



Proactive virtualization solution keeps network from failing  
Advanced Logic Industries Customer Case Study

## Carroll County Public Schools



**Website:** <http://www.ccpisd.k12.va.us/>  
**Size:** 4900 end users  
**Location:** Hillsville, VA  
**Industry:** K-12 Academic

### Profile:

Carroll County Public Schools (CCPS) is a rural school system located in the scenic Blue Ridge Mountains of Southwest Virginia, consisting of ten schools with dedicated faculty and staff members serving Pre-Kindergarten students to adult learners.

Services range from special needs to gifted education in a safe and secure learning environment. CCPS also participates in the Crossroads to Employment Network, a multi-agency approach to transitioning our students and adult residents to viable employment.

### Solution components:

- VMWare vSphere 4
- EMC Storage Area Network
- HP BladeSystem platform

## Embracing Virtualization Kept Network Systems Safe when Disaster Struck

**“The VMWare Virtualization solution kept our servers safe with “smart” consolidation in the face of a very real environmental threat. Our systems never went down, and were ready for school the next morning.”**

*Quannah McDaniel, Computer Project Technician, Carroll County Public Schools*

*During a Sunday afternoon thunderstorm, Carroll County Public Schools temporarily lost all power. Unfortunately, while the servers were protected on standby power, the data center’s air conditioning system did not automatically re-start. The temperature in the data center climbed to more than 100° within just 2 hours, jeopardizing the school’s entire IT infrastructure.*

### Background:

In 2010, Carroll County Public Schools started converting to virtualized technology platforms as a means to save money and provide a higher level of service for the students, teachers and administration.

Their IT Department consolidated 15 previously separate network servers into an intelligent HP BladeSystem Array. An HP BladeSystem consolidated the hardware and processing power of those 15 old servers into a unit that not only provided more performance, but took up less space, less power and less management time.

With the move to a virtualized infrastructure, Quannah McDaniel and his colleagues could bring services online faster, with fewer “bugs”. Little did he know how smooth the advanced power management and disaster recovery components of VMWare’s vSphere virtualization software and HP’s BladeSystem would function to save the day when disaster struck.



## Crisis:

As the temperature in the data center kept rising, so did the threat to the school's IT network and data. A number of critical systems needed to be ready to perform on schedule when school opened the next morning. This included:

- Student information system
- Bus Routing application
- Network Domain controllers
- School Website
- Cafeteria system
- Wireless network management tools
- Data network management tools
- Web content filtering systems

At stake was access to the internet, operational and administrative applications, email and data. If the servers went crashed in the heat, the data loss and corruptions would require a great deal of rebuilding and restoring from backup.



## Outcome:

Because of the intelligence built into the HP BladeSystem and the VMWare virtualization software, once the servers sensed the environmental threat, they began an orderly self-preservation process.

In order to reduce the load on the server and avoid file corruption that a server failure can bring, vSphere systematically organized applications onto fewer and fewer blades until everything was running on just one blade. As the vSphere software consolidated virtual servers, the BladeSystem conserved energy by shutting down emptied blades. The network never went down.

Once the air conditioning systems were manually restarted, the BladeSystem began restoring back into their original locations.

In all, the IT support team at CCPS only had to spend 20 minutes on Sunday checking on the situation via a remote login to the network. Via their remote login they were able to see the system had performed flawlessly and everything would be operational for school the next morning.

Had the system failed, 3 people would have spent at least several hours onsite on a Sunday night providing costly and unpopular after-hours support and would have been faced with the very real probability of corrupted data that would need to be restored, possibly impacting systems availability the next day.

## Ongoing Virtualization Benefits

- **New resources can be brought online in less than 45 minutes versus 2-3 hours.**
- **Ability to have a virtual test-bed – helps identify problems before solutions are rolled out.**
- **Systems can be moved while in production during the school day. (PowerSchool moved without users realizing it.)**
- **Database intensive applications can load balance based on real time needs, invisible to end users.**
- **New SQL labs and other student testing labs can be up and running in minutes.**
- **Now ready to expand next into virtualizing desktops in addition to servers.**