Networking @ hacker festivals

NLNOGDay 2024
Arjan Koopen - Stichting EventInfra
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whoami

Arjan Koopen

- Dayjob: Network architect @ i3D.net / AS49544
- Volunteering:
  - Chairman @ Stichting EventInfra / AS64404
  - Board member @ Stichting Bitlair (hackerspace Amersfoort)
  - Helping out in various event NOC's/teams
- Likes to climb things

Stichting EventInfra

- Non-profit supporting various non-profit/community-run events/festivals
- Founded in 2015 as an independent entity to share equipment/infrastructure between events
  - And potentially decrease reliance on vendor demo pools
- Loans equipment for events and/or provides IP-connectivity
  - Via ethernet or VPN on AS64404 with a PoP in NIKHEF
  - Note: we don't operate the on-site network; this is done by the event itself through a team of volunteers
- Runs off donations (money or equipment)
  - Donating equipment is a great way to give your it a second life!
- Equipment we don't use anymore we give away to the community
- Large stock (this might have gotten out of hand):
  - 489 WiFi accesspoints
  - 413 switches, supplying over 15000 ports
  - 26km of fibre
  - Almost 7000kg of "stuff", now in a single storage facility

Hacker festivals

- EventInfra supports various hacker festivals/camps in Europe:
  - Chaos Communication Camp (CCC); Germany
  - SHA2017, MCH2022, WHY2025; Netherlands
  - Electro Magnetic Field (EMF); UK
  - Fri3d Camp; Belgium
  - Bornhack; Denmark
  - Haxogreen; Luxemburg
  - Håck-ma's-Castle; Austria
- Multi-day non-profit outdoor hacker camps, festivals & conferences
- Up to 7000 attendees
- Presentations at big stages
- Mixed camping and “content”
- Art installations

Network infrastructure @ hacker festivals

- Running a small scale temporary ISP with its own ASN & IP-space
- Deploying an on-site fiber optic backbone
- Local data centre facility w/ colocation for other teams
- Public internet connectivity for visitors; wired & wireless
- Private VLANs for other teams; used for things like:
  - Video streaming/relay
  - VoIP/IP DECT
  - ArtNet (“DMX over ethernet”)
  - Ticket scanning
  - GSM
  - Power monitoring
  - etc

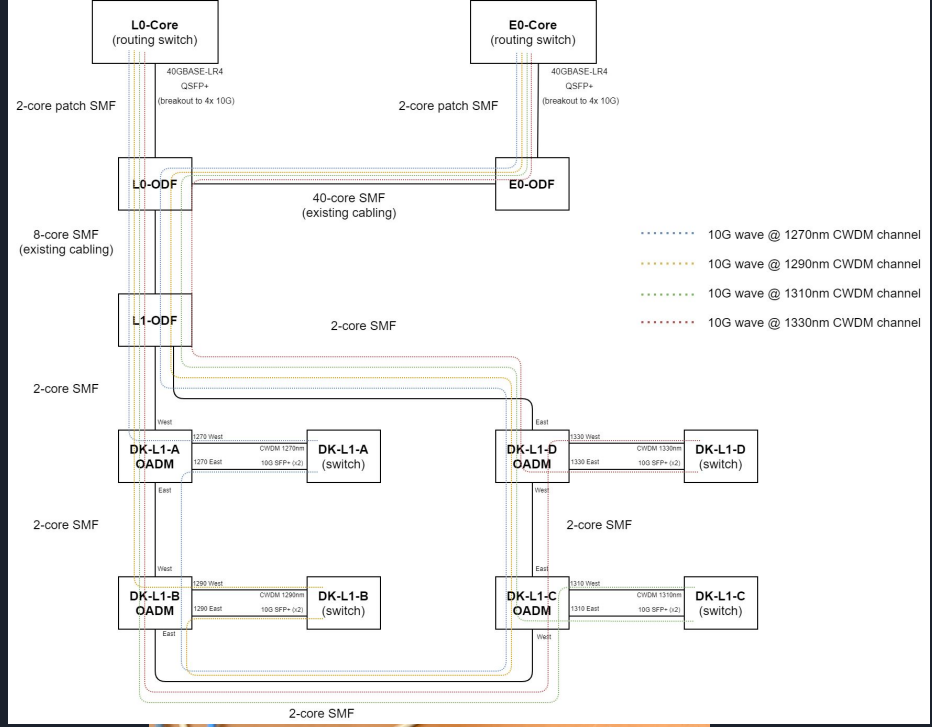
The datenklo (DK)

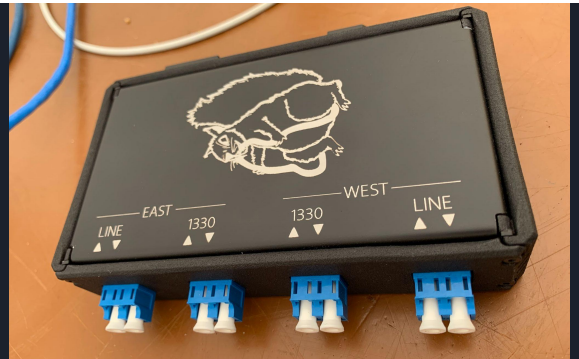
(aka “datatoilet”)

- Relatively cheap “enclosure” to temporarily house equipment on a field
- First used at CCCamp2003
- Deployed up to 65 of them at the last CCCamp in 2023
- Offering wired and wireless services
  - To connect: place your cable in front of the DK and a volunteer will connect you during the rounds they make
  - Up to 10GBASE-T possible since MCH2022
  - Accesspoint on wooden pole in outdoor enclosure
- OHM2013 Artnet LED sleeve (“OHM light”)
  - LED animation when receiving Artnet data, static white light with no data. Gives indication about operation of the DK
  - New version being made for WHY2025
- Fibre optic uplinks
  - Use armoured fibre cables, attached to 400V power cables

Optical access network

- Give each DK its own “light path” or channel back to the core of the network due to on-field power not always being reliable
- Started off with BiDi transceivers on multi-core fibres with daisy-chaining physical topology
- Next iteration using 40G-LR4 and CWDM OADM’s
  - 4 DK’s per ring
  - 1 east+west OADM per DK, add/drop 1 channel on each leg
  - Add redundancy (each DK has uplink to both core-routers)
  - Double density over BiDi
  - No muxes required on core-side (only 40G-LR4)
  - Made 56 muxes with custom design in cooperation with manufacturer (Tallgrass)





Netbox use-cases

- Config generation/automation with IMFCFG
  - https://github.com/lub-dub/imfcfg
- All patches pre-planned in Netbox
- Netbox scripts for fiber patching/muxes
- Scripts to generate printed patching instructions for field deployment
- Give other teams access to Netbox script for port —> VLAN assignment with automatic deployment

SW474

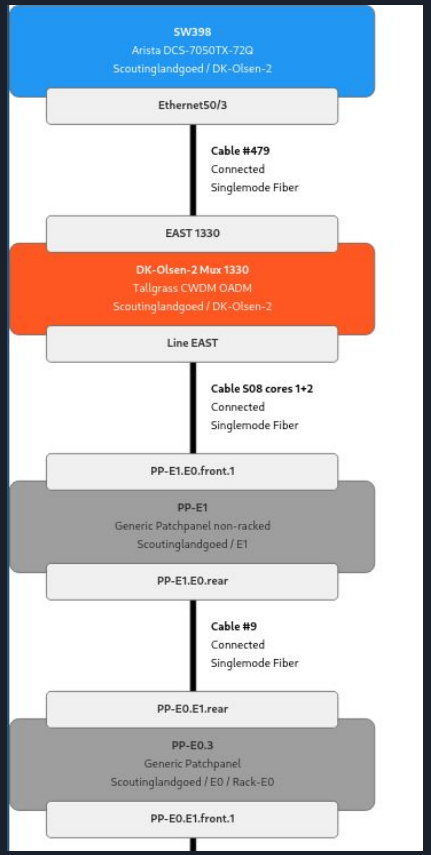
Model: EX3300-48P
Serial: GB0217450582

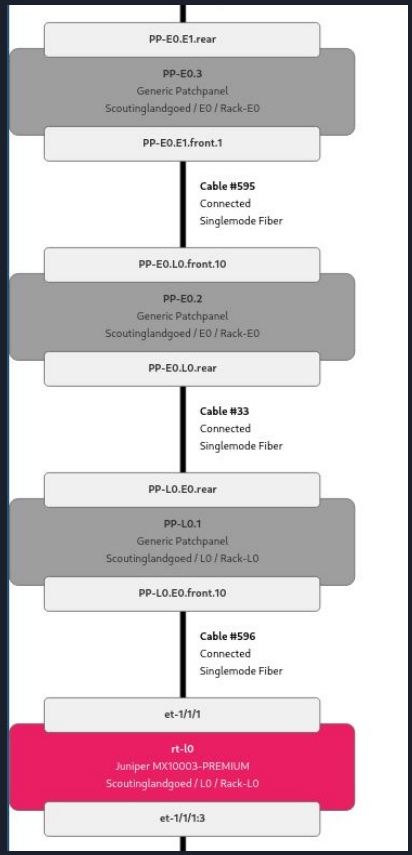
ge-0/0/46 → SW260 ge-0/0/11 (CAT5e cable)
ge-0/0/47 → SW229 ge-0/0/11 (CAT5e cable)
xe-0/1/0 → Torpedo-M13 1 (LC-LC patch) SFP+ 10G-BR 1330TX

Torpedo-M13

Model: AXXFA21

1 → SW474 xe-0/1/0 (LC-LC patch)
2 → EMF00009-breakout-A 1 (#150)
3 → EMF00009-breakout-A 2 (#151)
4 → EMF00009-breakout-A 3 (#152)
5 → FIB123-breakout-A 1 (#161)
6 → FIB123-breakout-A 2 (#162)
7 → FIB164-breakout-A 1 (#166)
8 → FIB164-breakout-A 2 (#167)





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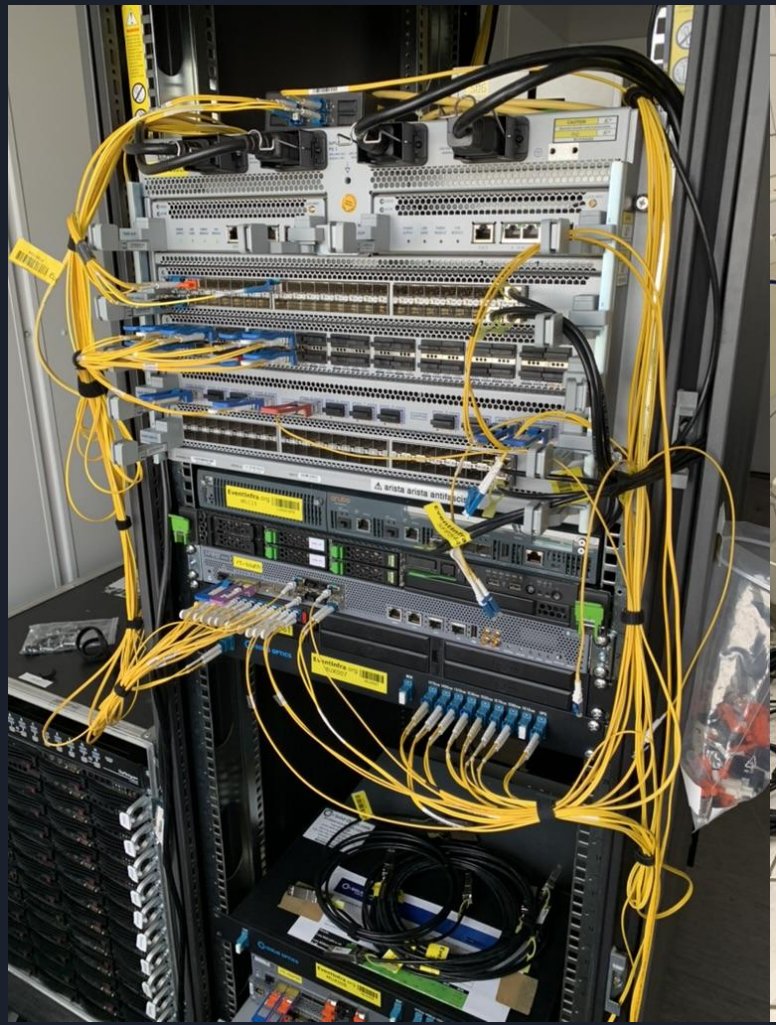

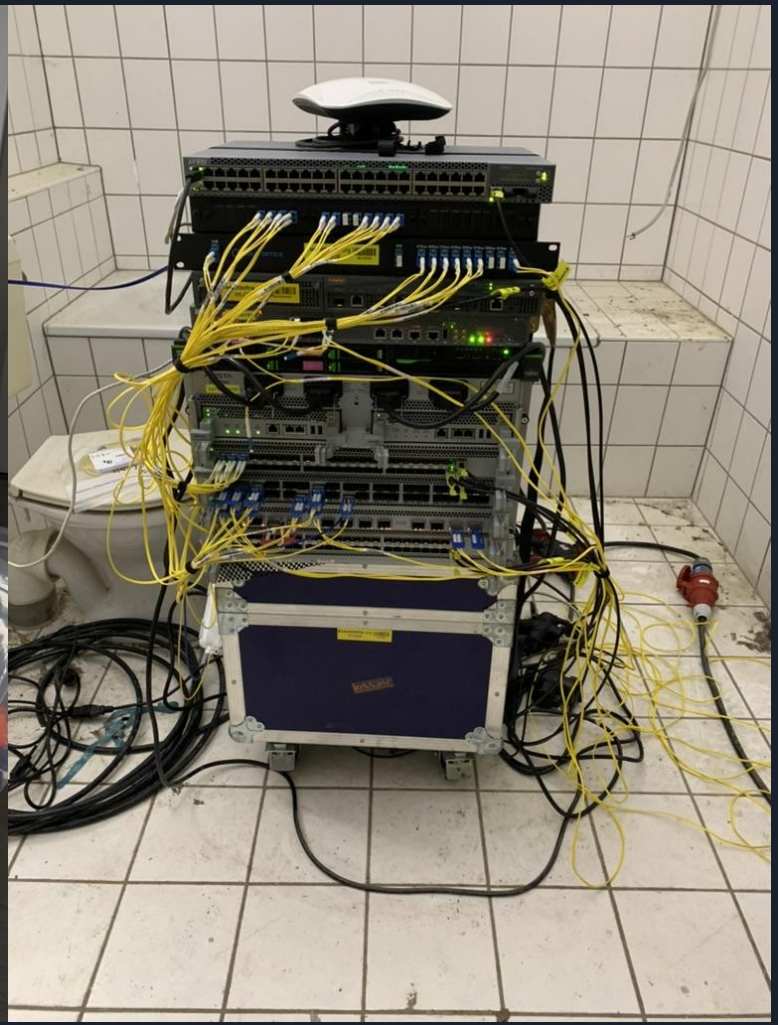

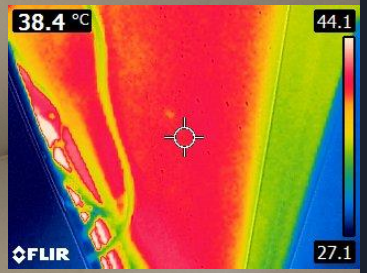

MCH2022 ^^

^^ EMF2024