RemoteVPN – Secure Remote Communication over the Internet

Accessing machines at remote sites over the Internet can be a challenge since firewalls block messages that originate from the Internet. Although it is possible to open up ports in the firewall by 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 (VPN). By hosting a VPN server in the cloud, simplified secure remote communication over the Internet is possible.

The RemoteVPN is a service offered by Contemporary Controls that allows systems integrators remote access to systems from the convenience of the systems integrator's home or office. A cloud-based VPN server hosted by Contemporary Controls provides the critical connection between two VPN clients — one installed on the systems integrator's PC and the other permanently installed on Contemporary Controls' VPN router located at the remote location. Using this approach, two secure VPN tunnels are created with no concern for intervening firewalls.

The RemoteVPN is based on OpenVPN — a well supported open-source VPN technology that incorporates SSL/TLS security with encryption. In addition to OpenVPN PC clients for Windows machines, OpenVPN clients are available for iOS and Android mobile devices for greater flexibility in accessing sites remotely.

Features and Benefits

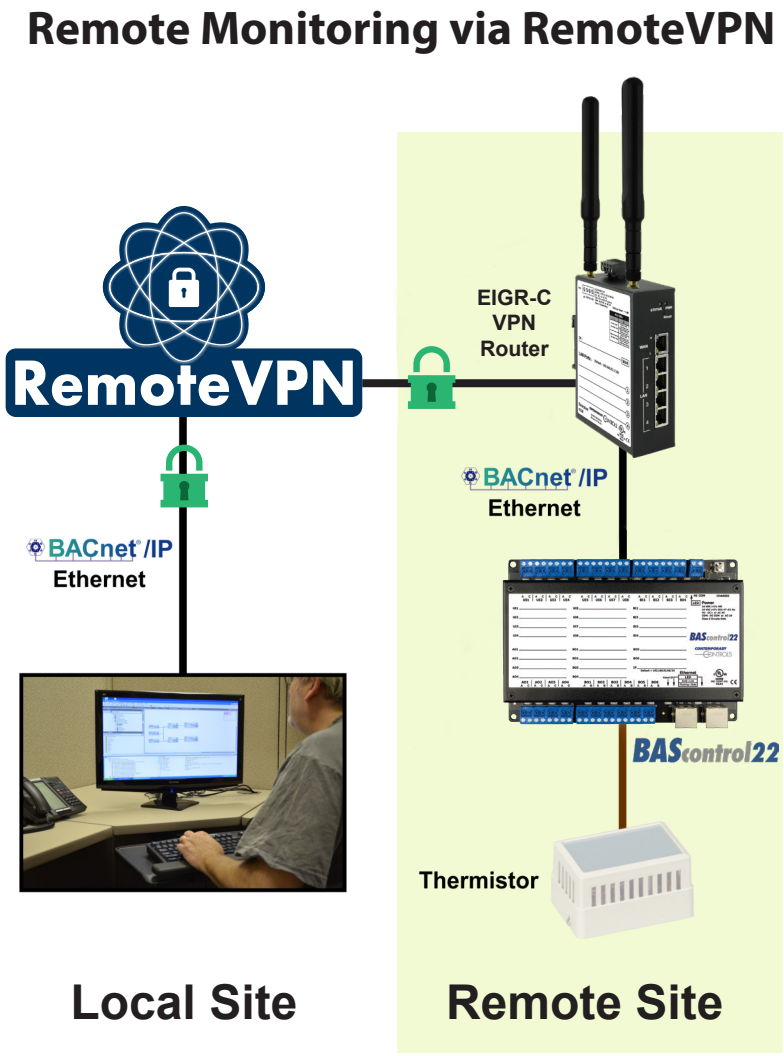
- Wired or wireless operation over the Internet
- Secure encrypted communication tunnels
- No capital investment in resident VPN servers
- Free download of OpenVPN Windows PC client software
- Support for iOS, Android and Linux OpenVPN clients
- Applicable to both permanent and temporary remote access
- Flexible man-machine and machine-machine applications
- Quick realization of a remote access project
- Simultaneous access to multiple remote sites

RemoteVPN

RemoteVPN is a service provided by Contemporary Controls

RemoteVPN — System Overview Example

The figure below shows an example of remote monitoring with RemoteVPN. A systems integrator working from his office must view a recently installed building automation system at his client's location. To access this remote site, he uses the RemoteVPN which consists of a virtual private network server hosted by Contemporary Controls. Using his local Internet service, he first opens up VPN client software (OpenVPN client) on his computer to provide a VPN tunnel connection to the RemoteVPN functioning as an OpenVPN server. A similar VPN tunnel connection to the RemoteVPN already exists at the remote site between the RemoteVPN and Contemporary Controls' EIGR-C Cellular VPN Router. With Niagara Workbench he can access a Sedona Framework controller at the remote site to examine a temperature point of interest. The RemoteVPN makes the required connection between the two VPN tunnels. Once this connection is made, he can service the remote equipment – *as if he was physically onsite*. In this example, the remote site accesses the RemoteVPN via a cellular network using Contemporary Controls' EIGR-C VPN Router – while the systems integrator accesses the Internet via a wired connection. RemoteVPN provides an effective, secure means of remote access with no concern for intervening firewalls because both VPN tunnels initiate communication to the Internet. The RemoteVPN can carry any IP traffic – for example, from Workbench to a Tridium JACE or between two IP-based controllers.

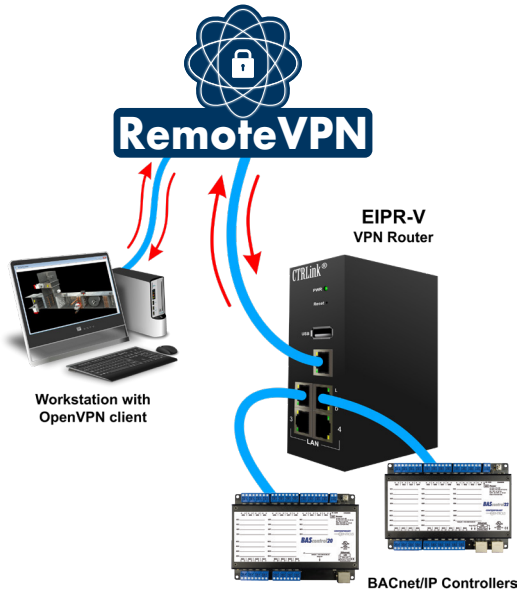


Resident Virtual Private Network not in the Cloud

A virtual private network 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 — thus 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 travelling 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 non-IT staff and the remote site owner may not wish to install one just to monitor a machine especially on a temporary basis. A better approach is to use the RemoteVPN.

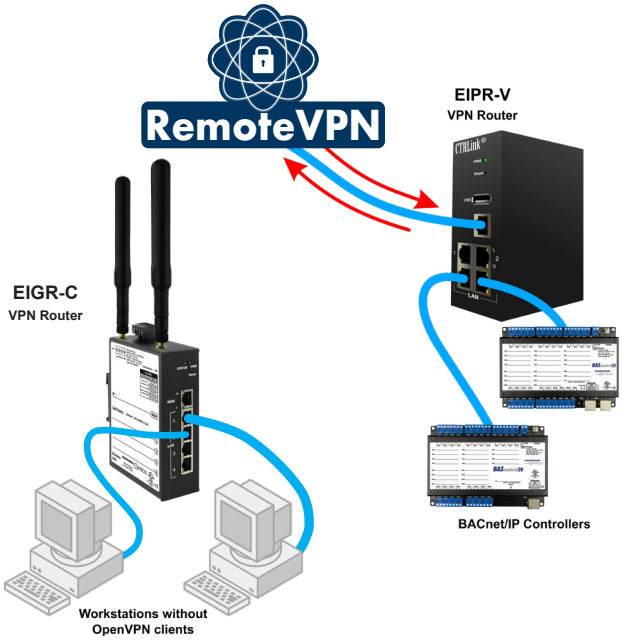
Wired Connection to the RemoteVPN

There is still an opportunity to enjoy the benefits of a VPN without maintaining a resident VPN. With the RemoteVPN, the VPN server is on the Internet and is hosted by Contemporary Controls through a third-party. You load a VPN client application onto your PC and connect to the RemoteVPN. This provides an encrypted connection to the VPN server. At the remote site you have another VPN client but this time it is permanently installed in the EIPR-V, or EIGR-V VPN Router and is always connected to the RemoteVPN via an encrypted connection. The LAN-side of the VPN Router connects to the building automation equipment. The RemoteVPN will route between the two VPN tunnels thus created. Although the RemoteVPN 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 Connection to the RemoteVPN

Utilizing cellular networks for data communications can sometimes be easier to setup than other forms of Internet communications — especially if these connections are temporary. The EIGR-C will connect to cellular networks using a built-in cellular modem. By using the cellular network, the main Internet connection to the remote site is not affected.



The RemoteVPN as a Service

Systems integrators can access the RemoteVPN using prepaid 1-year subscriptions. Subscriptions are based upon the number of Skorpion Routers used. With each VPN Router installed on a remote site that requires RemoteVPN access, a subscription is required — along with a security certificate. New users will need an account established which is included in the first year subscription at no charge. Each subscription includes one VPN router security certificate plus two OpenVPN client security certificates that can be downloaded from the server site once an account is established. Additional OpenVPN client security certificates are available for an additional prepaid 1-year subscription. OpenVPN Windows' client software is free and can be downloaded from the RemoteVPN server site once an account is established. Security certificates can be used on mobile devices and can be shared with desktop devices as long as simultaneous usage is not incurred.

A necessary component of the RemoteVPN service is a compatible Skorpion VPN router installed at the remote location. The EIPR-V VPN Router is part of the EIPR IP Router family with 10/100 Mbps ports. The EIPR-V differs from the EIPR-E in that the V model has the necessary real-time clock and OpenVPN client software installed making it a VPN Router unlike the EIPR-E model (which will not work in a VPN environment). The EIGR VPN routers have 10/100/1000 Mbps Ethernet ports – the EIGR-V is for wired connections, while the EIGR-C has a built-in cellular modem for connecting via cellular networks at remote sites.

The Skorpion VPN Routers have pre-installed OpenVPN client software

Ordering Information

Model	*Description*
REMOTEVPN-R	RemoteVPN Subscription 1 Router and 2 Clients
REMOTEVPN-C	RemoteVPN Subscription 1 Additional Client
REMOTEVPN-F	RemoteVPN Subscription Static IP Client

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