# Network Transformation Powers Productivity

District coordinates four different local service providers to deliver an end-to-end solution with PoE wireless, VoIP, and a split-route Star network resulting in huge productivity gains and centralized automation.

## Key D-Link Purchase Drivers

- **Productivity**
  Teachers, students and staff are now much more productive. There are no longer buffering delays with video, everyone uses reliable Web collaboration and communication tools, and the centralized network is easy to manage.

- **Value**
  D-Link's better economic model allowed Pana to take immediate action on a network overhaul – something that would not have been possible with competing bids.

- **Performance**
  Their 10G backbone makes a huge difference. Speed and latency improvements were immediate and overwhelming.

- **Security**
  Fast, flawless firewall security with dynamic teacher-overrides of content restrictions enable needed classroom access in real-time.

### Background:

Pana School District in Pana, Illinois needed to replace a dated 10/100 Mbps network with a unified, centrally managed virtual WAN and LAN infrastructure with 802.11n wireless and a VoIP phone system. The new installation would need to function across 11 miles of campus geography and support 1500 students with smartboards and high-speed multimedia access.

### The Vision:

#### A seamless wireline, wireless and VoIP experience for every campus and automation for IT

Scott Savage, District Technology Coordinator at the Pana School District, wanted students and staff to be unencumbered by their wired and wireless infrastructure. He also needed some relief from burdensome IT chores due to a decentralized, dated network infrastructure.

Despite the existing infrastructure being state-of-the art when it was installed, Mr. Savage knew their network was coming up short. "With the right infrastructure, we could raise the bar to a whole new level, make it easy for all the users to access content and communicate, and deliver all kinds of new functionality and productivity," he said. "And, to make our own IT staff more productive, automation is the name of the game."

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### D-Link In Action:

The Pana School District completed a huge 'vital organ' transplant, replacing the LAN, WAN, voice and wireless networks all at once. The entire installation took just three weeks, and the new

D-Link and Mitel VoIP System now connects all kinds of users, applications and hardware to the network.

Revamping an entire communications infrastructure in one fell swoop is definitely not the norm according to local value-add reseller DNDC Telephone Company President John Calderon Sr., but it was essential. "If you don't have the network in place, the quality of voice is limited," said Calderon whose organization – as an exclusive Mitel Business partner in Illinois – brought in the telecommunications expertise and formed a powerful relationship with D-Link Professional Services to manage the swap out.

"With the new network, we've increased Internet performance by several orders of magnitude," said Savage. Teachers use calendar, scheduling, lesson plan, collaboration and testing software via the IP infrastructure and connect to the Internet to stream educational content directly to their in-class smart boards. "The speed and latency improvements were immediate and overwhelming," he added.

### The Technology Behind the Success:

#### Split Routing Improves Performance

The biggest architectural change at the district involved "split routing." The older network required traffic to hop through a chain of district-wide buildings on slow WAN connections before reaching the Internet. Now every site routes Internet traffic to an independent Internet connection. "Across the board, we have an increase of Internet capacity from 1.5Mb to 24.5Mb," said Savage. Meanwhile, local network traffic routes any to any via multi-megabit Metro Ethernet to Illinois Consolidated's central office in a star configuration, with data and voice traffic on separate VLANs to reduce latency and optimize quality of service.

#### Security and Wireless Coverage

The new network features D-Link DFL-1660 and DFL-860 Unified Threat Management (UTM)

**D-Link**®

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Firewalls at each location. Their web content filters protect students from inappropriate web content and ensure that the district is fully CIPA compliant.

"The beautiful thing is that the D-Link firewalls just do not slow down Internet connectivity like some web filtering products," said Savage.

## VoIP

D-Link PoE switches throughout the Pana campus system integrate with wireless APs and their new Mitel VoIP phone solution. Phone location is no longer limited to the twisted pair wiring in place, and users enjoy conference calling on demand, presence- and location-aware services, and computer-based faxing. Administration of phone system moves, adds and changes takes Savage a few minutes versus the two billable hours per user required just for voice mail setup on the district's 15-year-old Nortel PBX.

"By combining the virtual networks and WAN, we can have one call controller and telephones in multiple buildings," said Savage. "My maintenance time has gone way down, and our productivity has gone way up." In addition to eliminating

many billed hours, several analog phone line charges were eliminated. "All told, that's an enormous cost savings."

## A Complete Solution with Excellent Value

The choice to go with D-Link was easy, according to Savage. While D-Link hardware was the most cost effective, it was D-Link's ability to provide outstanding support resources joining forces with DNDC Telephone Company (dndcillinois.com) that was the ultimate differentiator.

"The whole point is to meet teacher and student demands and, at the same time, untie my hands so we can support everything with automation," he explained. "With centralized management for all our switching, APs and phones, we've achieved that."

The district could have done similar things with competitive equipment, but there was no way they could have done everything and stay within their budget.

"The things we needed to do were not optional," said Savage. "D-Link had the right model to make it all happen."

### The complete product integration includes:

| Product | Description |
|---|---|
| DFL-1600 & DFL-860 | used as gateway devices in each of the district's five buildings. |
| DGS-3426P | provides 10Gb fiber between schools and additional POE ports. |
| DWS-4026 | controls APs in three school buildings. |
| DWL-8600AP | provides wifi access to 5 school buildings and unit office |
| DAP-3520 | provides outdoor wireless to Athletic Fields |
| DGS-3100-24P | delivers Gigabit Ethernet to the desktop and also PoE for APs and Mitel phones. |
| DGS-1016D, DGS-1024D & DGS-2208 | these provide additional Gigabit ports in computer labs. |

## Call or visit the web address below for more information on the complete line of business products:

www.dlink4K12.com | www.dlink4K12.ca
888.331.8686 | Email: getmore@dlink.com

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