



Photography: LSC; Jeffrey Vock

With the Help of Empire Technologies, Liberty Science Center Lets Creativity Flow with Extreme Networks® and Avaya

Extreme Networks Infrastructure Supports Converged Voice, Back-Office Apps and Extraordinary Exhibits for New Jersey Museum

Liberty Science Center, located in Jersey City, New Jersey, is an innovative learning resource for lifelong exploration of nature, humanity and technology, strengthening communities and inspiring global stewardship. Enhanced by its historic and cosmopolitan location near the Statue of Liberty, the Center provides transformative experiences, inspiring each individual to understand the continuing connection between scientific advances and how they improve the human condition. The Center has attracted more than nine million guests to date and in 2007-2008 alone, more than 850,000 guests are expected to peruse the building's four floors.

No Ordinary Network

In the summer of 2007, the Center's CIO, Barb Macecsko, was spearheading a big project: the outdated network needed to be completely overhauled to support data and communications. This was no ordinary network. Yes, there were the more ordinary purposes the network served, including performing back office duties and handling ticketing operations and accounting applications, as well as carrying email and various database programs. However, the Liberty Science Center network also had the added burden of having to connect all 150 exhibits throughout the museum.

The Center's overall objectives for the new network were stability, performance, and functionality, as well as coming in at a favorable cost. The network also had to be able to support a newly deployed Avaya Voice-over-IP (VoIP) solution, as well as streaming video, electronic ticketing, and Wireless LANs (WLANs). After carefully considering Cisco and Extreme Networks, which were both brought in by Empire Technologies, a Freehold, N.J.-based member of the Avaya BusinessPartner program, the Center chose Extreme Networks.

"The reason we chose Extreme Networks is that they support the unique applications we have in our exhibits, they work closely with our VoIP provider, Avaya, and the network is simple to configure," said Jesse Brennan, network engineer for Liberty Science Center. "Extreme Networks also won on functionality, performance, stability, and value for the money."

With the help of Empire Technologies, Extreme Networks provided Liberty Science Center with one of its BlackDiamond® 8806 switches for the core and a dozen Summit® 200 and four Summit X250 switches for the edge. In addition, more than two dozen Altitude™ 350 wireless access points have been deployed throughout the Center. The EPICenter® software management suite is used for complete end-to-end network management, simplifying the configuration, troubleshooting and status monitoring of the network, while allowing the Center to handle similar tasks for all switches at the same time,

The Challenge

Liberty Science Center needed to overhaul an outdated network in order to support new applications. The new network would need to provide the reliability and availability to serve as the foundation for VoIP and the performance required for back office applications for its employees and for dynamic, network-attached exhibits visited by millions of locals and tourists welcomed annually.

The Solution

Extreme Networks and Avaya provided a comprehensive convergence solution featuring the performance, communications features, and simplicity required to meet Liberty Science Center's needs.

Benefits:

- Combination of Extreme Networks and Avaya delivers an IP telephony system without the risk of lost calls.
- Live video delivery is made possible using Extreme Networks policy-based Quality of Service.
- Extreme Networks, Avaya and Empire Technologies delivered a comprehensive and easy to manage solution that reduces the overall Total Cost of Ownership (TCO).
- Wireless network is accessible to Center workers so if an exhibit goes down, they can quickly and easily reboot with a laptop/PDA device without ever leaving the exhibit floor.
- Extreme Networks EPICenter makes management of the entire network simple and saves time so that the busy staff can focus their attention on future projects.

saving both time and resources. The solution integrated seamlessly with the Avaya solution, which consisted of two Media Servers, four G650 Media Gateways, and 100 of the company's model 4610 IP telephones.

"I'm a full-time college student and a part-time employee," said Brennan, "and I'm able to handle the network design and configuration myself using EPICenter. Extreme Networks makes things very easy and intuitive."

Exciting Exhibits and Live Video Feeds

Within each Extreme Networks Summit and BlackDiamond switch is a consistent, non-blocking switch fabric that provides the necessary application and communications performance. In each instance, the backplane capacity is greater than the aggregation of all its ports, so data is never lost—even when the network load requires all ports to deliver full gigabit bandwidth. This is significant when visitors are downloading files and employees are simultaneously utilizing the Avaya communications system.

"Many of the exhibits are IT-based," said Macecsko. "For instance, you can operate a crane, which is actually a workstation connected to a plasma screen with joysticks, and the exhibit lets you control the crane on the screen. There are desktops in the back room controlling the exhibit, which are connected through the network."

If there is a problem with one of these exhibits, such as the crane exhibit, a Center worker or volunteer carrying a small laptop/PDA-like device with them can easily re-boot the application with the device. It can all be fixed within minutes, wirelessly and without much effort on the part of the worker or volunteer. In the meantime, the Center guest has entertained himself or herself with another educational exhibit.

With Extreme Networks policy-based Quality of Service (QoS) capabilities, the Center can easily meet the demands of delay-sensitive applications with enforceable bandwidth and latency guarantees. Administrators can define minimum and maximum bandwidths per traffic type, ensuring that higher priority traffic is marked and treated with higher priority than less important ones.

"Exhibits are very computer-intensive," said Brennan. "In the past, exhibits were very mechanical—80 percent mechanical, 20 percent computers. Now that ratio's flipped – 80 percent computers, 20 percent mechanical. Extreme Networks has allowed us to run a lot more computers."

"The Altitudes have allowed us to offer guests wireless access and serve the community in an even broader sense," said Macecsko. "We've also made working with the box office to improve performance a priority."

"I can only imagine how far we'll go with this Extreme Networks infrastructure."

**– Barb Macecsko,
CIO, Liberty Science Center**

Extreme Networks VLAN capabilities further enhance network performance because traffic can be separated by either project or function, with each segment assigned to a specific bandwidth threshold. The Center segments the network for both voice and data. The use of VLANs also ensures the integrity and isolation of traffic by creating logical barriers that keep unauthorized users from accessing confidential data and protects the network from unsafe traffic. Finally, the fault-tolerance and redundancy built into Extreme Networks award-winning switches allow the Center to enjoy maximum uptime and the robust network is now free of bottlenecks.

"We stream live video feeds of surgery from teaching hospitals in the area right into the Center," said Macecsko. "We required a high-performance, reliable network like the one we have now from Extreme Networks for a program like this. While we were able to offer this program before, we weren't able to offer the quality that our new infrastructure gives us."

Simplified Management and Flexibility are Key for Museum

Extreme Networks delivers a simplified approach to network management and administration. EPICenter offers an intuitive user interface, simplifying configuration, troubleshooting and status monitoring of the network while streamlining common tasks, for an overall reduction in network complexity. EPICenter also helps generate comprehensive status reports for precise project management. The result is a comprehensive and easy to manage solution that reduces the overall Total Cost of Ownership (TCO). Finally, all of Extreme Networks products, including hardware, software and management platforms, share a consistent architecture, which translates to end-to-end simplicity and ease of management for Liberty Science Center.

"In the past, exhibits were very mechanical—80 percent mechanical, 20 percent computers. Now that ratio's flipped – 80 percent computers, 20 percent mechanical. Extreme Networks has allowed us to run a lot more computers."

**– Jesse Brennan, Network Engineer,
Liberty Science Center**

“The ease of use we enjoy with the Extreme Networks solution has given us the ability to provide a flexible infrastructure to be as creative as we can possibly be,” said Hernando Giraldo, Director of Technology for Liberty Science Center. “IT departments can be rigid, but Extreme Networks allows us to create what the museum wants and needs. Whatever the content, this infrastructure allows us to work within flexible parameters.”

Extreme Networks Frees up Time, Allowing Creativity to Flow

Liberty Science Center is enjoying the new heights it has reached with Extreme Networks and also the new freedom of time its network staff.

“The time we gain from not having to babysit the network is time we can use being creative in our planning,” said Brennan. “We currently incorporate the use of cell phones with an Avaya Voice Portal whereby a visitor can dial a phone number from their cell phone and receive information about a particular animal or insect. We use any extra time we have to think about new opportunities like that.” (See Sidebar on Liberty Science Museum’s Science Now, Science Everywhere exhibition.)

CIO Barb Macecsko also looks forward to future technology implementations. “We’ll be expanding outdoors in the summer months and it’ll be interesting if we extend wireless outside. I can only imagine how far we’ll go with this Extreme Networks infrastructure.”

“The ease of use we enjoy with the Extreme Networks hardware has given us the ability to provide a flexible infrastructure to be as creative as we can possibly be.”

**– Hernando Giraldo, Director of Technology,
Liberty Science Center**

Cell Phone Science

Visitors to Liberty Science Center experience the benefits of the Extreme Networks infrastructure and the intelligent communications capabilities from Avaya whenever they use their cell phones to get more information on an exhibit using “SNSE: Science Now, Science Everywhere.” Found throughout the Science Center, SNSE allows guests to interact with exhibits and learn anywhere, at any time. By dialing a phone number and selecting a four-digit code, guests can hear a wide range of extra information, including animal facts, “green” aspects of the Center’s 300,000-square foot building, or details of the Hoberman Sphere artwork, for example. In addition to retrieving and downloading supplementary information and commentary, they’ll soon be able to vote in museum polls and even contribute their own input and information for other guests to enjoy.

“We’re always looking for ways to extend the learning experience,” said Barbara Macecsko, CIO, Liberty Science Center. “Studies show nearly nine out of 10 guests have a cell phone or other communication device with them when they visit. Now, we’re able to use those phones to deliver science content both inside and outside the museum over cellular, Wi-Fi or land-based networks.”

The museum’s new interactive capabilities are based on Avaya Voice Portal, a software platform used to speech-enable applications across an enterprise. Using Avaya Dialog Designer, a standards-based development tool, Liberty Science Center can quickly and easily program the Avaya Voice Portal as new exhibits are added or existing exhibits are changed.



www.extremenetworks.com

[email: info@extremenetworks.com](mailto:info@extremenetworks.com)

**Corporate
and North America**
Extreme Networks, Inc.
3585 Monroe Street
Santa Clara, CA 95051 USA
Phone +1 408 579 2800

**Europe, Middle East, Africa
and South America**
Phone +31 30 800 5100

Asia Pacific
Phone +852 2517 1123

Japan
Phone +81 3 5842 4011

© 2008 Extreme Networks, Inc. All rights reserved.
Extreme Networks, the Extreme Networks logo, Altitude, BlackDiamond, EPICenter and Summit are either registered trademarks or trademarks of Extreme Networks, Inc. in the United States and/or other countries.
Specifications are subject to change without notice.