Dowslake Product and Solution

サンインスツルメント株式会社

DowsLake MICROSYSTEMS

1. Platform

2. Function card

3. Dowslake Solutions

1. Platform

1U Chassis

2U Chassis

5U Chassis

CMS1025V1 series chassis are compact platforms developed for optical transmission system. The platforms are compatible with different kinds of service cards, such as, EDFA, Raman,10/100/200G Transponder, OLP, passive module and so on. Those platforms are characterized by high compact structure, flexible configuration, low power consumption, and supporting network management of C/S architecture with simple maintenance.

Features of chassis:

- 1U chassis 3 slots, 2U chassis 7 slots and 5U chassis 18 slots for function cards
- Function cards, Power/Fan card and Management card are all hot pluggable from chassis front panel
- All chassis are two power suppliers for redundant
- All chassis support two DC or two AC or DC+AC power suppliers
- Function cards are uniform for different chassis
- Management card(NMU) with one 10/100BASE-TX port for remote management
- GUI and SNMP management interface, via NMU Ethernet port

2. Function Card

OTU100G/200G Card

Description:

1. work as 200G Transponder, client side supports 2x 100GE service, and line side, 200G coherent CFP2 module is supported.

2. work as 100G Transponder, client side supports 1x 100GE service, and line side, 100G coherent CFP2 module is supported.

Features:

- Client side support 100GE service access, two QSFP28 ports
- Line side one CFP2 port to suport Coherent DCO CFP2 transceiver
- Supporting 100G DP-QPSK or 200G DP-8QAM/DP-16QAM
- Full C band tunable, 50GHz or 100GHz
- Supporting HDFEC and SDFEC
- The transmission distance up to 1200/2400km
- need chassis two standard slots

OTU25G Card

Description:

The OTU25G board supports four channels at data rate of 10.1376Gbit/s to 28.05Gbit/s, performs 3R regeneration and wavelength conversion, and outputs standard DWDM or CWDM optical signals.

Features:

- Supporting service access at data rate of 10.1376Gbit/s to 28.05Gbit/s, include CPRI8/9/10, 10/25G Ethernet, 10/16/32GFC and OTU2/2e/2f
- Supporting CWDM/DWDM wavelengths
- Supporting the 3R function
- Traffic transparent and ultra-low lateny
- Client side and line side both 4 SFP+/SFP28 ports
- Need chassis one standard slot

10G FEC Card

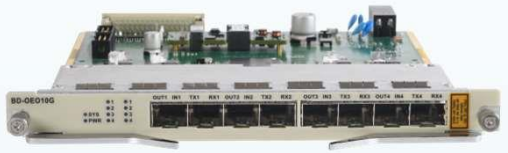
Description:

FEC10G card is 10G transponder, line side integrates EFEC(Enhanced Forward Error Correction) and SBS suppression function. EFEC function can improve the OSNR tolerance of 10G traffic, the EFEC can get 8dB OSNR coding gain.SBS suppression technology also are set up internally, with SBS suppression, 10G traffic Booster EDFA output can be as high as 17 dBm(single wavelength). this card is suitable for 10G long haul single wavelength system.

Features:

- Supporting 10G SDH/SONET or 10GELAN protocol
- Client side 850 or 1310nm
- Line side with EFEC function to get 8dB OSNR coding gain
- Line side is DWDM ch34 transceiver, optional to support SBS suppression technology
- Supporting the 3R function
- need chassis two standard slots

OTU 10G Card



Description:

The OTU 10G card is 10G OEO transponder, supports four channels at data rate of 1.25Gbit/s to 11.3Gbit/s, performs 3R regeneration and wavelength conversion, and outputs standard DWDM or CWDM optical signals.

Features:

- Supporting four service access at data rate of 1.25Gbit/s to 11.3Gbit/s
- Client side and line side both are 4 SFP/SFP+ ports
- Supporting CWDM/DWDM wavelengths
- Supporting the 3R function
- Traffic transparent and ultra-low latency
- need chassis one standard slot

OLP Card

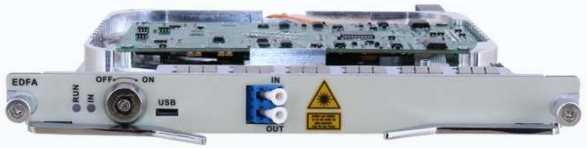
Description:

The OLP card is an optical line protection card. Its main function is to monitor the optical signal status of the active and standby lines in real time, and once a line fault or deterioration occurs, the OLP card can automatically switch between the active and standby lines to ensure that the system services can be restored within 50ms.

Features:

- Support 1+1 optical link protection
- Fast Switch Time, typ 5ms
- Real-time Monitor
- Low Insertion Loss,Tx less than 4dB,Rx less than 1.5dB
- Wide operation waveleng range,1260~1650nm
- Traffic transparent for any kinds of optical signal
- need chassis one standard slot

DowsLake MICROSYSTEMS



EDFA Card

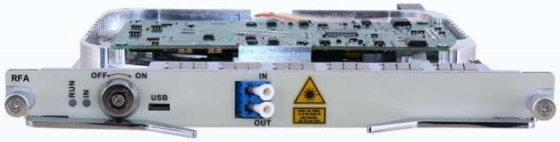
Description:

EDFA is an Erbium-doped fiber amplifier (EDFA) board. Optical signals become weak during optical fiber transmission, and the signals are amplified by EDFA to realize multi-segment and long-distance transmission.

Features:

- Can be customized for any optical transmission system
- Max output power 22dBm
- Supporting 48/96 wavelengths DWDM system
- support gain variable for DWDM system, max gain adjustable range 10dB
- Low noise figure
- need chassis one standard slot

DowsLake MICROSYSTEMS



RFA Card

Description:

The RFA(Reverse Raman Amplifier) uses the Raman effect of the optical fiber to amplify the transmission optical signal. This product is widely used in SDH, DWDM and other long-distance transmission links. The RFA can amplify the optical signal, improve the system's optical signal-to-noise ratio (OSNR), greatly extend the transmission distance.

Features:

- Operation waveleng range: 1525~1565nm
- Low Noise Figure
- High Gain,max 14dB
- Low Power Consumption,max 30W
- Intelligent Automatic Shutdown Function, High Security
- need chassis one standard slot

SOA-4 Card

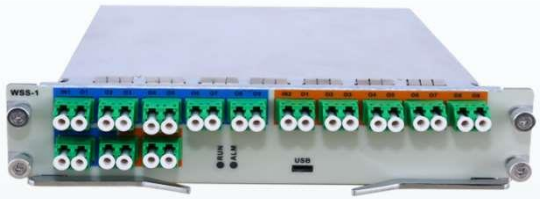
Description:

The SOA-4 board is an O-band semiconductor amplifier board, which mainly realizes the optical signal amplification in the band of 1260~1330nm. One board supports the access and amplification of 1~4 independent channel signals.

Features:

- Supporting LR4 or CWDM4 signal amplification
- Stable output power
- Low noise figure
- High level of integration, max 4 amplifiers
- need chassis one standard slot

DowsLake MICROSYSTEMS



ROADM Card

Description:

ROADM Card is a flexible and powerful wavelength switching and channel grooming solution for intelligent DWDM system. It provide the capability to dynamically mange add/drop and to monitor each DWDM channel optical parameters(DWDM channel optical frequency and optical power).ROADM support optical power control for each DWDM channel, and can compensate individual channel degradation, amplifier gain tilt.

Features

- Support Twin 1 x 9 Configuration
- Support C band 50GHz space 88ch
- Wavelength independent selective switching, blocking, attenuation and/or equalization of 88 wavelengths
- Integrated OPM to monitor DWDM channel optical frequency and optical power
- need chassis two standard slots

DCM Card

Description:

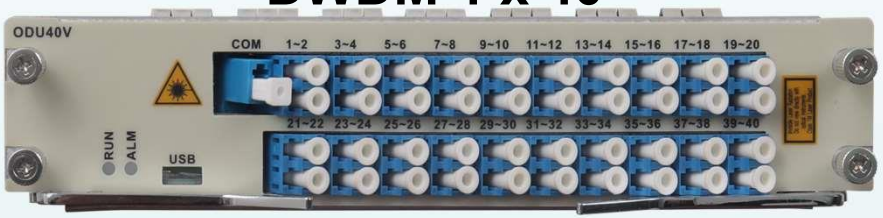
DCM(Dispersion Compensation Module) is based on negative dispersion compensation fiber, and has negative dispersion to compensate the positive dispersion caused by the optical fiber link, so as to ensure that the total dispersion of the whole optical fiber system is approximately zero to realize high speed, large capacity and long distance communication.

Features:

- G.652/G.655 Fiber for C-band 100% Slope Compensation
- Low Insertion Loss
- Low Polarization Dispersion
- One slot card for 40km or shorter distance Dispersion Compensation
- Standalone 1U chassis for dispersion compensation length longer than 40km

C/DWDM Card

DWDM-1 x 40



C/DWDM-1 x 16

Features:

- C/DWDM MUX/DEMUX can be customized for any WDM system
- special DWDM MUX/DEMUX can be designed for amplified one single fiber DWDM system
- Low insertion loss and loss uniformity
- Passive AAWG will be used for 40/44ch MUX or DEMUX card
- Card basic information(PN,SN,Wavelengths) can be displayed in GUI/SNMP
- Passive standalone 1U chassis for 40/44ch MUX+DEMUX is available optional

C/DWDM Card

Spec for some typical C/DWDM card:

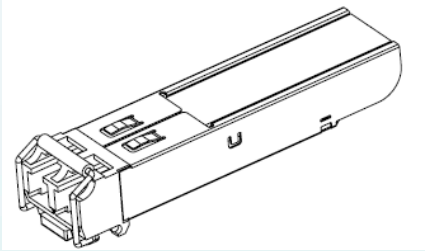
Channel	2x4	2x8	1x16	1x40
Slot	1	1	1	2
Solution	DWDM& CWDM	DWDM& CWDM	DWDM& CWDM	DWDM
Channel IL	＜1.5dB	＜2.5dB	＜3.5dB	＜5.5dB
Adjacent Channel Isolation	＞30dB	＞30dB	＞30dB	＞25dB
Non-adjacent Channel Isolation	＞40dB	＞40dB	＞40dB	＞30dB
Return Loss	＜-45dB	＜-45dB	＜-45dB	＜-40dB
Connector Type	LC/PC			

Pluggable Optical Transceiver

Dowslake is able to supply any kinds of pluggable optical transceiver, data rate from 155Mbps to 200Gbps for client side and line side.

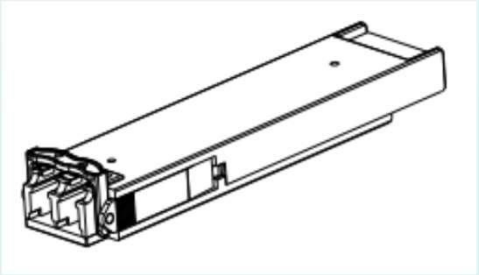
SFP/SFP+:

- Wavelengths: 850/1310/1550/CWDM/DWDM/DWDM tunable
- Data Rate: 155Mbps to 11.3Gbps
- Distance: 300m to 120km
- Fiber Number: two fiber or one fiber BIDI



XFP:

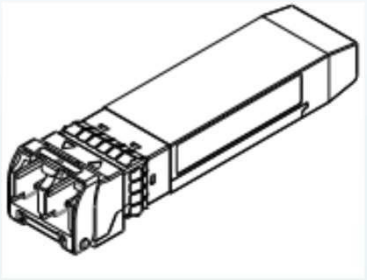
- Wavelengths: 850/1310/1550/CWDM/DWDM
- Data Rate: 8.5Gbps to 11.3Gbps
- Distance: 300m to 80km
- Fiber Number: two fiber or one fiber BIDI



Pluggable Optical Transceiver

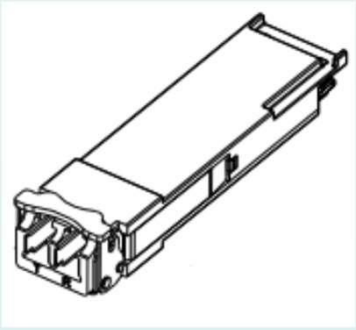
SFP28:

- Wavelengths: 850/1310/LWDM/CWDM/DWDM
- Data Rate: 24.3Gb/s to 26.5Gb/s
- Distance: 100m to 40km
- Fiber Number: two fiber or one fiber BIDI



40G QSFP+:

- Wavelengths: 850/CWDM
- Data Rate: 40G Ethernet
- Distance: 100m to 30km
- Fiber Number: two fiber



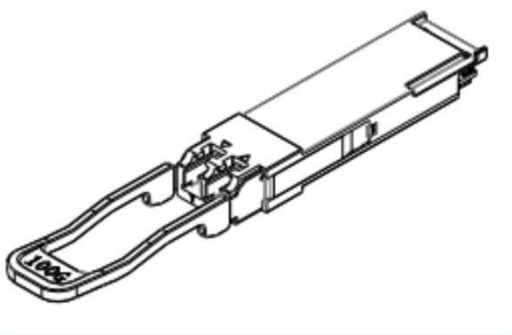
Pluggable Optical Transceiver

100G CFP/CFP2/CFP4:

- Wavelengths: LWDM
- Data Rate: 103.125 Gbps to 111.81 Gbps
- Distance: 10km to 40km
- Fiber Number: two fiber

100G QSFP28:

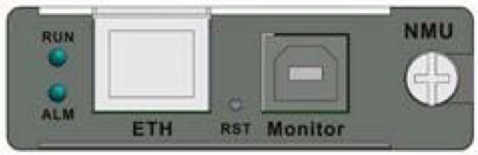
- Wavelengths: 850/1310/CWDM/LWDM
- Data Rate: 103.125 Gbps to 111.81 Gbps
- Distance: 150m to 30km
- Fiber Number: two fiber



100/200G CFP/CFP2 Coherent DCO:

- Wavelengths: DWDM tunable
- Data Rate: 100G/200G Ethernet
- Distance: 3000km@100G, 1200km@200G

NMU Card



Description:

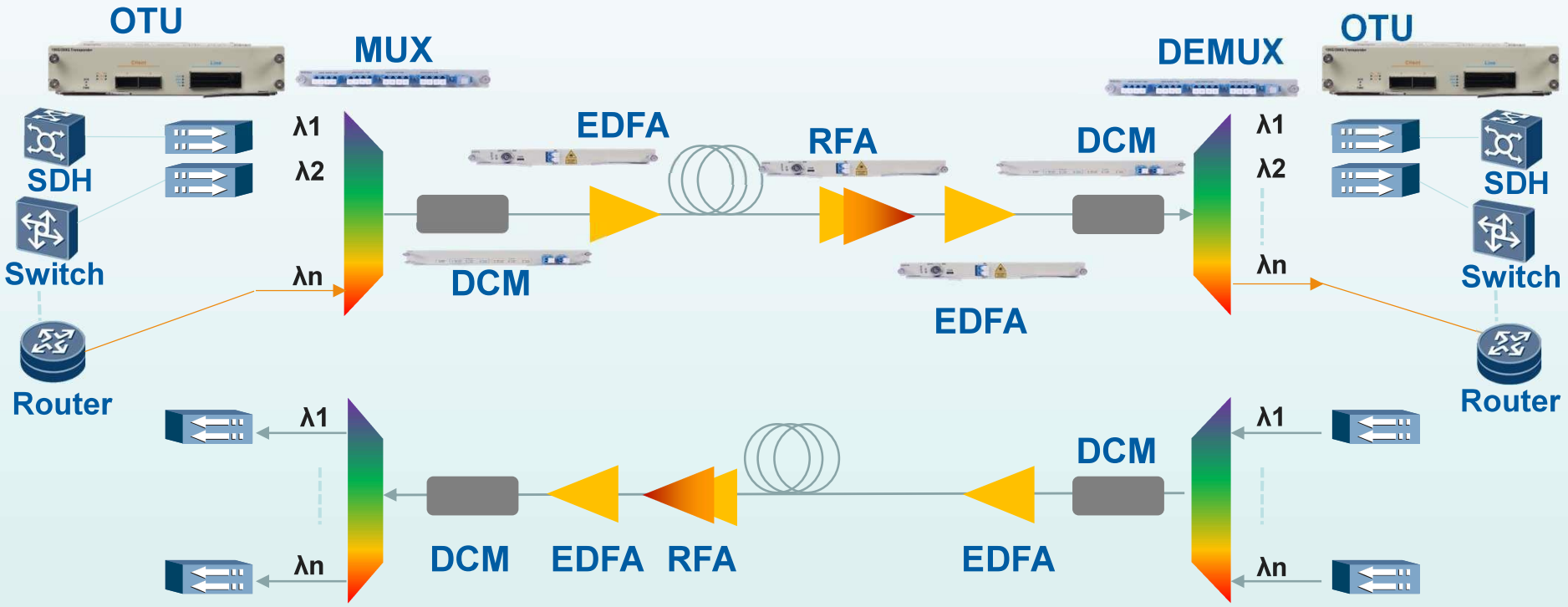
NMU card is a network management card. Its main function is to provide interfaces for CMS1025v1 chassis and network management system. The NMU card, together with the CMS1025V1 Network Management System(NMS GUI) to realizes the real- time monitoring, maintenance and management for all network elements.

Features:

- With high performance ARM processor, support high performance network management
- Support GUI and SNMP management interface
- Support 100M Ethernet port for management access
- Support reset button for NMU board to restore factory settings
- NMU card's failure will not disturb traffic on other function card

3. Dowslake Solution

DWDM Solutions



Features:

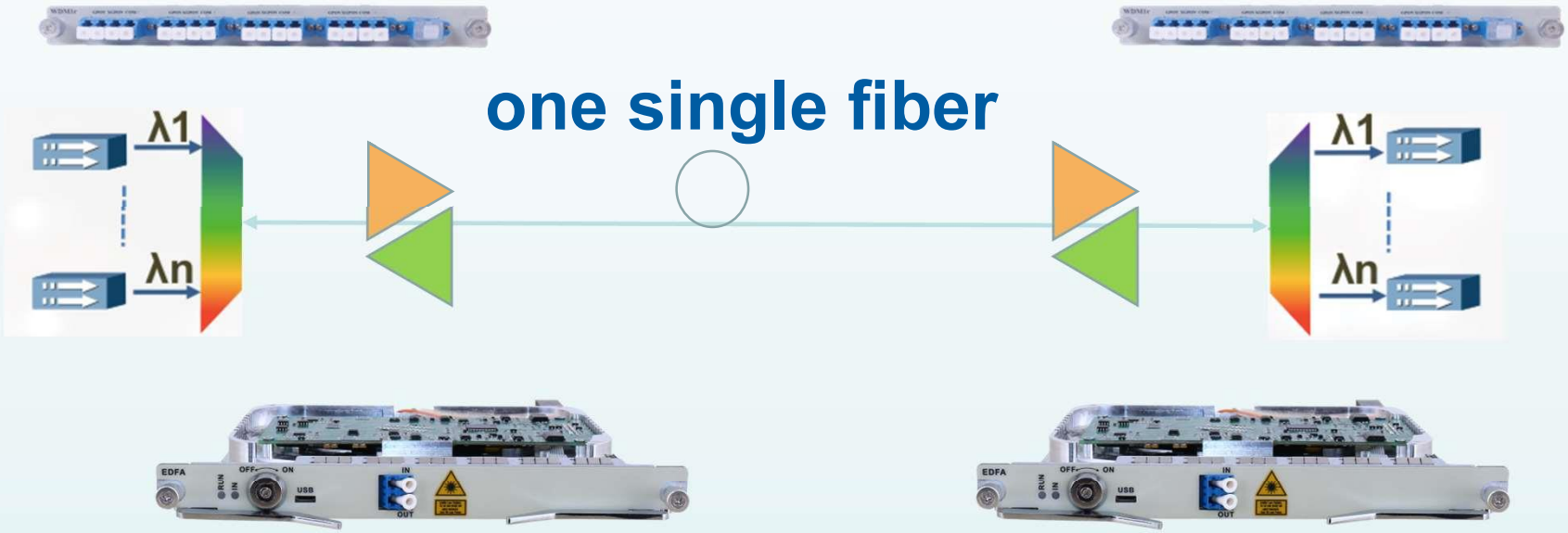
- Customize any kinds of DWDM systems refer to system requirement
- Supporting any kinds of traffic 10~400Gbps, traffic transparent
- Supporting access third party DWDM wavelength directly
- Supporting 8/16/40/48/80/96 wavelength DWDM systems
- Supporting point-to-point networks, chain networks, and ring networks for Data Center and Metro DWDM system
- Supporting Optical Line Protection
- Centralized Network Management, SNMP and GUI

Long Haul System

The transmission system can provide a complete transmission solution in some ultra-long haul transmission scenarios where no repeaters can be deployed.

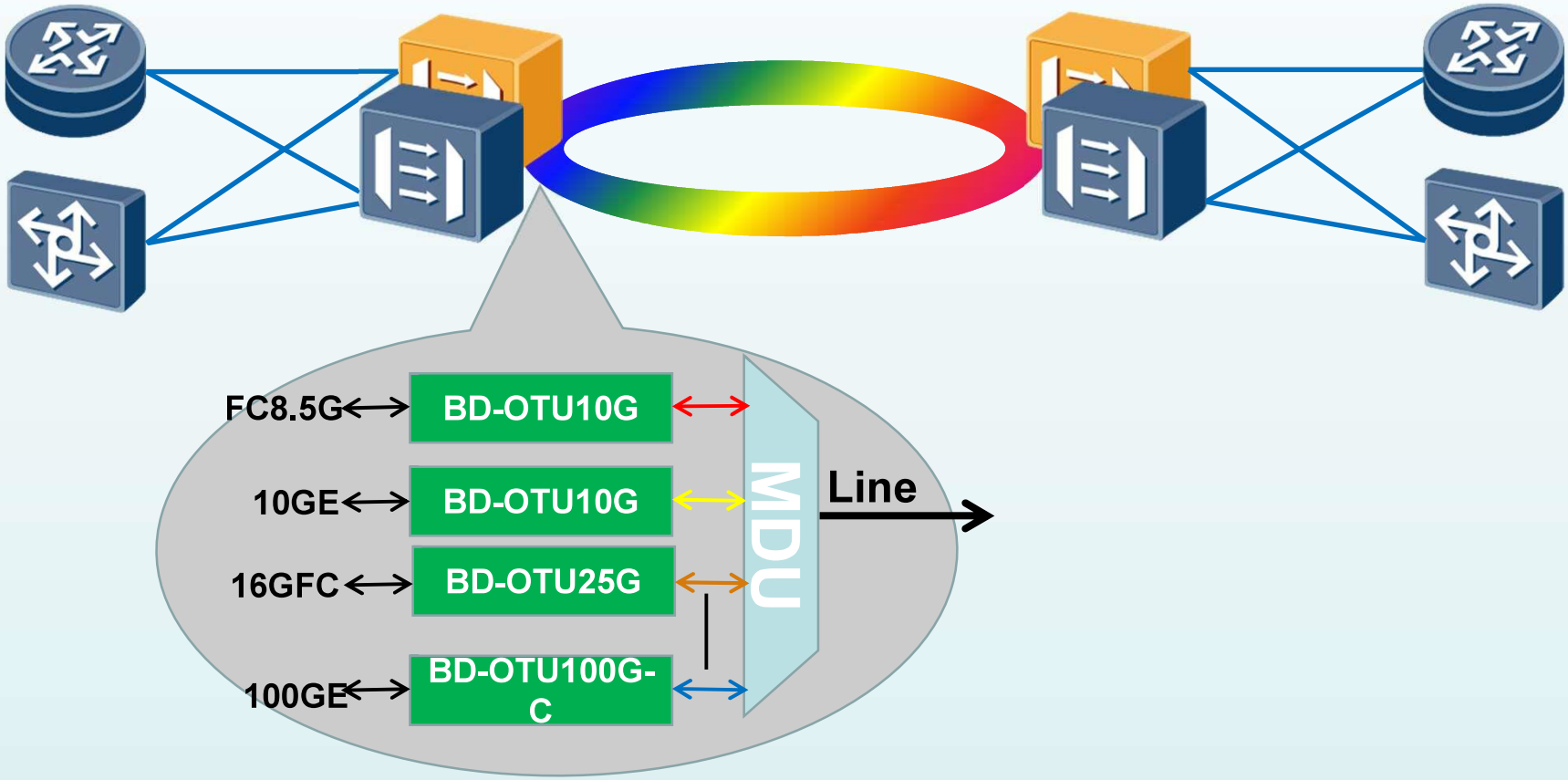
- Integrate EDFA BA/PA, RAMAN, EFEC, SBS suppression, DCM and Coherent transceiver
- Standard 2.5/10G SDH, 10/100G Ethernet Compatibility
- Widely Deployed in Telecom, Electric Power Industry

One Fiber DWDM System



- Run DWDM system on one single fiber to save fiber resource
- One fiber max support 32 duplex traffic
- Supporting any kinds of traffic 10~400Gbps, traffic transparent

Data Center-Integrated WDM Solution



Description:

- Support WDM hardware and optical line 1 + 1 backup protection, and realize the most advanced network protection
- support almost all IP and SAN services at present
- Traffic low latency