

# **SENKO SN Fiber Connectivity and its impact on Reliability and Sustainability of Communications networks**



# Challenges

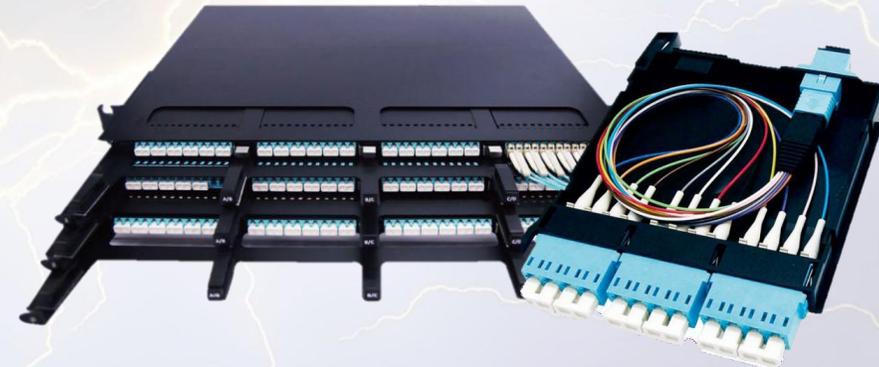
## Increased density without compromise

- > Rising energy costs and need for sustainability
- > Increased densification across the network
- > More complexity in managing connectivity
- > Rising operational costs affected by legacy solutions
- > Increasing data rates (400G)

Balancing density and performance with speed of deployment

# Traditional Solutions

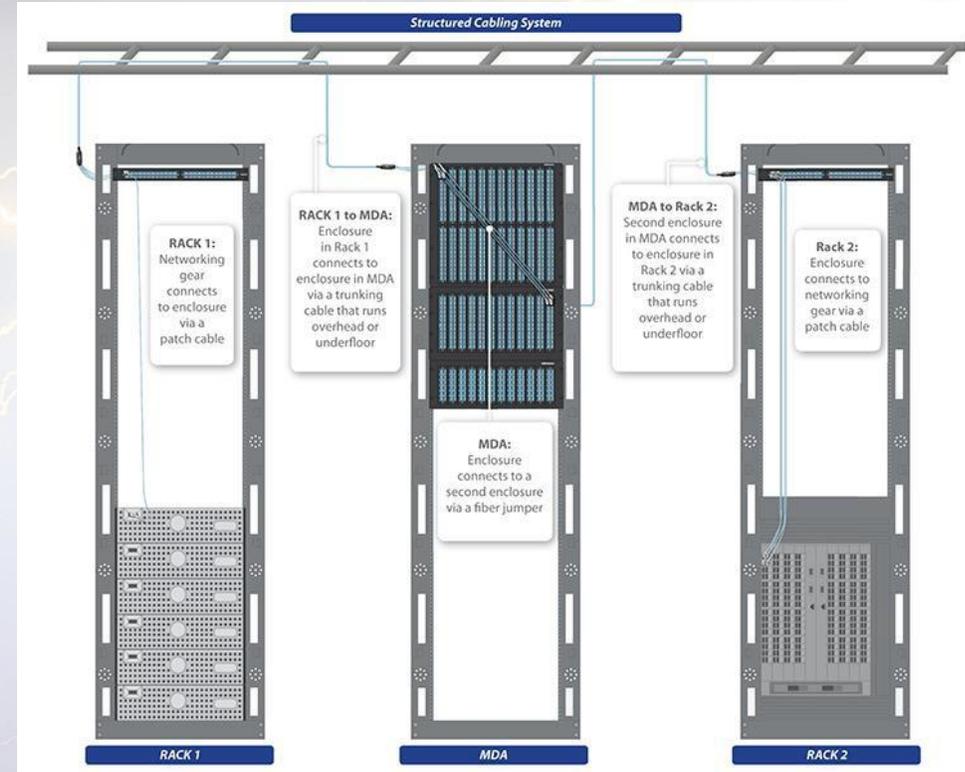
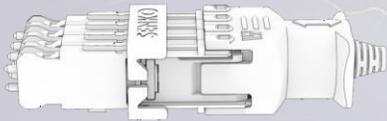
- Chassis systems with a density of 144f per 1RU
- Cassette-based systems with MPO to LC transitions
- MPO backbone cabling with BASE8/BASE12
- LC patch panels to connect duplex servers
- Multiple connection points for network access



Answer: SENKO **SN**<sup>®</sup> UNIBOOT

# Centralized Cross Connects

- Fast 'splice-free' connections with MPO
- Flexibility to mix and match connector type
- Modular 'pay as you grow' approach
- High-density with up to 144 fibers per 1RU
- Factory tested and guaranteed

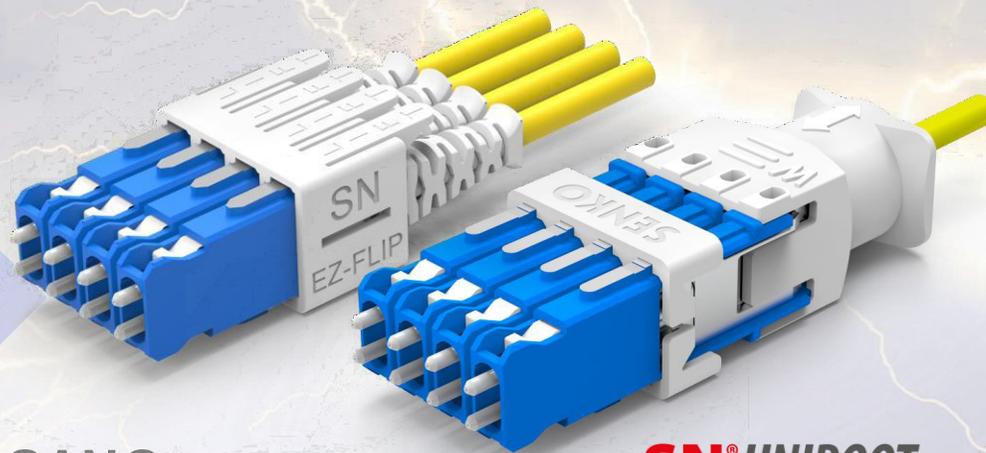


# Legacy vs. **SN**<sup>®</sup>

MPO



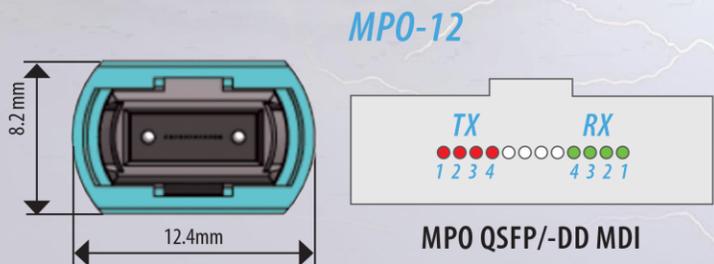
**SN**<sup>®</sup> 4-GANG



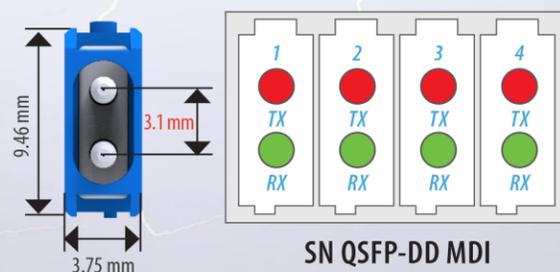
**SN**<sup>®</sup> UNIBOOT

BASE-8

BASE-8/Base-2

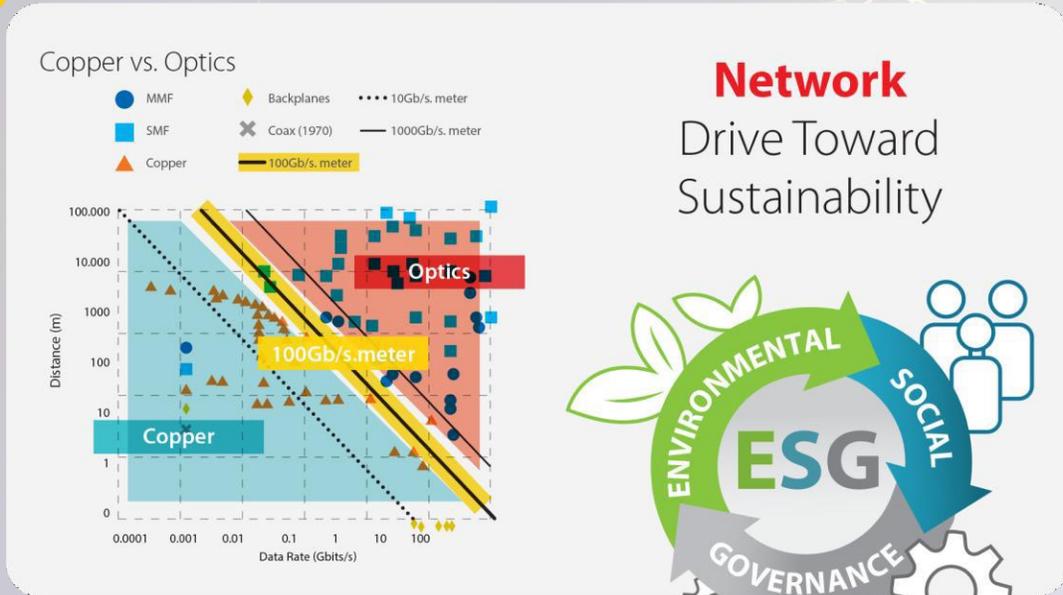


VS

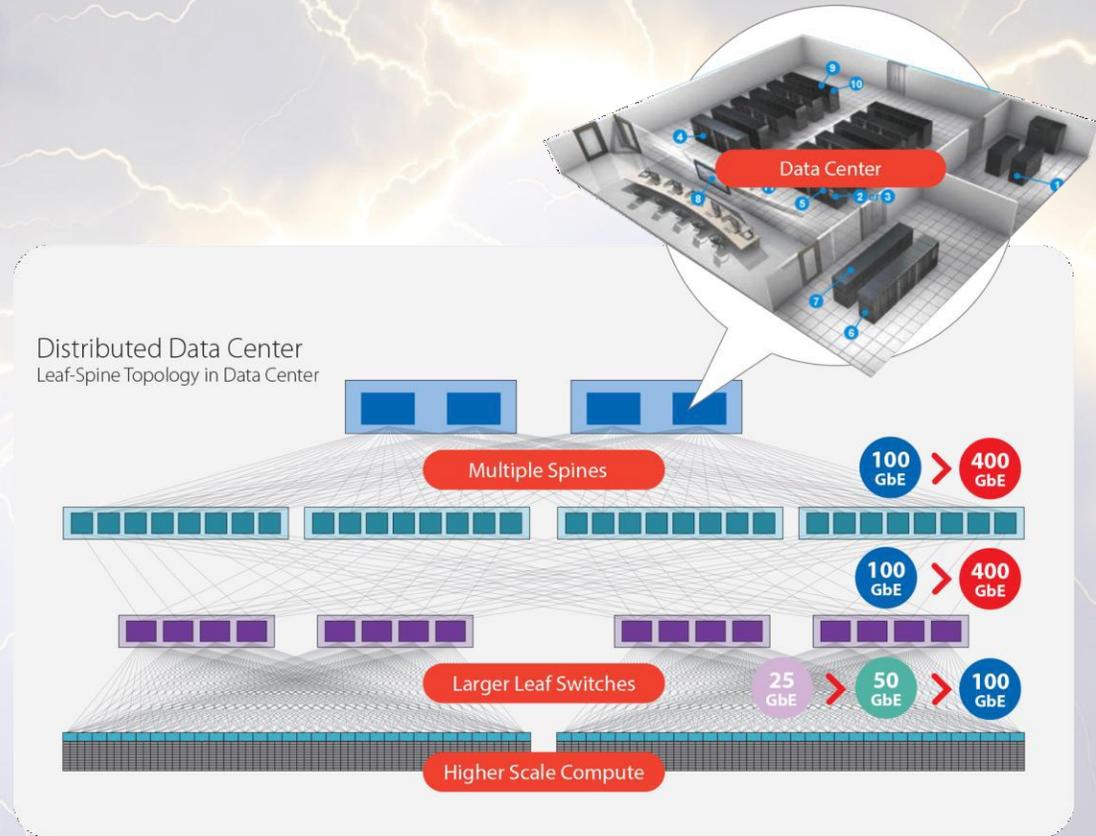


# Current Market Status

> Network congestion, densification and complexity



**Network**  
Drive Toward  
Sustainability



# Data Rate Trends



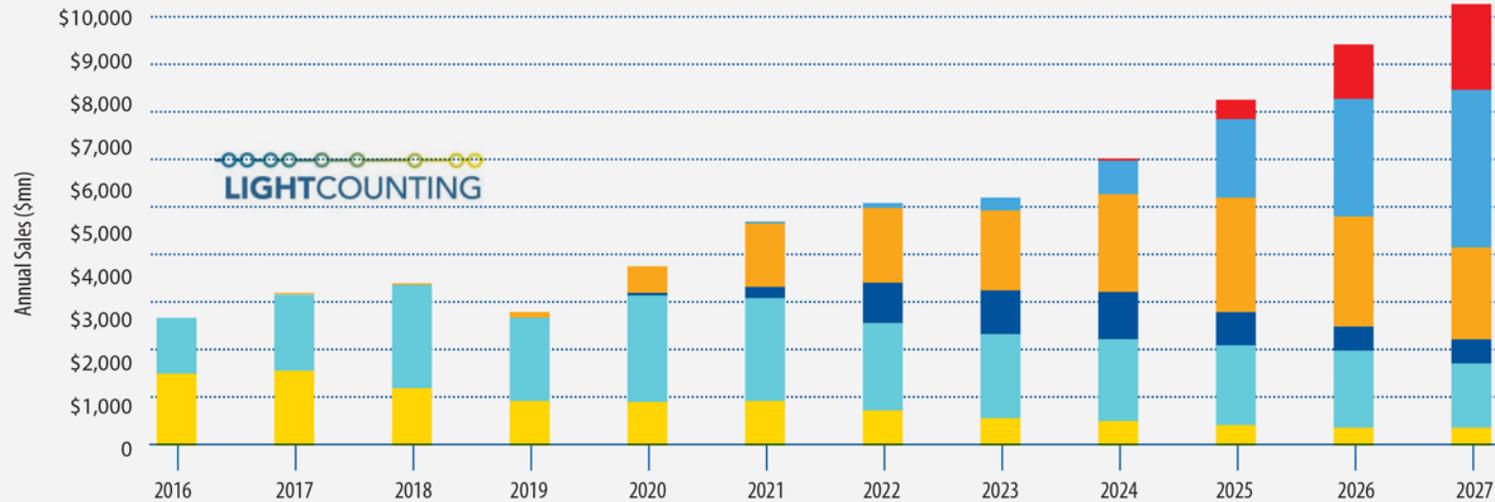
1.6TB is starting in 2024

SENKO connectivity is driving next-generation applications that consume unparalleled amounts of data.

## Network Data Rates



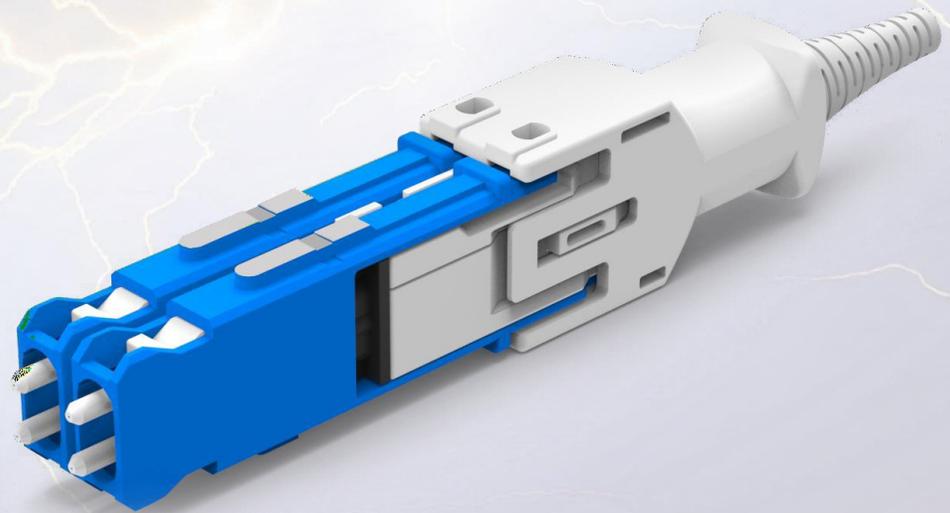
Sales of ethernet optical transceivers by Data Rate (historical data and forecast)



Source: September 2022 Ethernet Optics Report

# **SN**<sup>®</sup> *UNIBOOT* Connector

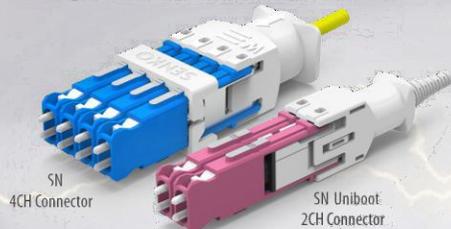
- > Optimized backbone connectivity



# SN<sup>®</sup> Portfolio

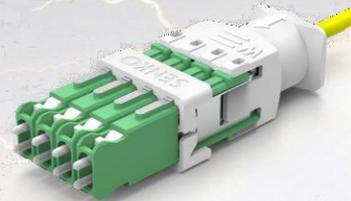
## SN<sup>®</sup> UNIBOOT CONNECTOR

Base-8/Base-2 connector designed for high-density trunk applications



## SN<sup>®</sup> UNIBOOT CONNECTOR APC

Base-8/Base-2 connector designed for high-density trunk applications



## SN<sup>®</sup> CONNECTOR

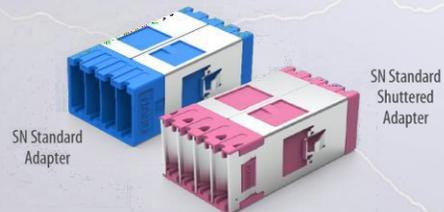
Standard duplex SN<sup>®</sup> connectors for patch cord assemblies and breakouts

SN Standard Connector



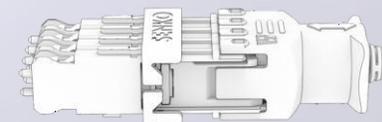
## SN<sup>®</sup> ADAPTER Standard

Standard 1 and 4-channel adapters for high-density patch panels

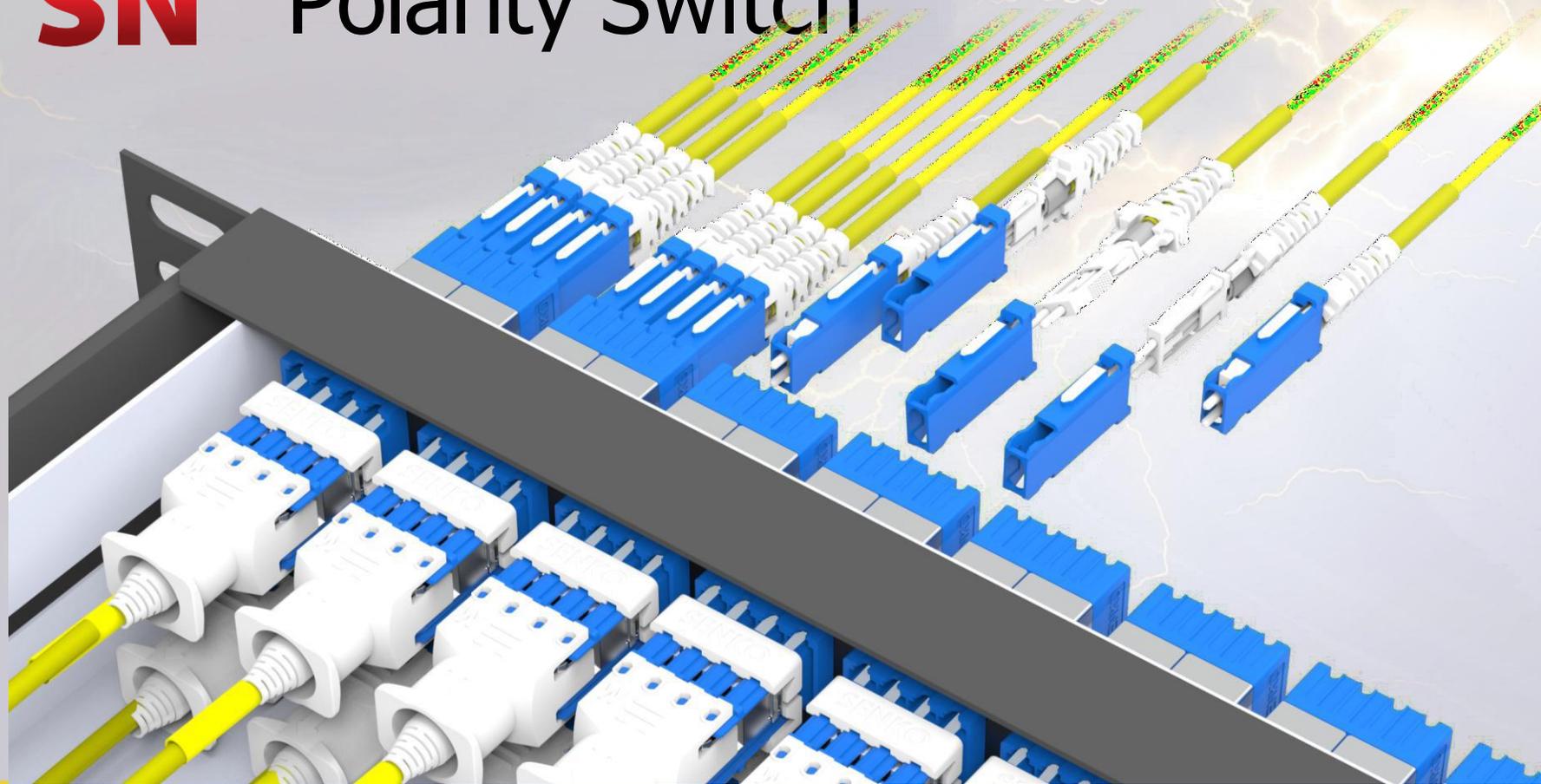


## SN<sup>®</sup> ADAPTER APC

APC adapters for high-density patch panels

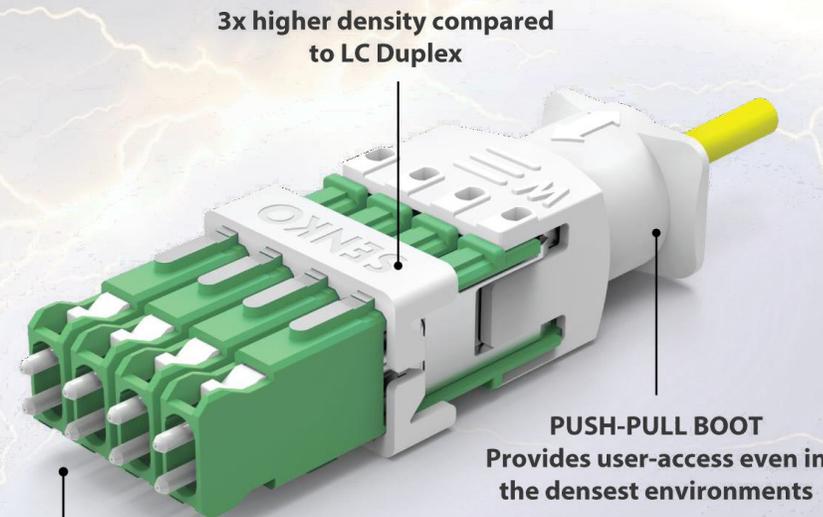


# SN<sup>®</sup> Polarity Switch



# SN<sup>®</sup> UNIBOOT APC Performance

APC serves networks with stringent RL demands

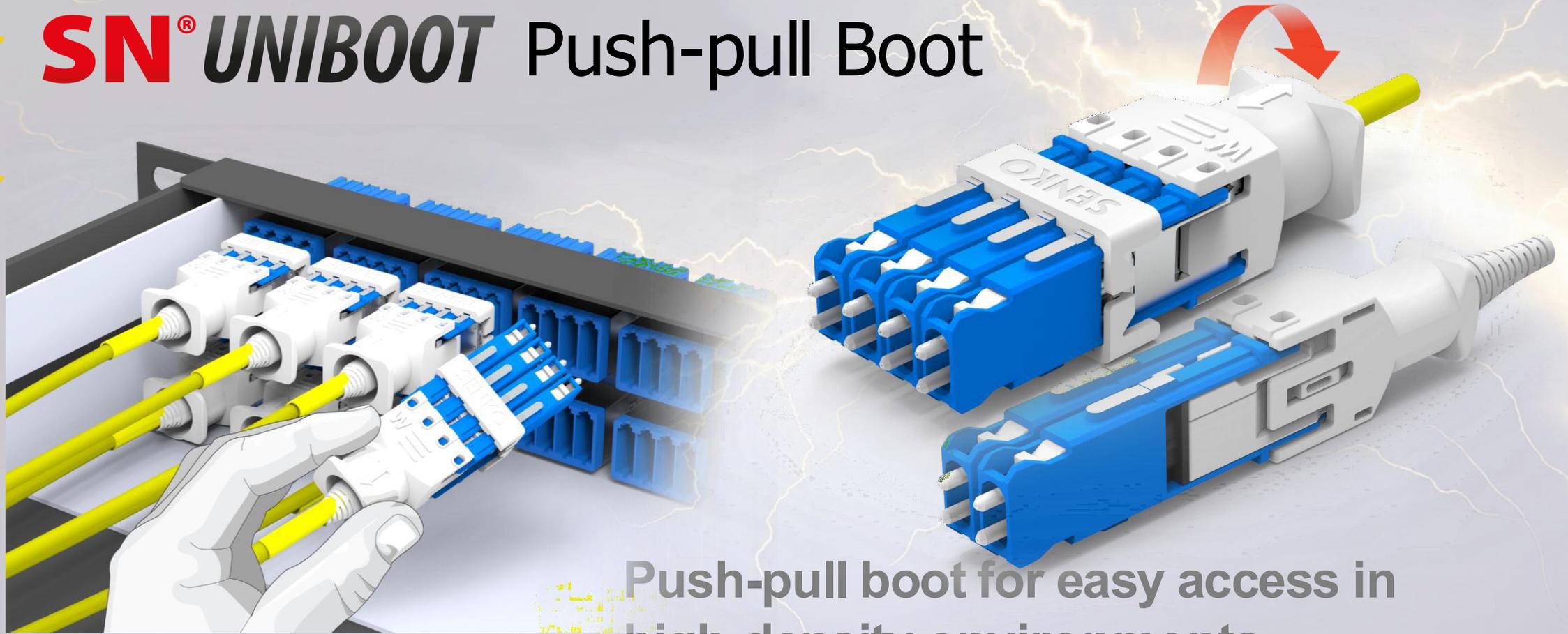


3x higher density compared to LC Duplex

PUSH-PULL BOOT  
Provides user-access even in the densest environments

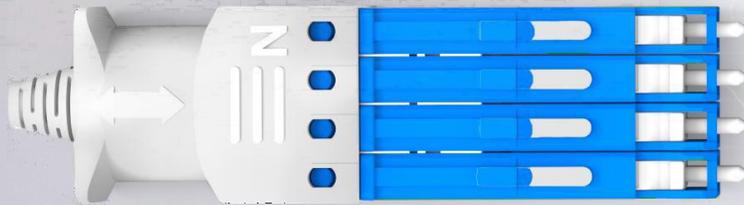
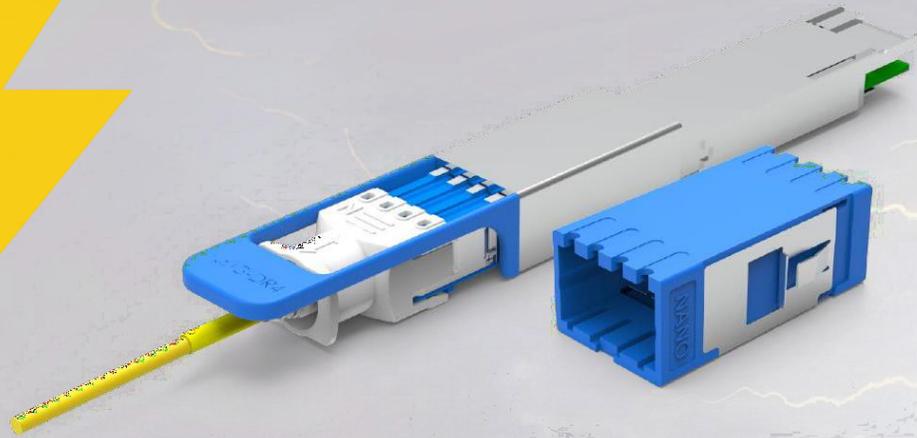
8 x 1.25mm  
CERAMIC FERRULES  
Providing carrier-grade reliability and performance

# **SN<sup>®</sup> UNIBOOT** Push-pull Boot

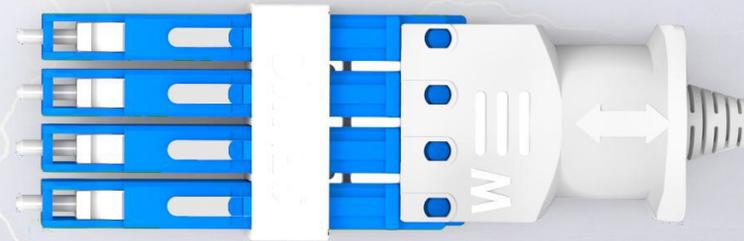


Push-pull boot for easy access in high-density environments

# SN<sup>®</sup> UNIBOOT Variable Pitch



**Narrow Pitch**



**Wide Pitch**



Narrow Pitch  
for No-wall Adapters

**NARROW**

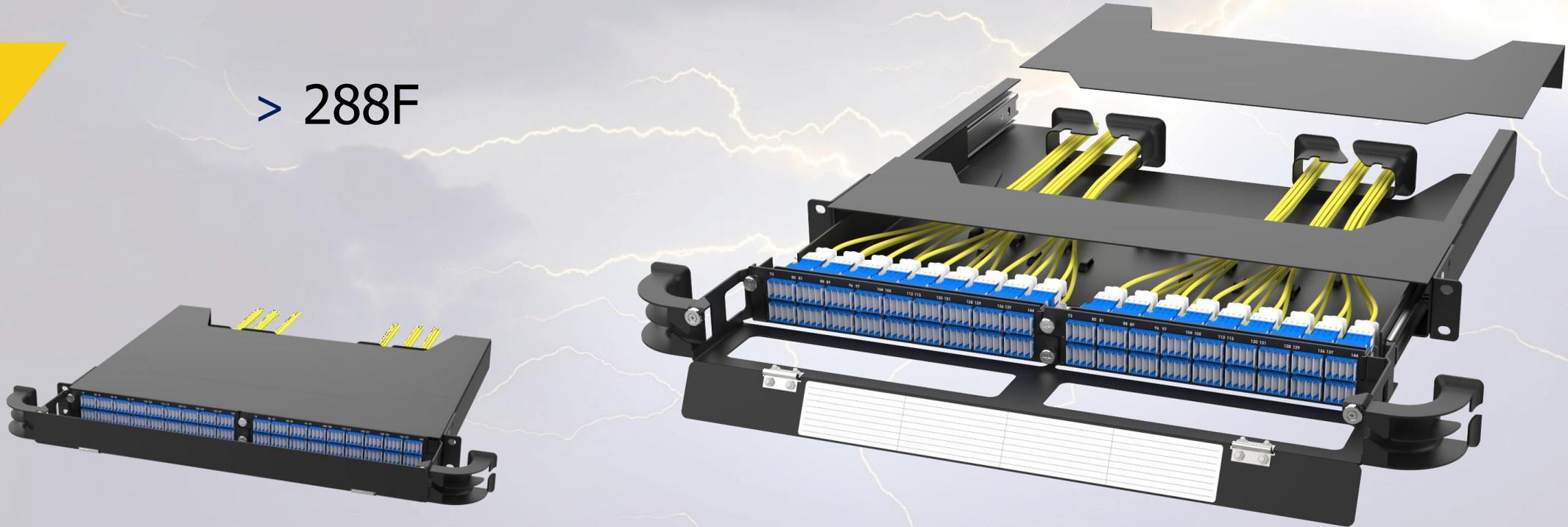


Wide Pitch  
for Walled Adapters

**WIDE**

# SN<sup>®</sup> UNIBOOT Chassis

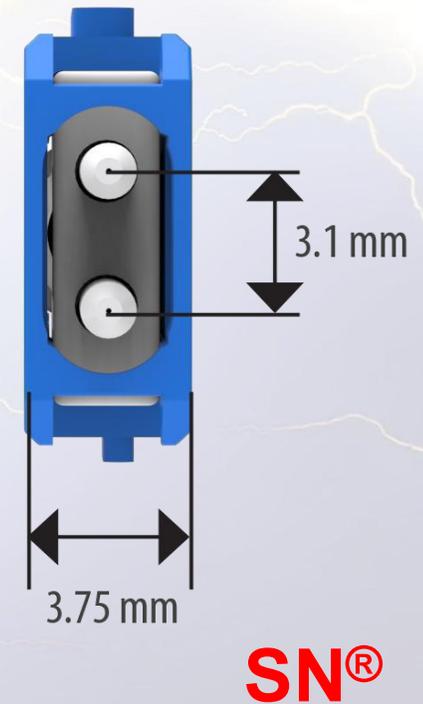
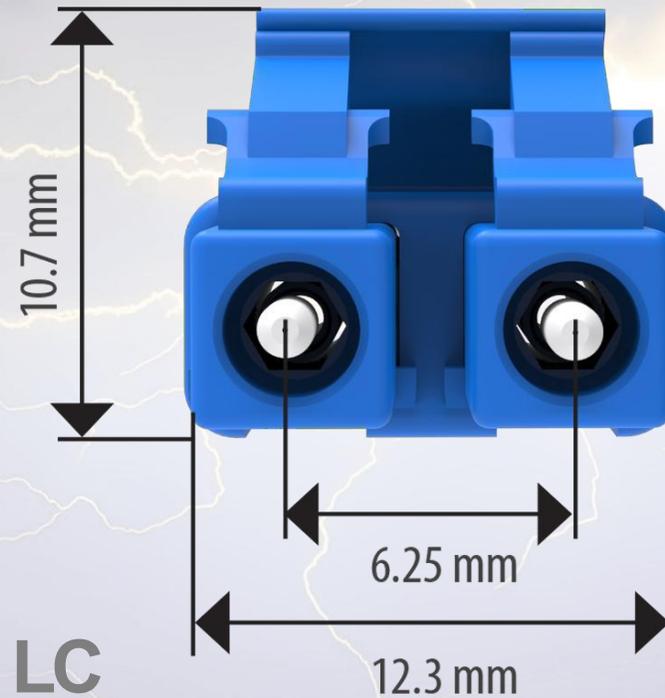
> 288F



# SN<sup>®</sup> Size Comparison



> 4 x SN (8-fibers)



# SN<sup>®</sup> UNIBOOT Hyper Density

## HYPER Density



As much as 432 fibers per 1RU of rack space. Huge cost-per-port savings and significantly better rack utilization.



**54 x SN<sup>®</sup>**  
 Total Capacity  
**216 CH**  
**432 F**  
(1RU single sided rack/cabinet)

## MEGA

<360 fibers



## MEGA Density

More than double the density of the current offering with LC connectivity. Significantly lower total cost per port.



**36 x SN<sup>®</sup>**  
 Total Capacity  
**144 CH**  
**288 F**  
(1RU single sided rack/cabinet)

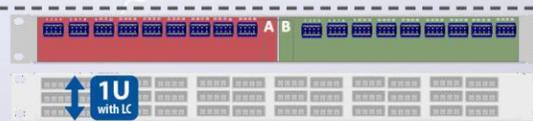
## ULTRA

<144 fibers



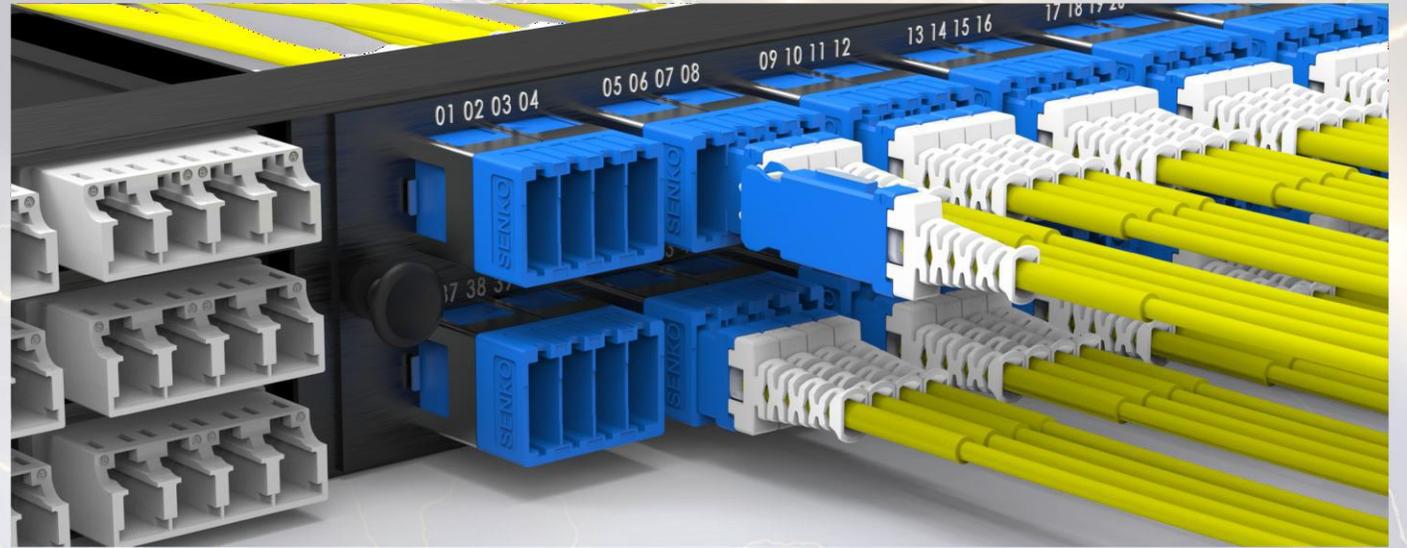
## ULTRA Density

Industry bench-mark density per 1RU using engineered chassis and cassette systems.



**18 x SN<sup>®</sup>**  
 Total Capacity  
**72 CH**  
**144 F**  
(1RU single sided rack/cabinet)

# SN<sup>®</sup> UNIBOOT



TELCO-grade optics  
designed for the data  
center

> **Ceramic  
advantage**

> Proven carrier-grade  
reliability and  
performance

> **Speed of  
deployment**

Same flexibility with a  
leaner network design and  
build

**Simplified  
design**

> Leveraging simplicity of  
duplex based connectivity  
everywhere

# Faster. Leaner. Denser. **Greener.**

*Optimize link-design with densification and direct-breakout capability*

## SOLUTION<sup>+</sup>

### Legacy Cassette

*Faster connector access, and polarity change*



LC

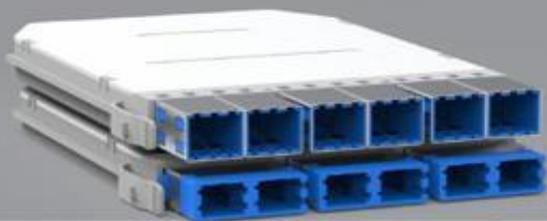


MPO-PLUS<sup>®</sup>

## EVOLUTION

### Upgrade Cassette

*Up to 3x denser than legacy*



SN<sup>®</sup>

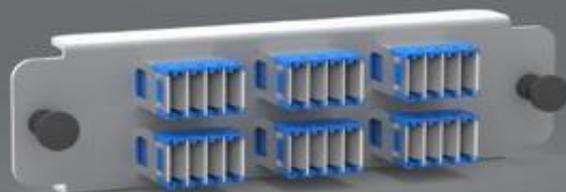


SN-MT<sup>®</sup>

## REVOLUTION

### Eliminate Cassette

*More flexibility, less hardware*



SN-Uniboot<sup>®</sup>

Direct Breakout Patent US11474315B2 and US11675137B2

# SN<sup>®</sup> UNIBOOT for Sustainable Networks

Less plastic per connection  
and reduced hardware material

**67%**  
Reduction in  
plastic



Improve air flow to equipment and reduce energy consumption

Increase capacity and reduce the need for additional data centers

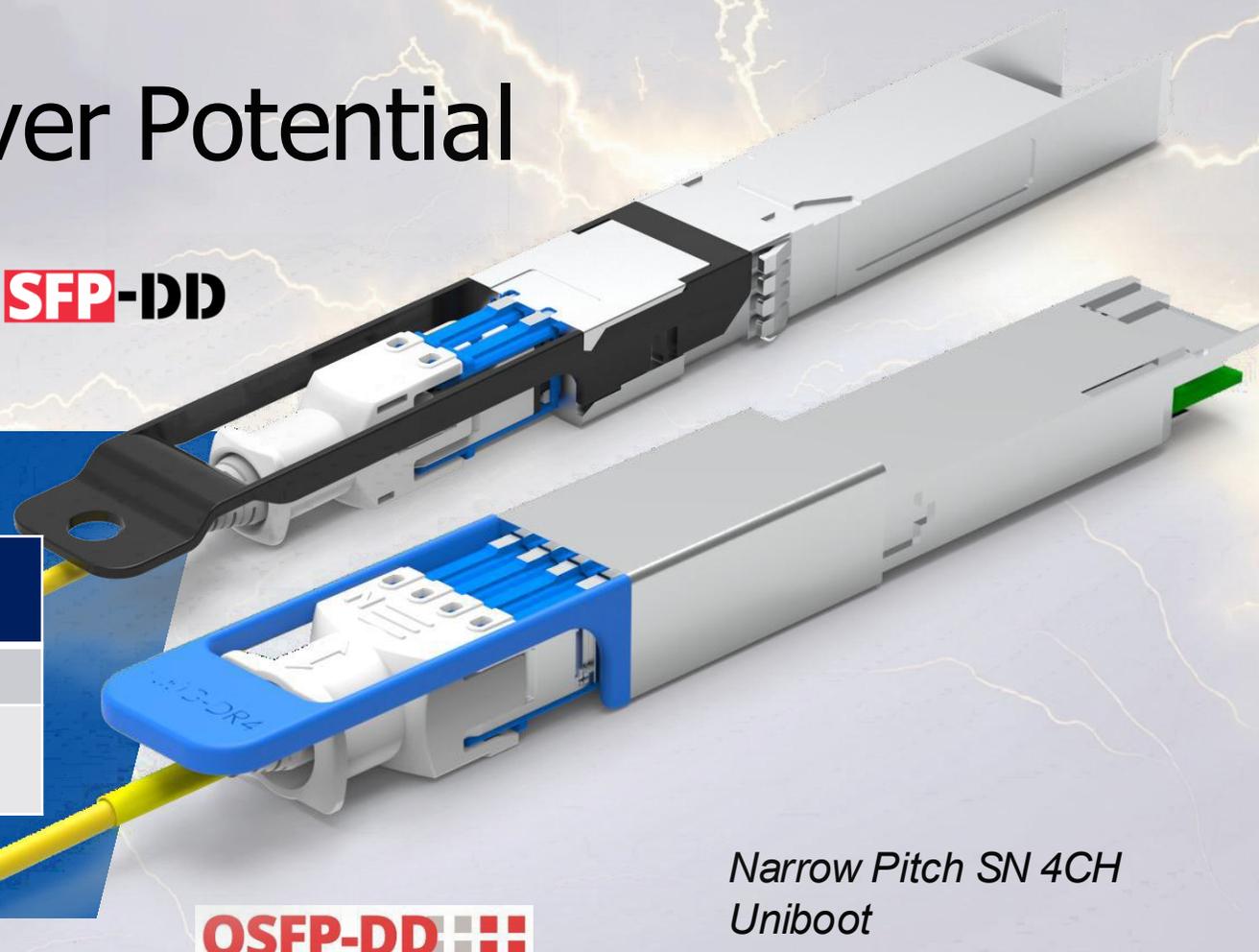
SN<sup>®</sup> connectors are less than half the size of an LC duplex connector



# Maximizing Transceiver Potential

**SFP-DD**

Type	Typical Speed	Power per Module	Energy Efficiency
SFP28 (25 G)	25 Gb/s	1.5 – 2 W	~60 – 80 mW/Gb/s
QSFP-DD 100 G (4x25)	100 Gb/s	3 – 4 W	~35 – 40 mW/Gb/s

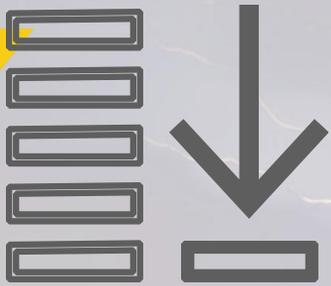


**QSFP-DD**

*Narrow Pitch SN 4CH  
Uniboot*

200G  
400G

# **SN<sup>®</sup> UNIBOOT** for Sustainable Networks



## **Less Hardware**

Eliminate cassettes and fanouts for a leaner and more sustainable link



## **Lower Loss**

Fewer connections in the link and better performance with ceramic ferrules



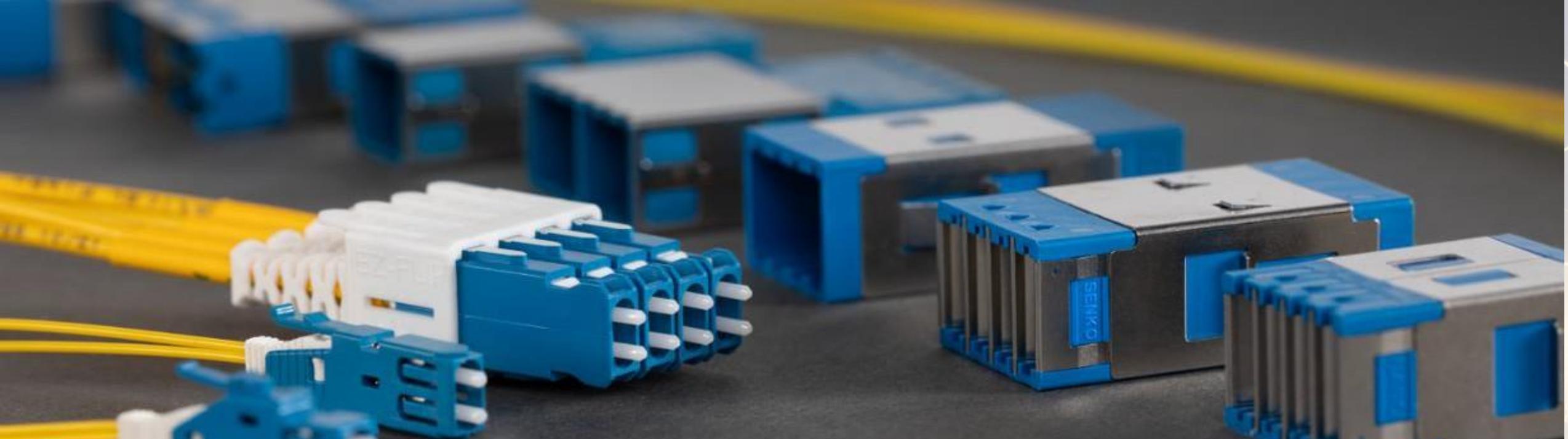
## **More Flexibility**

Base-8/base-2 hybrid functionality provides increased flexibility



## **> Faster**

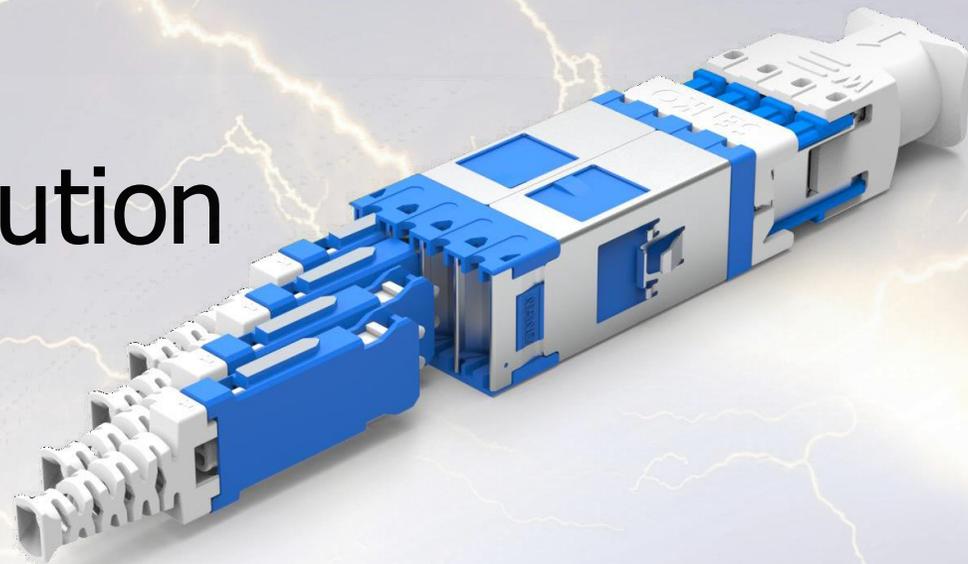
Patch multiple connections simultaneously to reduce installation and servicing time



# Sustainability

The density of SN<sup>®</sup> connectors allows operators to reduce the number of transceivers, switches, power-consumption, and racks needed to operate their data centers or telecom exchanges.

# SN<sup>®</sup> is the Complete Solution



More flexibility,  
less hardware



SN series

## > SN<sup>®</sup> EZ-FLIP<sup>®</sup> Connector

- Highest density duplex connector
- Fast polarity change
- Reliable, carrier-grade performance
- APC versions available

## > SN<sup>®</sup> Shuttered Adapter

- 100% automatic shutter action
- Laser and dust protection
- IEC TR 62627-08 rated shutter attenuation
- Full metal shutter

## > SN<sup>®</sup> UNIBOOT Connector

- Fast patching
- Base-8 and Base-2 compatibility
- Provides ferrule-based alternative to MPO
- Significantly lower total cost of ownership
- Less complexity vs MPO

# SENKO<sup>®</sup>

Advanced Components

[senko.com](http://senko.com)

**APEG** PROTECTION  
ENGINEERS  
GROUP