

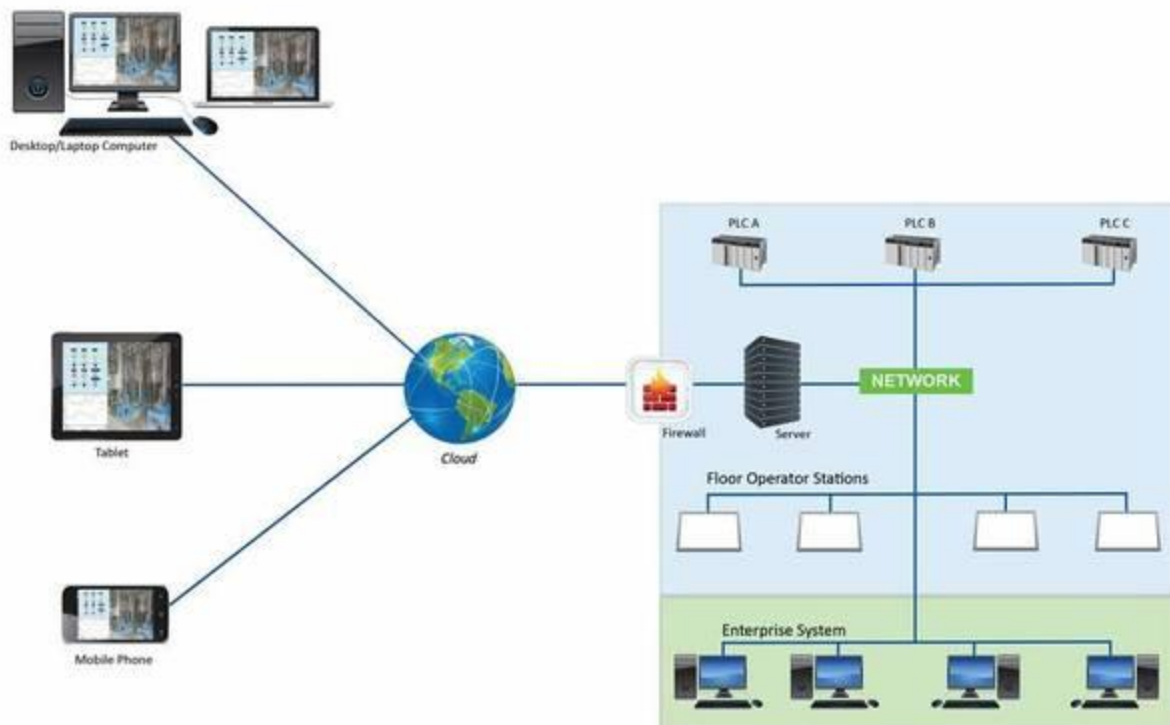
Selecting the right SCADA technology

Modern SCADA technologies offer choices that satisfy functionality and security requirements while improving performance for remote users.

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When supervisory control and data acquisition (SCADA) systems were first developed and deployed on mainframe and mini computers, access was limited to local displays and to data terminals, which were typically located in close proximity to the main computing platform. Networking was proprietary and limited to connections to the data terminals, with no concept of open systems or remote access.



Much has changed since those early days, as SCADA and automation systems are now usually connected to an extensive and open communications network within a plant or facility. With fewer staff tasked with more responsibilities, it's often necessary to extend the SCADA system to remote users—either through the plant network or via other means.

Modern, networked SCADA systems offer many advantages over their predecessors, most notably in terms of the functionality, speed, and low cost of remote access. They are designed to provide easy data collection and control for remote sites, and extensive options for remote access to perform monitoring and control. Web-based SCADA has taken this paradigm to the next level as it supplies users—regardless of their location—with similar access to what they would have in the control room.

Modern SCADA systems provide local control and monitoring along with global access, giving workers crucial information when and where they need it. They include valuable tools, such as configurable alarms, that help personnel prevent small issues from escalating into major problems. In addition, these advanced solutions deliver powerful visualization capabilities to help identify the root cause of alarms. SCADA systems also offer impressive trending and reporting capabilities to improve overall operations and maintain compliance with government regulations.

There are three main methods for accessing SCADA systems remotely: secure viewer thin clients, Web-based thin clients, and mobile clients. This article provides an overview of these methods, and also examines the best option for different applications.

Secure viewer thin clients

A secure viewer replicates the local SCADA run time screens on a thin client, typically a PC or a less powerful embedded computing device. When a PC is used, it often is used for multiple functions in addition to SCADA remote access. When an embedded computing device is used, it functions as a dedicated remote access terminal.

Many consider this the most secure method for remote viewing because the thin clients are connected to the server via a secure corporate network, typically with no Internet connectivity allowed. Thin client screen navigation and interaction can also be restricted to specific HMI/SCADA functions to further safeguard the system. For example, a particular user could be assigned a password commensurate with his or her access requirements, with more extensive access prohibited.

While this solution can't be accessed over the Internet, it is compatible with both wired and wireless networks. In addition, it offers encryption capabilities using secure socket layer (SSL-RC6 Standard) 128-bit encryption technology to provide a high level of security.

As well as being highly secure, this solution is also very easy to deploy, as it simply requires the installation of secure viewer software to permit users to interact with the graphical interface of the SCADA system. Users view the screens on the client as if they were in front of the main terminal, and they can be granted read-only or read/write privileges. Advantages of secure viewer thin clients include:

- Most closely replicates local viewing experience
- Highest speed
- Very high security as Internet access can be prohibited
- Wired or wireless networking capabilities.

Some SCADA packages allow all of the software, applications, and licenses to be stored on the local server. This simplifies implementation by reducing, or even eliminating, the need to install software on the secure viewers. It also facilitates the deployment of applications that require multiple, simultaneous views across multiple screens.

Web-based thin clients

For remote access far from the control room, the Internet often provides low-cost networking with acceptable performance, making Web-based thin clients a better choice than secure viewers, which require their own dedicated network.

Web-based thin clients lower networking costs, as one of the most expensive components of many SCADA systems is the communications infrastructure, particularly as the distance between the control room and the thin client increases (see Figure 1).

A Web-based thin client enables users to access the SCADA system via a Web browser from a PC connected to the Internet. Like the secure viewer, the Web-based thin client replicates local run time screens, though often not to the full extent of a secure viewer. It can provide read-only or read/write access for a complete virtual SCADA experience. Advantages of Web-based thin clients include:

- Exceptional flexibility for remote users
- Reduced communication infrastructure costs
- No software installation required at thin client
- Very easy to use via familiar Web browsers.

When selecting a SCADA software package, it's important that it provides the ability to create secure viewer and Web-based thin client applications using the same development environment. Requiring developers to create one configuration for secure viewers, and yet another in HTML for Web-based thin clients, wastes valuable time. And this isn't just an issue for development, as it also arises when implementing updates and patches, which will have to be done twice as well.

Source:

<http://www.controleng.com/single-article/selecting-the-right-scada-technology/72f051d0eafe98e2bc81a37fe7957e99.html>