

Meeting the Challenges of Development and Test Labs

Computer-based development and test labs are central to the success of companies in many industries: computers, software, semiconductors, telecommunications, networking and systems integration. The modern development and test lab is a dynamic environment full of heterogeneous computing equipment with a variety of manufacturers, models, operating systems, configurations, versions, etc.

Lab managers have very challenging jobs to schedule, configure, and manage lab resources for a cross-functional team of geographically distributed users. These users are sophisticated professionals consisting of hardware, firmware and software engineers, systems engineers, testers and QA staff. They require timely access to complex systems with ever-changing configurations to develop high-quality products under tight deadlines.

Large companies typically have multiple labs, often dispersed globally, with hundreds or even thousands of servers, PC's laptops, tablets, devices and networking equipment. Unlike data centers which are used by external customers, partners, suppliers, etc.; labs are used primarily by internal company staff. Despite this difference, labs are 24x7 production environments critical to project, product and company success.

Remote access of multi-vendor computer equipment across multiple sites

Lab users need access to lab equipment on a 24x7 basis to meet today's demanding schedules. This includes obtaining access while in the lab, in the office, from home and even while traveling. This may include remote access to labs at other sites, including facilities overseas. Many Raritan customers have multiple labs in the US, as well as labs in foreign countries.

One of our largest customers has hundreds of labs, spread across 4 continents. This customer is using a centralized remote access system to provide their users access to equipment anywhere in the world. In fact, lab users can gain shared access to remotely located systems for shared debugging and collaboration.

Recovering from "successful" tests

Development and testing may crash or hang servers and PC's, especially when engineers are working on new products and systems. In fact, success in testing often means exactly that. Unfortunately, this may require a trip to the lab or interrupting a lab manager to re-boot equipment. Both of which reduce productivity and extend project schedules.

Many Raritan customers connect their lab equipment to IP-enabled Power Distribution Units (PDU). These users can remotely power cycle and re-boot a hung server or PC, so they can quickly continue their work without interruption.

Challenges and Solutions

This article will highlight the top challenges Raritan has observed, as well as the ways Raritan's world-class customers are meeting these challenges.

These challenges can adversely affect: (1) the productivity of lab users and managers, (2) the schedule and availability of products and (3) the overall costs of product development. Conversely, companies overcoming these challenges can launch products faster, cheaper and with higher quality.

The challenges we have observed fall into the following areas:

1. Accessing lab equipment across multiple sites
2. Quickly configuring and re-configuring lab equipment
3. Integrating and automating multiple systems
4. Dealing with hung and/or crashed equipment
5. Managing and lowering energy costs
6. IT budget chargeback – IT cost allocation

The green lab

Large labs can consume a tremendous amount of energy. Significant energy savings are possible if energy use is carefully measured and managed. However, it is not easy to quantify the amount of energy used by lab devices and identify who is using those devices. And of course, energy conservation must not decrease productivity or affect product schedules.

Many Raritan customers have corporate initiatives to reduce energy across their many labs. Customers are addressing those initiatives by deploying energy monitoring equipment to understand energy usage for each lab. Targets are set for each lab to reduce energy, and progress is monitored. One key strategy includes powering down certain equipment when it is not being used to save energy. Additionally, test scripts are used to power up equipment previous to use and then power them down when tests are complete. These approaches have led to significant savings in energy usage.



Productivity: automate and integrate

In light of the above challenges, many lab managers use (and sometimes develop themselves) lab automation and management systems to help organize and manage their lab equipment. Automation is a key tool to increase productivity and reduce effort. But how do you automate multiple systems from different vendors into a seamless process for lab managers and users?

Many Raritan customers have used our Application Programming Interfaces (API's) to integrate their lab automation systems with Raritan systems. With this integration customers can easily measure energy consumption, and power on/off equipment to save energy.

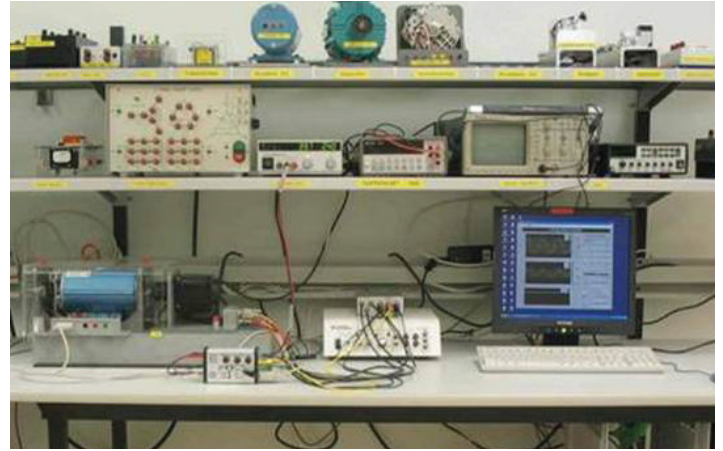
Constant configuration and reconfiguration

Another common API use involves equipment configuration. To ensure new systems will work in the largest possible number of environments, many different configurations must be tested. To configure remote equipment, lab managers need complete device access, including BIOS level access and the ability to remotely re-image servers and PC's. This is especially useful to lab managers, enabling them to re-configure existing equipment to support multiple projects and teams. This eliminates the need to purchase more and more equipment.

Specifically, one large customer spoke of the success in integrating their lab configuration and provisioning system with Raritan's remote access systems. In this case, lab users would request equipment with certain requirements. The provisioning system would then configure this equipment, and then through the API, give the user remote access to that equipment. These types of automation and integration have increased the productivity of both lab managers and their users.

Meeting the challenges of lab management

Computer-based development and test labs are central to the



success of companies in many industries. Based on Raritan's experience working with best-in-class companies, this article has highlighted how these companies are meeting these challenges to increase productivity, collaboration, and automation, while reducing energy costs. The overall benefits are faster time-to-market, decreased costs and higher product quality. The results for their customers are a continuing stream of innovative products that increase productivity in the work-place.

Why Raritan is the right choice for your lab?

Whether your lab is small, medium, large, or extra large—5,000 servers or more—Raritan has a scalable solution to meet your needs. We've had years of experience meeting the most rigorous requirements of our lab customers. In fact, both our largest KVM and Power IQ customers are labs. They join a customer roster that includes the world's largest software, semiconductor and networking companies along with a top three computer manufacturer. Most important for you, all the innovation and learning that results from developing solutions for these industry leaders is built into every Raritan product.

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