000) -> 68 avg clients per AP
- 20,000 unique devices seen
- Peak traffic 3Gbit

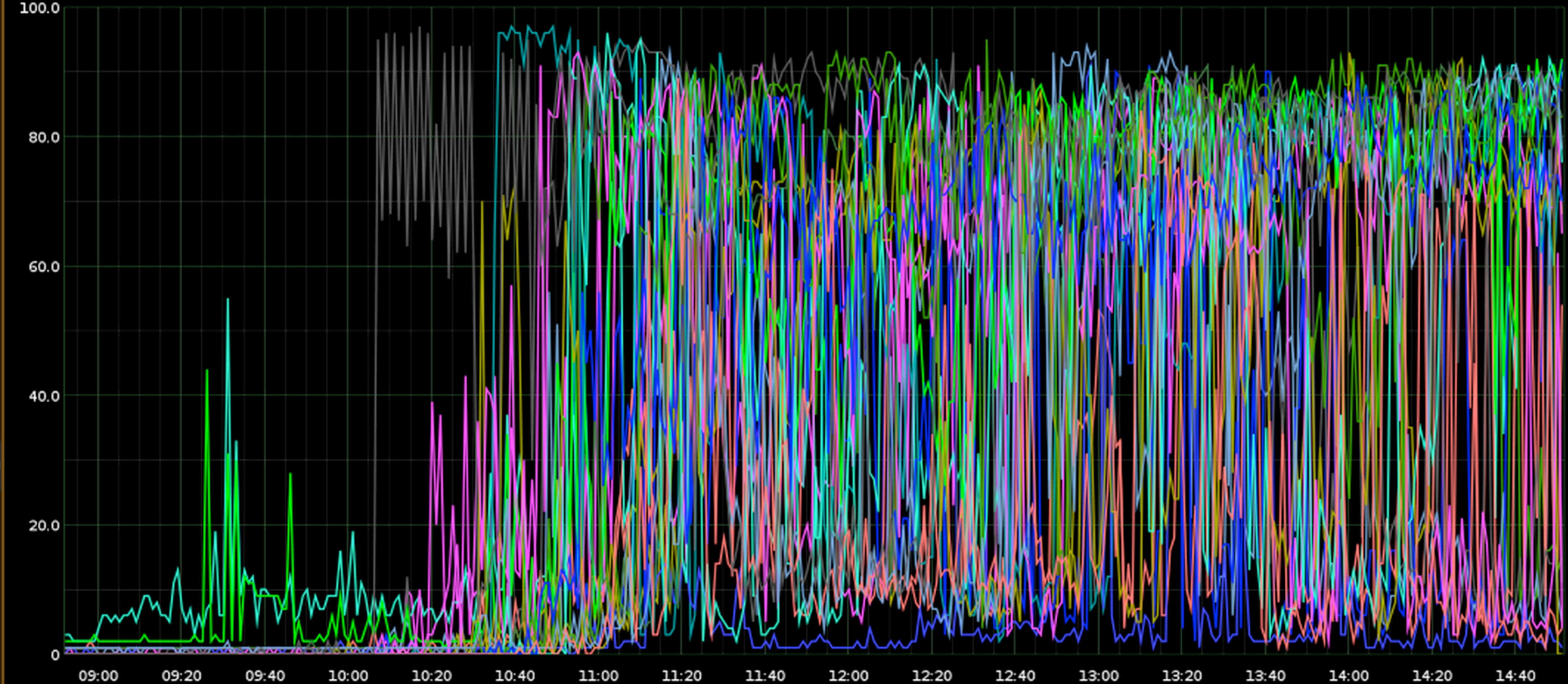


- | | | | |
|----------------------------|---|--------------------------------|-------------------------------|
| EG foyer (last: 238.0) | Entrance (last: 97.0) | Lounge (last: 374.0) | Saal 3 (last: 304.0) |
| Saal 4 (last: 140.0) | Saal A-C (last: 45.0) | Saal 11-15 (last: 6.0) | NOC (last: None) |
| NOC (last: 23.0) | Saal 7, Restaurant, Angel area (last: 94.0) | Garderobe Saal 1 (last: 102.0) | Garderobe Saal 2 (last: 65.0) |
| Saal G (last: 1.0) | Saal 1 (last: 11.0) | Saal 2 (last: 5.0) | Saal D-F (last: 22.0) |
| Foyer Saal 1 (last: 179.0) | Foyer Saal 2 (last: 182.0) | Outdoor (last: None) | |

Wireless - Crypto

- ENCRYPT ALL THE THINGS
- 60% 802.1X WPA2-enterprise clients
- 40% unencrypted (AKA YOUR DATA SNIFFED, RECORDED AND SOLD)
- This time, encryption is terminated on the controller, not on the AP - reduced attack surface





- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-4_Event01-AP09.5ghz.util (last: 68.0) (max: 92.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-1_Event01-AP11.5ghz.util (last: 90.0) (max: 90.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-D_Event01-AP19.5ghz.util (last: 5.0) (max: 94.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-C_Event01-AP18.5ghz.util (last: 54.0) (max: 79.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-F_Event01-AP13.5ghz.util (last: 92.0) (max: 92.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-K_Event01-AP20.5ghz.util (last: 1.0) (max: 91.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-6_Event01-AP12.5ghz.util (last: 0.0) (max: 93.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-J_AP148.5ghz.util (last: 76.0) (max: 96.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-8_Event01-AP22.5ghz.util (last: 78.0) (max: 91.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-2_Event01-AP10.5ghz.util (last: 4.0) (max: 89.0)

- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-5_Event01-AP16.5ghz.util (last: 65.0) (max: 91.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-I_AP127.5ghz.util (last: 15.0) (max: 92.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-9_Event01-AP08.5ghz.util (last: 92.0) (max: 92.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-G_Event01-AP05.5ghz.util (last: 11.0) (max: 95.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-3_Event01-AP04.5ghz.util (last: 70.0) (max: 97.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-H_AP122.5ghz.util (last: 83.0) (max: 91.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-7_Event01-AP17.5ghz.util (last: 4.0) (max: 93.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-B_Event01-AP21.5ghz.util (last: 83.0) (max: 95.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-E_Event01-AP03.5ghz.util (last: 70.0) (max: 89.0)
- 31c3.aruba.31c3-wlc-01.radio.L4-SAAL1-A_Event01-AP02.5ghz.util (last: 87.0) (max: 97.0)

Wireless - Future

- Wifi at Congress is a very dynamic high density deployment - **challenging** for a team of volunteers (but fun)
- More APs needed in certain areas for greater capacity
- Need more 5GHz clients (**do not buy 2.4GHz only equipment**) - 65% 5GHz clients - we're getting there!

Problems (Solutions?)

- **vc-wendel exploding** - ? failed stacking cable
- **ipfix bug** - caused IPHH linecard to hang
- **False radar detection** in 5GHz wifi band - had to adjust channelplan
- Problematic ETSI regulations

Thanks

- Aruba, SecureLink
- Juniper, teamix
- Flexoptix
- A10, GHIP, LONAP, MAN-DA
- Hibernia, Kaia Global Networks, KPN, rrbone
- IPHH
- Babel
- NOC Helpdesk!



“now wash your hands”

**Employees Must Wash
Hands Before Returning
To Work**

