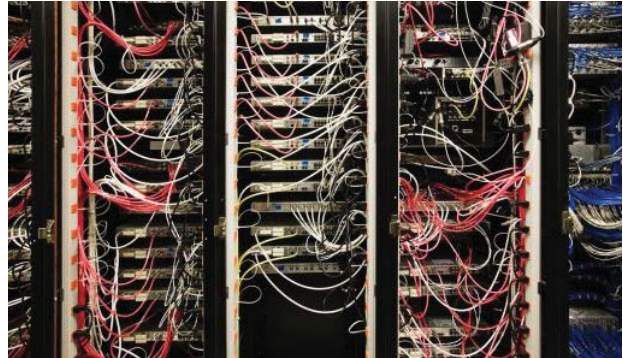


Application Note

# Take Control of Your Test Lab

The test lab plays an important role in an organization. Whether it's new product development, software verification, pre-sales support, or post sale customer service, the efficiency of your test lab affects your bottom line. Bringing new products to market faster or solving problems more quickly gives you a competitive edge. Seamlessly demonstrating solutions to potential customers wins deals and increases revenues. Minimizing expenditures for resources or equipment increases profits. An inefficient test lab, however, can easily stifle the productivity and success of any organization.



MRV offers the most complete solution for efficient test lab management addressing the areas of:

- Test Automation
- Power Management
- Remote Presence Solutions

Our product arsenal allows you to improve the efficiency of nearly every aspect of your test lab. Managing and planning power consumption, automating reconfiguration and testing, and providing remote presence to any device increases the throughput of your lab and decreases expenditures.

## TEST AUTOMATION

MRV's physical layer switches bring wire-once technology to the lab infrastructure. Connect all devices to the MCC, and all cabling changes can be performed remotely through software commands or automated using scripting programs. Eliminating the labor-intense and error-prone manual set up, the MCC not only increases testing capabilities, but minimizes errors due to incorrect configuration or contaminated connections.

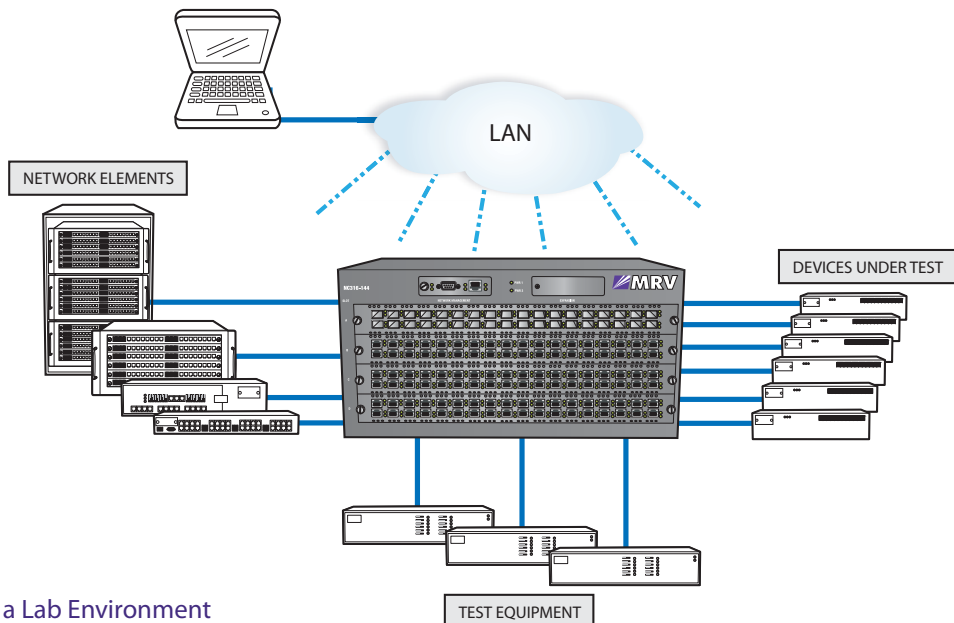


Figure 1: MCC in a Lab Environment

## Application Note

### **Automate Device Connectivity**

- No labor-intensive manual patching
- Wide range of interfaces provides flexible integration into any lab or multi-function environment
- Flexible management for any application using onboard GUI or CLI with an embedded scripting API
- Secure, remote access can maximize equipment usage – Share equipment in one lab among users on the next floor, state, or around the globe
- Software control of the lab infrastructure: the missing link to total automation for 24/7 unmanned testing

### **Maximize Test Throughput**

- Reduce configuration errors through saved topologies
- Reduce test set up time from days or hours to minutes
- Use stored topologies to simplify the setup of complex test topologies
- Improve connector reliability by wiring once and mapping through software
- Decrease test time by simultaneously mirroring data to multiple test sets or analyzers
- Cover more corner cases in product design

### **Facilitate Simulation Testing**

- Use software to simulate cable breaks or intermittent links in a controlled environment.
- Connect predetermined lengths of spooled fiber to ports to simulate cable distance testing

### **Minimize Equipment Inventories**

- Share test, monitoring, and other equipment among many users to extend the 1:1 ratio typically needed in a lab environment
- Media conversion performed by the MCC eliminates the need for external equipment, allowing test equipment with only one type of interface to be used in expanded situations (RJ45 and fiber equipment can be interchanged)
- 1-to-N broadcast (multicasting) allows a single device to send a signal to many DUTs
- Map span ports to a central pool of test equipment to reduce the test set, probe, and analyzer inventory

MRV's physical layer switches are scalable, OSI layer 1 switches that allow users to connect any port to any other port within the system using a non-blocking matrix. The Media Cross Connect is an optical/electrical/optical (OEO) or all-electrical (EEE) switch used for data rates and media up to 10 Gbps. The Optical Cross Connect is an all-optical (OOO) switch for single mode fiber rates up to 40 Gbps and above. Deploying these switches in a lab environment meets test commitments without compromising quality or responsiveness, and without increasing capital or operational expenses.

## **POWER MANAGEMENT**

In the past, electricity was a relatively low-cost and limitless resource for technology solutions. Those days are long gone as the top recurring cost for a test lab is electricity. Additionally, for every dollar spent powering the equipment, fifty cents disappears into capital equipment and power to cool the excess heat generated by the same equipment! It is important to gain control and reduce the power budget, and many corporations are instituting programs and incentives for reducing their carbon footprint. An intelligent power management system is integral to attaining these objectives.

### **Manage Resources More Efficiently**

- Secure remote management from any location
- Control and monitor individual power outlets
- Remotely access status indicators and power usage

## Application Note

### Improve Recovery Capabilities

- Increase UPS runtime
- Customize thresholds to trigger corrective actions and notifications
- Program power-up and power-down sequencing

### Reduced Energy Costs

- Efficient use of cooling equipment
- Power down equipment when not in use
- 3-phase and DC power support

### Reduced Capital Equipment Costs

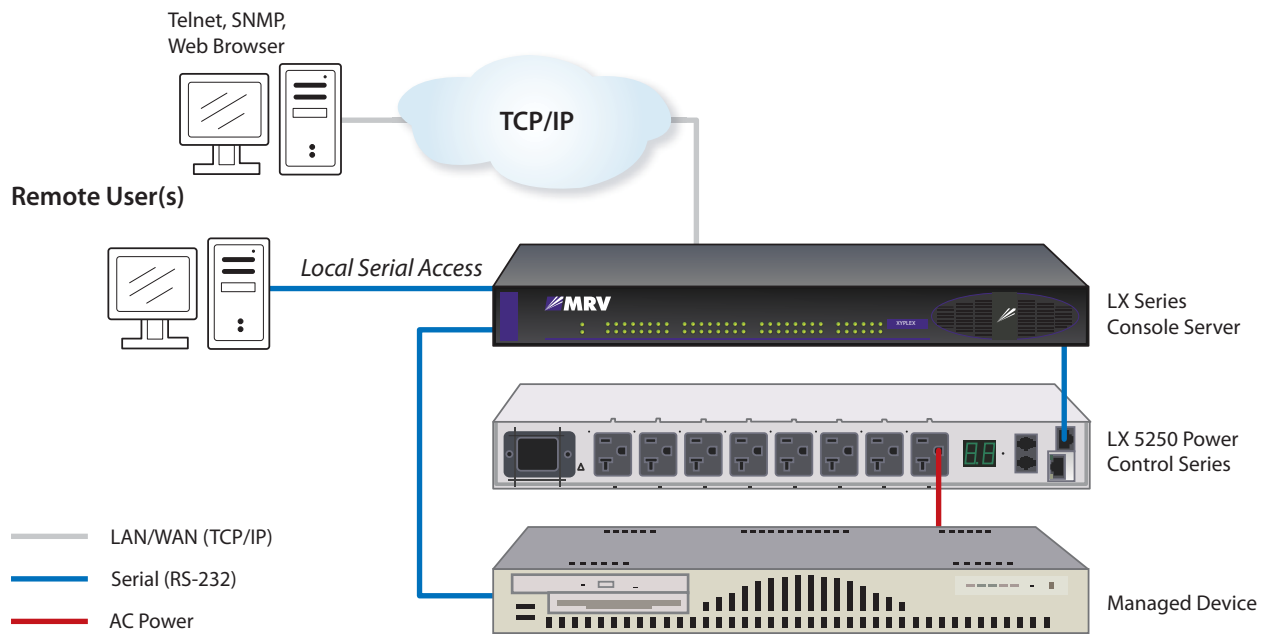
- Use fewer or reduced-capacity chillers
- Reduce number of back up devices required

### Enhanced Reliability of Lab Equipment

- Fewer heat-related device failures
- Reduced equipment failures means reduced downtime

MRV offers two approaches to intelligent power management: centralized and distributed.

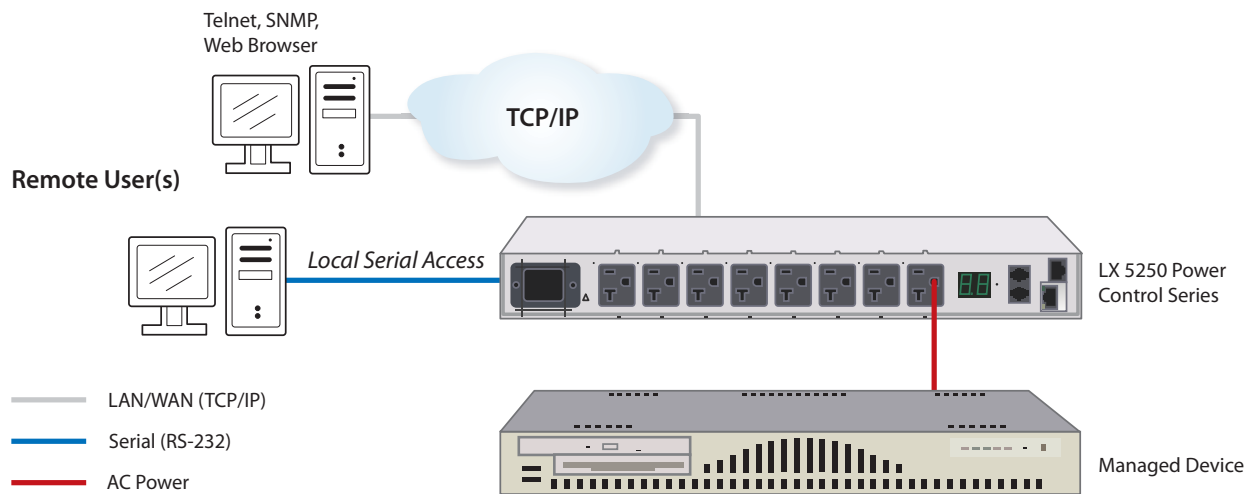
Centralized power management (See Figure 2) controls power distribution units (PDUs) through out-of-band access from a serial console to each PDU. The serial management equipment is independent from data network infrastructure. In addition to the power management benefits, this approach gives you secure, remote control even when your network is down. Centralized power management enables “trigger and action” response for rapid problem resolution. This architecture simplifies management of the system with its clustering and grouping capabilities and fewer IP addresses needed for management access.



**Figure 2: Centralized Power Management**

## Application Note

The distributed power management (See Figure 3) architecture uses standard Ethernet connections to each PDU for quick installations. It provides the basic utilization and monitoring capabilities and per plug control available with any MRV power solution. It reduces power costs and effectively manages the power in the lab.



**Figure 3: Distributed Power Management**

## REMOTE PRESENCE SOLUTIONS

MRV's remote presence solutions provide a more cost effective way to obtain maximum efficiency from your test lab equipment and personnel. Secure, real-time remote access makes manpower-intensive tasks and logistical access to shared equipment easy to manage. MRV offers remote presence solutions including the Media Cross Connect physical layer switch and the LX series of console servers.

### The MCC physical layer switch decreases equipment requirements:

- Remotely connect equipment and change topologies for unattended testing
- Equipment available 24/7 for maximum utilization
- Test labs support global access for test technicians anywhere on the network

### The LX series of console servers allow out-of-band network control:

- Remotely manage devices and power
- Maximize device usage
- Reduce energy costs by turning off unused equipment
- Enable 24/7 operation
- Minimize downtime with problem notification
- Troubleshoot remotely using out-of-band access even when the network is down

Each MRV solution offers operation and process efficiencies, and eliminates the need for duplicate personnel and equipment. This freedom opens many possibilities for decreasing the operational and capital cost of the test lab while increasing its capabilities.



## Application Note

### 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.

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 and power distribution optimize the lab for responsiveness with best use of capital expenditures.

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