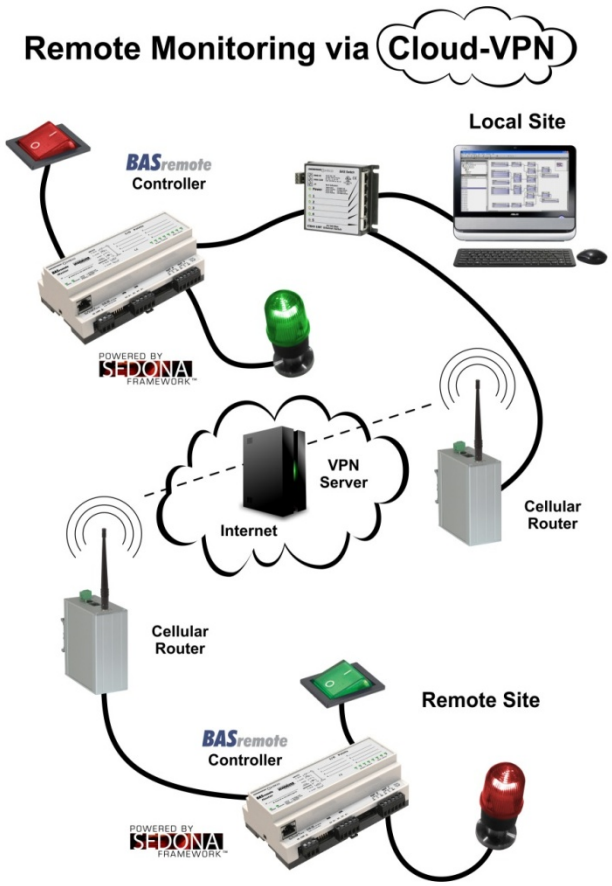
CONTEMPORARY CONTROLS

Remote Monitoring via Cloud-VPN Demonstration at SPS/IPC/Drives 2012



The nearby figure shows a remote monitoring Cloud-VPN demonstration provided by Contemporary Controls at the SPS/IPC/Drives 2012 exhibition in Nürnberg, Germany. There are two peer systems consisting of a BASremote controller running Sedona Framework™ with a switch input and a light output that connect via the Internet to a Cloud-based VPN server. One side is designated as the local site and the other the remote site. A simple program has been installed in each controller that allows the switch from one controller to control the light on the other controller. Two cellular routers are used for convenience each with an installed VPN client. The partner VPN connection for each is handled by the single Cloud-VPN. Each controller has an Ethernet connection to the cellular router. The communications protocol being used through the VPN tunnel is conventional Modbus TCP. The installation is simple and secure and does not require any modification of the control protocol used between the two controllers. Each controller has a web page which can be accessed from either side. The workstation can be located as shown or anywhere else on the Internet as long as a VPN client is available.

Why Use a Cloud-based VPN and the Cellular Network?

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 which 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 decline the 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*.

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 — and your remote machine connects to this VPN client. 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 and by recommending a data plan from a cellular provider. We have skilled personnel that can help you though this process.

Contemporary Control Systems, Inc.
2431 Curtiss Street
Downers Grove, IL 60515 USA
info@ccontrols.com
www.ccontrols.com

Contemporary Controls GmbH
Fuggerstraße 1 B
04158 Leipzig, Germany
ccg.info@ccontrols.com
www.ccontrols.eu