

# Cicero School District 99



## EXECUTIVE SUMMARY

### Challenge

Build a highly resilient network that supports all district services today with the financial and technology flexibility to evolve the network on demand and meet tomorrow's innovative educational opportunities.

### Solution

- Brocade MLX Series Core Routers for district-wide core routing
- Brocade ICX Switches in MDFs and IDFs
- Brocade VDX Switches for the data center
- Brocade Network Advisor for simplified management
- Brocade Network Subscription for acquisition as a service

### Results

- Enabled district to acquire equipment today with no upfront capital and the assurance of financial flexibility to meet future network needs with Brocade Network Subscription
- Achieved a highly resilient, high-capacity network
- Gained PoE+ capabilities to power a wide range of devices across the campus while maximizing switch port efficiency
- Integrated easily with existing wireless network while retaining the ability to integrate with any vendor's future 802.11ac

## Network Acquisition Future-Proofs Network Planning and Deployment

Cicero School District 99 serves more than 13,000 students in Cicero, Illinois, a city that lies just west of Chicago. The district's Information Services department is integral to supporting the district's mission of preparing students to become lifelong learners and socially responsible citizens. Its responsibilities span all technology, data and assessment, computer labs, textbook inventory, and media centers deployed in 19 locations across the district.

In the past, the district used its network to enable teachers to occasionally download course worksheets, perform state reporting, or share email. The network was built in an old-style hub-and-spoke configuration of equipment from multiple vendors, and it suffered frequent downtime. In 2006, Cicero Schools upgraded to a core switch and eliminated most of the hubs, which improved uptime and simplified network management.

Since then however, almost all essential operations have migrated to the network. For example, Heating, Ventilation and Air Conditioning (HVAC) systems that were operated manually now are online and controlled remotely. Security cameras were brought online and made accessible to law enforcement. The entire curriculum is now online to support Web-based education. The network also has to support high volumes of video traffic, IPTV, and reporting to the state management system. Even the school lunch system relies on the network.

In addition, wireless traffic represents a dominant portion of network traffic. From PARCC testing to supporting video and curriculum from mobile labs, the new network had to support the existing Cisco wireless network.

"We moved from simply needing Internet connectivity to requiring a mission-critical, high-availability network," said Brad Randmark, Director of Technology and Information Services for Cicero School District 99. "If the network goes down, the students can't do anything. Lessons are dead in the water. As we looked at our network and the future, we knew that we had to eliminate the network as a single point of failure."



## WHY BROCADE

*“Brocade Network Subscription is the ideal acquisition model for Cicero Schools. It allows us to purchase a new network with the reliability and functionality for effective PARCC testing with the flexibility to swap out the equipment whenever technology requirements change. Brocade Network Subscription enables our district to always have a current network, rather than pay maintenance costs for an aging infrastructure. It provides the financial flexibility we need for the technology we want today—and tomorrow.”*

— Brad Randmark, Director of Technology and Information Services for Cicero School District 99



### **A Network with Technical Resiliency and Financial Flexibility**

Randmark and his team inventoried the district’s current networking needs and projected its future requirements to evaluate suitable replacements. The new network had to provide a resilient, robust core with no single points of failure. It had to provide Power over Ethernet (PoE) to power a wide range of wireless devices today—including wireless access points to support district-wide PARCC Assessment testing—as well as those that the district plans to deploy in the future. The district is also planning to upgrade its wireless network to the 802.11ac Wave 2 standard in the near future, so the new network had to be able to work well with whatever wireless vendor will be chosen and scale to support it as needed.

The flexibility provided by the ability to easily create Virtual LANs (VLANs) without affecting network performance is essential to meeting future business needs.

“We evaluated several leading vendors,” said Art Andersen, District Network Manager for Cicero School District 99. “We chose the Brocade solution because it allowed us to dramatically improve availability, take full advantage of all ports and bandwidth, and do it cost-effectively.”

Choosing Brocade® equipment solved the district’s network performance and resiliency demands. Acquiring the equipment using the Brocade Network

Subscription service future-proofed the network. Brocade Network Subscription allows Cicero Schools to define its network today and seamlessly adjust to accommodate new needs, at no cost and with no penalty. The district only pays for network capacity as it uses it and can upgrade, return, and change the equipment to refresh infrastructure as business needs change.

### **A Network Built for Anything**

The new network core uses Brocade MLX® Series Core Routers to meet the district’s reliability and bandwidth demands. Brocade MLX Series Core Routers deliver unprecedented scale and performance, high reliability, and operational efficiency for even the most demanding networks. Brocade Multi-Chassis Trunking (MCT) technology enables Cicero to create a single logical switch that dynamically load-balances traffic from access layer switches with multiple connections to the core devices. If one chassis fails, trunking automatically moves to the other, achieving nonstop availability.

Brocade VDX® 6740 Switches with Brocade VCS® Fabric technology are deployed as Ethernet core switches in the data center. They form a scalable, self-provisioning, and automatically healing Ethernet fabric for around-the-clock application and storage availability. They are connected with a 40 GbE connection.

Brocade ICX® 6610 Switches are deployed in campus MDFs and Brocade ICX 6450 Switches in IDF's for access and aggregation. The Brocade ICX Switches provide high performance and simple expandability with Brocade Ethernet switch stacking technology. The Brocade ICX 6450 Switches also deliver PoE+ power and data through all ports across network connections .

Cicero Schools also use Brocade Network Advisor to proactively manage the network end to end. According to Andersen, "Brocade Network Advisor lets us manage everything in one place. We have much more control than in the past because devices were on separate networks. Now we can monitor them together through Brocade Network Advisor."

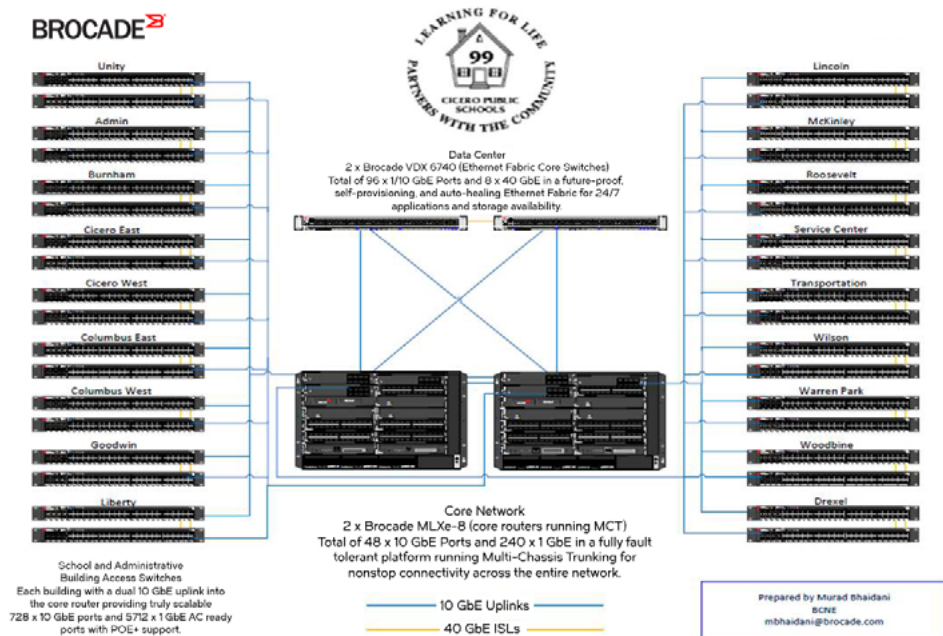


Figure 1: Cicero Schools' Core and Campus Network

## The Ideal Acquisition Model

"Brocade Network Subscription is the ideal acquisition model for Cicero Schools," said Randmark. "It allows us to purchase a new network with the reliability and functionality for effective PARCC testing with the flexibility to swap out the equipment whenever technology requirements change. Brocade Network Subscription enables our district to always have a current network, rather than pay maintenance costs for an aging infrastructure. It provides the financial flexibility we need for the technology we want today—and tomorrow."

From Randmark's perspective, Brocade Network Subscription represents a strategic shift in network deployment. In the past, non-technical decision-makers expected him to know the business requirements of the next 10 years. CIOs and IT directors often had to make high-risk decisions, asking for multimillion-dollar capital budgets knowing that the network would likely require significant

upgrading in just a few years.

"With the Brocade Network Subscription, I can sleep knowing that I can afford to be a little wrong because it's not a permanent, huge capital outlay," he said. "We're good for the next 10 years because we have acquisition flexibility to swap something out or upgrade—not because we bought a switch and used it for 10 years. We have choices. It's also comforting to know that this model has been accepted nationally by MiCTA as a best practice."

## The Value of High Availability

With redundancy built into the network core and between buildings, Cicero Schools achieved its goal of high resiliency. The district was also able to use its supply of dark fiber, which allowed it to deploy multiple 10 Gbps links between buildings and tap Brocade MLX Series Core Routers through the MCT feature for high bandwidth and performance. This first year of PARCC testing was accomplished without downtime.

"How do I put a price on no disruptions for students accessing the curriculum?" said Randmark. "Everything in our entire budget is to make sure that we maximize the 174 days per year that we have students in seats and in front of teachers."

## Power On

The new network also delivers far more capacity, ports, and performance than the previous network. With 20 Gbps fiber links, Cicero Schools now can easily deliver bandwidth-intensive services today and be ready to accommodate any new services, courseware, and applications that emerge over time.

Having PoE+ implemented on every port with full power enables Cicero Schools to power security cameras, physical security and access sensors, and wireless access points across the district. And the fact that the Brocade network will easily support wireless networks using the 802.11ac standard is critical to future wireless deployments.

"The PoE+ capability has been huge for us," said Andersen. "The wired network is essential for supporting the wireless network, and PoE+ dramatically reduced cabling while efficiently using all of our switch ports."

## Streamlining Management

Brocade Network Advisor streamlines network management by simultaneously delivering deeper visibility into traffic and devices. If issues arise anywhere in the network, Andersen is able to what happened and more importantly, why it happened and how to prevent it from happening again.

## Future Plans

Randmark is already looking ahead. Technologies are on the horizon that will enhance the educational experience, as well as the networking solutions that will

be needed to support them. One of the primary goals is to support in-classroom broadcasting from tablets to a shared screen in each classroom so that students can share their work and collaborate on lessons more easily.

"We have had an extraordinary experience with Brocade," said Randmark. "From helping us understand what was possible, to helping install equipment, the Brocade team is just great. And I am looking forward to whatever the future brings, knowing that we're covered."

For more information, visit [www.brocade.com](http://www.brocade.com).

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