SFP Media Cross-Connect

Overview

With the introduction of the Fiber Driver SFP Media Cross-Connect chassis, MRV Communications has brought fiber optic connectivity to a new level of flexibility and scalability. These products have been designed with leading-edge features, including any-port-to-any-port connectivity, software selectable data rates, protocol transparency, Small Form Factor Pluggable (SFP) optical interfaces, and support for physical layer multicasting.

With these features the SFP Media Cross-Connect chassis enable the implementation of an unprecedented range of optical networking solutions from media conversion, distance extension and signal repeating to lambda conversion and Wave Division Multiplexing (WDM), all within a compact, fully managed platform. With a high-density form factor, a single chassis can manage up to 16 separate data channels (32 data ports) in just 1 U of rack space.

The NC316-XP32-3R and NC316-XP34-3R performs full 3R (retime, reshape and retransmit) signal regeneration per data channel at any selected data rate from 100 Mbps to 2.7 Gbps (100 MHz to 2.7 GHz). This range covers Fast and Gigabit Ethernet, FDDI, ESCON, SONET (OC-3, OC-12, OC-48 and OC-48 with FEC), Fibre Channel (1 Gbps & 2 Gbps), Serial Digital Video Interface (SDI) SMPTPE-269 and SMTPE-292, DVB, HDTV (1.5 Gbps), and many other protocols.

The NC316-XP32-2R and NC316-XP34-2R automatically and transparently handles data connections with rates from 100 Mbps to 2.7 Gbps (100 MHz to 2.7 GHz) while performing 2R (reshape and retransmit) signal conditioning. It is compatible with Fast and Gigabit Ethernet, FDDI, ESCON, SONET (OC-3, OC-12, OC-48 and OC-48 with FEC), Fibre Channel (1 Gbps & 2 Gbps), Serial Digital Video Interface (SDI) SMPTPE-269 and SMTPE-292, DVB, HDTV (1.5 Gbps), and any other protocol within the range.
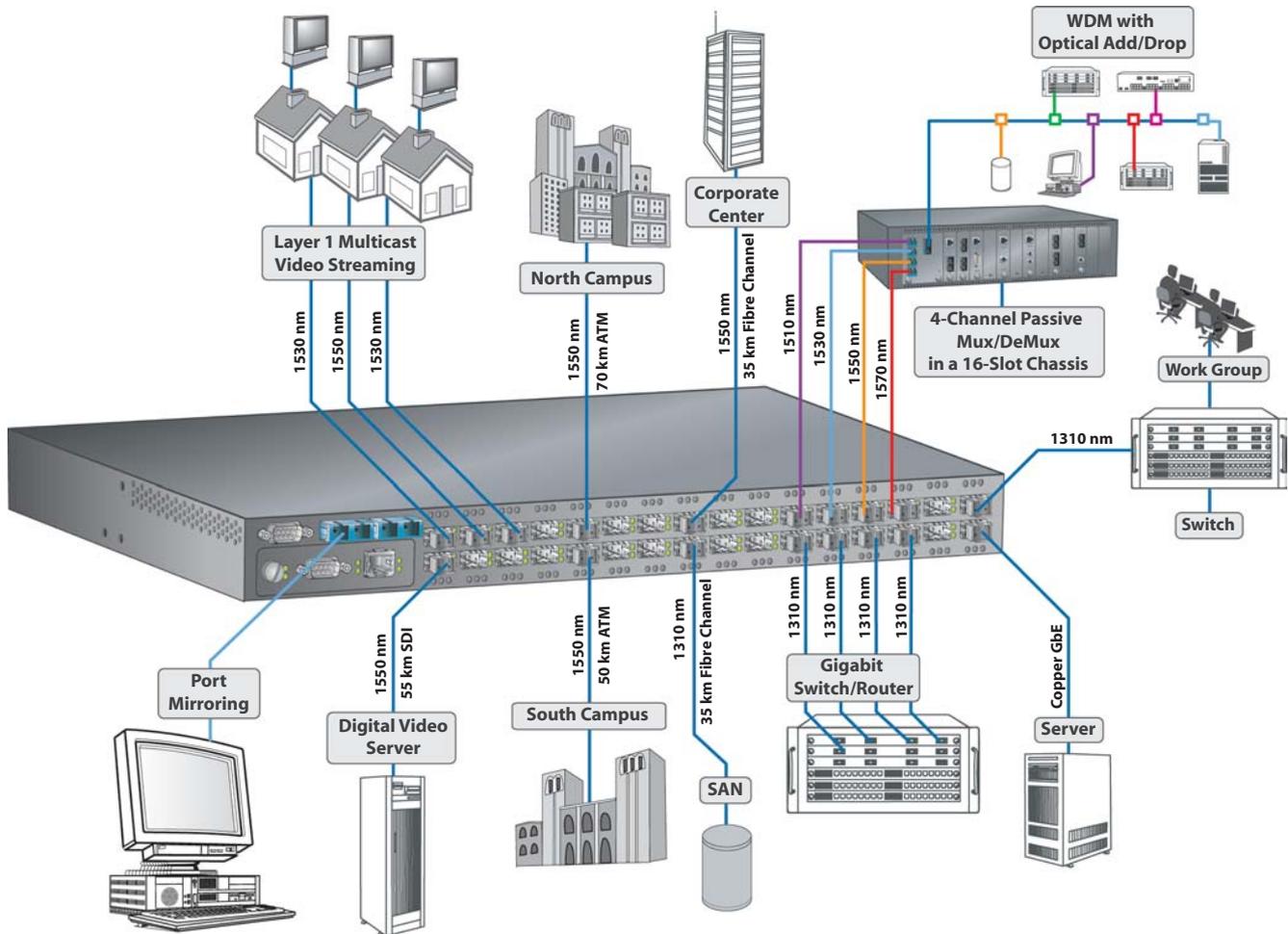
Used in conjunction with an external Mux/Demux unit - such as one of the Fiber Driver CWDM Passive Mux/Demux modules - and configured with corresponding wavelength-specific SFPs, a SFP Media Cross-Connect can be used to create a highly flexible and scalable WDM solution for any combination of supported protocols. The 3R models can also be used to create a WDM repeater with or without wavelength conversion.

Features

○ Any-port-to-any-port connectivity, including physical layer multicasting

○ Per connection selectable data rates from 100 Mbps to 2.7 Gbps (3R models)

○ Protocol transparency from 100 Mbps to 2.7 Gbps (NC316-XP32-2R and NC316XP34-2R))

○ Utilizes Small Form Factor Pluggable (SFP) optical transceivers

○ High-density form factor - 32 data ports / 16 data channels in 1 U of rack space

○ Performs full 3R clock and data recovery (NC316-XP32-3R and NC316XP34-3R)

○ Supports SFP digital diagnostics as per SFF-8472

○ Wide range of applications

○ Optional dual protocol independent monitoring ports

Benefits

○ Ultimate in flexibility and scalability
- Add/Change optics and adjust data rates as needed
- Maintain single item inventory

○ MRV Communications provides a complete range of optical and copper plug-in interfaces
- Solutions for multiple standard wavelengths (850 nm, 1310 nm. 1550 nm)
- Solutions for CWDM wavelengths (ITU-T G.694.2 (2002)): 1470 nm-1610 nm with 20 nm deltas)
- Future solutions for DWDM (ITU-T G.694.1 (2002))

○ Wide range of applications based on SFP selection
- Media conversion
- Distance extension
- Signal repeating, including WDM (NC316-XP32-3R)
- Lambda conversion
- CWDM system
- DWDM system (future implementation through DWDM SFPs)

WDM with Optical Add/Drop

Layer 1 Multicast Video Streaming

North Campus

Corporate Center

4-Channel Passive Mux/DeMux in a 16-Slot Chassis

Work Group

1530 nm
1550 nm
1530 nm

1550 nm
70 km ATM

1550 nm
35 km Fibre Channel

1510 nm
1530 nm
1550 nm
1570 nm

1310 nm

Switch

Port Mirroring

1550 nm
55 km SDI

Digital Video Server

1550 nm
50 km ATM

South Campus

1310 nm
35 km Fibre Channel

SAN

1310 nm
1310 nm
1310 nm
1310 nm

Gigabit Switch/Router

Copper GbE

Server

Establishing a data connection with a SFP Media Cross-Connect chassis is straightforward. Simply insert the SFP transceivers into the chassis and then via software management set the port-to-port connections, including port-to-multiport. For the 3R models, the interface data rate is also set.

Changing port-to-port assignments is easily done at any time through management. Changing a connection type requires only changing the SFP transceivers and setting the new interface data rate if needed. With the hot swappable functionality of the SFP transceivers there is virtually no down time involved.

As SFP transceivers are portable they can be re-used for different applications, thus maximizing the investment in optics and equipment, and reducing the need for on-hand parts inventory. MRV Communications provides a complete range of optical and copper plug-in interfaces for the SFP Media Cross-Connect.

Both Fiber Driver SFP Media Cross-Connect chassis fully support the SFP standard including digital diagnostics as per SFF-8472. Configured with the Fiber Driver Pluggable Media Connect management module (EM316NM-PMC), the chassis provide

real-time access to information such as transceiver type (protocol, range, vendor, etc.), transceiver temperature, TX/RX optical power, and transceiver supply voltage. They can also be set to generate management alerts and warnings should system parameters fall outside of normal operating range.

Optional dual monitoring ports are available for both the 3R and 2R models of the SFP Media Cross-Connect chassis. These ports are protocol independent and can be used to monitor any combination of active ports, providing network administrators with a powerful network diagnostic tool.

With the EM316NM-PMC, the SFP Media Cross-Connect chassis can be managed through SNMP, Telnet or the local CLI. They are supported through the graphical user interface of MegaVision Web, MRV Communications' comprehensive Network Management System (NMS), and any other SNMP-compliant NMS.

For additional information, including pricing and availability, on these or any of the full line of MRV Communications products, contact your MRV Communication sales representative.

Physical Specifications: SFP Media Cross-Connect

Operating Temperature Range:	0˚C to 50˚C (32˚F to 122˚F)
Storage Temperature:	-40˚C to 95˚C (-40˚F to 203˚F)
Relative Humidity:	85% maximum, non-condensing
Physical Dimensions:	44 mm high x 442 mm wide x 286 mm deep (1.75" x 17.4" x 11.25")
Weight:	6.75 kg (14.88 lbs)
Mounting:	19" rack, 1 U
Emission Compliance:	FCC - PART 15, SUBPART B, 1999, CLASS A; CE MARK - EN 50081-1:1992;
	EN 50082:1997; EN 55024:1998; EN 55022:1998; AS/NZS 3548:1995

	Part Number	Description	Protocol	Connectors	Wavelength	Budget (dB)	Range
Ordering Info	NC316-XP32-3RNM	SFP Media Cross-Connect with selectable data rates, dual power supplies and management module	Any (100 Mbps-2.7 Gbps)	SFP (x32)	(SFP dependent)	(SFP dependent)	(SFP dependent)
	NC316-XP34-3RNM	SFP Media Cross-Connect with selectable data rates, dual power supplies, dual monitoring ports and management module	Any (100 Mbps-2.7 Gbps)	SFP (x32), DSC (x2)	(SFP dependent)	(SFP dependent)	(SFP dependent)
	NC316-XP32-2RNM	SFP Media Cross-Connect with protocol transparency, dual power supplies and management module	Any (100 Mbps-2.7 Gbps)	SFP (x32)	(SFP dependent)	(SFP dependent)	(SFP dependent)
	NC316-XP34-2RNM	SFP Media Cross-Connect with protocol transparency, dual power supplies, dual monitoring ports and management module	Any (100 Mbps-2.7 Gbps)	SFP (x32), DSC (x2)	(SFP dependent)	(SFP dependent)	(SFP dependent)

MRV has more than 50 offices throughout the world. Addresses, phone numbers, and fax numbers are listed at www.mrv.com.
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