Remote Monitoring via Cloud-VPN

Local

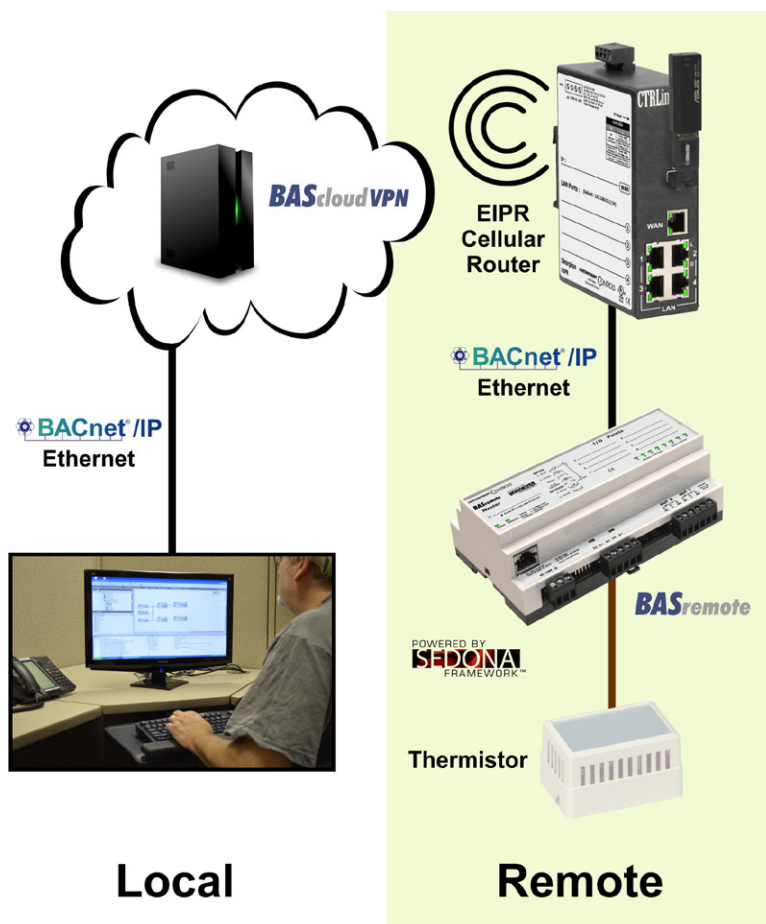**Remote**

The nearby figure shows a remote monitoring Cloud-VPN demonstration provided by Contemporary Controls at AHR Expo 2013 exhibition in Dallas, TX. A systems integrator working from his office needs to view a recently installed building automation system at his client's location. In order to access this remote site, he is going to use a Cloud-VPN to facilitate communications. The Cloud-VPN consists of a virtual private network (VPN) server hosted by a third-party provider. Using his local Internet service, he first opens up VPN client software on his computer which provides a VPN tunnel connection to a Cloud-VPN. A similar VPN tunnel connection to this same Cloud-VPN already exists at the remote site. Using Niagara Workbench on his computer he can then access a Sedona Framework controller at the remote site in order to examine a temperature point of interest. The Cloud-VPN makes the necessary connection between the two VPN tunnels. Once a connection is made, he can service the remote site as if he was physically onsite. In this demonstration, the remote site accesses the Cloud-VPN using a cellular network while the systems integrator simply needs some way of accessing the Internet. The Cloud-VPN provides an effective secure method of remote access without concern for intervening firewalls. A Cloud-VPN can carry any IP traffic — for example, from Workbench to a Tridium JACE or from your favorite BACnet tool to BACnet/IP devices or any other IP device.

Why Use a VPN?

Accessing machines at remote sites can be a challenge. Dial-up modems are slow and no longer popular. A fast Internet connection is what is desired but there are issues accessing remote sites using a direct connection over the Internet. Firewalls block messages that originate from the Internet. Although it is possible to open up ports in the firewall using Port Forwarding, IT professionals are reluctant to compromise the security of their network and usually decline this type of request. Without permission from the IT department, the systems integrator is left with few options. However, one solution to this problem is to incorporate a Virtual Private Network or VPN.

CONTEMPORARY CONTROLS®

Resident Virtual Private Network

A Virtual Private Network (VPN) encrypts TCP/IP communications so messages can be sent over a public network — such as the Internet. It will also restrict communications to authorized users — thereby limiting access. A simple VPN can exist between two end points. One is a VPN client while the other is a VPN server. Between the VPN client and server, the communications are encrypted — so only authorized devices can communicate over the VPN, even if the VPN exists on the Internet. Sometimes this is called a VPN tunnel — so you can think of VPN communication as traveling over the public Internet while existing in its own (virtual) secure tunnel. Once the VPN connection is made, messages can originate from either side — eliminating the need for port-forwarding. VPN servers require public IP addresses, but clients can exist behind firewalls. Installing and maintaining a resident VPN is not easy for a non-IT professional and the owner of the remote site may not be interested in installing one just to monitor a machine.

Cloud-based Virtual Private Network

There is still an opportunity to enjoy the benefits of a VPN without maintaining a resident VPN. With Cloud-based VPN, the VPN server is on the Internet and is installed and maintained by a third-party. You load a VPN client application onto your PC and connect to the VPN server in the cloud. This provides an encrypted connection to the VPN server. At the remote site you have another VPN client which is always connected to the VPN server via an encrypted connection. This connects to the building automation equipment. The VPN server will route between the two VPN tunnels thus created. Although the Cloud-based VPN will work with either a wired or cellular connection to the Internet, there is an advantage of using the cellular network in that the IT personnel at the remote site need not get involved.

Cellular Connected Cloud-VPN

Utilizing cellular networks for data communications can sometimes be easier to setup than other forms of Internet communications — especially if these connections are temporary. There are cellular routers available for this very purpose with installed VPN client firmware that is compatible to the Cloud-VPN server. Maximum data rates depend upon the model. Configuration does not necessarily require a local IT professional adding to its attractiveness. By using the cellular network, the main Internet connection to the remote site is left alone.

We Can Provide the Complete Solution

Contemporary Controls can provide a complete remote monitoring solution by supplying the cellular routers, hosting the Cloud-based VPN server — which we call **BAS**cloud**VPN** — and by recommending a data plan from a cellular provider. We have skilled personnel that can help you though this process.

For more information about BAScloudVPN, visit **www.BAScloudVPN.com**.