CORiDiUM™

Simply Connected™ Technology by Coridium

Problem Statement:

Adding networking capability to a piece of equipment for industrial automation or data acquisition is far too complicated today. It requires a deep understanding of network technology, complex programming languages, and arcane software development tools. Large companies may be able to afford the resources to stay on top of the latest technology in all these areas, but it is a heavy burden to bear, and many small to medium size business find it difficult, if not impossible to keep up with technology.

Solution:

Simply Connected technology reduces the complexity of adding networking capability to a piece of equipment or a process. It is important to address all three areas of complexity: Network technology, programming language, and software development tools.

Networking

Setting up a personal computer in a typical networking environment is a fairly complex task even with the sophisticated graphical user interface available on a personal computer. Setting up an embedded product can be even more formidable with the limited user interface that is often found on this type of device (usually just a few push buttons and LED lights or a small LCD display).

Coridium's Simply Connected technology addresses this issue by automating the network configuration process. In most networking environments, the product will configure itself properly without any user intervention. In the most complex environments, networking parameters can be modified through a web browser interface by first connecting the product directly to a PC. Once the parameters have been set, the product can be installed on the network. The settings are retained in flash memory so they will survive a disruption in power.

Programming Language

Most embedded systems are developed in C, C++, or assembly language. These are powerful, yet complex programming languages that require years to master. Even experienced programmers often miss bugs in their code that may not surface for long periods of time. Sometimes the compilers themselves introduce bugs that are not apparent to the programmer.

Coridium has chosen BASIC as the programming language for its products due to its simplicity and ease of use. BASIC is one of the first high level programming languages ever developed and has matured over the years. It is easy to learn – for years it was the first language that most programmers learned – and almost anyone with programming experience has used BASIC at some point in their career. Because it does not include more complex programming concepts such as pointers, it is unusual to find hidden bugs in programs that do not surface under normal testing.

Development Tools

The tools required to develop software for a networked embedded system are often complex and arcane. A typical development system occupies hundreds of megabyte of disk space, and includes thousands of pages of reference manuals, often poorly indexed, making vital information difficult to find. This is particularly true of third party tools where the desire to create a single tool that works for many different platforms leads to additional complexity. It can take days, even weeks, to properly configure a development environment for a particular product and situation.

Coridium has chosen a simple tool that most users are already familiar with: The ubiquitous web browser. To program a Coridium product, the user simply starts a web browser session with the device to be programmed, referenced by name or by IP address. For more complex programming problems, a simple text editor can be used and the resulting text file can be uploaded through the browser. The user is alerted to programming errors through the browser interface as well.

Coridium's products can be programmed from any platform with a web browser: Windows, Linux, Mac, UNIX, etc. – even a PDA or a cell phone!

Maintenance

Once the device has been programmed, it is often necessary to monitor data from the device and in some cases, adjust operational parameters. In other embedded products, this often requires complex programming to set up a web server in the device, compose appropriate web pages, and update the data exposed to the web from inside the software.

Coridium has added simple extensions to the BASIC language to enable remote access to variables. Variables that can be read or written via the web browser interface are identified in the source code of the program. Those variables are automatically exposed in the web browser – no additional programming is necessary. Data can be easily collected for analysis on a personal computer using existing office software. For example, Excel can automatically extract this data from a web page with a few mouse clicks.

Financial Benefits

The financial benefits to be gained by using Simply Connected technology are multiple. No additional software tools are required, a potential savings of thousands of dollars over competitive products. Simplified programming tools reduces the number of engineering hours required to create a solution, lowering engineering costs and improving time-to-market, resulting in improvements in both the cost and revenue sides of the ROI equation. Automated network configuration and simplified maintenance procedures reduce support calls and increase customer satisfaction.

Summary

Simply Connected technology is the fastest, most reliable way to add network capability to your industrial automation or data acquisition application. The benefits are lower engineering costs, reduced time-to-market, lower support costs, and improved customer satisfaction.

Visit our website www.coridiumcorp.com or call us at 800-478-9020 to find out more about Simply Connected technology.