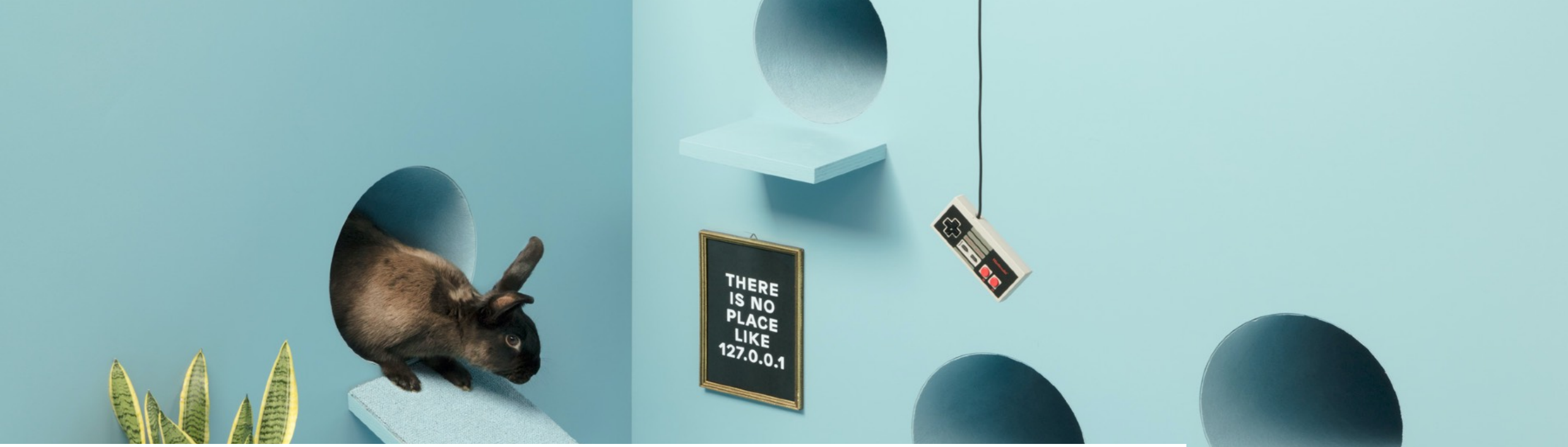

25Gig FTTH

One Year's Experience, Do's, Don't's and Other Pitfalls

Pascal Gloor

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Who ist Init7?

- „nerd“ ISP in Switzerland
- ~ 50 Employees
- Fiber7 (MaxFix) 777.- / Year (~60EUR / Month)

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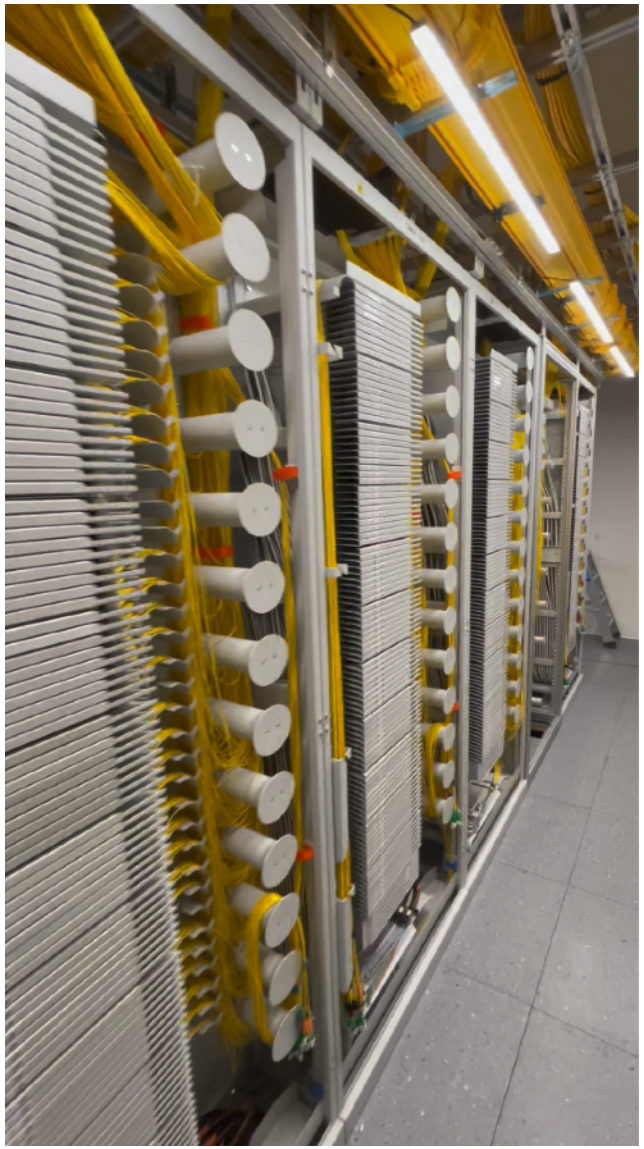
What ist Fiber7?

- Began in 2014
- Renting (mostly) Swisscom ALO (access line optical)
- For all:
  - 1Gbps symmetrical
  - Point-to-point
  - Free Router choice
  - IPv6 PD /48
  - IPv4 public



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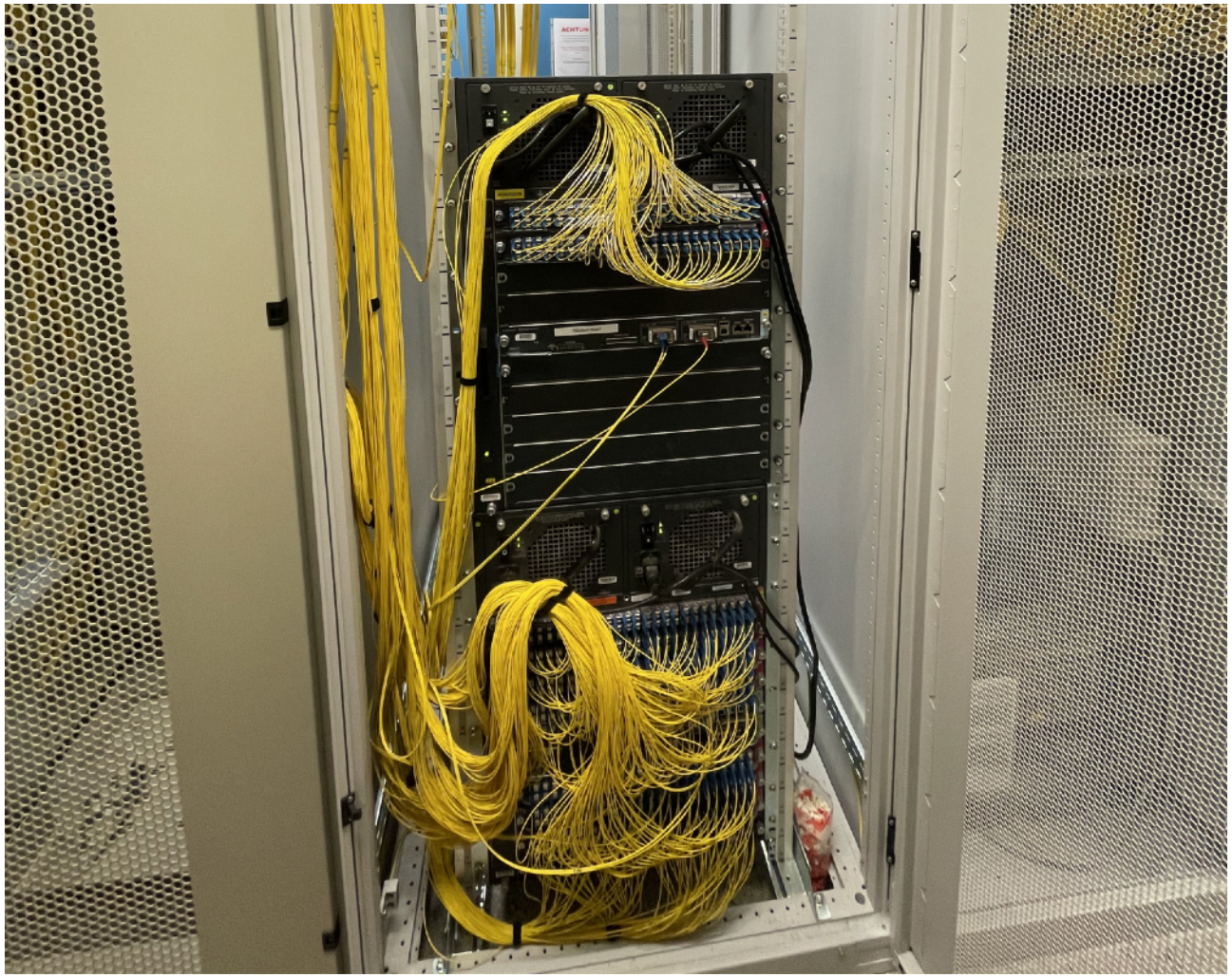
Infrastructure



Infrastructure

- Breakout Cable 24x

The market evolves...

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Market

- 2014 – 2018 Different ISPs deployed GPON (and a few with PtP Gbps)
- 2018 Salt deployed XGSPON
- 2020 Swisscom and Sunrise deployed XGSPON

- How creative..!! 😂🤦

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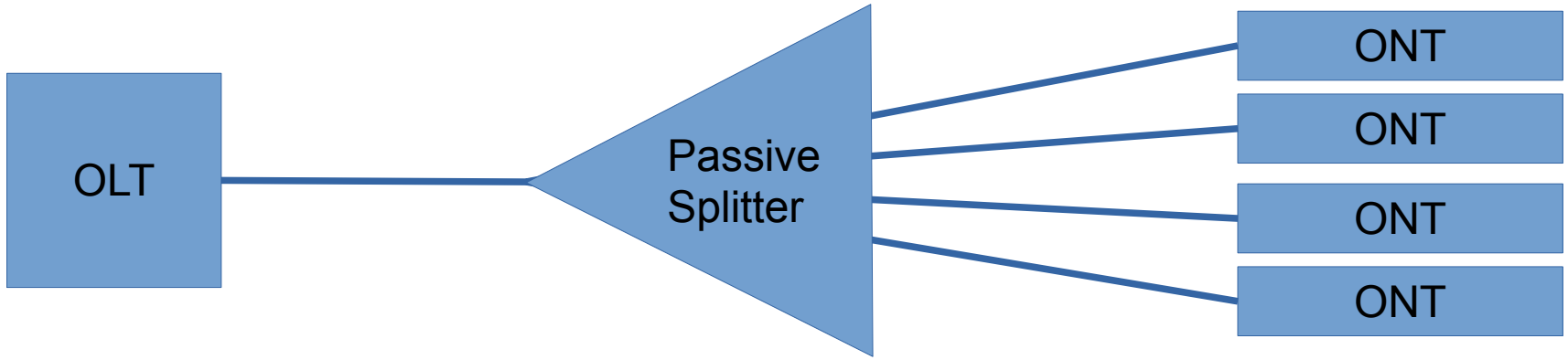
PON? (passive optical network)



PON? (passive optical network)

- Different Standards:
  - GPON, XG-PON, XGS-PON, 25G-PON, 50G-PON
- Split ratio:
  - Rarely: 2-4-8-16
  - Often: 32-64
  - Possible? 128

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PON? (passive optical network)

Tech.	Down	Up
GPON	2.5Gbps	1.25Gpbs
XGPON	10Gbps	2.5Gbps
XGSPON	10Gbps	10Gbps
25GPON	25Gbps	25Gbps
50GPON	50Gbps	50Gbps

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How is PON done?

- Unnamed Provider do:
  - Splitter: 32x
  - OLT: 16 ports per linecard, up to 12 linecards
  - OLT Uplink: 2×10G redundant
  - OLT: between 1-4
  - POP Router uplink: 2×10G
- Oversubscription ratio:
  - 32 × 16 × 1-12 x 1-4 = up to **24’576**

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Our Reaction

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Our Reaction

- Time for real 10G!
- Time for a new Access Plattform!

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New Platform

- 1 HE
- 10G Ports
- 40/100G Uplinks
- 24 or 48 Ports
- MPLS for Business services
- „One box to rule'em all“

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But...

- 3 von 4 Vendors offered Switches with...

SFP28 / 25G

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Yep, let’s do 25G!

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New Hardware

- Cisco C9500-48Y4C
  - 48 x SFP28
  - 4 x QSFP28
- Cisco C9500-32C
  - 32 x QSFP28

Scope

- ~500 Switches
- ~ 130 locations
- Initial timeline, 24 months

Expectations

- 10-20% upgrades to 10G
- Very few 25G upgrades

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Silent rollout

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MacBook Pro

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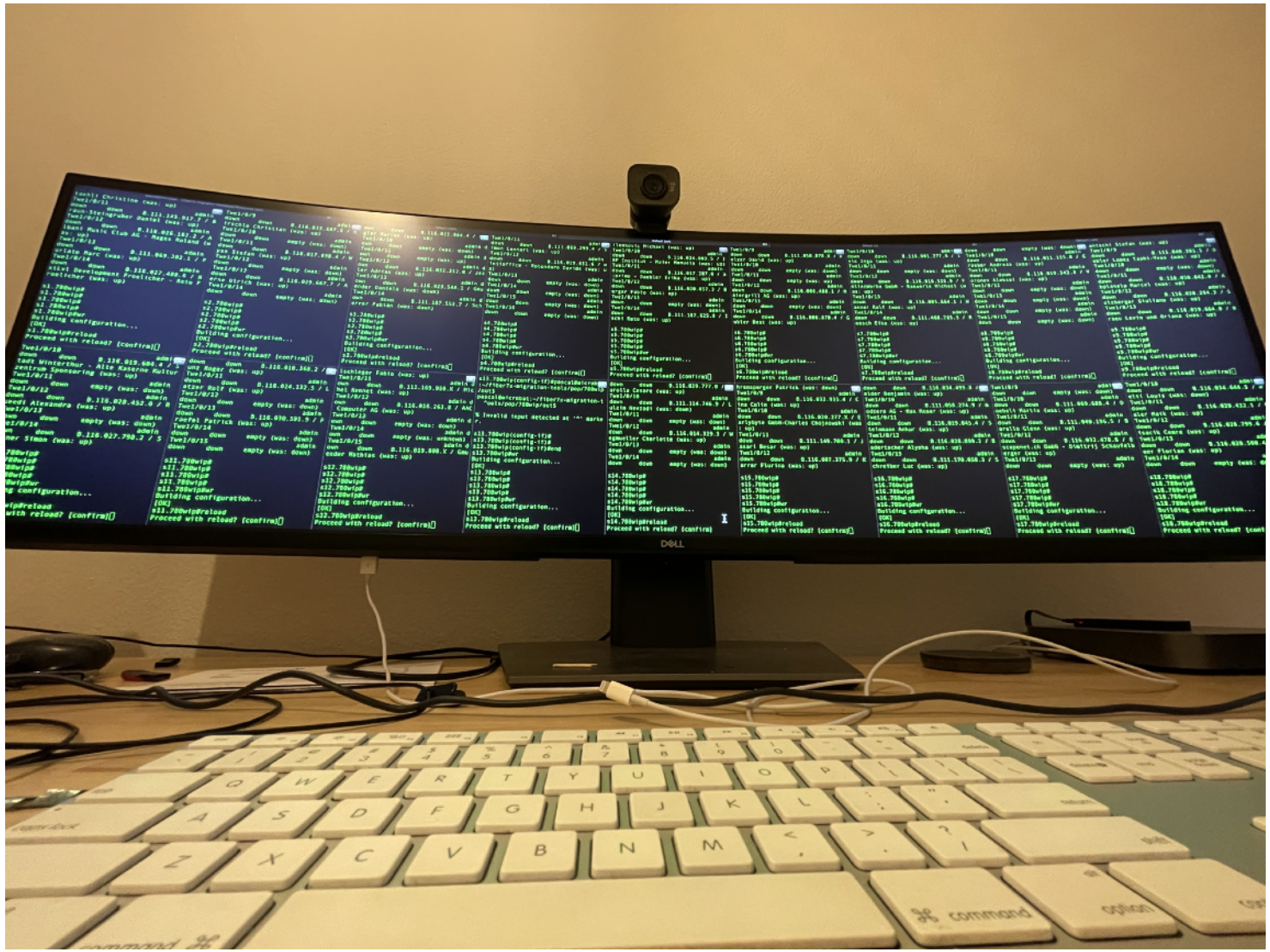

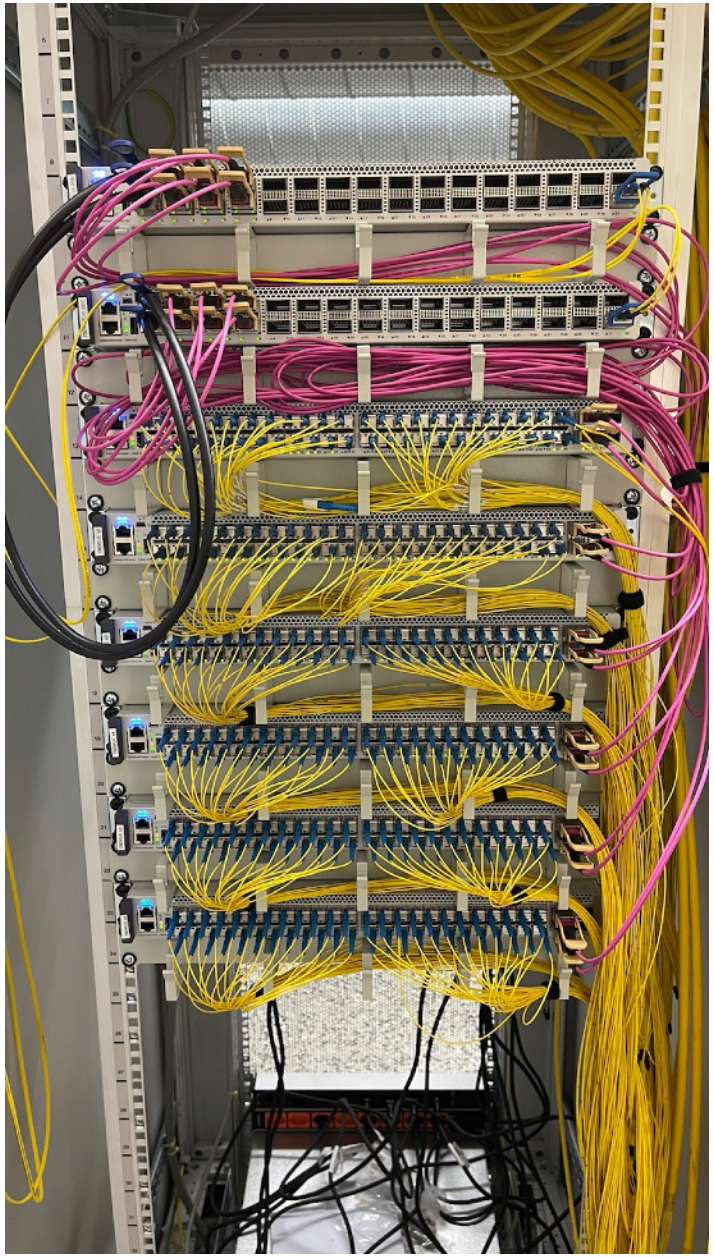

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Announcement

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Init7 - Fiber7™ @fiber7_ch · May 22

Happy Birthday #Fiber7! 🎈

Vor 7 Jahren erblickte unser Gigabit-Internet die Welt.

Zur Feier des Tages ein Rätsel für #Nerds: Das Gesetz des Gordon Moore besagt alle 18 Monate eine Verdoppelung.

Was bedeutet das für unser 7-jähriges Fiber7?

Die Antwort gibts am Dienstag! 🤓

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Michael Müller
@mueller_mi

Antwort an @fiber7_ch

1 Gbit/s * 2^(12*7/18) =
25.398416831491192 Gbit/s .

Dörfs es bitzli
meh sii?
Init7
NEU:
Internet bis
25 Gbit/s
THERE
IS NO
PLACE
LIKE
127.0.0.1

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Meanwhile....

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Meanwhile….

Telecom

Nokia, Proximus claim first with 25G fiber network

by Diana Goovaerts | May 26, 2021 10:57am

Proximus executives said the first use cases to leverage 25G will be "enterprise, industry-based" but added the operator will also be able to use its fiber infrastructure for 5G densification. (Pixabay)

Belgian operator Proximus claimed to have achieved a world-first in collaboration with Nokia, lighting up a symmetrical 25G passive optical network (PON) in the city of Antwerp.

Conclusion

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Challenges?

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Challenges?

- Speedtest Server → 100G direkt into the Core
- Payable 25G CPE → Hackathon?
- Production Bottleneck → waiting.. 😢

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Do’s & Don’ts

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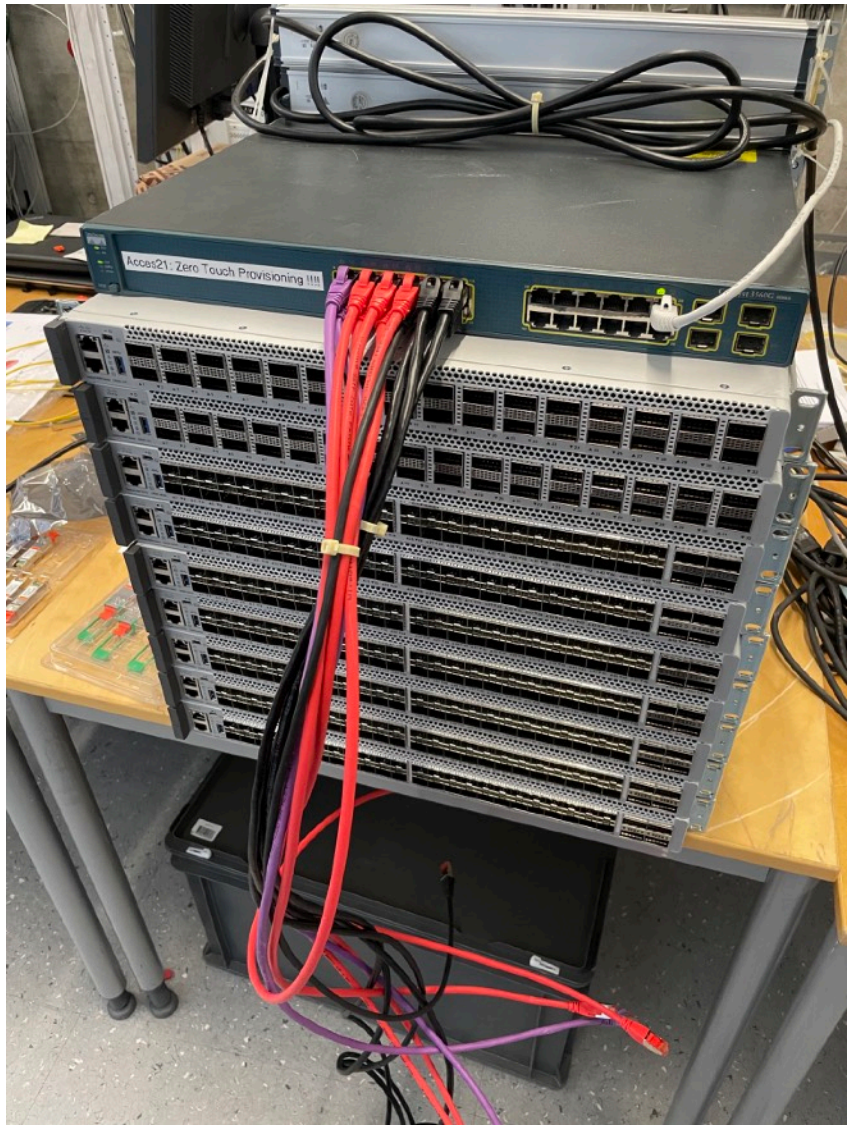
Automate

- ZTP (Zero Touch Provisioning
- Scripts to migrate your configs



Outsource / Match the skillset!

- Unpacking
- Preparing the switches (ZTP)
- Installing Hardware
- Migration
- Customers can also help!
  (or your kids)
  - Debugging
  - Writing blogs
  - Physical work

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Michael Stapelberg

About Blog Talks Series

All Blog Posts

Or are you here only for a certain topic? Browse posts within a tag:

debian distri fiber golang kinX rgb2r

2022-May

25 Gbit/s HTTP and HTTPS download speeds

Tags: fiber

Now that I recently upgraded my internet connection to 25 Gbit/s, I was curious how hard or easy it is to download files via HTTP and HTTPS over a 25 Gbit/s link. I don't have another 25 Gbit/s connected machine other than my router, so I decided to build a little lab for tests like these 🤦 Read more →

2022-Apr

My upgrade to 25 Gbit/s Fiber To The Home

Tags: fiber

My favorite internet service provider, init7, is rolling out faster speeds with their infrastructure upgrade. Last week, the point of presence (POP) that my apartment's fiber connection terminates in was upgraded, so now I am enjoying a 25 Gbit/s fiber internet connection! Read more →

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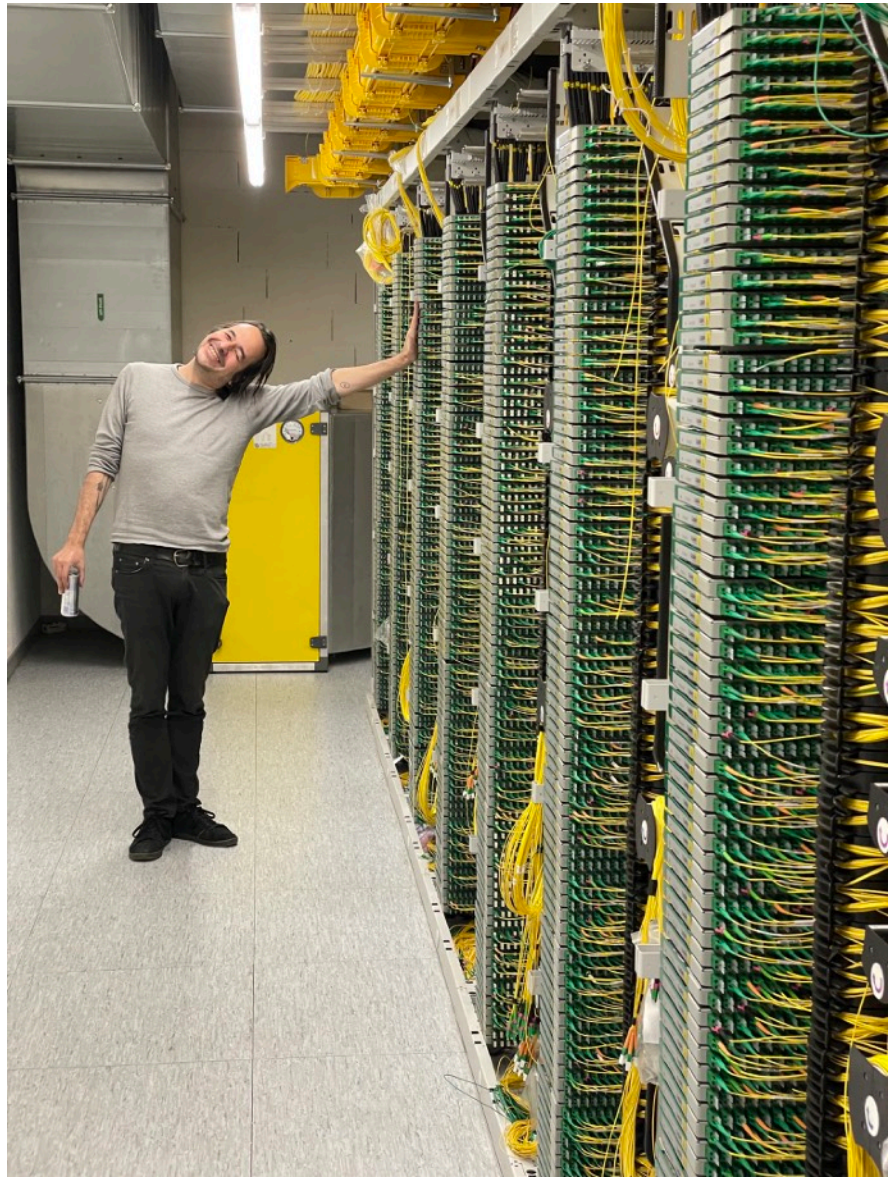

RIPE84

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Don’t underestimate

- The nerdiness of your customers
- Supply Chain issues
- Your overtime, for your own sake!

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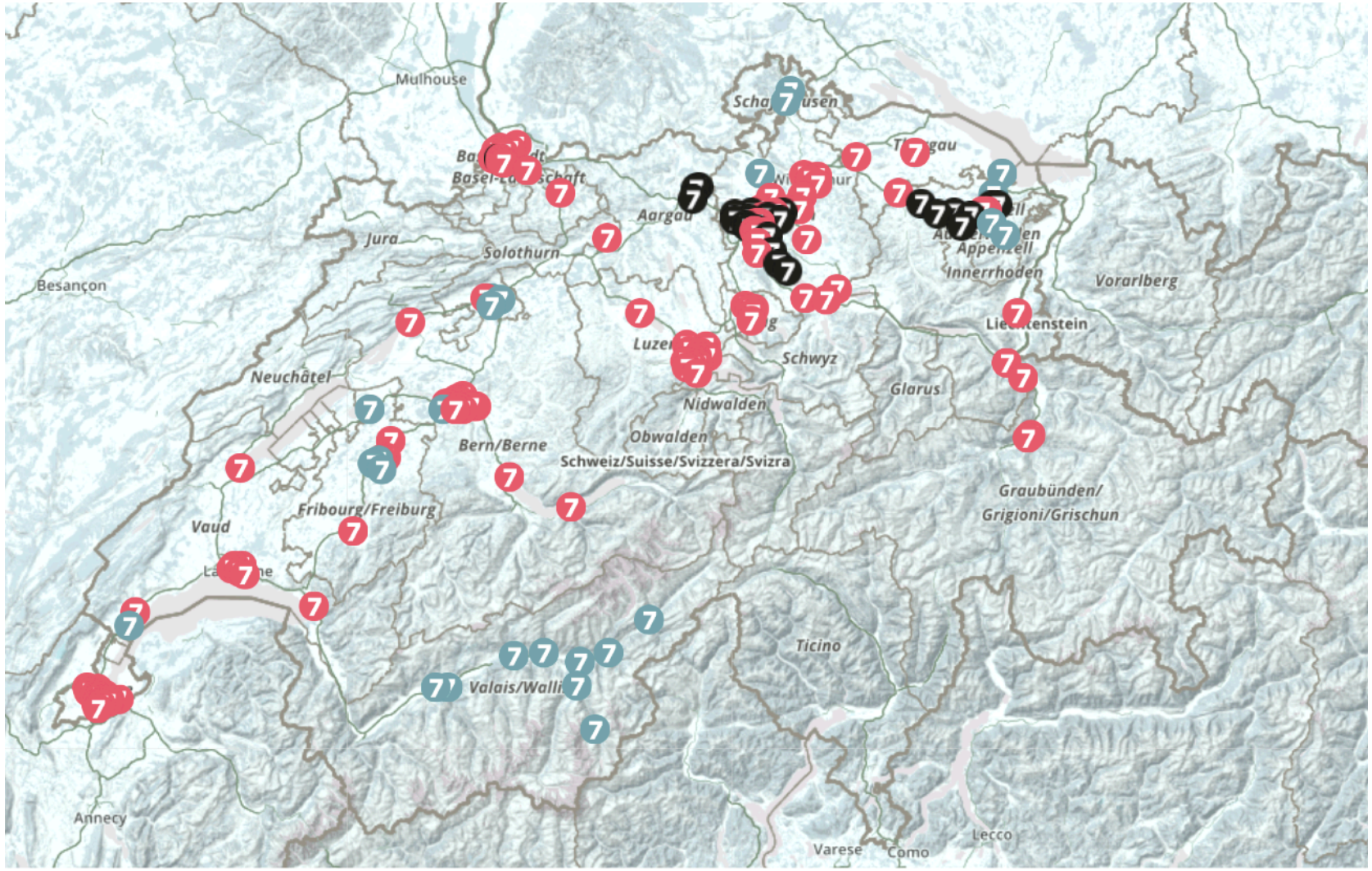
Mulhouse
Jura
Solothurn
Aargau
Besançon
Neuchâtel
Bern/Berne
Schweiz/Suisse/Svizzera/Svizra
Fribourg/Freiburg
Vaud
Nidwalden
Obwalden
Schwyz
Glarus
Appenzell
Innerrhoden
Vorarlberg
Graubünden/
Grigioni/Grischun
Ticino
Annecy
Varese
Como
Lecco

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Conclusion

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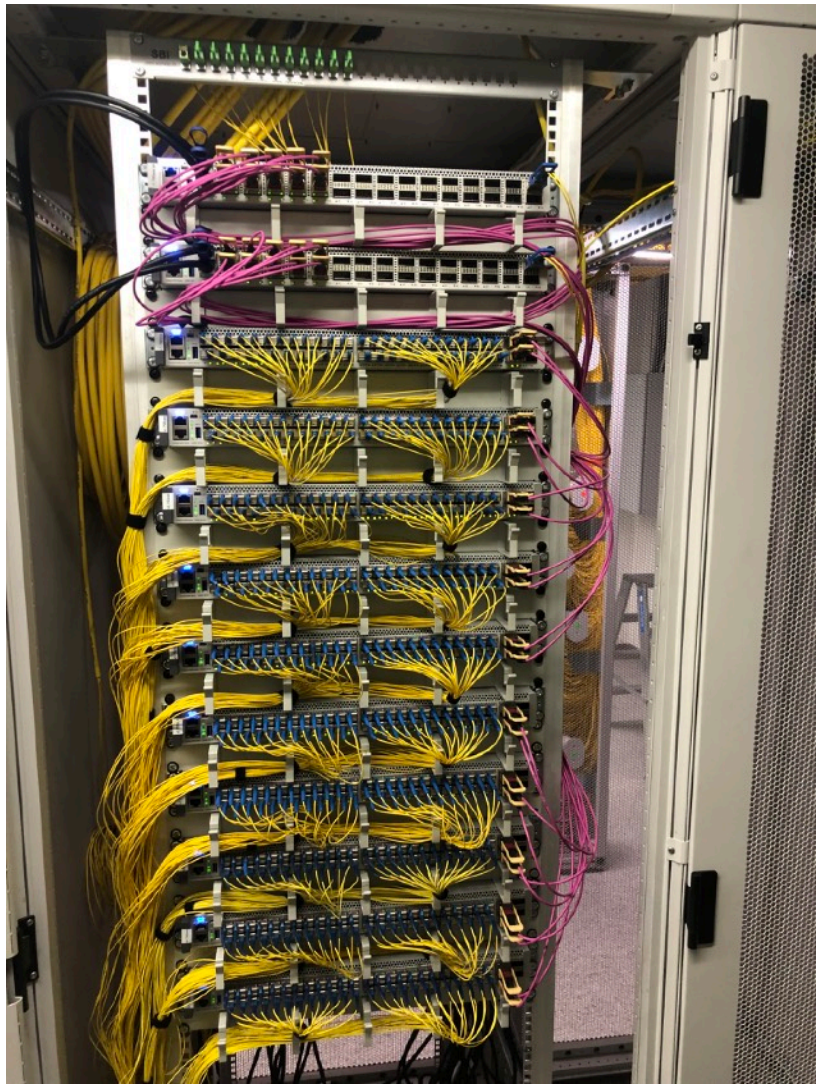
Conclusion

- DON’T BE AFRAID OF THE BANDWIDTH /!\
- Monthly volume won’t change
- Stop selling bandwidth, sell the service
- Unexpected amount of 25G upgrades



Questions?

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TOO FAR! GO BACK!

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