Fiber Optic Cabling in Data Centers: Options for High Density

Agenda

- Introduction
- Go!Foton Corporate Overview
- What's driving high density in Data Centers
- DC architecture
- Managing the density :
  - Connectors, Fibers, Patch panels
- Spreadable adapter technology
- Questions and answers

Go!Foton Introduction :

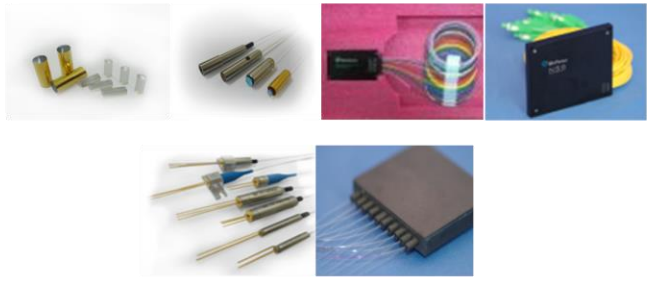
HQ Somerset NJ, USA
Focused on Tier 1 Service Providers, MSOs and Datacenter markets
Global presence, Own manufacturing facility in Philippines

Connectivity

- PEACOC™ High-Density Fiber Management Solutions
- Optical Fiber/Cable Termination and Connectorization
- FTTH solutions: Fiber Hubs, Terminals, and Indoor Living Unit Solutions

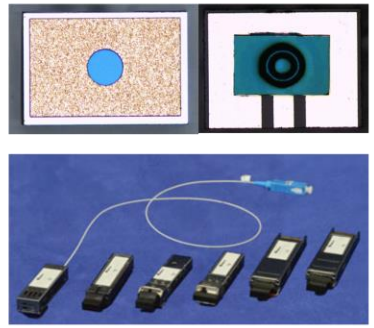
Passive Optical Devices

- SELFOC® Lens
- Lens coatings
- Collimators
- WDM modules
- Multi-channel WDM packages
- Optical Splitters
- PD/APD
- TO Can/Pigtail Assembly
- Medical probe assemblies



Actives

- InP/GaAs Photodiode Wafers & Chips
- PON Transceivers
- PON Reach Extenders
- PON Line Combiners



What's Driving High Density in Data Centers

- Increasing usage of AI and IoT
- Growing penetration of cloud computing and 5G technology globally
- High usage of online services globally
- Cloud storage—the use of cloud computing services and applications continues to grow rapidly, thereby leading to the establishment of large colocation cloud-based data centers
- Submarine cable projects TAT-10, TAT-14 for example— bring extremely high-speed data from N. America and South America to Netherlands and Germany.
- Tax incentives—in recent years, data center growth has been concentrated in regions that provide tax and investment incentives.

Consider AI Impact

Artificial Intelligence (AI) and machine learning is already accelerating predictive analytics in data center operations. By leveraging insights from historical data and AI is helping predicting future trends in reliability, energy efficiency, security, and overall performance

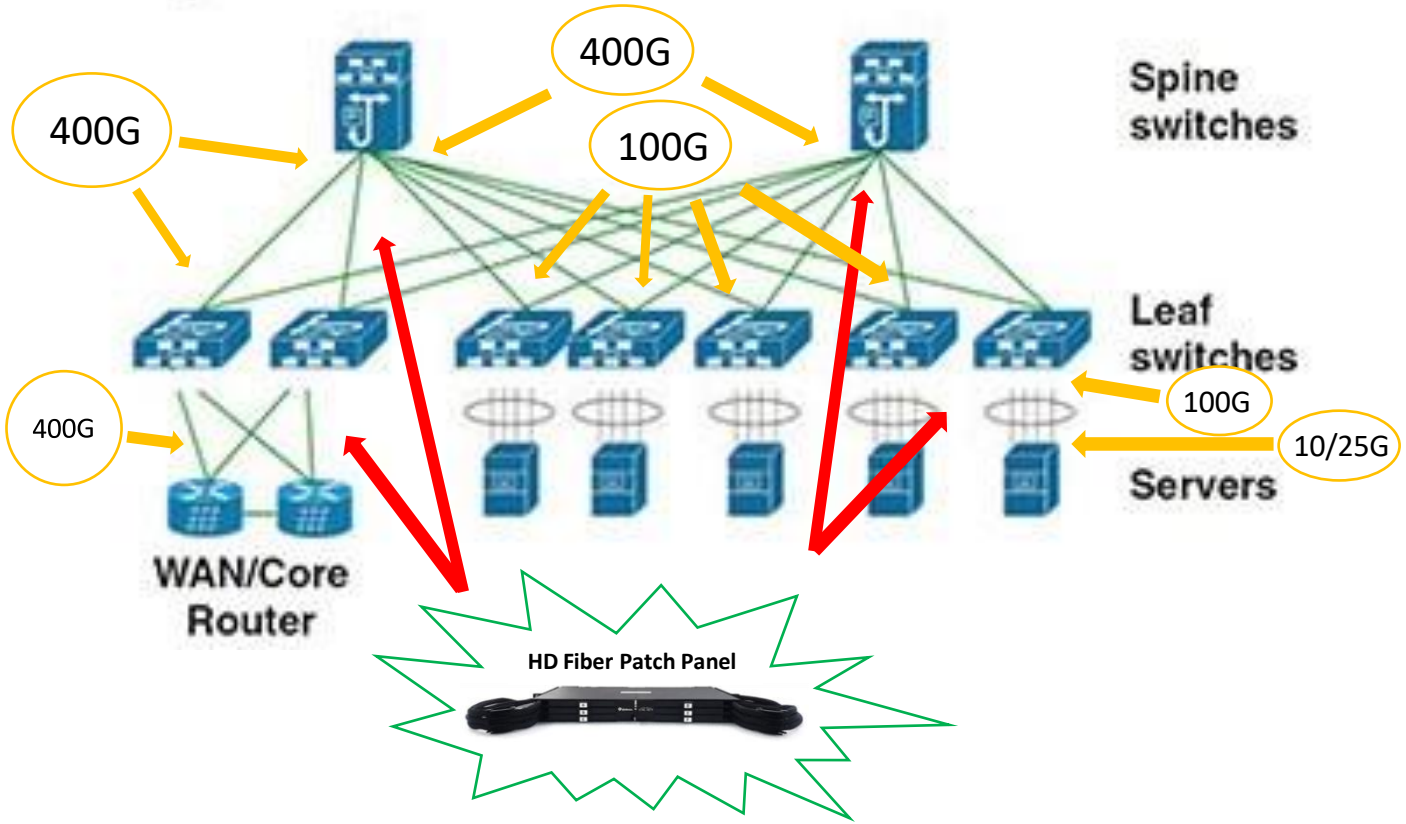
Capacity Management:

The gains from dynamic cooling and Power Usage Effectiveness (PUE) allow operators to add more capacity and plan for and meet future demands.

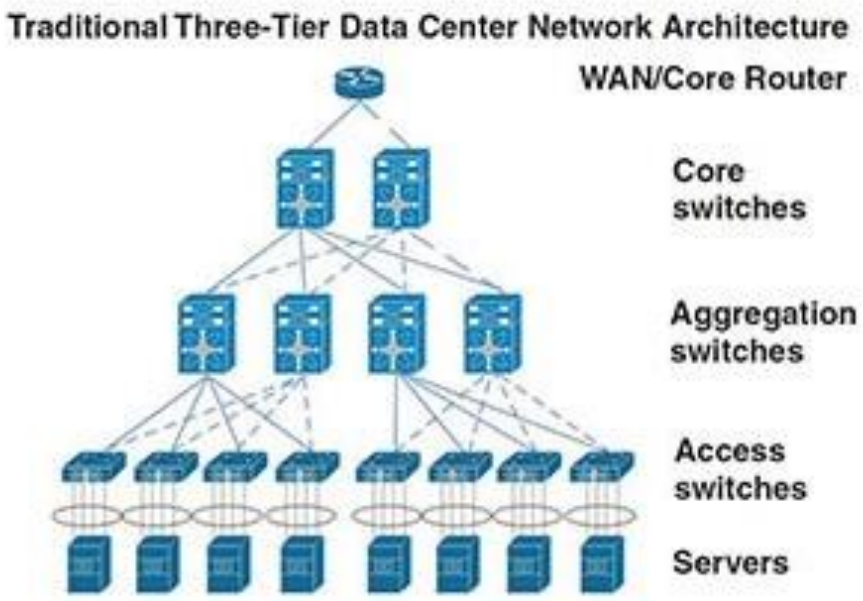
Capacity means density – More fibers, more connectors, more cabling

DC Architecture Design

Spine-Leaf



Traditional 3-Tier



400G -> 4x100G Breakout example

Compute Chassis / Rack server

HD Fiber Patch Panel

400G Switch

LC-LC MMF Cable

MPO-MPO MMF Cable

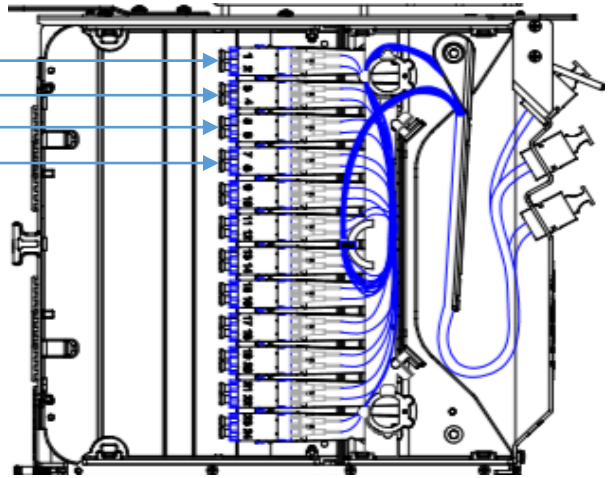
QSFP-100G-SR1.2

1 x 100G

1 x 100G

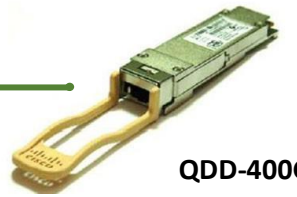
1 x 100G

1 x 100G



Breakout Module
Rear 12F MPO to 4 x 100G Duplex LC

400G



QDD-400G-SR4.2-BD

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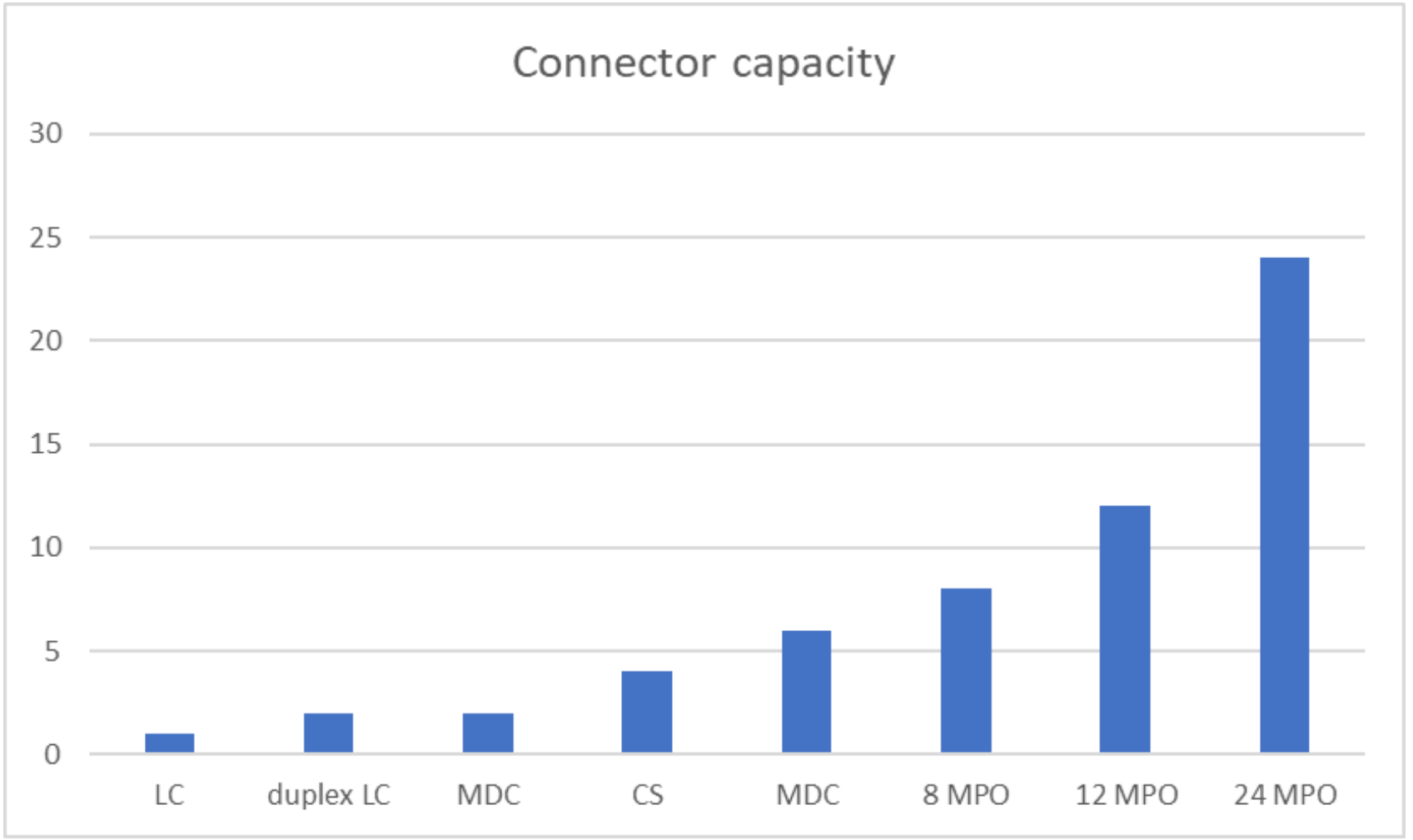
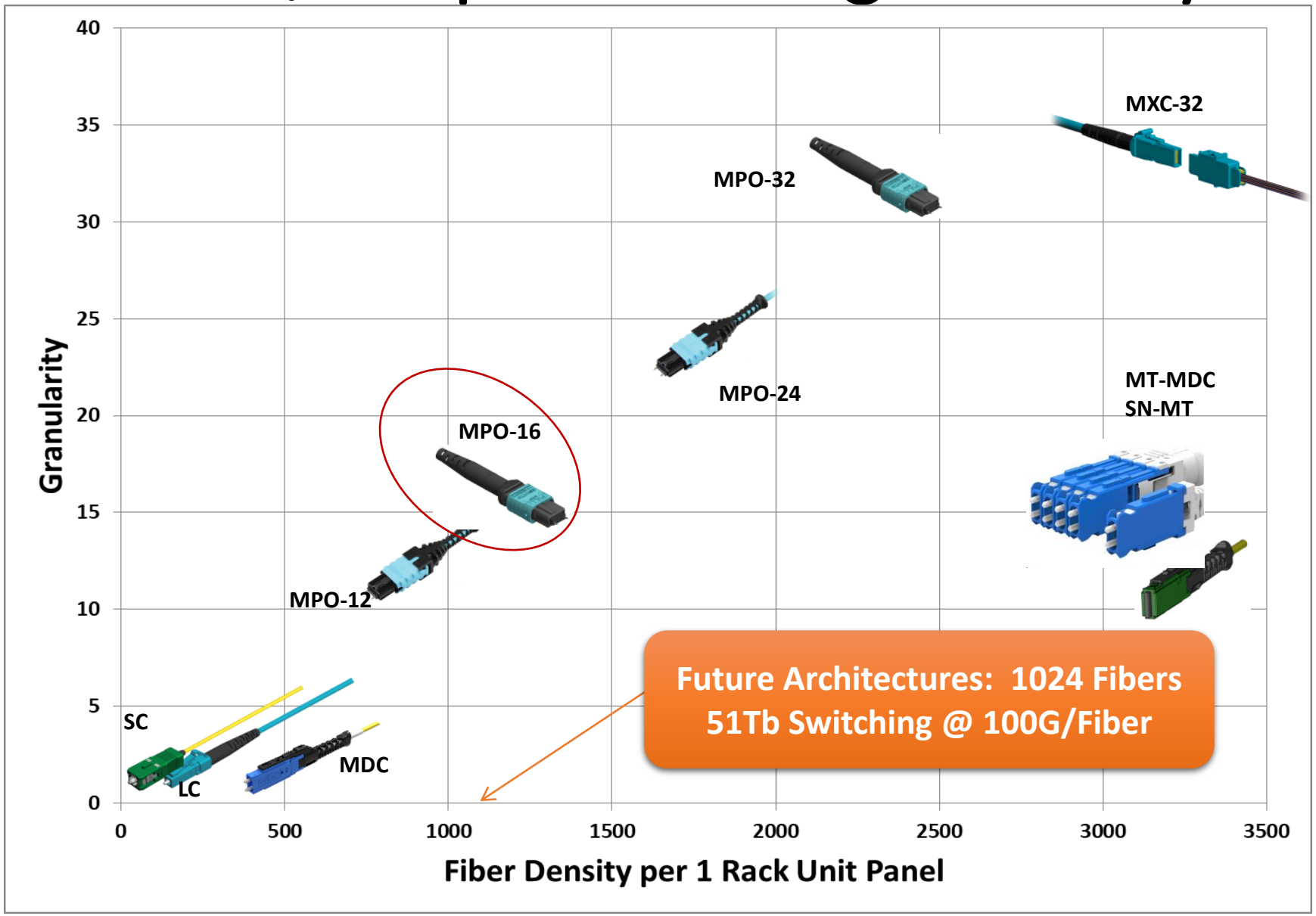
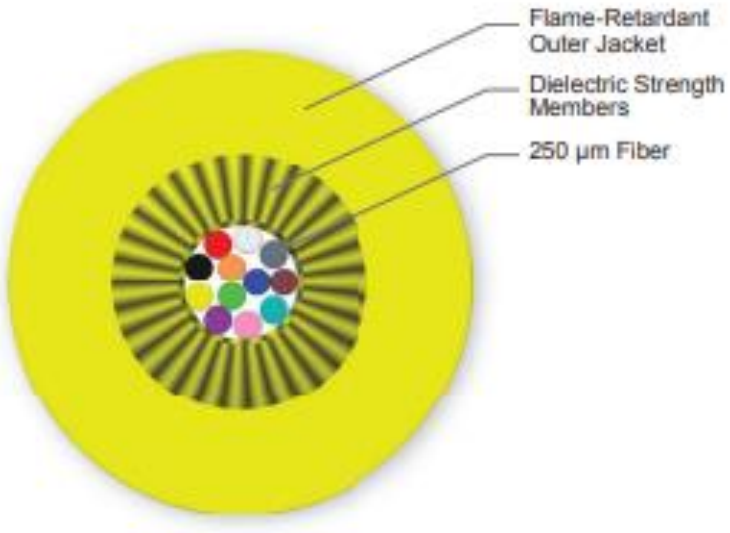
Connectors/Adapters for High Density



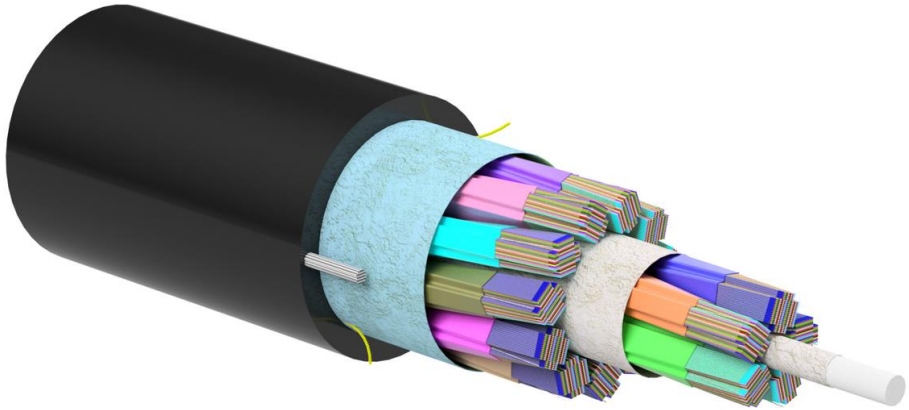
Connectors/Adapters for High Density



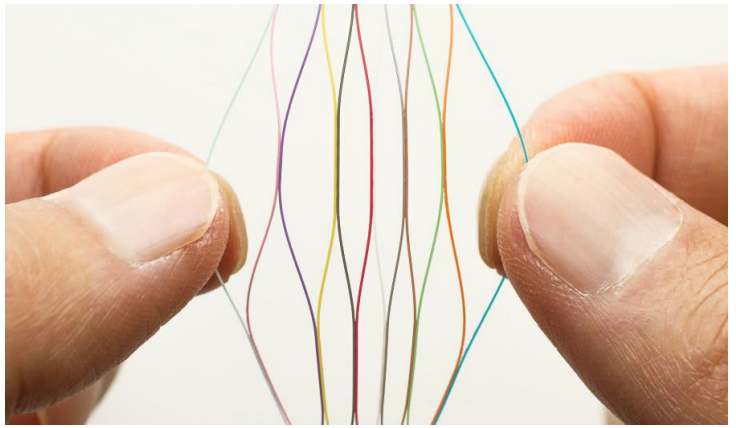
Fiber Optic Cable Construction Changes



Loose tube, 250 µm



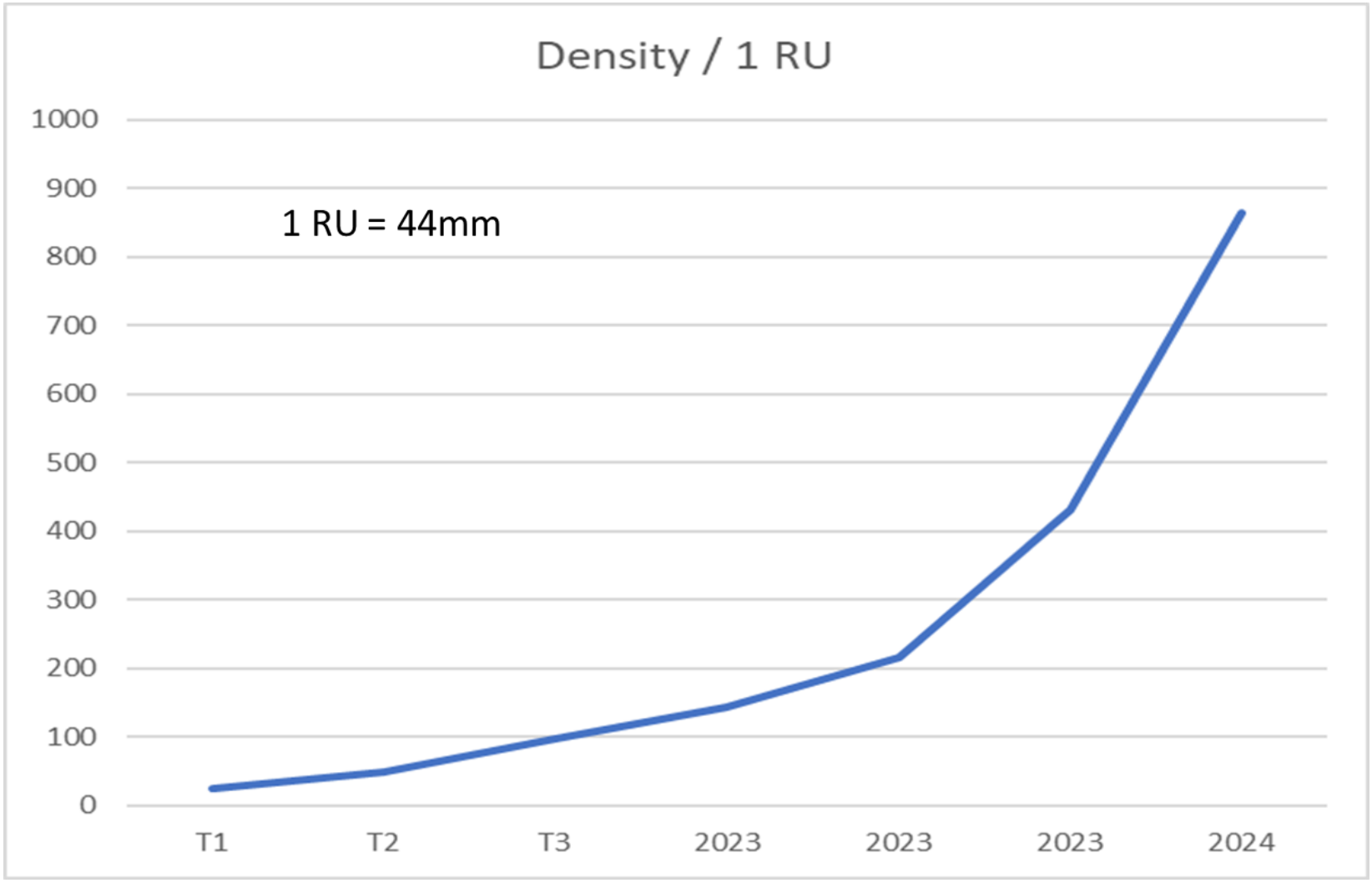
Stacked ribbon, 250 µm



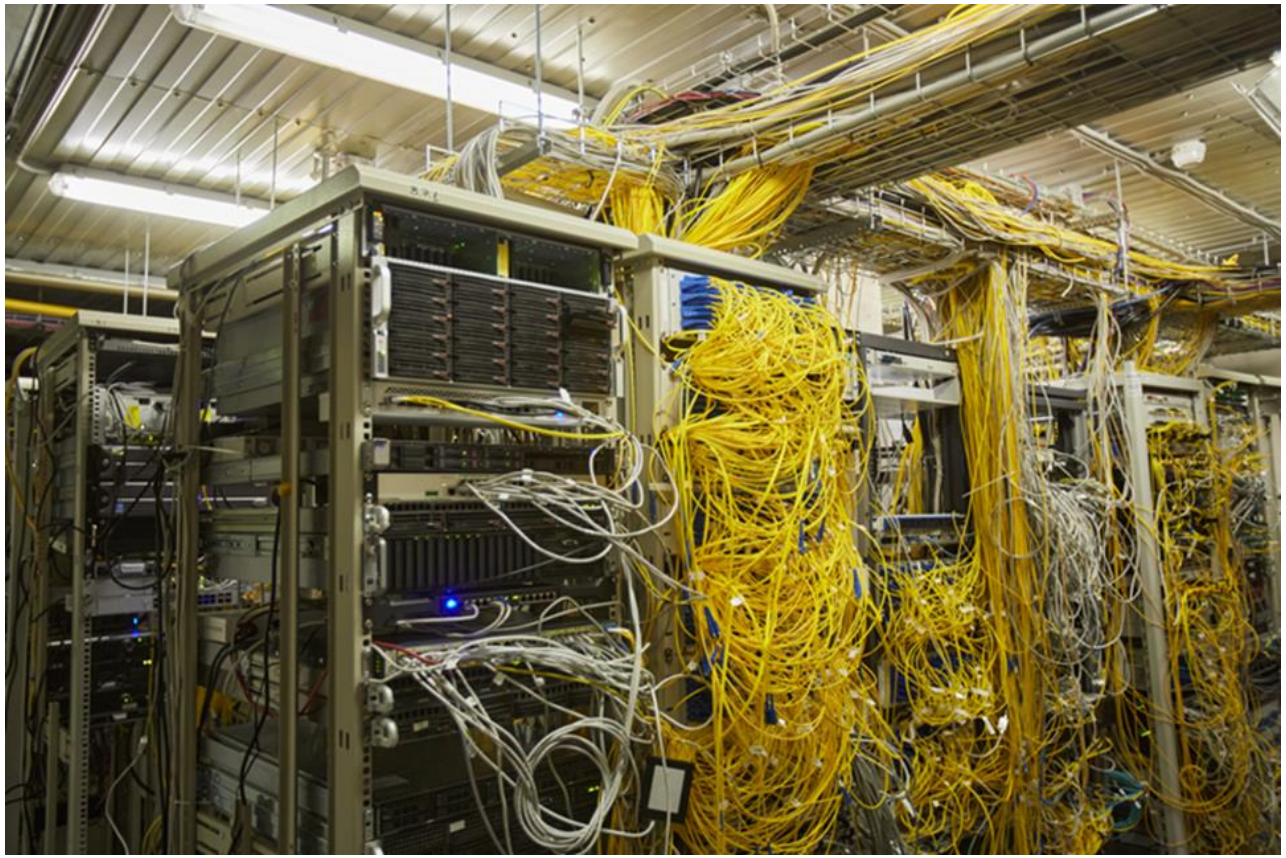
Rollable ribbon, 250 µm

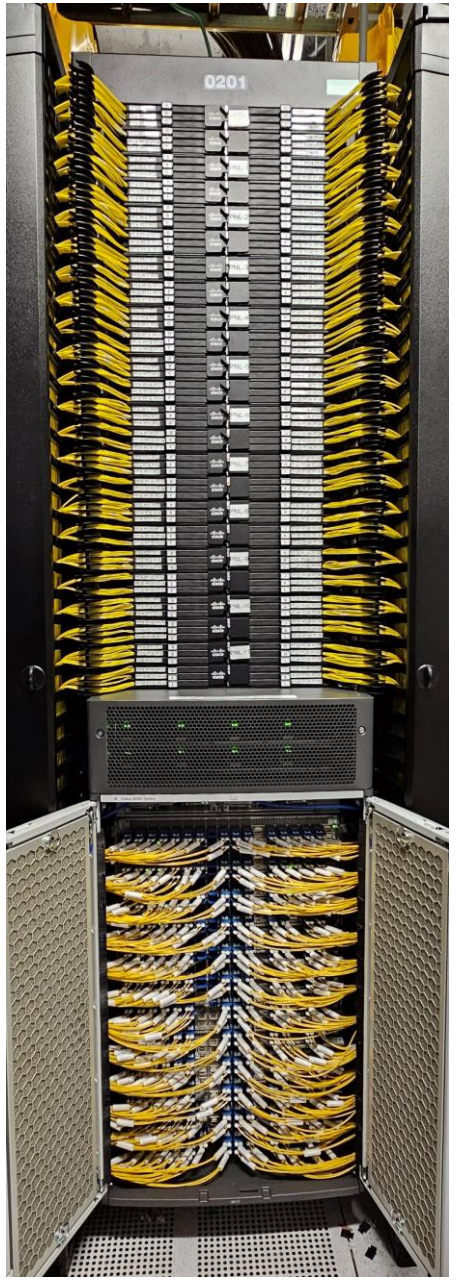
The typical single-fiber transmission capacity has increased significantly from 2.5 Gb/s in 1989 to 32 Tb/s in 2019, or over 10,000 times. The average single-fiber transmission capacity increase over the last 30 years is thus at a remarkable rate of over 30% per year.

Tendency for High Density # Fibers/1 RU

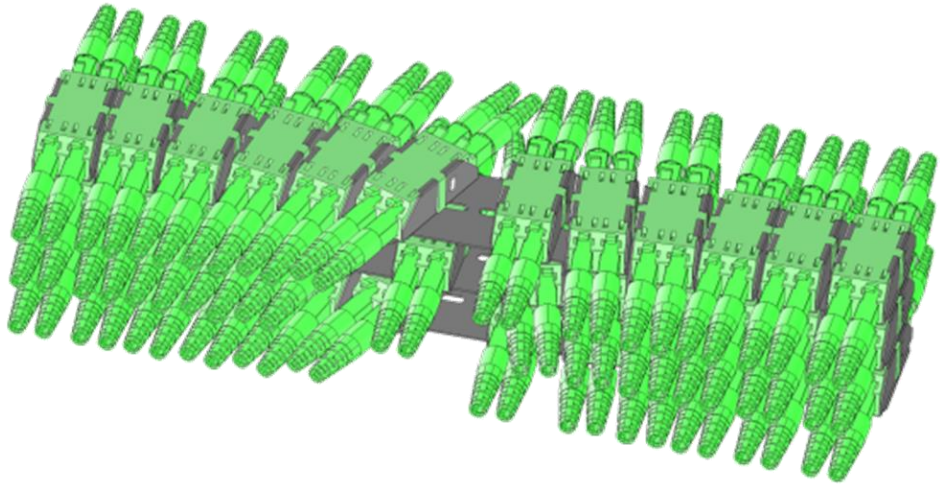


Managing high density…





Patch Panels Designed for High Density



Spreadable adapter concept

Spreadable Adapter Technology – >> High Density Easy Access

Improved cable organization and management

- Spreadable adapters enable easy connector access to any adapter in any row without affecting insertion loss.
- Instant port identification with easy access makes moves, adds, & changes in high fiber density environments manageable

Flexibility in arranging connections

- Adaptive cassette design allows for a variety of optical components to be used to get the maximum platform utility

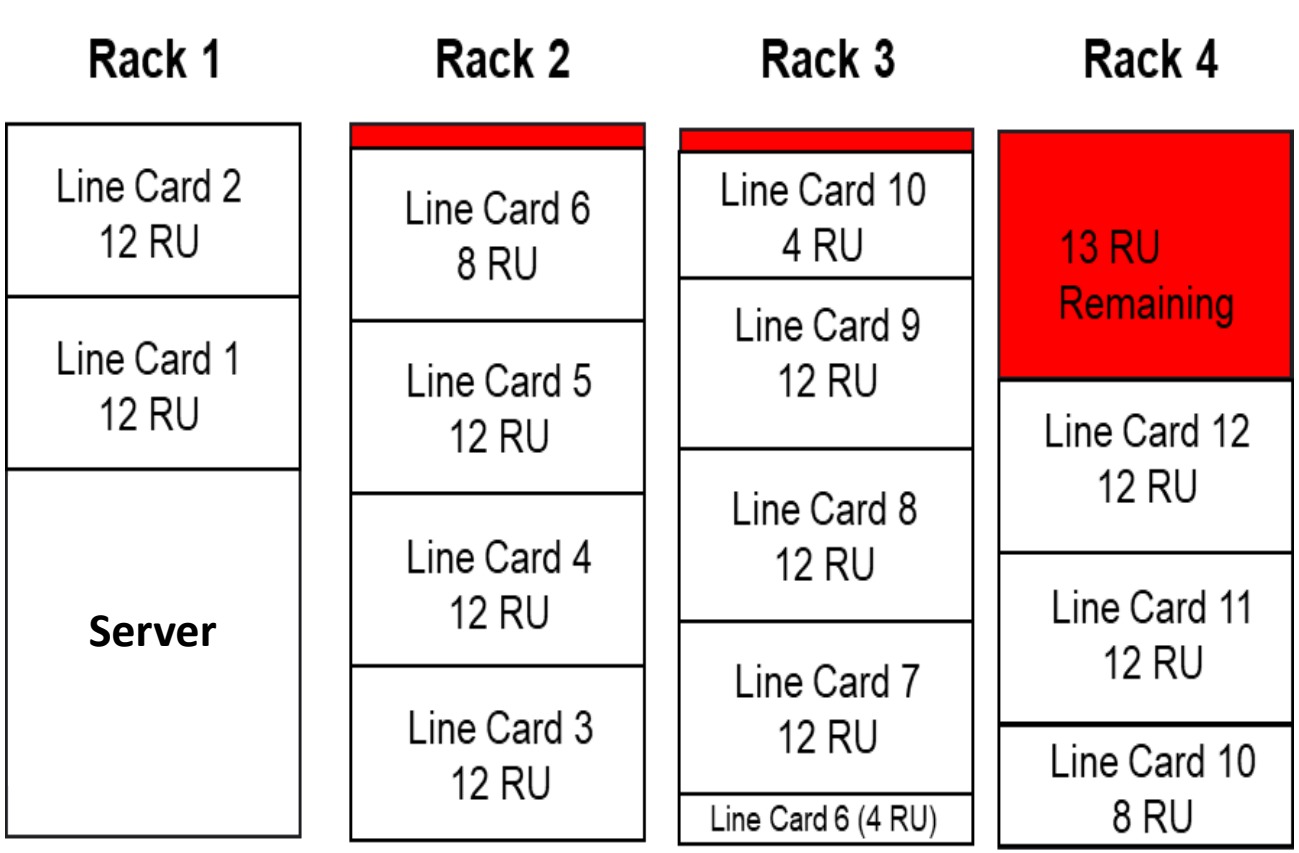
Reduced maintenance and troubleshooting time

- Backside adapter maintenance can be done from front of chassis

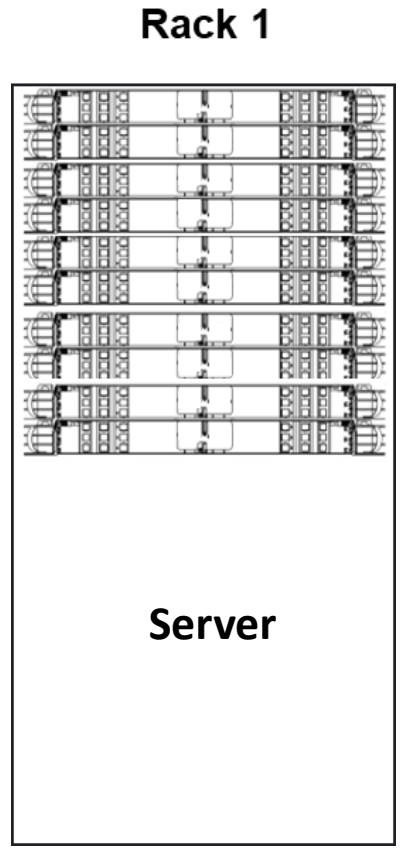
Scalability and future-proofing

- Port count can scale within the cassette for custom density
- No need to remove cables and panels when making upgrades

Value Proposition for High Density Panels



Current configuration requires 4 separate 45 RU racks



HD Fiber Patch Panel Solution

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Thank you !

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