



# Innovative Solutions and Services

2019 Company Overview



# The T1 Advantage

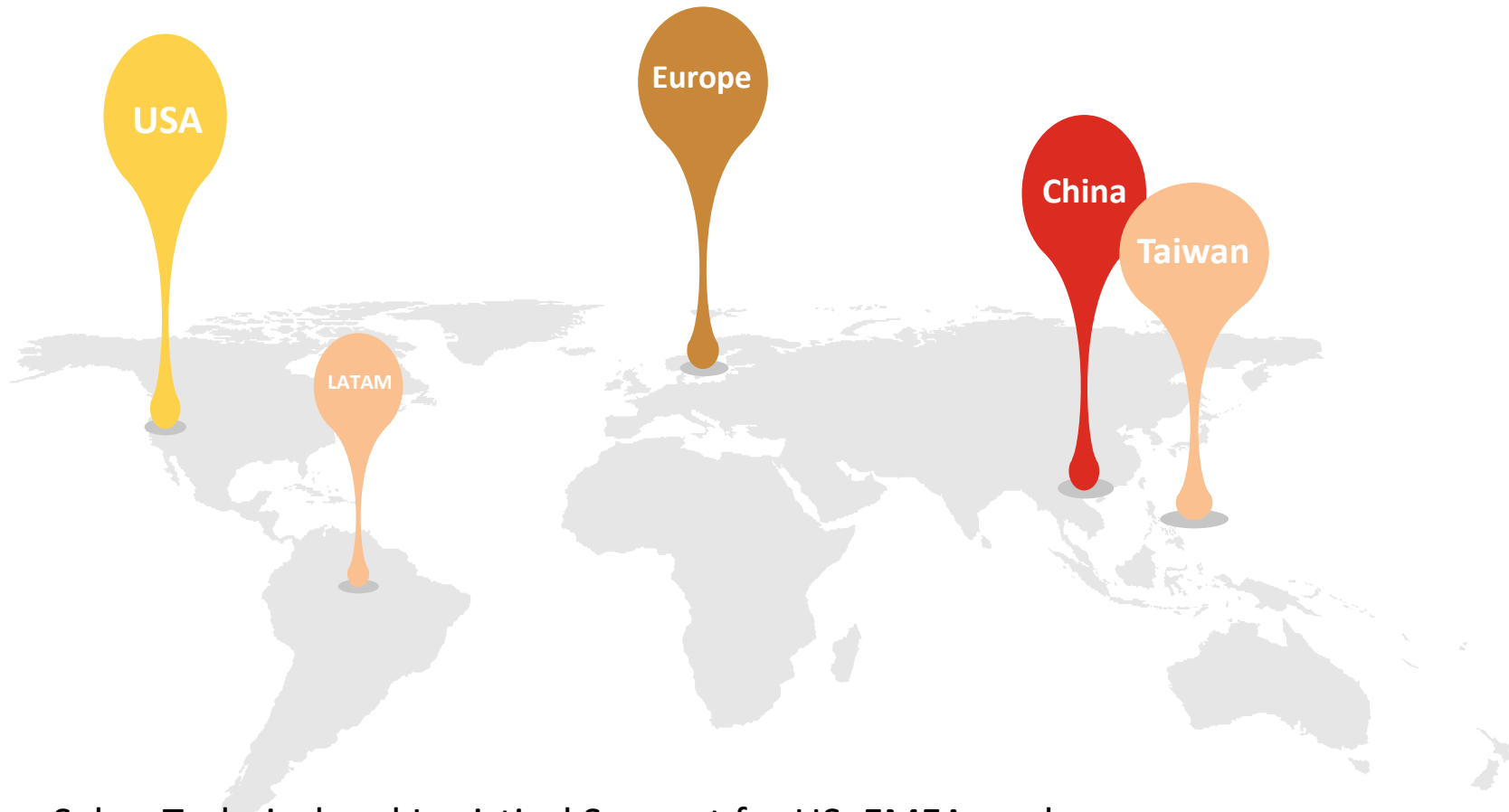


T1 Nexus brings together the most reliable advanced networking solutions

- Backed by vertically integrated high volume ***Transceiver and cable*** manufacturers in US, EMEA and ASIA
- T1 works with partners that concentrate on the research, design, production and marketing of high-speed optoelectronic integrated devices and optics.
- T1 is a trusted advisor, with deep engineering support and design capability, yet with greater flexibility in supply chain management and local inventory, with the lowest cost direct pricing.



# Global Coverage



- Sales, Technical and Logistical Support for US, EMEA, and Latin America
- Optical Engineers in region along with European and Asia partners provide continuous support around the clock.



# US Operations

- R&D, Warehouse and Testing Lab in California
- T1 provides consulting on optical network deployment, code development, and setting up coding operations
- Development and interoperable testing in the US available to provide TAA, with Taiwan or USA Country of Origin
- Ideal time zone to deliver Same day shipping



# Manufacturing Capability

## Customized Products

Independent  
Research and  
Develop for  
Unique  
requirements

## Professional R&D

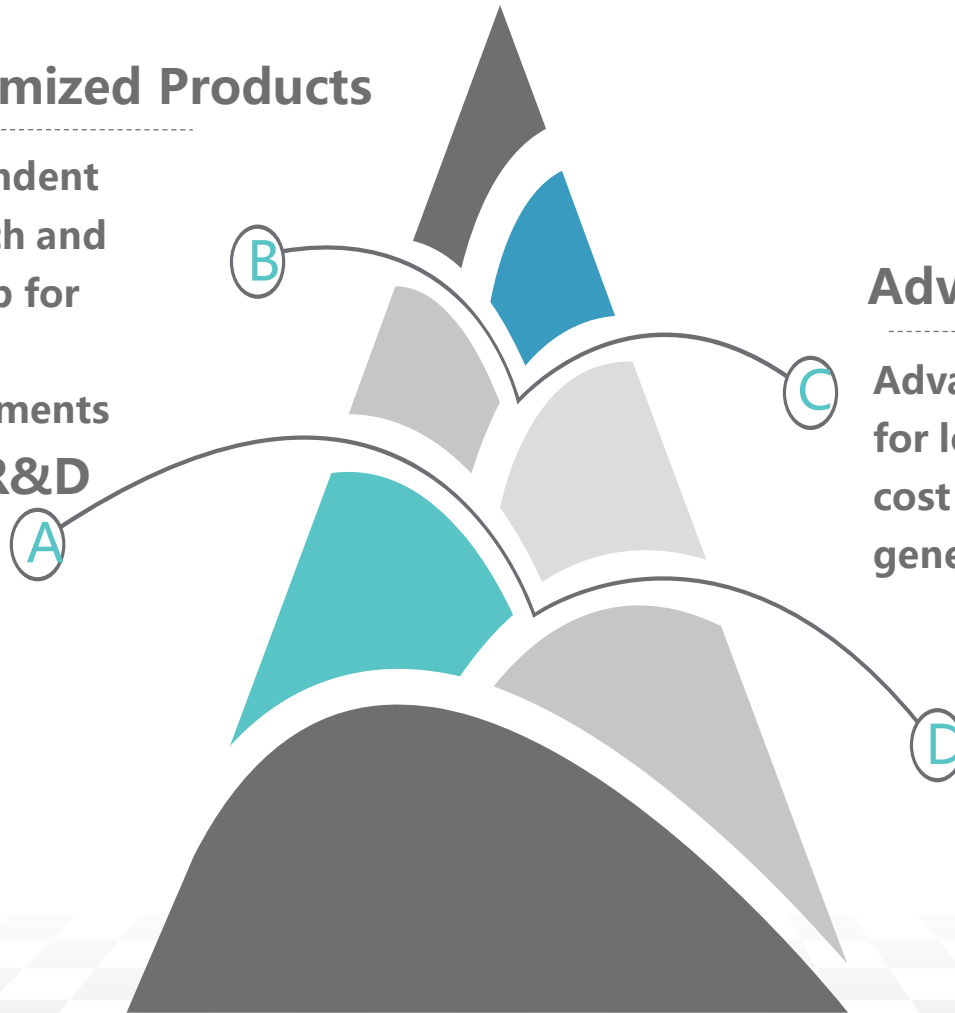
In-house  
Vertical  
Integration of  
key components  
–Laser,  
TOSA/ROSA

## Advanced Technology

Advanced Technology  
for low power, low  
cost and next  
generation products

## Strict QC System

All manufacturing  
facilities ISO 9001



# The T1 Nexus Difference

## Quality, Pricing, Delivery, Savings

- **Technical expertise to tune optical components for optimal performance**
- **20% power saving on 100G SR4 reduces OpEx for Data Centers/Enterprise**
- **Industrial temperature and 85°C versions available (100G SR4 ET)**
- **Ongoing Reliability Testing (ORT) provides additional quality assurance**
- **Special/Custom products: Rapid Prototyping and Low MOQ**
- **Wide product selection: Transceiver modules, AOC/Fanout, Optical Bypass, and SDI**
- **TAA Compliant: Made-In-Taiwan or US COOO , preferred by Mil/Aero/DoD**
- **Short Lead-times: Same day/Next day or 1-2 weeks**



# Transceiver Products for Wide Ranging Applications

## Optical Transceiver Modules

- Form Factors 1x9, SFF, SFP, SFP+, SFP28, QSFP, QSFP+, QSFP28, QSFP-DD\*, QSFP56\*
- Ethernet: 155Mbps, BIDI, 1G, 10G, 25G, 40G, 100G, 200G\*, 400G\*
- Single Mode, Multi Mode



## 5G Family of Transceiver Modules

- 25G DWDM SFP28, 50G DWDM QSFP28, 200G LR4/ER4



## SDI Video Transceiver Modules

- 12G (compatible 1.5G, 3G, 6G)

## Active Optical Cables (AOC)

- 25G, 40G, 100G, lengths up to 100m

## AOC Breakout/Fanout

- 40G, 100G, Fanout length up to 20m



# Cables & Cable Management

- Fiber optic and copper Patch Cables
- Fiber Optic Cassettes
- Direct Attach Copper and Active Optical Cables
  - Compatible coding available
  - Can be custom on each end for maximum interoperability

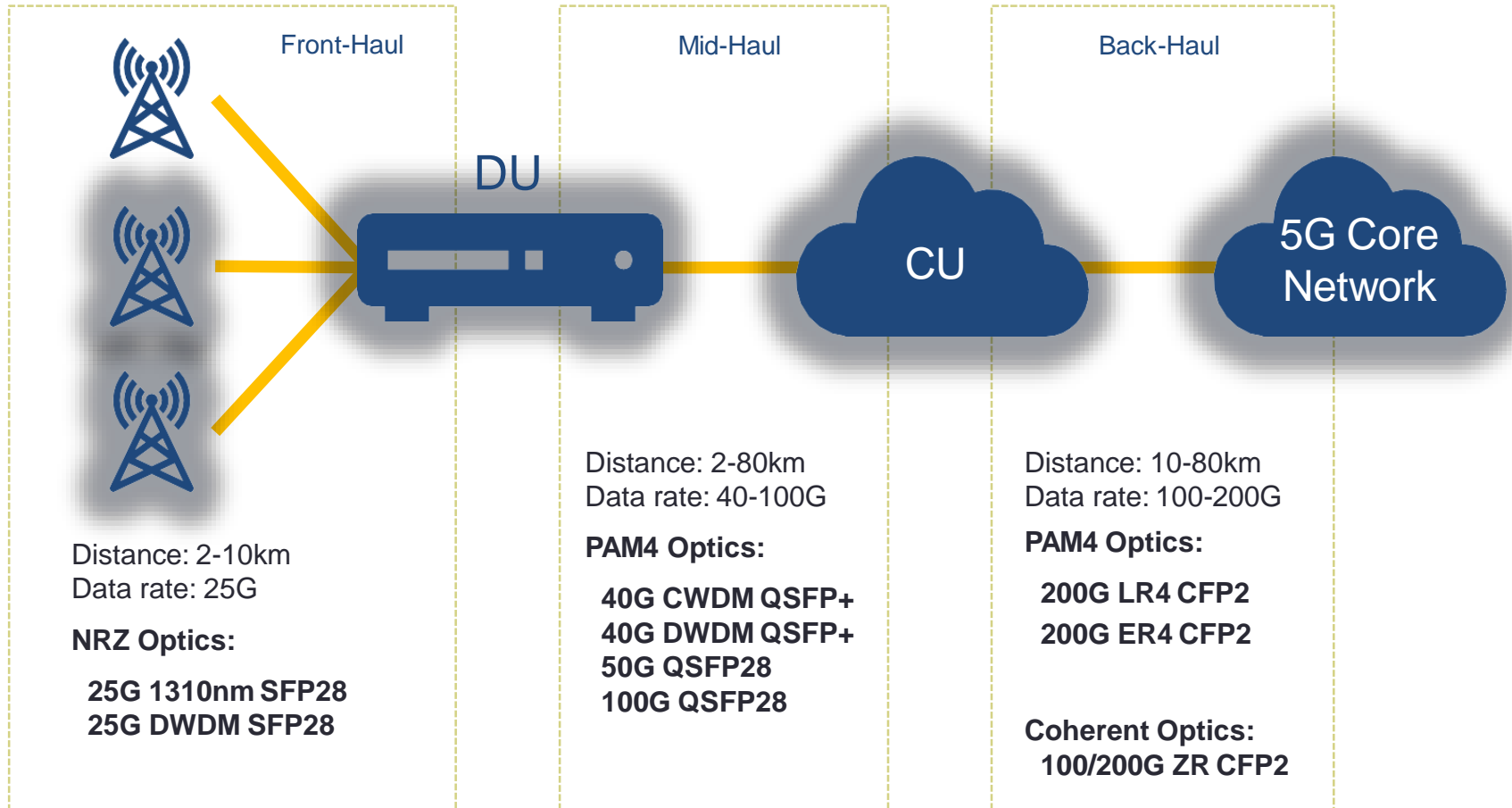




# 5G Family of Transceivers

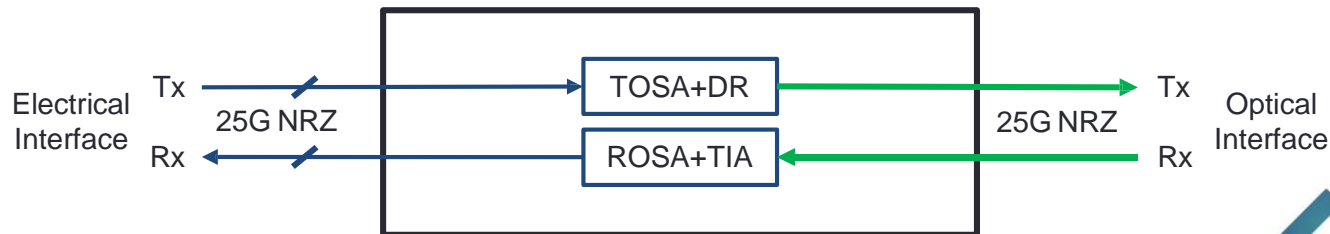


# Optics for Wireless Access Networks



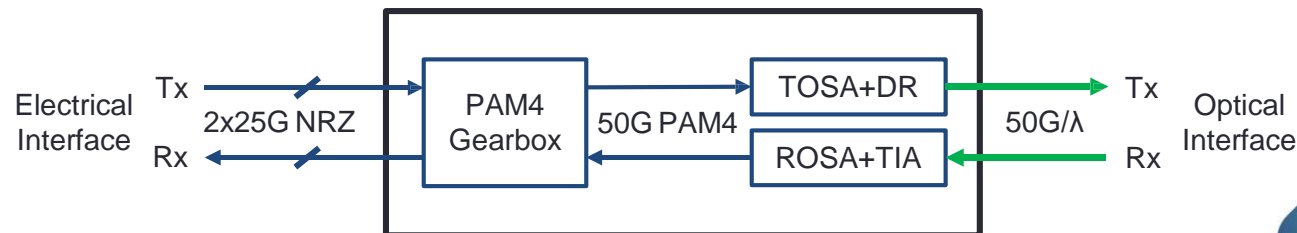
# 25G DWDM SFP28

- 25G NRZ optical transmission
- C-band 100GHz DWDM 40 channels
- 25GbE host interface
- Up to 40km over SMF with DCM
- Power consumption: 1.5W typical
- Operating temperature range: -40°C to 85°C
- Availability: C-band DWDM samples in 3 months
  - With customer commitment



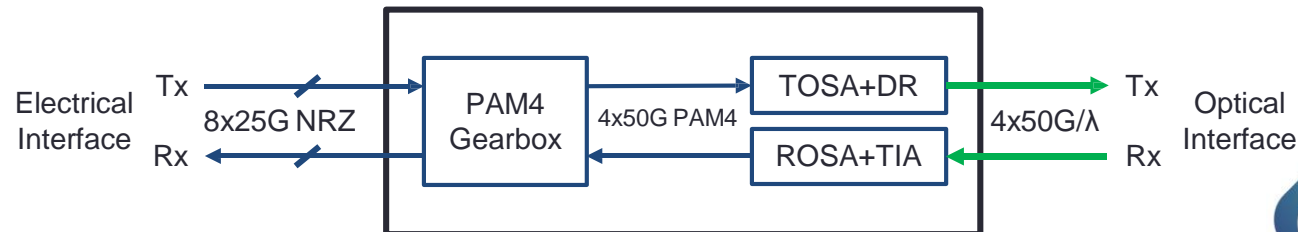
# 50G Single-l DWDM QSFP28

- PAM4 high order modulation: 50G per l
- **Integrated KP4 FEC**
- C-band 100GHz DWDM 40 channels
- 2x26.5G 50GAUI-2 host interface
- Up to 40km over SMF with DCM
- Power consumption: 3.5W typical
- Operating temperature range: 0°C to 70°C
- Availability:
  - Currently ramping 1310nm LR production for 5G deployments
  - C-band DWDM, 1310nm ER, and BiDi samples available now



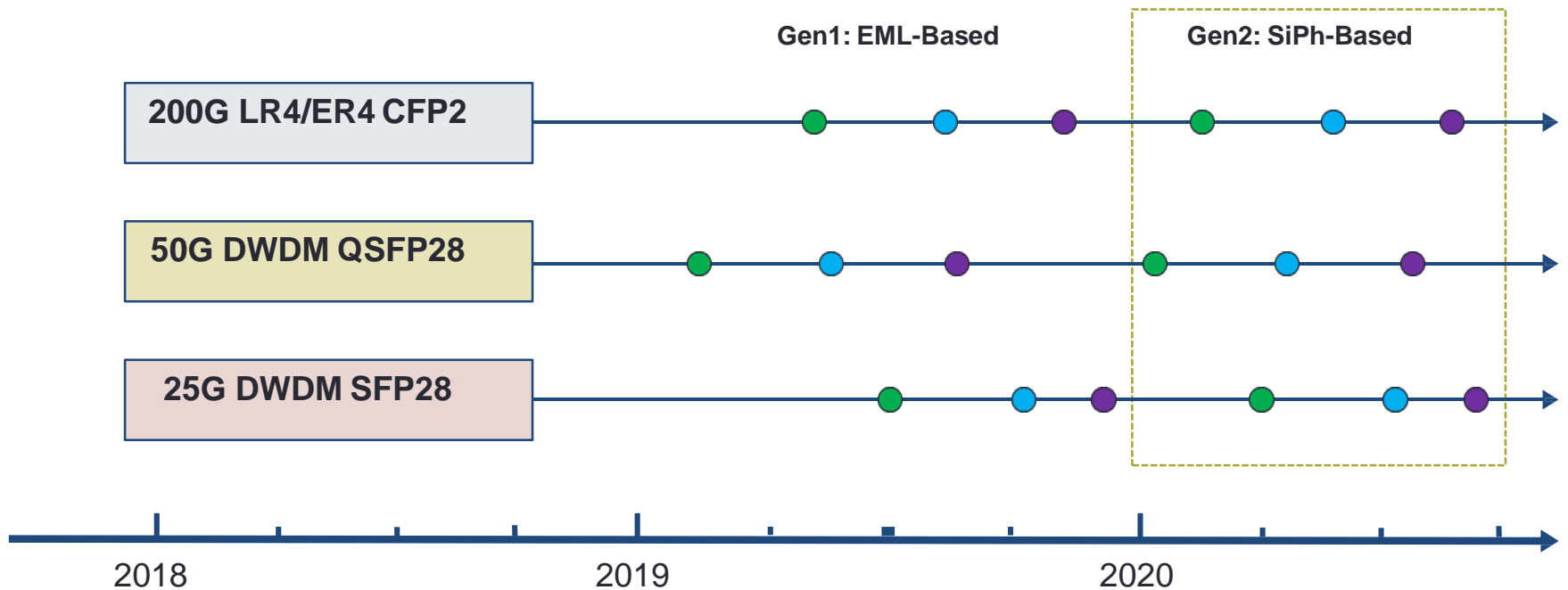
# 200G ER4 CFP2

- PAM4 high order modulation: 4x50G
- O-band LAN-WDM wavelengths
- 8x25G NRZ host interface
- Up to 40km over SMF
- Power consumption: 12W typical
- Operating temperature range: 0°C to 70°C
- Availability:
  - LR4 (10km) samples starting April 2019
  - ER4 (40km) samples starting 2Q2019



# 5G Product Roadmap

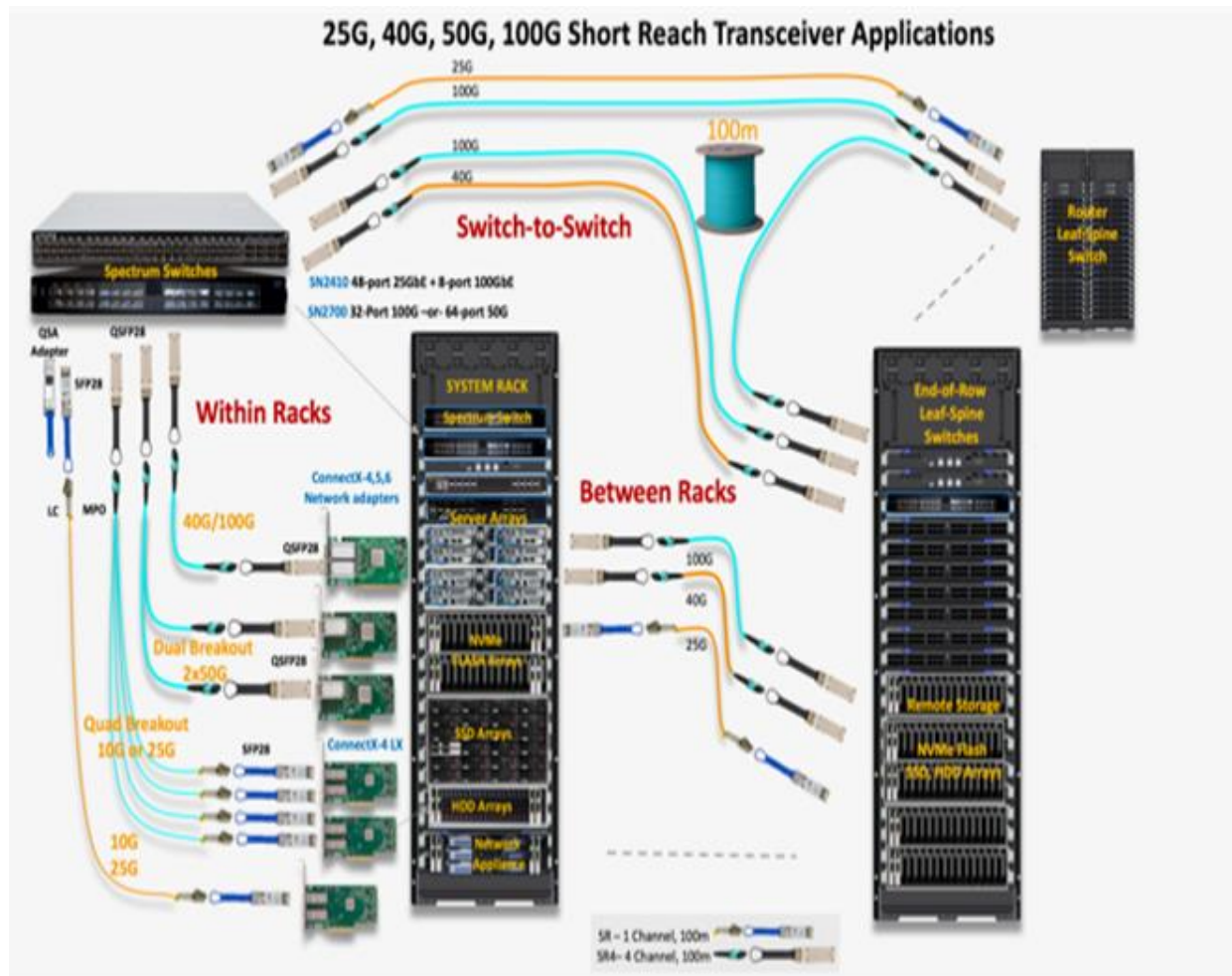
- Engineering Samples
- Design Verification Test
- Qualification & Production Release



# Data Center Applications

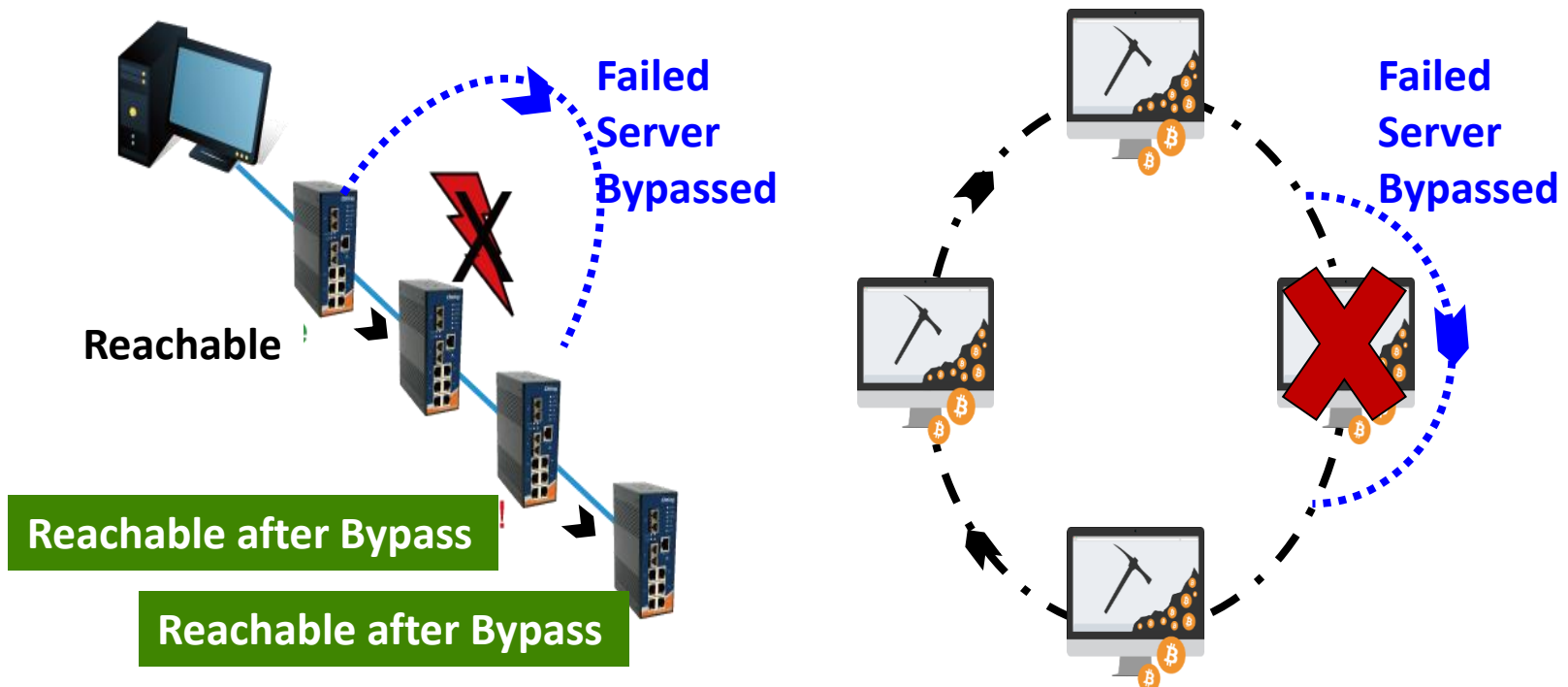


# Data Center Applications





# Optical Bypass - Essential to Network Integrity

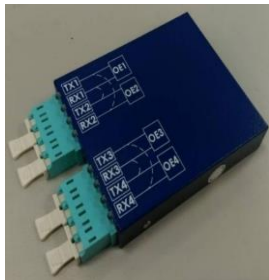


- In daisy chain or ring networks, when one server goes offline, domino effect knocks subsequent servers offline
- Bypass module detects server failure and activates to circumvent the failed server
- Upstream/downstream communication is restored to remaining servers
- Application includes factory robotic controls, transportation systems, smart city infrastructures, Intrusion Detection/Protection, Deep Packet Inspection

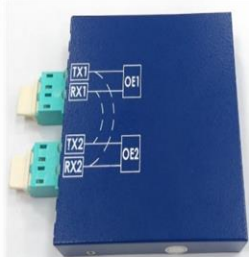
# Only TRx Manufacturer offering Optical Bypass Solution

- Mitigates interruption caused by equipment or power failures
- Provides resilience for high availability networks
- Simplifies integration with NIC (Network Interface Controller) or MAC (Media Access Control)
- Available as modules to be integrated or as network pre-integrated with Intel-based NIC
- Activates automatically when power fails (passive) or by watchdog timer (managed)
- Available in 1G, 10G, 40G, 100G data rates
- 2/4/8 ports and LC or MPO (Multiple Push On) connectors

Optical Bypass  
Modules



4 ports, LC  
Connector



2 ports, LC  
Connector



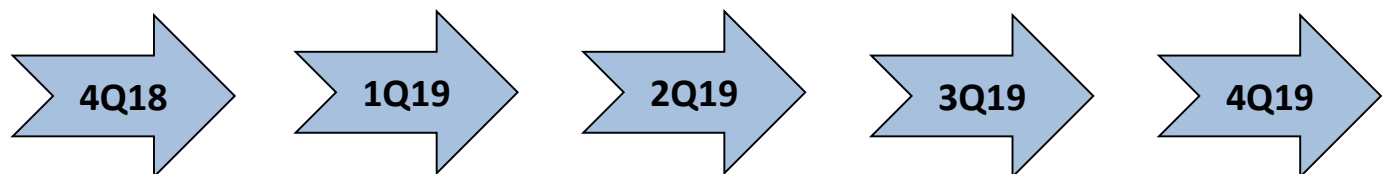
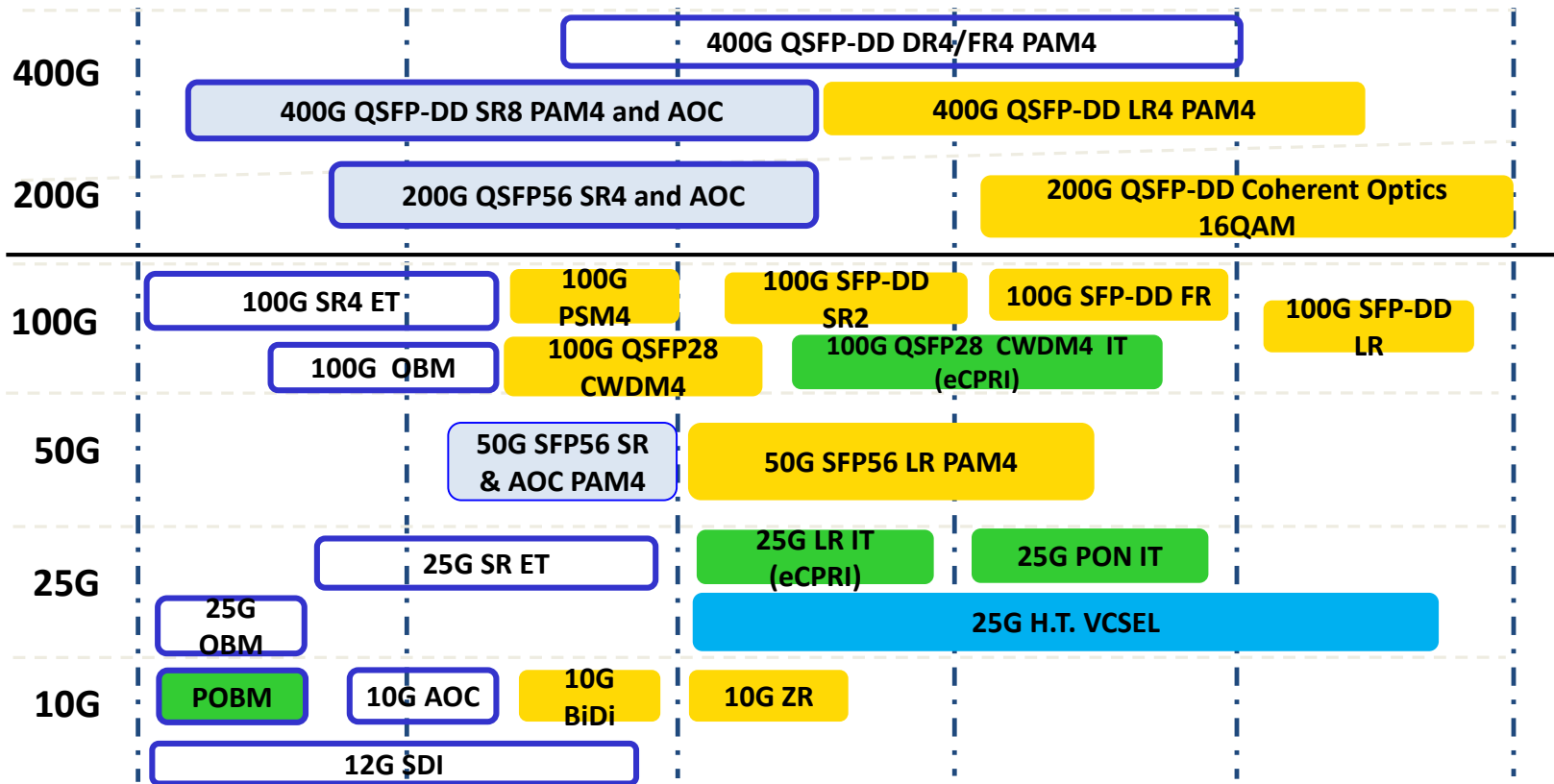
Optical Bypass  
Network



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Current project
  "I" customer project
  5G project
  Future project
  Advance project



# Interoperability Guaranteed

- 100% Compatible with most Platforms
- Lifetime Warranty
- TAA and Made in USA Tariff-free Available



HUAWEI

JUNIPER  
NETWORKS



Force10

Alcatel-Lucent



MOXA



Extreme  
Connect Beyond the Network



MRV

D-Link  
Building Networks for People

H3C

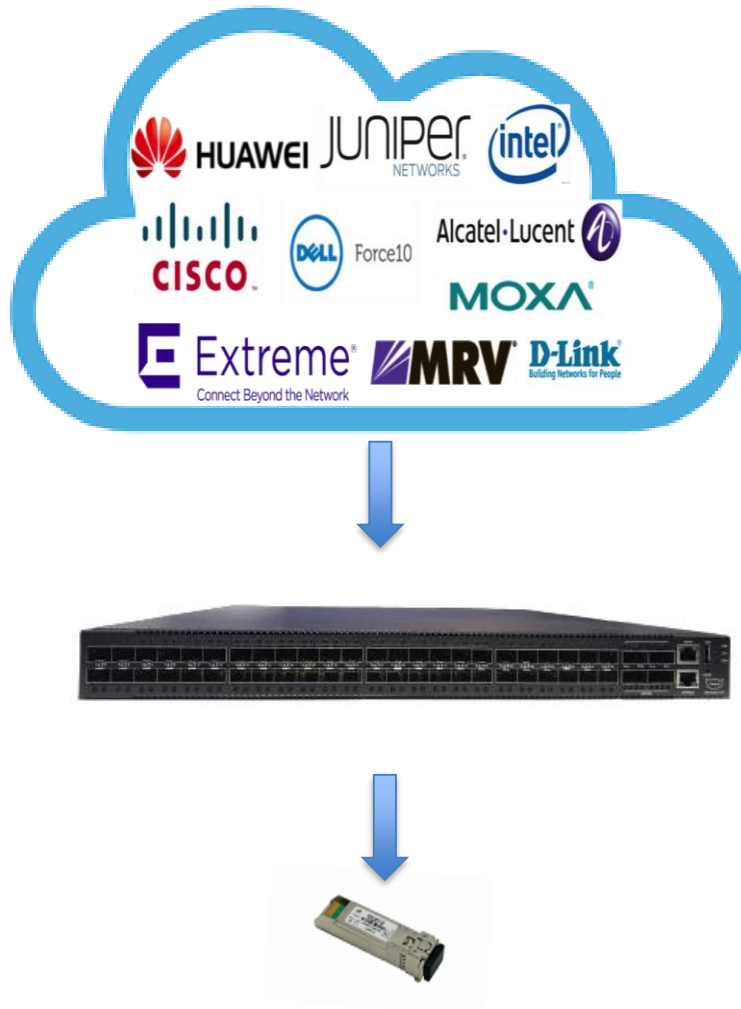


BROCADE



ADTRAN  
T1  
NEXUS

# Aperto Batch-coder/tester



- 100s of OEMs Supported
- Batch Coder – codes transceivers in seconds
- Logs coding history
- Transceiver Diagnostics and Troubleshooting
- Performs optical qualification tests
  - Distance Analyzer
  - Optical Power Measurement
  - Traffic Test

# Aperto Batch-coder/tester



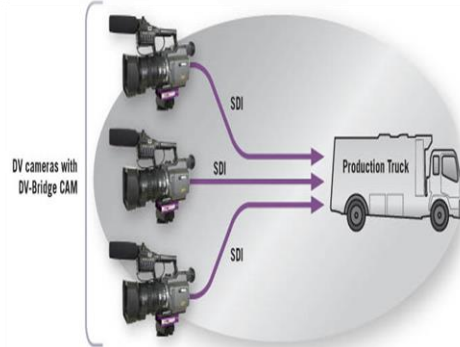
- Automatic rack-mounted system for batch coding and test
- Up to 56 transceivers at a time
  - 48 SFP+ and 8 QSFP Ports

# Pro Audio/Video and Digital Broadcasting

SDI (Serial Digital Interface) modules and IP/Datacom transceivers for 4K/8K video

Teleconference, Remote Medical Consultation

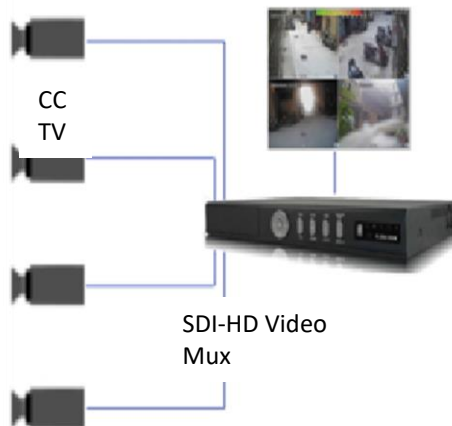
News and Sports Live Broadcast



4K/8K  
Video

Surveillance & Monitoring

Control Rooms, Pre/Post Production







Thank You

