

Vigo County School Corporation, Terre Haute, Indiana, USA

Vigo County School Corporation upgrades their network to support long-term vision

Terre Haute, Indiana is a growing educational community, home to five post-secondary institutions – Indiana State University, St. Mary-of-the-Woods College, Ivy Tech State College, Indiana Business College and the renowned Rose-Hulman Institute of Technology. Situated in this educational environment, Vigo County School Corporation has a vision for the future that requires an equally leading-edge technology computer network system. By providing a well-built and managed network system, students won't be limited in their curriculum range due to technology shortfalls.

Vigo County School Corporation provides education to kindergarten through grade 12, and is the sixth largest public school district in Indiana. Covering the entire county, the school district has a wide-ranging WAN network spanning 28 school campuses and three administrative offices, and LANs that utilize standardized cabling in all buildings. With a student population of nearly 16,000, and 2,200 employees, it's critical to continue upgrading the bandwidth to each of the buildings while sticking to a tight budget. There are 3,500 PCs, and an AS400 system that includes management of payroll, student administration and reports. In the summer of 2003, the WAN was re-engineered point-to-point with T1 lines, and now also has a DS3 fiber connection at the core.

EtherScope looks as if it has been designed by people that have to manage networks rather than simply being designed by network engineers.

– Kerry Hampton
IT Manager, Vigo
County School
Corporation

A day in the life of a network manager

Typical of most IT departments, the Vigo County network staff are "jacks of all trades" doing what's necessary to keep the school system's network up-to-date and running smoothly. That means maintenance of the LAN/WAN infrastructure, working with suppliers, overhauling the network with new equipment while keeping up with daily management.

Configuration changes

Vigo IT management is separating user groups into VLANs so they can isolate and prioritize traffic. For

instance, placement in VLAN groups will be segmented by office systems or student labs that need to be separate. Now, when there's a webcast that may generate a lot of traffic, the office network

won't go down because of a spike in student traffic. The LANs won't impinge on each other. EtherScope helped by identifying VLANs configured on discovered switch interfaces and allowed visibility to interface status, connect-



ed host details and trend interface data. Switches are typically not visible, but switches can be added as user-defined devices, providing a complete picture of the switched network. EtherScope automatically determined the nearest switch, interface and VLAN for each discovered device, making it easy to resolve issues and track configuration changes.

Network security

With an open network, there's always a risk of infecting the entire network and preventing critical information from getting through. Users are always bringing in systems that the IT staff doesn't know about. Now, with



EtherScope, they can locate and identify systems by MAC address to help protect the network. This detailed network information is captured in an on-board database, and with the *Device Discovery* function, they can drill down on any device to see its configuration, address, and status.

With students becoming more savvy in figuring out ways to exploit network resources, this function really helps in identifying top talkers, quickly checking for top bandwidth users, selecting specific frame types, such as errors, broadcasts, or multicasts. They can then see the traffic displayed by protocol, such as IPV4, ARP, Spanning Tree, IPX, CDP and others, and drill-in on suspicious activity, identify the source, and quickly solve the problem. Plus, it's very easy to use with tri-color LEDs indicating utilization, collisions, errors, and transmit frames.

Network visibility

"The AS400 cannot be put on hold," states IT Manager, Kerry Hampton. Packets can't deal with a delay. Users will get knocked off of their session and require help. But now data can be viewed instantly – duplicate IP addresses can be pinpointed, network misconfigurations, frame errors, collisions, high-utilization segments, and cable problems are all visible.

Monitoring remote locations is usually difficult. With an EtherScope analyzer plugged into the LAN, the IT department can now remotely access the site and control via the internet, quickly monitor and identify problems via their web browser.

Cable testing

From the basic cable testing to complex VLANs, IT managers touch it all, and it's helpful to have a tool that's flexible and adds value to a range of tasks. Kerry says, "It's basic, but always necessary to be testing cable runs and checking cable connections. It's such a waste if a number of switch ports are patched at a wiring center that aren't being used."

With EtherScope, the Vigo team can quickly determine if a cable run is terminated or isolate hardware or cable problems from other network issues – identifying length, shorts, opens, cross-over cables, miswires, and split pairs – even on live network connections. Other key elements on the link signal are easily identifiable, including pulse-type and voltage, auto-negotiation advertisements, and fast-link pulse decodes. They can also see the dc voltage levels present on each pin in verifying proper operation, for Power over Ethernet (PoE). "It works pretty quick - 5 seconds or less, which makes it more enjoyable to use," Kerry goes on to say.

Future enhancements

Wireless throughput, and fiber testing are just some of the planned enhancements for EtherScope. This product will serve Vigo County Schools technology testing requirements for years to come. Kerry says, "Because of the way this tool is built (Linux platform), it doesn't have a hard drive, and is easily upgradeable, which really serves our growing needs."

Summary

Kerry summarized his use of the EtherScope analyzer: "This looks as if it has been designed by people that have to manage networks rather than simply being designed by network engineers. The way information is displayed, the menu navigation etc. If I had the ability to design it, I would have done it in this same way. It's the handiest tool that I've ever seen. It's not a complicated product, which makes it very usable. I can't imagine anyone not enjoying using this tool."



NETWORK SUPERVISION

Fluke Networks
P.O. Box 777, Everett, WA USA 98206-0777

Fluke Networks operates in more than 50 countries worldwide. To find your local office contact details, go to www.flukenetworks.com/contact.

©2004 Fluke Corporation. All rights reserved.
Printed in U.S.A. 9/2004 2404680 A-US-N Rev A