



The Power of Being There®



Case Study

City IT department gains anywhere access and lowers costs with KVM over IP system

“Of all the products we’ve found and tested, the Avocent KVM over IP system is the closest thing to truly being in front of the console.”

Bob Stone
Network Engineer Supervisor
For the city of Norfolk, VA

A plan to improve reliability

Clean water, efficient trash removal and responsive government services are some basic expectations of the 241,000 residents of Norfolk, Virginia, a beautiful waterside city located on the eastern seaboard.

City employees deliver varied services for the people who live and work in the city, and for visitors as well. Employee functions encompass the public safety aspects of city government. Those functions include finance, human resources, public works, utilities, and police, fire and rescue services. Supporting the technology infrastructure and providing all technology resources is the city of Norfolk’s information technology department.

With departments and services spread across the city’s 64 square miles, the IT department supports over 70 Wide Area Network (WAN) sites that are interconnected to the organization’s three data centers. Unlike cities with a campus environment, the Norfolk decentralized operation creates added complexity for network engineers. They are challenged to provide the most reliable network possible 24 hours a day, seven days a week, to keep city services running effectively and efficiently.

Bob Stone, network engineer supervisor for the city of Norfolk, recognized that increasing their system’s reliability required updating the organization’s approach to server management. Using an analog KVM solution, access to servers was limited and required network administrators to travel across the city from building to building to troubleshoot.

With applications being offloaded from the mainframe and mini-computers being placed onto open system servers, the number of servers in their data center amplified. Cable management was also a growing concern.



Avocent DSR® switch solutions offer local and remote access in one KVM switch. They are scalable, flash-upgradeable and require only 1U of valuable rack space.

KVM over IP switches provide solution

Replacing their KVM switches with an IP-based solution would allow them to streamline their network, improve the ability to troubleshoot, lower costs and significantly reduce the amount of equipment and cabling in the data center.

“Servers were growing dramatically in our data centers and we really needed a way to interact with them at a moment’s notice,” said Stone. “Not only did I want console access to many different servers, but I wanted the same access from my desk, home or anywhere I could connect to the Internet.”

Stone wanted to limit the physical access of engineers and developers to the data centers and thereby reduce the potential to jostle inner networking equipment such as routers and switches. Some servers contain sensitive information so there was also the need for a system that would provide centralized authentication, access and control.

To gain around the clock control of their network from anywhere with an IP connection, Stone installed six Avocent DSR2010 KVM over IP switches. The 16-port DSR2010 switching system offers the flexibility of multi-user, multi-location solutions with both local and IP access for all major server platforms and serial-based devices. The Norfolk data center manages a combination of Windows and Unix-based boxes, some Linux appliances, an AS400 mini-computer and an IBM mainframe.

Faster access, free weekends

“The Avocent solution allows us to significantly reduce the cabling infrastructure of 70 servers and provides very fast console view of the servers over the network,” said Stone. “The DSView® management and authentication software gives us the security we need to ensure that only authorized people are able to access various servers on those switches.”

Getting to systems at any of the city’s three data centers is as simple now as being able to VPN into the network.

“Anything we can do in the data center on the servers, we can do from our workstations either in our offices in the city, at home or anywhere we have an Internet connection,” said Stone. “We even provided select vendors on some mission critical systems with DSView software. From their help desk operations in other cities, they are able to VPN into our system and use the DSView software client to take control of the server to help us with the troubleshooting process.”

The ability to perform large upgrades or system deployments, or rebooting a server several times from home while never losing connectivity, results in another benefit – happier, more productive engineers.

“The intangible benefits of having happier network engineers are huge,” said Stone. “They no longer have to come in at night or on weekends to do their job. The Avocent solution offers us the ability to do so many things remotely.”

By gaining the ability to do something in less than five minutes, that used to take hours, the city acknowledges an increase in productivity along with a savings in time and money.

“I can have two or three console windows up on a screen at a time and jump back and forth between servers as if I were right in front of them. I don’t have to get up and walk to the data center or drive to another data center,” said Stone. “The speed of issue resolution saves a significant amount of time.”

Reduced cable and equipment clutter

Cable reduction is another benefit of digital KVM. Bulky cables are replaced with slender CAT 5 cables that easily slide in and out of the server racks. Stone noted that the tidier solution eases the process of troubleshooting physical problems when network engineers need to access the back of racks. There is also a noticeable reduction in the amount of data center physical equipment such as desks, chairs, monitors and keyboards.

“The Avocent solution allowed us to free up some of the physical assets and disperse them in other places,” said Stone. “The space we gained offers more room to manage the servers and saves money on everything from cooling expenses to the actual real estate.”

For other organizations considering an IP-based solution, Stone recommends evaluating the type of server access needed.

“If you need a local connection where you can walk into the data center and be in front of the console to manage machines, or you need to access systems remotely, or if cable management is an issue, then the Avocent DSR switch line is a perfect fit,” said Stone. “KVM over IP provides us with the ability to respond to problems much quicker and gives our customers a strong confidence level in our ability to support our network around the clock.”

About Avocent

Avocent® is the leading worldwide supplier of local and IP-based KVM switching and connectivity solutions that provide IT managers with access and control of multiple servers and network data center devices, with no distance limitations.

Avocent was formed from the merger of the world’s two largest KVM (keyboard, video and mouse) switch manufacturers: Apex and Cybex Computer Products Corporation. More than two decades of experience go into Avocent KVM switches, remote access and serial connectivity solutions and customer service.

Avocent products are distributed by the world’s largest server manufacturers and installed in Fortune 100 companies around the world.

Avocent has sales, operations and R&D centers worldwide. Corporate headquarters are in Huntsville, Ala. Visit www.avocent.com for more information about Avocent products.