Media Cross Connect™ (MCC) Chassis

Overview

The test lab environment presents unique challenges. Companies are facing increased competitive pressure to quickly release products and services to market as testing becomes more complex. Today's test labs are moving toward automation with sophisticated software, but physical connectivity of equipment remains a laborious manual process.

The Media Cross Connect (MCC) from MRV provides the missing link to true test lab automation. Connect all the lab devices to the MCC one time, and implement all topologies remotely through software interactively or through full automation programming.

The MCC is ideal for use in any testing environment to increase productivity and reduce capital and operational expenses. Equipment inventories needed to support the test workload are minimized by sharing expensive test sets and test bed infrastructure among users. Storing and recalling frequently used topologies, scripting configurations, and automating tests increases lab productivity. Eliminating manual manipulation of optical cables minimizes the effects of cable wear and fiber contamination on test results, which produces more accurate tests and fewer re-tests. Tests such as cable breaks or port failover simulation, multi-casting test patterns at wire speed, and simulating long-haul cable scenarios are easily accomplished using the flexible mapping configurations of the MCC.

Applications

- Industry Environments
  - Network equipment manufacturing
  - Storage equipment manufacturing
  - Carriers
- Laboratory Environments
  - New product development
  - Interoperability
  - Software Regression
  - Customer Support

Highlights

- **Wire-Once Technology** – Initial connection of all test sets and test infrastructure to the MCC allows future changes in test topologies or configurations to be performed through software.
- **Software Port Mapping** – Compatible ports can be mapped using software commands in bi-directional, one-way, multipoint, or Fibre Channel arbitrated loop configurations.
- **Wide Protocol Support** – T1/E1 to 10 Gbps Ethernet LAN, WAN PHY, and Fibre Channel.
- **Wide Media Support** – Copper cable, fiber optics, and pluggable SFP, SFP+, and XFP transceivers.
- **Increased Lab Productivity** – Minimized retests due to fiber contamination or breakage, and increased test accuracy and velocity. Easy to use web-based GUI controls mappings and can store often-used topologies for reuse.
- **Decreased Capital Expenditures** – Shared expensive test equipment and test beds among users minimizes equipment costs without compromising capabilities.
- **Simple Integration into Existing Systems** – System management through a robust industry-standard CLI and automated mapping through Tcl API or on-board SNMP agent tools with scripting language support.
- **Future-Safe Modular Architecture** – Scalable solutions built on modular chassis that support any protocol or media combination through interchangeable and hot-swappable blades.

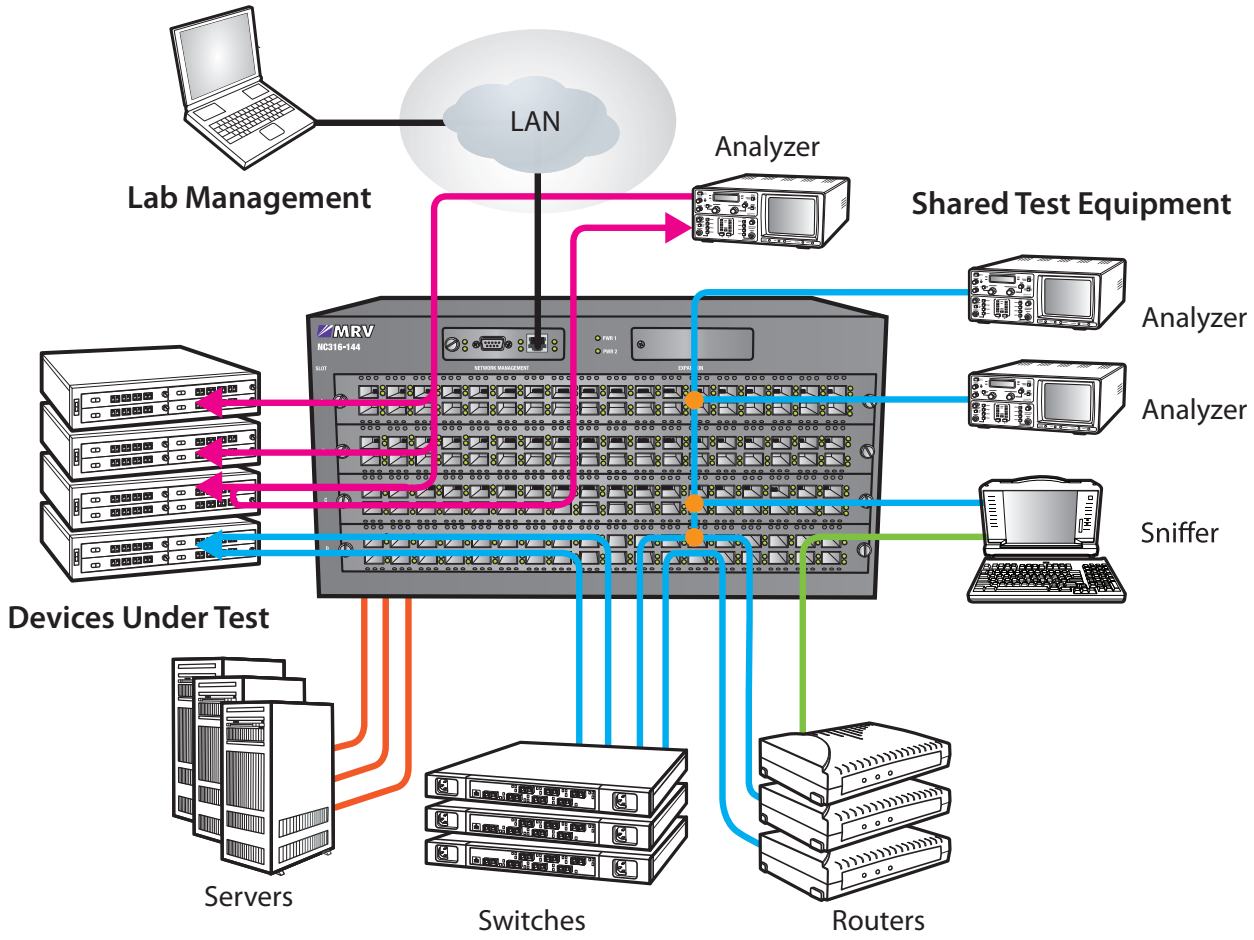
Chassis (NC316-)	Blade Slots	Mapping Speed	Max # Ports (@ Max Speed)	Power Supplies	Size
36PMCHS	1	10.3125 Gbps - HS	36	2 AC	1RU
72PMC4X	2	4.25 Gbps - 4X	72 (18-10 G)	2 AC	4 RU
144PMC4X	4	4.25 Gbps - 4X	144 (32-10 G)	2 AC or 2 DC	5 RU
144PMC8X	4	8.5 Gbps - 8X	144 (8 G)	2 AC or 2 DC	5 RU
144PMCHS	4	10.7 Gbps - HS	144 (10 G)	2 AC or 2 DC	5 RU
288PMC4X	8	4.25 Gbps - 4X	288 (72-10 G)	4 AC or 4 DC	9 RU

The Media Cross Connect Product Family

The MCC is a physical layer switch (OSI Layer 1) that allows users to connect any port to any other port within the system through software control. It provides the flexibility and remote automation control needed to optimize the dynamic testing environment.

MCC solutions are built on a family of 19" rack-mountable chassis designed to be fully non-blocking in all configurations. The MCC chassis family supports mapping speeds of 4.25 Gbps (4X), 8.5 Gbps (8X), and 10.7 Gbps (HS). 4X chassis accommodate two, four, or eight interface blades. 8X chassis accommodate four interface blades. HS chassis accommodate one or four interface blades. Chassis with 72 or more ports are powered by hot-swappable power supplies with optional redundancy. All four-slot and eight-slot chassis are available in DC powered versions as well as the AC models.

The figure below illustrates an MCC application in the test lab.



Interface Blades

The blades used in an MCC chassis configuration determine the type and quantity of ports in the system. Each blade provides from 8 to 36 ports, depending upon the interface type. They support a wide variety of protocols and data rates. Installing both copper and SFP blades provides media conversion capabilities within the MCC, which eliminates the need for external conversion equipment. Refer to the MCC Interface Blade datasheet for a detailed description of the interface blades offered by MRV.

Interface Blade / Chassis Compatibility

BLADES / Speed / Ports	CHASSIS					
	4X			8X	HS	
	72	144	288	144	36	144
SFP / 36	•	•	•	•	•	•
SFP with Fibre Channel CDR / 36	•	•	•	•	•	•
SFP with Multirate CDR / 36	•	•	•	•	•	•
8G Fibre Channel SFP+ / 36				•	•	•
Copper (RJ 45) / 36	•	•	•	•	•	•
Copper (RJ 45) with Media Conversion / 36 [1]	•	•	•	•	•	•
6G SAS/SATA / 36 - using 9 connectors				•	•	
T1/E1 / 36	•	•	•	•	•	•
T3/E3/STS-1 / 18	•	•	•	•	•	
10G XFP / 9	•	•	•	•	•	•
10G XFP OC192 CDR / 8 [2]	•	•	•	•	•	•
10G SFP+ / 36					•	•

[1] Can do 100/1000 copper/fiber media conversion
[2] Intra-blade port mapping only

Management

MRV provides a complete portfolio of management options to fit any application. The manager includes a robust, industry-standard command line interface (CLI) and an on-board SNMP agent. Common scripting languages or the on-board scripting API can further increase test velocity. Graphical User Interface (GUI) choices include PathFinder, the on-board GUI for individual MCC control, and ResourceFinder, a sophisticated software application for multi-MCC applications that provides efficiencies in managing the infrastructure in any test environment.

Summary

Designed to meet the requirements of any size environment, the MCC facilitates meeting test commitments by increasing test quality and improving test velocity in demanding test and simulation environments. Wire-once technology allows users to share expensive test equipment or test beds, minimizing capital expenses.

Datasheet

Physical Specifications: CHASSIS		
Operating Temperature		0°C to 50°C (32°F to 122°F)
Storage Temperature		-40°C to 70°C (-40°F to 158°F)
Cooling Air		25 mm (1") clearance from external chassis vents to allow unobstructed air flow through the unit
Relative Humidity		85% maximum, non-condensing
Physical Dimensions:	1-Slot	43 mm high x 438 mm wide x 381 mm deep (1.7"x 17.25"x 15") - rack height 1U[1]
	2-Slot	156 mm high x 438 mm wide x 286 mm deep (6.12" x 17.4" x 11.25") - rack height 4U[1]
	4-Slot	221 mm high x 438 mm wide x 305 mm deep (8.7" x 17.25" x 12") - rack height 5U[1]
	8-Slot	400 mm high x 438 mm wide x 305 mm deep (15.75" x 17.25" x 12") - rack height 9U[1]
Maximum Weight:	1-Slot	3.5 kg (7.5 lb)
(loaded chassis) [2]	2-Slot	9.5 kg (21 lbs)
	4-Slot	15.0 kg (33 lbs)
	8-Slot	28.6 kg (63 lbs)
Maximum Power:	1-Slot	104 Watts (355 BTU/hr)
(loaded chassis) [3]	2-Slot	196 Watts (669 BTU/hr)
	4-Slot	429 Watts (1464 BTU/hr)
	8-Slot	805 Watts (2747 BTU/hr)
Compliances		FCC Part 15, Class A; IC, Class A; EMC Directive: Emission (Class A) and Immunity; LVD Directive: Electrical Safety; CE Marking; TUV CUE Mark (Canada, USA, EU); WEEE Directive: Wheelie Bin Mark; RoHS Directive, China RoHS; REACH Directive SVHC

[1] 1U=1.75"=44.45 mm

[2] Maximum chassis weights are estimated. Maximum configuration weights calculated with the heaviest blades currently available.

[3] Maximum power usage is calculated with 1 Watt per SFP, the maximum power usage from the SFP standard.

Physical Specifications: POWER SUPPLIES			
Part Number	**Weight**	**Voltages**	**Chassis**
NC316-72RPSAC	1.6 kg (3.5 lbs)	90 VAC - 240 VAC	2-Slot
NC316-144RPSAC*	2.5 kg (5.5 lbs)	90 VAC - 240 VAC	4-Slot or 8-Slot
NC316-144RPSDC*	1.9 kg (4.2 lbs)	40 VDC - 58 VDC	4-Slot or 8-Slot

*NC316-144RPSxx power supplies are used in both the NC316-144 and NC316-288 chassis

Detailed ordering information is available at *www.mrv.com/tap* .

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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