



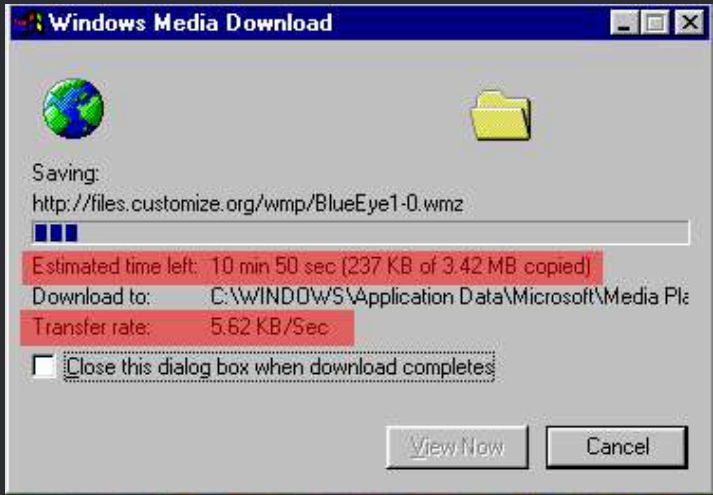
# Fiber optics: Old School, or The Backbone of Our Digital Society?

Erland Loyd de Flon

**PRO | OPTIX**  
OPTICAL NETWORK SOLUTIONS



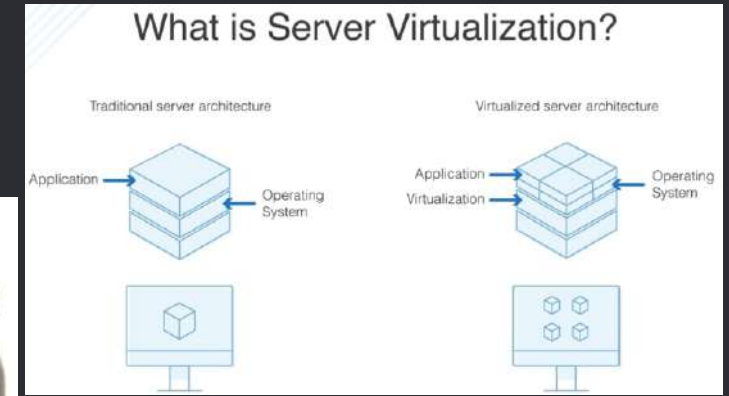
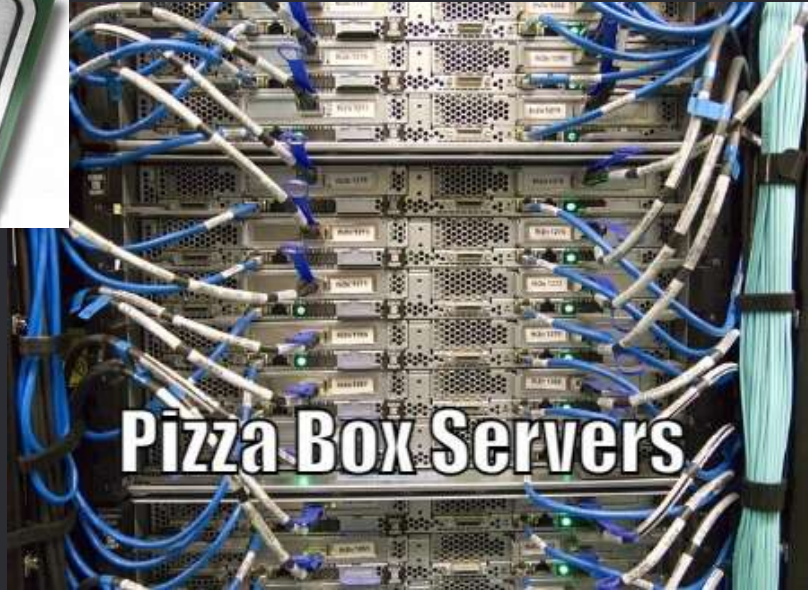
# Down the Memory Lane





# Down the Memory Lane

P0



# Old School Data Center

Stockholm telephone tower:

- 80m high
- Built in 1887
- 5,500 customers
- Over 5,000 km of bare copper
- Did not work when it was windy... ☺





# The Basics...

**Before fiber optics:**



Morse code: WR is 216 bit per minute  
(equals 3,6 bit per second)

SFP+: 10 000 000 000 bit per second  
(2,78 billion times)

**Fiber optics:**

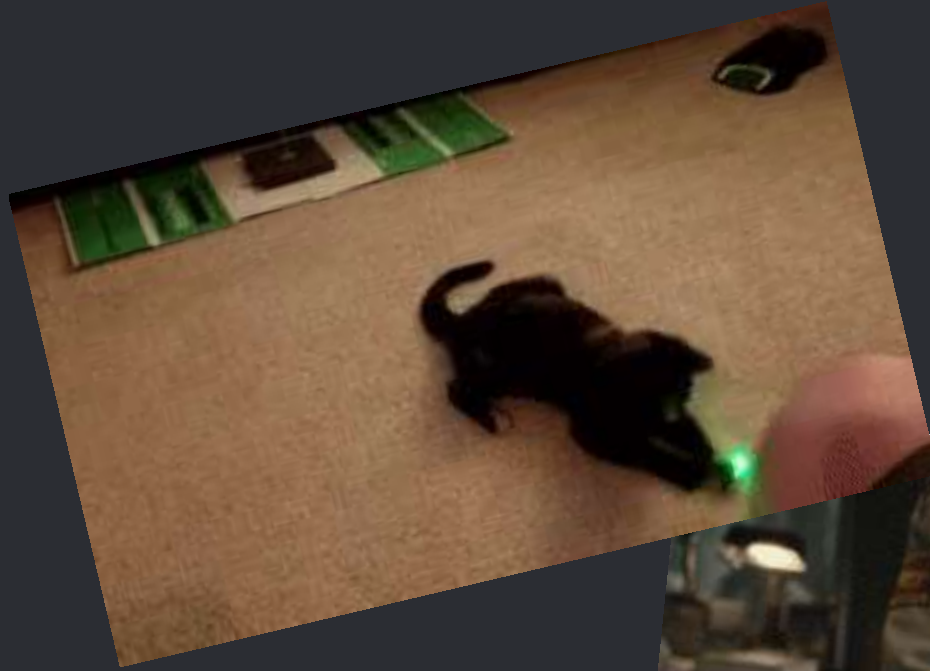


+

and

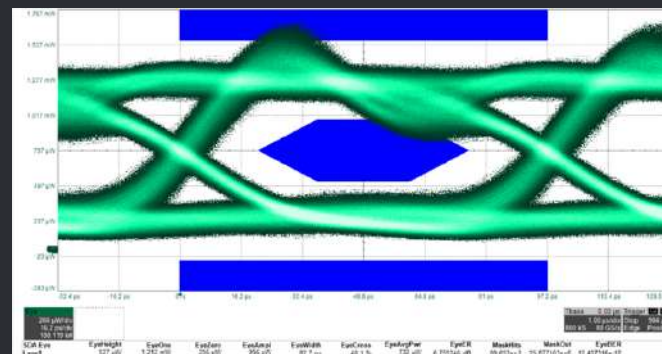
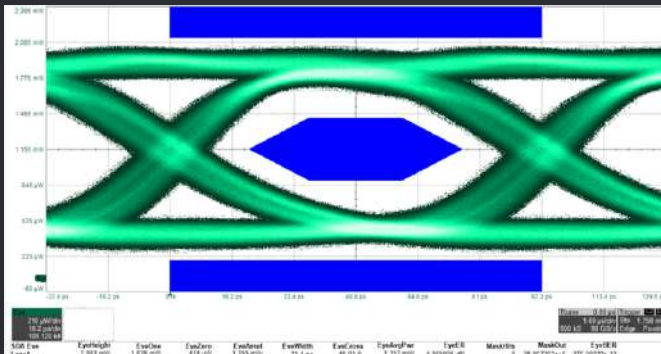


# What does Pro Optix actually do?



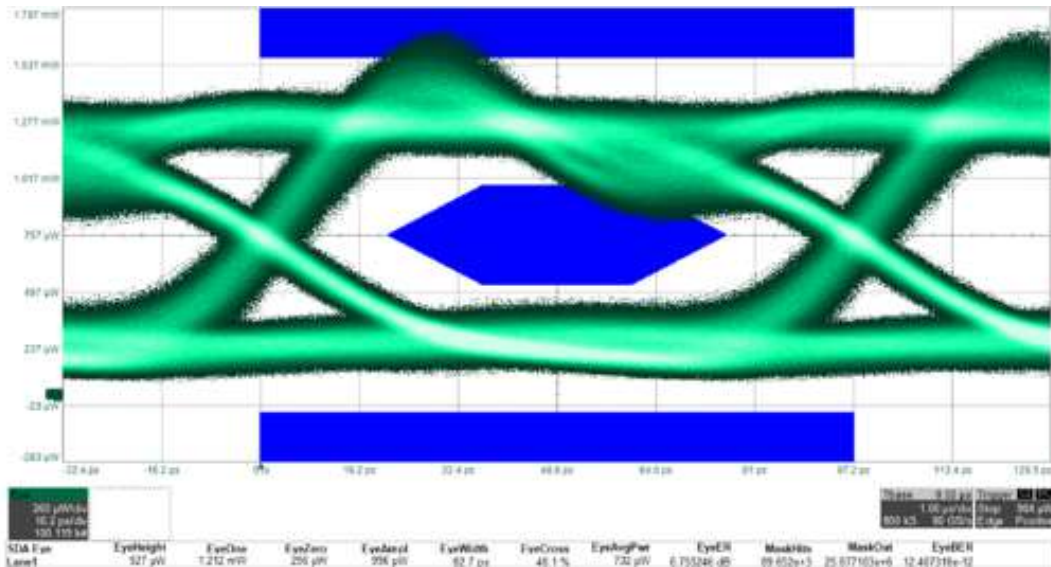
# Sustainable Transceivers

- “Original” transceivers are vendor locked
- Pro Optix offers recoding on the fly
- Can be recycled with different encoding
- Advanced oscilloscope for quality testing
- Sustainability, performance and quality



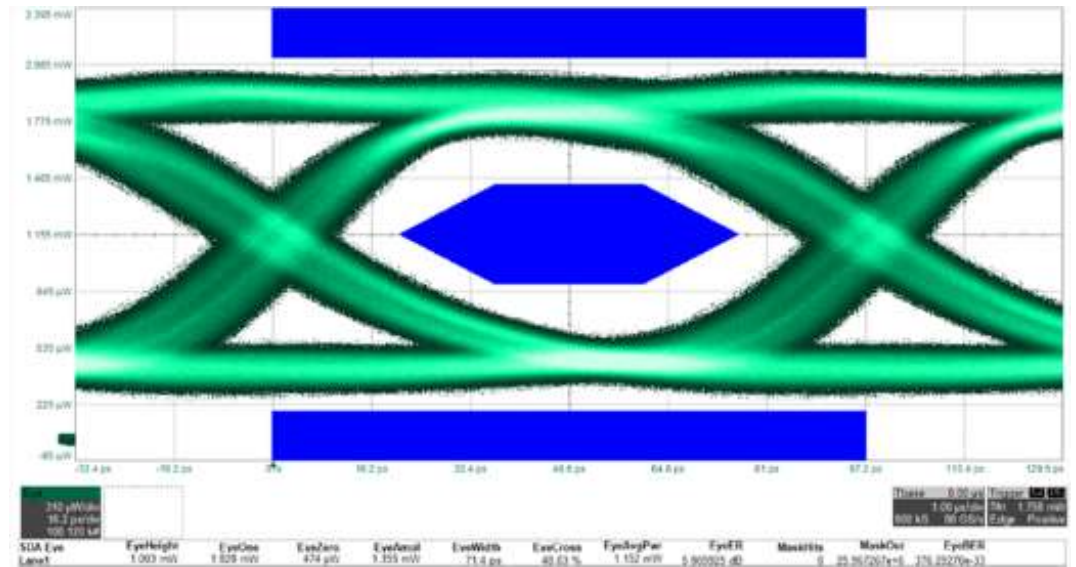


# Are all transceivers the same?



## Eye diagram of poor-quality transceiver

- Bad soldering
- Low quality laser
- Poor production process
- Little or no testing
- No component tracking



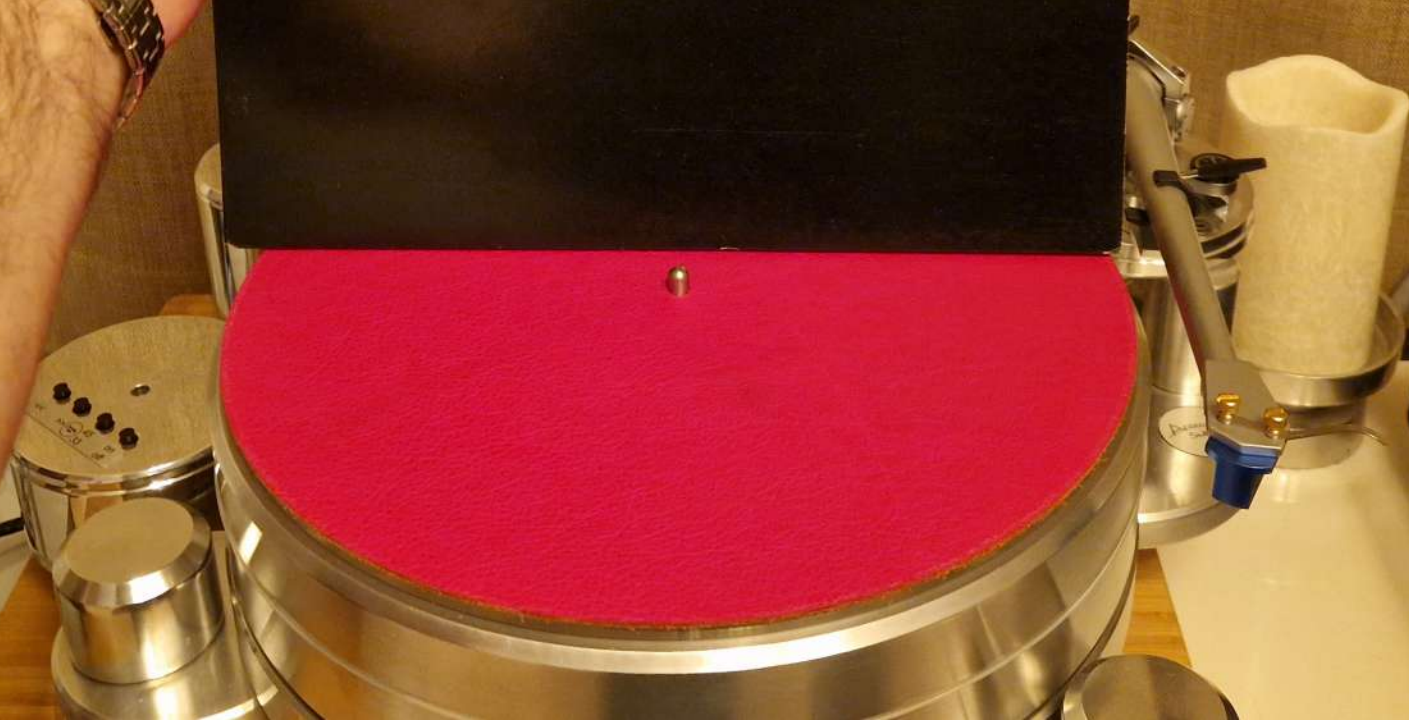
## Eye diagram of high-quality transceiver

- Precise soldering
- High quality laser
- Well defined production process
- Rigorous testing
- Tracking on component level



Now what?

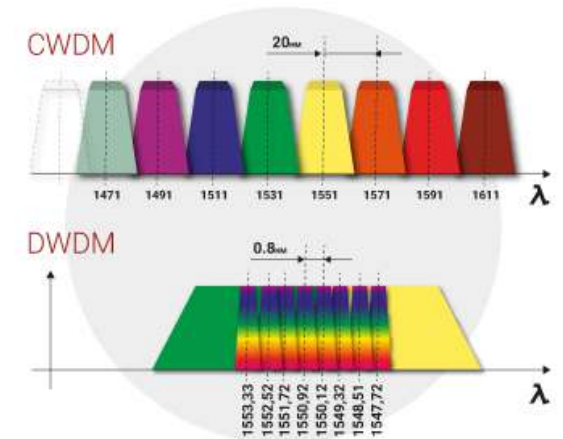
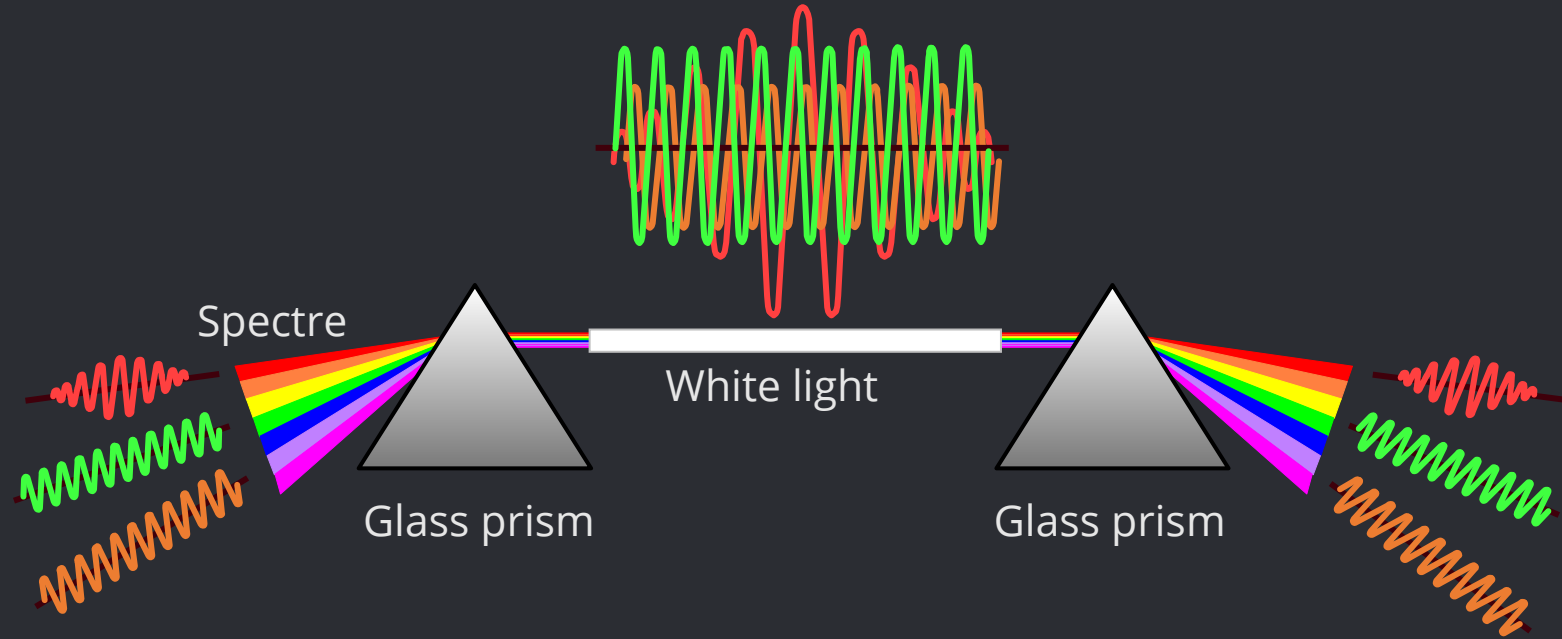
PO





# WDM – Wavelength Division Multiplexing

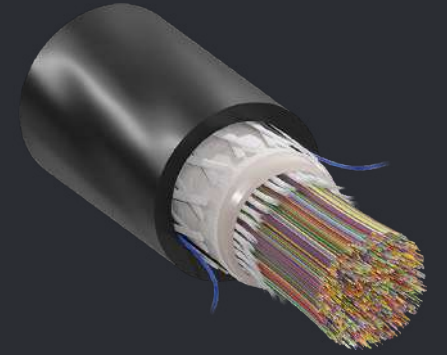
- Each “colored” wavelength represents a WDM channel
- Multiplexing separate signals on the same fiber
- Pro Optix has both CWDM and DWDM (Coarse and Dense)
- Max utilization of dark fiber





# Data Center Solutions

- Meet-Me room solutions
- MPB rack patch solutions
- Ribbon fiber (8- and 12-fiber)
- Faster and cheaper splicing
- 3768 fiber (12) data center cable (Also has 6000+ cable)
- CPR certified cabling (fire/smoke)



# Advanced test lab for harsh demands





# Dog videos?



# Back to the Future

## Digitalization strategy of Sweden 2025–2030:

- International connectivity is important for Sweden to continue to be an attractive country for establishing data centers
  - Infrastructure for connectivity and digitalization has developed into critical infrastructure
  - Technological developments with increased use of real-time data and AI mean the need for faster data transfer and increased capacity in networks
  - Sweden depends on good connectivity with transparent data transfer, both within the country and internationally
  - Sweden should have world-class broadband. All households and businesses should have good opportunities to use electronic public services and services via broadband
- 
- GDPR, data retention and international uncertainty requires domestic data control and storage
  - The demands for ultra low latency and ultra high transfer speed is increasing
  - The datacenter business in Sweden is rapidly growing from estimated 2 billion USD in 2024 to near double in 2030





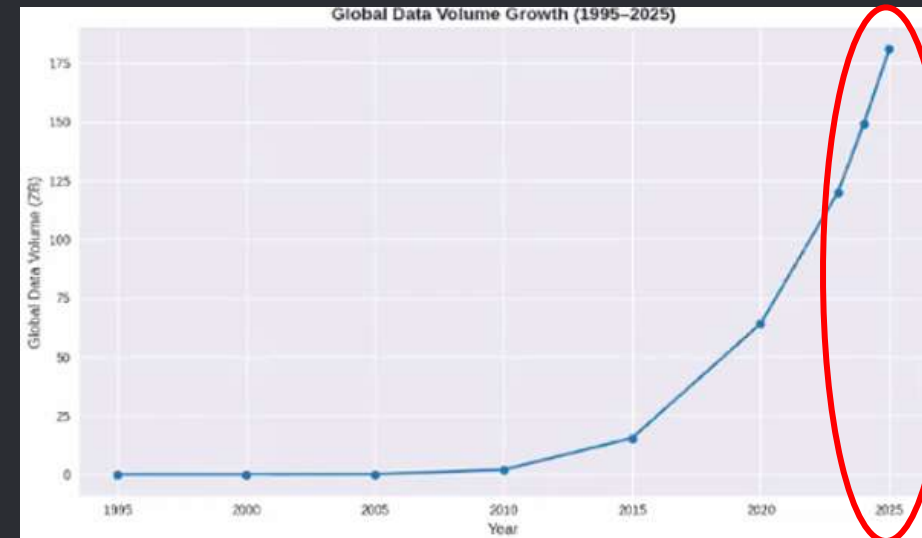
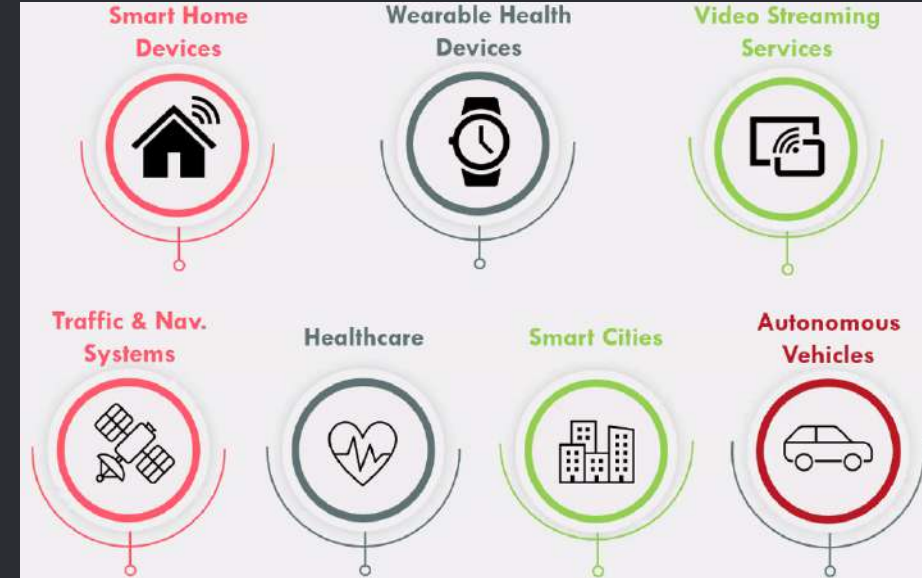
# Data growth and generation

## Key Drivers of Data Growth:

- **Smartphones & Social Media:** Billions of users generating photos, videos, and interactions daily.
- **Streaming & Video:** Over half of internet traffic is now video-based.
- **IoT & Sensors:** Real-time data from billions of connected devices.
- **Cloud & Edge Computing:** Decentralized storage and processing power.
- **AI & Analytics:** Massive datasets needed for training and inference.

The world's total data volume is increasing heavily (Statista)

- Over 400 million TB generated per day in 2024 (149 ZettaByte FY)
- Almost 10 times as much in 2024 (149 ZB) compared to 2015 (15.5 ZB)
- 180 ZB expected FY 2025
- Close to exponential growth

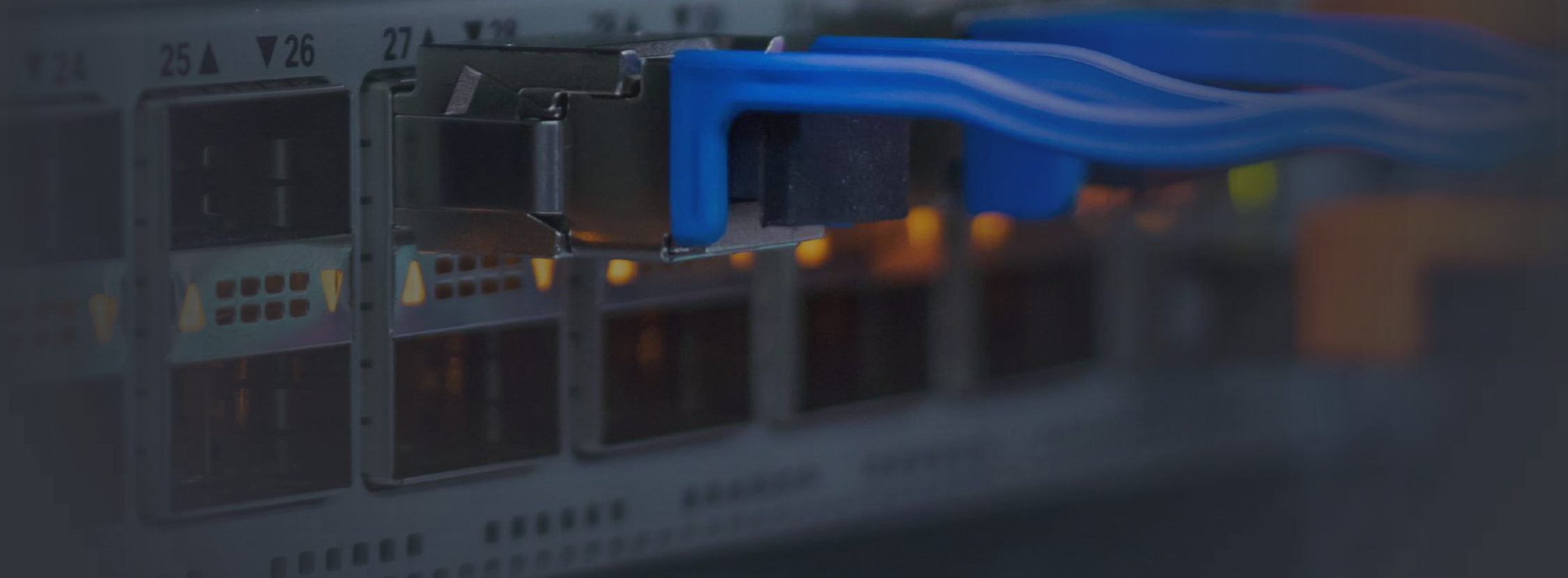


# This requires fiber optical networks and infrastructure

Fiber optics:

Old School,

or The Backbone of Our Digital Society?





# The Future is

**PRO | OPTIX**  
OPTICAL NETWORK SOLUTIONS



P0

- Been in the Swedish fiber industry for over 15 years
- Recodable and sustainable transceivers
- Diverse market experience and knowledge
- Local affiliation, test lab, warehouse, service and support
- Offering courses, training and consulting
- High quality and performance
- Reduced downtime, higher ROI and lower TCO

# and fiber optics is the backbone...





Thank you!

Hope you had fun... 😊

Erland Loyd de Flon, Pro Optix

**PRO | OPTIX**  
OPTICAL NETWORK SOLUTIONS

