

## Case Study: Designing a Network for 21st Century Learning



## Transforming IT at the West's Largest Charter High School

Birmingham Community Charter High School in Van Nuys boasts the largest campus in the Los Angeles Unified School System. Since the school was granted its charter in 2009, BCCHS has undergone an extensive upgrade to its wired and wireless network and built a modern, secure, virtualized cloud data-center to support student learning. And on every step of this journey, Datalink Networks has been their partner.

### Wireless Network Expansion

The wireless network upgrade was necessitated by federal and state directives that emphasize the use of online technologies. BCCHS is one of many area schools that has adopted a One-to-One technology learning initiative, to ensure that every student has access to at least one internet-connected device – any time, any place on campus.

Simple expansion of the network wasn't going to be enough. IT Director Vic Chalabian needed to upgrade the school's wireless bandwidth to meet the demands of everyone in the school community: students, staff,

### Case Study at a Glance:

#### Industry

K-12 Education

#### Objective

Upgrade the wireless network to accommodate a new 1:1 technology policy for the school's 3,000+ students, staff, and administrators over 53 acres, and beef up network security.

#### IT matters

- Upgraded Wi-Fi to 802.11 Wave 2 with 370 access points
- Deployed NAC and SSO for wireless network security
- Fortified security with two high availability Next-Generation Firewalls and endpoint protection
- Email spam filtering
- Hybrid cloud backup/disaster recovery
- Work station monitoring
- Help desk support

administrators, and parents. And since school planners project an eventual ratio of up to three devices per user, they needed to accommodate as many as 9,000+ devices. The new infrastructure was designed to be both flexible and scalable for new digital learning platforms that have yet to be developed.

“The old wi-fi network had about 75 access points. This new one we upgraded to has 370, and fills in the gaps that were left behind,” Chalabian says. “We’ve gone with two virtual controllers to eliminate a single point of failure, and have moved to the new wireless standard AC Wave 2. So the new wireless network is four times as fast as the one it replaced, and has much more capacity.”

The network Datalink Networks designed for BCCHS utilizes new 802.11ac access points from HPE Aruba. They’re faster, more secure, and more efficient than the old network’s Cisco APs. And Aruba’s APs cost less than comparable ones from Cisco.

Chalabian manages all that device traffic with Aruba’s AirWave management solution. AirWave gives the IT team granular visibility into both BCCHS’ wired and wireless networks. Its centralized and intuitive user interface provides real-time monitoring, proactive alerts, historical reporting, and fast, efficient troubleshooting. Chalabian and his team are now able to see at a glance potential RF coverage issues, unified communications and collaboration (UCC) traffic, application performance and network services health.

## Security

Network security is important for any organization, but public schools must also meet stringent FERPA compliance standards to protect the privacy of the students they serve. The CIPA law requires them to restrict student access to obscene or harmful content they may be exposed to on the internet. And in recent years, schools have become popular targets for cyber criminals.

Chalabian learned this first hand a few years ago, when the school was attacked by ransomware. So security measures were foremost for the Datalink Networks engineering team that architected the new network.

The BCCHS network is now protected with two high-availability Next-Generation Firewalls, anti-virus endpoint protection, hybrid cloud backup for disaster recovery, and a single sign-on system which allows all 3000+ members of the BCCHS community to access both local resources and cloud apps like Google Apps for Education.

Those cloud services are why single sign on is such an important feature of the new network. BCCHS utilizes an open source SSO product, which is facilitated by Aruba’s Clearpass NAC platform. Clearpass provides BCCHS with a single comprehensive security and verification point for both the school’s wired and wireless networks, applications, IoT devices, student, employee, contractor and guest devices.

With Aruba ClearPass, Chalabian can create, define and enforce a consistent access policy of what device can connect to which elements of the network, based on the type, who is using it, where and when it is being used, and the type of connection and its health status. Clearpass enables Chalabian’s IT staff to deliver an excellent user experience, while preventing insider





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*-- Vic Chalabian, IT Director  
BCCHS*

data leakage, malware threats and other high-level vulnerabilities.

“We can’t forget the spam filtration we’ve used throughout the years as well,” Chalabian says. “We tried a few that were not robust enough for our needs. But Datalink Networks came through with Edgewave ePrism, which gives us both a spam filter and continuity. It basically contains the messaging in the cloud so if there’s any problem with the on-premise Exchange system, you’ve got a cloud copy. And that’s been great, because it provides a backup to our onsite email system.”

Should any malware penetrate the new network defenses and cause a problem, BCCHS can recover quickly with Datto’s SIRIS backup, restore, and continuity platform. The SIRIS data protection platform protects the network infrastructure and allows Chalabian to roll back quickly to 15-minute or hourly increments and spin up lost servers in seconds without the need for additional tools. Backups are created automatically on a local appliance and are also replicated to the Datto Cloud. So BCCHS can recover granular data quickly from multiple points in time, and use local virtualization.

Chalabian remembers what happened to his servers that were backed up with a legacy tape system. “Tapes are unreliable, so even though the server we lost was non-crucial, it was still a lot of work on my end to spin it back up,” he says.

The 10-TB onsite Datto Siris appliance can run all the BCCHS servers in a backup scenario, while also replicating to the cloud. So they are protected from a disaster in two distinct ways: (1) The appliance covers loss of data due to ransomware or human error and (2) redundancy in the cloud ensures data restoration and recovery, should the data center be disrupted by a physical event like a flood or earthquake.

Any change to IT infrastructure is a challenge to an organization. Chalabian notes that the school’s management is supportive. He and the school’s administrators appreciate that Datalink Networks has a long track record working with K-12 schools and universities. “Our school leadership trusts the IT staff and they trust the process, mostly because Datalink Networks has got our back,” he says.

### **Solution Summary:**

- **Networking: wired & wireless**
- **Email spam filtering**
- **Network security**
- **Backup and Disaster Recovery**
- **Managed Service Contract**

### **Products:**

- **HPE Aruba Access Points**
- **HPE Aruba AirWave wireless network management**
- **HPE Aruba Clearpass Network Access Control**
- **Huawei Next Generation Firewalls**
- **Edgewave ePrism Email Security**
- **Malwarebytes Endpoint Protection**
- **Datto SIRIS Backup/Recovery and Continuity**
- **Tools4Ever UMRA Single Sign On**



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