



Warren Consolidated Schools

Gaining True Visibility Into Network Usage

The complex digital communications network at Warren Consolidated Schools, serving the communities of Warren, Sterling Heights, and Troy, northeast of Detroit, Michigan, links some 27 separate facilities and connects them all to the outside world. The district's "server farm" is centrally located in the Administration building, and is under the direction of Dan Milbeck, the organization's director of information technology. In this role, Milbeck oversees the network for 15,600 students and more than 800 teachers at 15 elementary schools, five middle schools, three high schools and two specialty schools, as well as a community high school and other support buildings.

When network performance issues arose, Milbeck had no quick or easy means to pinpoint the source of the problems. The IT department did not have a clear ability to report and understand how, where, and when applications were being used on the network. Additionally, the IT department was unable to manage the associated bandwidth accordingly or to catch and analyze data in real time. As use and applications grew more prominent, powerful visibility into IP traffic became critical for the IT department to quickly pinpoint and resolve performance problems.

Time to Streamline

"My responsibility is pretty much anything related to technology: computers, printers, and peripherals," says Milbeck. "I'm also responsible for the entire voice-over-Internet phone system, as well as an analog video distribution system and all the supporting TVs and routers. If we were having network-related issues, some of them might be caused by the kids themselves, and others were related to mistakes made out in the field. Usually somebody would just call and ask, 'Why isn't the network running?' Or, 'Why is it so slow?' We would start seeing sites that appeared to be down, but in reality they were just overwhelmed with traffic and we couldn't readily pinpoint the source of these problems."

Because we didn't have a device that could easily identify a problem, there were a few times I resorted to pulling cables to see if the problem went away. It was that type of archaic troubleshooting that I needed to eliminate.

"As a prank, the kids would take a network cable and plug both ends into separate ports which created havoc in the network," Milbeck explains. "Isolating this was extremely difficult because in the elementary schools, every room has six network drops, plus there are three computer labs in each middle school, and seven or eight computer labs in each high school—we have a total of 4,200 computers in the district. Other problems that we deal with almost daily is when a student or teacher brings in unauthorized personal equipment which is infected with virus, malware, etc., and plugs it into my network."

Customer Benefits

Real-Time Troubleshooting:

The ability to quickly pinpoint network and application performance problems has helped the school system prevent service deterioration and reduce troubleshooting from 30 minutes to mere seconds.

Effective Capacity Planning:

Visibility into network usage—by school, application type and time of day—enables the IT organization to predict and meet the school system's future bandwidth needs.

Affordability:

5View Applications meets all of the school system's network and application performance monitoring requirements at a price it can afford.

Seeking a viable solution

Though aware that application management solutions were available, they were too costly to gain the approval of Warren's governing body, its Cabinet. Milbeck decided to attend a vendor show where he was introduced to a variety of solutions, including 5View Applications from InfoVista. 5View Applications is a passive application network appliance that provides the ability to report and understand how, where, and when applications are using the network in order to manage the associated bandwidth accordingly, as well as to capture and analyze data in real time. Passive appliances provide non-intrusive monitoring of the network, enabling IT network management to continuously monitor, report, and understand application performance and network usage without additional drain on the network.

"InfoVista's 5View was the product needed to make a business case for the school," Milbeck says. "Not a lot of the solutions in the market have the easy monitoring and drill-down capabilities that 5View has at a price that I could afford. The ability to catch and analyze data was also very important, and 5View is capable of generating rules-based email alarms. Also, I can monitor applications including response times from individual application servers. That's huge, especially for my database server. We do a lot of development on our database server and have to keep an eye on it to make sure we don't overtax it. 5View happened to be a perfect fit for Warren Consolidated—it fit exactly what we needed and, better yet, the price was right."

Working with InfoVista, Warren Consolidated installed a demonstration version of 5View Applications and provided Milbeck with training on how to monitor and use the system.

"The more I used it, the more I liked it," says Milbeck. "We evaluated it for two to three months; fortunately, the end of the evaluation period coincided with the end of my fiscal year. I was able to present this solution to upper management. I focused on its cost-effectiveness, the types of problems we were experiencing, and the difficulty we were having in nailing down the source of those problems. A network of our size needs a solution like this in place," Milbeck notes.

A clear view

With the budget request approved, Warren installed InfoVista's 5View Applications over the summer, giving Milbeck some additional time to better familiarize himself with the system's capabilities before the start of the next school year.

"Some of the problems we were experiencing stuck out like a sore thumb once we had 5View installed," he states. "For example, it immediately showed me that I had a bad network card in one of my post office servers. I was getting constant TCP retries on the server. With 5View, I could identify the problem and fix it. Previously, I could only take educated guesses at what was causing it.

"5View also identified slow response time from my Internet filter," Milbeck continues. "The response time coming from the Internet was increased proportionally to the amount of traffic that filter was handling. I was able to capture and graph the data which gave me the documentation needed to request installation of a second firewall with load-balancing between the two to alleviate the throughput."

Warren's VoIP traffic is carried on the same cable as the data, and heavy bottlenecks in data traffic can affect telephone service. "Voice traffic has top priority, so it transfers before any type of data does," says Milbeck. "5View lets me proactively monitor the bandwidth and take corrective actions. This proactive side is one of the better gifts of 5View. We have a projector in our help desk area that displays a 5View screen which shows a high level status of the network. This enables my staff to identify a problem at a glance."

5View Applications has even made it much simpler for Milbeck to manage the classroom shenanigans. "Now, when a kid plugs a network cord into another network port, I know exactly which school and which part of the building the problem originates. I can disable that port until I can get somebody out to the school to pull that cable. What used to take about 30 minutes to an hour to track down, I can diagnose in a matter of seconds."

The real report card

Being an extensive network with so many devices and users—including inquisitive students—means that Warren Consolidated confronts an almost endless number of variables in keeping its communications system up and running smoothly. Before installing InfoVista's 5View Applications solution, application management had been largely hit-or-miss, and identifying a problem could be a problem itself. What 5View has provided Warren is true visibility into the applications running on the network, be they VoIP, Internet traffic, or the demands of internal operations, like printing. With 5View, Milbeck can literally "see" application usage levels and, when traffic begins to build anywhere on the network, he can proactively move to head off any service deterioration, from the "slowness" reported by users, to VoIP drop-out and packet loss, to system overloads due to looping local routers and/or the addition of unauthorized devices or applications.

For Milbeck, 5View simply helps him do his job more efficiently and effectively. "It sends me a report every morning about the throughput from each area, so I can see which school is monopolizing the most bandwidth. For the most part, all the data has been legitimate, so it helps us identify who needs exactly what amount of bandwidth at a certain time in the day."

With network usage increasing universally as the number of digital communication applications continues to grow, the visibility 5View Applications provides to IT managers can be an accurate and even indispensable tool for predicting and meeting future needs.