Secure Data Center Solution
Spurs Economic Growth

Montana Economic Revitalization & Development Institute boosts area business with multitenant Next-Generation Firewalls.

Challenge

The Montana Economic Revitalization and Development Institute (MERDI) has a broad mission: to foster economic development and education in Montana through investments in advanced technology.

“In today’s economy, business innovation and productivity are increasingly a function of the degree to which information technology has been effectively institutionally embedded within an organization,” says James Kambich, chief executive officer, MERDI. “Accomplishing this within Montana’s local rural economies is no small task, but MERDI is striving to create a holistic information technology ecosystem that both enables and empowers organizations.”

“As companies move toward solutions like electronic health records, paperless processes, and virtual infrastructure, these advances can create barriers for Montana firms, which tend to be much smaller and have fewer IT resources,” says Phillip J. Curtiss, PhD, chief technology officer for MERDI. “We make investments in infrastructure to enable local businesses to compete more effectively and promote economic growth.”

MERDI maintains an advanced data center, a fiber-optic metro network, and a high-performance computing (HPC) cluster to make state-of-the-art technology resources available to local organizations. These efforts have been an overwhelming success. Since its founding in the 1970s, MERDI has supported businesses producing thousands of local jobs. Today, MERDI’s data center houses 6 carriers, serves 16 local businesses and the Butte School District, and offers the state’s only HPC infrastructure.

MERDI’s mission, however, presents unique technology challenges. While MERDI is classified as a small business by most standards, its multitenant data center needs are more akin to those of a service provider. “We have many tenants, both inside our building and connected through our fiber optic network, who all have different demands,” says Curtiss.

EXECUTIVE SUMMARY

Montana Economic Revitalization & Development Institute (MERDI)
• Nonprofit/Technology
• Butte, Montana
• 30 employees

Business Challenge
• Provide advanced IT services to local government, nonprofit and business organizations to promote economic growth
• Help ensure security in multitenant environment
• Simplify network and security operations

Network Solution
• Cisco ASA 5585-X Adaptive Security Appliance with Next-Generation Firewall Services
• Cisco Nexus Switches
• Cisco ASR Aggregation Services Router

Business Results
• Enables MERDI customers to capture more business by increasing competitive capabilities
• Provides holistic view of threat environment for all customers
• Simplifies security management and operations, and provides economic sustainability for MERDI IT infrastructure
MERDI’s projects include bringing HPC resources to regional laboratories, providing basic IT services for local government, launching a virtual desktop infrastructure (VDI) initiative in the Butte School District, and many others. This diversity poses significant security concerns.

Some data center services must meet regulatory requirements such as the Health Insurance Portability and Accountability Act (HIPAA). Others must comply with the stringent security demands of government and military projects. Still others must protect intellectual property across a shared data center infrastructure. These security solutions not only must be simple to manage by MERDI’s small staff, they must be easily repeatable across multiple customers.

“As we look to meet customer requirements for hybrid fiber networks, virtualization, VDI, and bring-your-own-device (BYOD) initiatives, we have to make informed decisions about our technology purchases,” says Curtiss. “We need solutions that not only will allow us to perform better at the things we’re doing now, but also will give us capabilities for the future.”

Solution

MERDI has long relied on Cisco® for nearly all its IT needs, from the metro fiber network to the data center infrastructure. By 2012, however, the data center network was beginning to show its age. The organization overhauled the infrastructure with a Cisco Nexus® switching backbone, Cisco edge routing, and is even in the process of upgrading its HPC system to a Cisco Unified Computing System™ (UCS®)-based cluster. To meet increasingly complex multitenant requirements and lay a foundation for future services, MERDI turned to the Cisco Secure Data Center solution, leveraging the ASA 5585-X Series Adaptive Security Appliance with Next-Generation Firewall Services.

“We considered other vendors, but while their devices may be capable, they were limited to an enterprise data center model, and we are not an enterprise data center,” says Curtiss. “We are not serving one entity; we’re supporting many different people and projects. That makes a huge difference in the kinds of network services we need and the demands we place on our hardware. The Cisco ASA 5585-X platform was the most capable solution for meeting our multitenancy and other project-related demands.”

Security Foundation for the Future

MERDI’s Cisco ASA 5585-X Series platforms provide granular visibility into and control over client traffic flows, along with global threat correlation, intrusion prevention system (IPS) services, and content security. The platforms also provide industry-leading performance, capacity, virtual private network (VPN) connectivity, and scalability. They allow MERDI to meet a diverse set of customer security needs while reducing the hardware footprint and simplifying the infrastructure.

Curtiss also points out the ease of designing and deploying its new Secure Data Center solution. “We used to have five large firewall appliances, standalone VPN concentrators, and several smaller security appliances, all managed separately,” says Curtiss. “All of that was replaced by a pair of Cisco ASA 5585-Xs.”

MERDI now can also provide more advanced security capabilities. Global threat correlation, for example, provides security updates in as little as five minutes after threats are reported, and allows MERDI to implement updates immediately for all customers with a minimal staff.
While the organization is not yet using content security capabilities, they will play an important role when MERDI implements its VDI project for the Butte School District, and eventually extends state-of-the-art IT services to other Montana schools.

“As we look at the broad range of services that we can deliver with the Cisco firewall solution, we will be able to offer school districts a comprehensive, end-to-end computing solution from fiber networking to web security to content filtering,” says Curtiss. “Whether it’s 1 or 2 school districts today, or 20 two years from now, we can deploy the same portfolio of services over and over again.”

Advanced Multitenant Services

Among the most important advantages of the Cisco Next-Generation Firewalls is native support for MERDI’s multitenant environment. The ability to serve diverse customers and provide multiple levels of security with a single solution is already achieving significant benefits.

“Right now we are supporting two oil and gas companies that are head-to-head competitors,” says Curtiss. “It was no small feat to get them to collocate in our building and operate on what is essentially a shared network. We are using the Cisco security solutions to create multi-security zones for these customers, so we can guarantee that their traffic never overlaps end to end. And we can do that for all our customers, whether we need to assure HIPAA requirements or support military projects.”

Results

The Cisco ASA 5585-X platforms and other Cisco data center upgrades already are yielding benefits in the area that matters most: bringing business and jobs to Montana. In just the first few months since deploying the new infrastructure, one of the projects utilizing the MERDI data center for the United States Air Force was able to secure two years of additional funding due, in part, to the expanded capabilities of the data center. For another project, an information clearinghouse that works with multiple federal agencies, the upgraded data center and security services allowed them to compete for additional business.

“As a result of the upgrade, they can triple the amount of contracts they can take on,” says Curtiss. “From an economic development perspective, this is a huge benefit. Without the Cisco solutions, it wouldn’t be possible. We wouldn’t be able to contemplate the kinds of services we can now securely deliver.”

The Cisco ASA 5585-X platforms are also making a big difference for MERDI engineers. Instead of having to correlate logs from multiple platforms, MERDI now has a consolidated view of the threat environment in the data center at all times.

“Having a single point of management and a global view with situational awareness of the security situation across the data center has been huge for us,” says Curtiss. “It’s made our lives a lot easier. We don’t necessarily have fewer security issues, but we resolve them a lot quicker.”

The smarter, more consolidated security infrastructure also allows MERDI engineers to deploy and replicate new services much more quickly. In the past, for example, it could take more than an hour to make routine changes such as network address translation (NAT) configurations, as engineers consulted multiple spreadsheets to determine which appliance was serving which customer. Today, it takes a few minutes.
Most important, the scalability MERDI now can offer, and the ability to securely extend advanced data center services such as virtualization beyond the physical walls of the data center, create opportunities to serve new kinds of customers and contribute to new business models.

“As we look at the requirements we will need to meet in the next five years, the ability to holistically understand security threats and assure multi-tenant security models for our projects is essential,” says Curtiss. “If we did not have these capabilities, we wouldn’t be able to support some of the work that our customers and partners are able to secure now. That’s a big deal here in Montana. We are seeing direct economic benefit as a result of these technology investments.”

For More Information

For more information about the Secure Data Center solution, Nexus switches, ASR (Aggregation Services Router), and Unified Computer System (UCS), go to:

- [http://www.cisco.com/go/securedatacenter](http://www.cisco.com/go/securedatacenter)
- [http://www.cisco.com/go/asa](http://www.cisco.com/go/asa)
- [http://www.cisco.com/go/switches](http://www.cisco.com/go/switches)
- [http://www.cisco.com/go/routers](http://www.cisco.com/go/routers)

### PRODUCT LIST

**Security**
- Cisco ASA 5585-X Adaptive Security Appliances with Next-Generation Firewall Services, IPS, and Global Threat Correlation

**Routing and Switching**
- Cisco Nexus 7000 Series
- Cisco Nexus 2000 Series
- Cisco ASR 1000 Series

**Unified Computing**
- Cisco UCS B200 Blade Servers
- Cisco UCS C220 Rack Servers
- Cisco UCS C240 Rack Servers