

Application Note

SOLUTIONS FOR EVERY NEED

MRV'S Media Cross Connect Management Options

OVERVIEW

Test labs today are tasked with bringing high-quality products to market more quickly, even as budgets for manpower and capital equipment are being trimmed. The quest for ultimate optimization of test lab resources is currently a bane for most lab managers. MRV tackles this dilemma by providing hardware and software to address the time-wasting practice of managing the physical layer to optimize resource usage in the lab space.

ENDLESS POSSIBILITIES

The foundation for every test lab management solution is the physical layer switch. MRV's Media Cross Connect provides this foundation. By wiring the lab's infrastructure and test equipment to the MCC, topologies and configurations can be changed through software from any location world-wide. Imagine the possibilities created by eliminating the need for physical presence to configure and operate your lab environment. Test set up time decreases, allowing more thorough testing and increasing the number of test cases handled in the lab. Users can easily share resources, increasing the usage of expensive capital equipment. Wiring resources once to the MCC switch also minimizes or eliminates the possibility of cabling errors or contaminated optics. Operating the lab 24/7 becomes a reality instead of a dream!

Implementing the MCC in the lab doesn't break the bank either. In many cases, the return on investment is measured in months, making deployment an easy justification even if budgets are tight. System scalability makes implementation easy, allowing lab managers to target increased usage of expensive test equipment and areas where dynamic configuration will have the most impact, which improves the equipment's ROI even more.

Once wired to the lab infrastructure, the options for managing the MCC range from a standard command line interface (CLI) to a sophisticated resource manager. MRV provides a complete portfolio of options to fit every application.

THE SIMPLEST FORM – MRV'S PROGRAMMING INTERFACES

Command Line Interface

The robust CLI is the most basic way to manage the Media Cross Connect. This text-only interface allows MCC management by engineers familiar with the "industry-standard" language to integrate into a home-grown or third-party software shell. The system supports Telnet as well as SSH and TACAS+ for secure CLI sessions.

The CLI also supports MCC control using common scripting languages, such as TCL or Expect to automate topology configuration and testing. The MCC software includes an application programming interface (API) for customizing automation and management. This embedded API eliminates the need to use external programs, and it offers the following benefits:

- **Time-Saving Scripting** – With the MCC API, the exact raw values are returned so that the user understands the return message immediately; there is no need to know unique syntax for the MCC.
- **Script Continuity From Release to Release** – The MCC API is unaffected by CLI syntax changes, so scripts written in a previous release of MCC software will run just as designed on newly released MCC software. There is no need to rewrite scripts for each release of software.
- **Reduced Complexity in Creating Scripts** – The complexity of scripting commands is immensely reduced when using the API instead of Expect. For example, scripting a simple mapping of two ports takes 10 to 15 lines using Expect, but MCC's embedded API reduces the code to 4 lines. This efficiency has a tremendous impact when designing large scripts. Learning Expect for scripting is no longer required.

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- **Increased Security** – All communication initiated by the API is encrypted using transport layer security (Tls) instead of using another service such as SSH or Telnet, which ensures secure operation for every end user.
- **Elimination of Middleware** – The API requires no stand alone application embedded within the MCC software to interface between the user and the MCC.

Simple Network Management Protocol (SNMP)

Simple Network Management Protocol (SNMP) is an industry standard application layer protocol used for monitoring and controlling network devices. The MCC software contains an on-board SNMP agent used to configure the MCC and to collect and share information using a network management system (NMS). SNMP allows the MCC to be easily deployed in environments that have an embedded management platform. MRV's on-board agent supports SNMPv1, SNMPv2, and SNMPv3.

MRV'S INTUITIVE GUI: PathFinder

The next level of management is PathFinder, the built-in graphical user interface (GUI) for the Media Cross Connect. PathFinder's simple and intuitive user interface incorporates graphical representations of mappings and system configurations that make lab operations even more efficient.

PathFinder intuitively verifies and validates information, making port mappings and topology configuration even easier. With the drag-and-drop mapping editor, mappings are accomplished with a few mouse clicks. Locating ports by name and type also speeds the process for users. In addition, a scaled-down interface for non-administrative users eliminates any functions not associated with port mapping or test configuration.

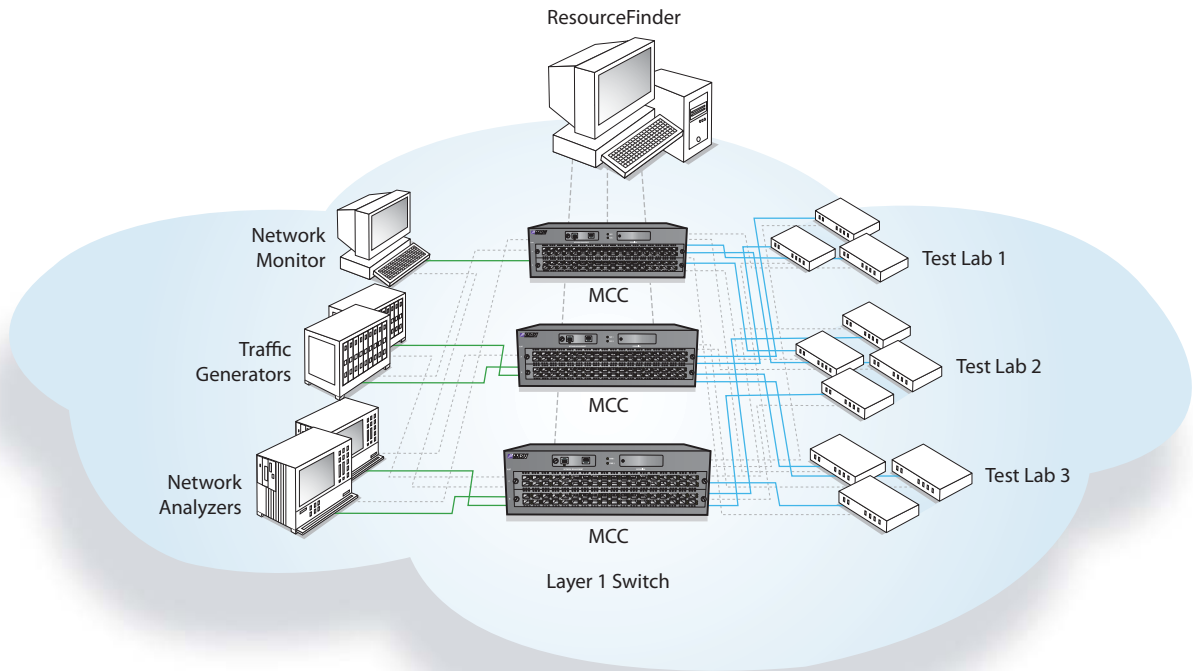
Administrators use the full capabilities of PathFinder to configure and manage the MCCs including network settings, user and group definitions, and security functions like Radius/TACACS+. A full front-panel view displays the most important chassis characteristics, including signal status, mapping information, and diagnostic information in a single screen shot for effortless system administration. Mappings can be saved in screenshot format for troubleshooting and reporting purposes.

THE ULTIMATE RESOURCE MANAGER – MRV'S ResourceFinder

MRV's ResourceFinder software takes lab management to the ultimate level. Managing and optimizing the use of expensive test lab infrastructure increases the throughput in the test lab and provides:

- **Equipment Scheduling and Reservations** – ResourceFinder's scheduling and reservation capabilities eliminate re-tests caused by interruptions and the time-wasting process of finding equipment and securing it for the duration of the test period. Users can reserve and schedule equipment for tests that can be superseded only with administrative intervention.
- **Uniform Test Set-Up** – ResourceFinder's central repository of test topologies and equipment inventories increase the overall effectiveness of testing and eliminate the human error factor
- **Simplified Test Configuration for Multi-System Environments** – Complex topologies involving multiple MCC switches are as easy to configure as simple point to point connections, saving time in setting up tests. Inter-switch mapping is configured intuitively for shortest, best available route.
- **Usage Analysis** – Information is power, and MRV's ResourceFinder provides comprehensive tracking and reports of lab infrastructure usage. Armed with this data, lab managers can make informed decisions for capital expenditures and optimal lab operation.

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IMPLEMENTATION TIPS

MCC Management Option	Key Environments
ResourceFinder	Multi-MCC, complex test lab with 5 or more users focusing on automating physical cabling and testing, equipment reservation and scheduling
PathFinder	Up to 288-port lab/enterprise with up to 5 users wanting a user-friendly operating environment
API	Up to 288-port lab/enterprise focused on automating physical cabling using scripting languages such as Tcl or Perl Large installations incorporating the MCC into an in-house automation solution
CLI	Up to 288-port lab with up to 5 users familiar with standard text commands
SNMP	Any size lab/enterprise that has an in-house NMS solution

SPECIFICATIONS

CLI	Telnet, SSH, Serial
SNMP	V1/V2c, V3
API	Native and TCL
Authorization, Authentication and Accounting (AAA) Support	Radius, TACACS+
File Transfer Support	TFTP, SCP
Synchronization Timing	NTP, RDATE
GUI	PathFinder, ResourceFinder



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CONCLUSION

MRV's Media Cross Connect coupled with the flexible options for management software eliminates the testing bottleneck and speeds companies' time-to-market for new products, which offers faster revenue realization. By fully using the lab resources, companies can optimize the operation while saving time and money.

MRV's test management and automation products increase the efficiency in the test lab environment, enabling more tests in less time with fewer resources. Remote control and management of cable topologies, lab devices, power distribution, and KVMs optimizes the lab for responsiveness with best use of capital expenditures. For more information, visit our website at www.mrv.com/TAP, call our sales hotline at (800) 338-5316, or email sales@mrv.com.

ABOUT MRV

Founded in 1988, MRV is a leading supplier of network infrastructure equipment for networks that scale in size, speed, and complexity. The company's switches, routers, and optical transport systems, including free space optics (FSO), operate in some of the world's largest networks. Our remote presence solutions manage lab and data centers around the world.

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