White Paper

3 Reasons SCADA Software is Going Nowhere

How to Leverage Information Technology and Win the Competitive Advantage
We live in the Information Age. The ability to transfer and access information quickly and easily has drastically shaped our lives and our livelihoods. In today’s world, business gets done through the effective use of information technologies.

Information technology (IT) is a general term that refers to the acquisition, processing, storage and dissemination of data. In today’s marketplace, information technologies are the lifeblood of most companies; if you don’t keep up, you’ll get left behind.

While information technologies have forged forward at rapid speeds, some industries have lagged behind. The manufacturing industry is massive and greatly dependent on information technologies, yet traditional SCADA software for control systems is behind the curve when keeping up with advances in information technology. In a challenging economy can companies really afford to be doing today’s business with yesterday’s technology?

Innovations in traditional SCADA software have stagnated for three major reasons: SCADA software is too purpose specific, too tedious to implement, and has a constrictive licensing model.

While these problems are blocking the progress of traditional SCADA, enterprising companies that can find ways to overcome them stand to gain a huge advantage over their competitors.

Gaining the Advantage

Today’s business climate is ever-changing and challenging. Everyone is looking for the next big thing to help them in their business. Companies must always be working toward innovation to improve their business and turn a better profit.

In order to meet this goal, it’s essential for information to be collected in ways that management decisions can be made. If you can’t measure it, you can’t manage it.

Integrator Jack Krohmer, of Process Networks Plus in Leander, Texas, has been building SCADA systems for almost 40 years. Having worked with many types of SCADA software, he’s pretty much seen it all – and he’s helping companies get to the next level by blending modern information technology with SCADA.
“SCADA is real-time, so it’s vital,” Krohmer stated. However, companies are asking for more data-rich applications. Delivering a lot of data in real time can be challenging, and relational databases can help them accomplish this goal.

Companies are demanding tools for better internal collaboration – and collaboration requires access for everyone. Real-time information for real-time responses is now mandatory in most business operations. All this must be accomplished by rolling out solutions rapidly and cost effectively.

“Cost is that one caveat that holds back many companies from improving their production processes. Developing SCADA projects using traditional software is very time consuming. Add to that the licensing costs and many projects are killed before they ever get started,” Krohmer explained.

While the IT world has made huge technological leaps in years past, the same can’t be said about traditional SCADA software. Only marginal technological advances have been made in this arena in the last 15 years.

There are three aspects of traditional SCADA software that particularly impede any technological advance. All three can be remedied by blending SCADA functionality with information technology and its standard protocols and practices.

SCADA and IT have always been thought of as two different solutions. When companies realize the power of what IT practices can do, they can gain a real advantage over the competition.

Consider the comparison table below. Putting these two technologies side by side demonstrates that IT can fill in some of the gaps that SCADA software doesn’t offer on its own.

<table>
<thead>
<tr>
<th>The SCADA World (1990s era technology)</th>
<th>The IT World (2011 technology &amp; beyond)</th>
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<tbody>
<tr>
<td>Flat file storage (time series data only)</td>
<td>SQL databases (relational data)</td>
</tr>
<tr>
<td>Clients individually installed (DCOM or other proprietary protocol)</td>
<td>Web servers (HTTPS protocol)</td>
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<tr>
<td>Clients deployed in hours</td>
<td>Clients deployed in seconds – anywhere</td>
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<tr>
<td>Licenses for each client and server individually</td>
<td>Licensed by the server (one flat price)</td>
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<tr>
<td>No database applications (except with major hacking)</td>
<td>Rapid development of rich database applications</td>
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<tr>
<td>Limited and proprietary connectivity</td>
<td>Open connectivity</td>
</tr>
<tr>
<td>Simple trending</td>
<td>Rich analysis &amp; display of relational data</td>
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<tr>
<td>Maintenance distributed across many workstations</td>
<td>Centralized maintenance</td>
</tr>
<tr>
<td>Limited security options</td>
<td>Full spectrum of standard IT security methods</td>
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Reason #1: Traditional SCADA Software is Too Purpose Specific

SCADA software was originally designed to control and monitor automated machinery – which replaced physical control panels. As such, software can now perform the standard SCADA functionality for stop-and-start control, numeric entry fields for setpoints, animated graphics and simple trending.

The leap to PCs was a huge advance in its day but nothing much has changed since the 1990s. It’s a little strange that newer IT advances haven’t made much way into the industrial control realm.

Traditional SCADA software delivers good data, but you can’t do much with it other than track a few stats. This leaves manufacturers with a lot of unanswered questions.

How to Get Ahead
Leverage the Power of SQL Databases and Web Servers

Integrator Krohmer says his customers are seeking out information to aid decisions. “If you’re talking about who was on shift on a certain date running a certain product and what were the results, and analyzing that against vendor, raw material, etc. – you can only do that in a relational database,” said Krohmer.

IT uses relational databases and embraces a database-centric philosophy because it makes sense for what companies are trying to accomplish. These technologies make it easy to share data between different departments. Everyone across the enterprise can operate faster and avoid miscommunication.

By blending SCADA functionality with web servers and relational databases, you’ll achieve better analysis, better reporting and better collaboration concerning every aspect of a company’s production.

It is important that software not dictate how you run your processes. Choose a software that allows you to connect and use your databases around your company’s best practices. After all, these best practices represent actions taken by a company to be more efficient than its competitors.

Equally important, software flexibility must be coupled with speed of application development to make it cost effective.

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– Jack Krohmer
Integrator, Process Networks Plus

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Reason #2: Tedious Implementation Destroys Viability

Many great ideas come and go because implementing them is not cost effective. You’ve heard of jumping through hoops to bend software into the desired form. You’ve also heard that installing software alone could take days or weeks – software that has to ship on DVDs is probably just bloatware.

Long installations are only half the battle; most traditional SCADA software products require repetitive installation tasks to be done on multiple client machines. This multiplies the time and money it costs to implement new software.

Platform incompatibilities (including all the different versions of Windows®), license activation hassles, and backup and restoration headaches also plague the implementation of SCADA projects. Even worse, creating applications is frustrating because dealing with relational data is impossible on most systems without doing some serious jerry-rigging or being an experienced SQL system administrator.

Many modern IT practices can be used to alleviate these problems. When updating your SCADA system, look for software that uses modern technology borrowed from the IT world.

How to Get Ahead
Eliminate Redundant Tasks

It is imperative that SCADA software in today’s competitive market be designed with a web-based central server architecture – just like IT does it.

IT approaches installations, development and system maintenance via a central server architecture model. This means for any task that IT performs on the system, they do it once and move on. Software is installed once, projects are developed once, and changes or updates are made once, and every client machine can instantly launch the latest functionality.

Using SCADA software that is designed around the web-based concept borrowed from IT can drastically change the role of the engineer or integrator from “implementation specialist” to “innovation specialist”, which can greatly increase a company’s advantage.

Krohmer spoke from experience when he said, “Make sure any SCADA software you choose lets you install the software in one place, manage it in one place, add onto it in one place, and have the freedom to use an unlimited amount of tags and clients.”

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Reason #3:
Licensing Model Stifles SCADA Projects

There is one other very large roadblock to SCADA advancement: how software is licensed.

Most SCADA software vendors charge users by how many tags or clients they use. The larger the system is, or grows to be in the future, the more money users are forced to spend for software alone.

This kills more projects than you could shake a stick at. Projects are either pushed into the future, or eliminated altogether. As a result, systems are never all that they could and should be.

Krohmer recently faced a similar scenario with one of his customers, a food manufacturer. When he entered the scene, the company had already received quotes between $32,000 and $35,000 – just for licensing development software and five clients with traditional SCADA software products. The price did not include training or installation.

“They would have been so frustrated with the software because it didn’t include training nor installation costs,” Krohmer said. “It would be a week or two to load the software onto their system – and they don’t have the time to do that – and they would have spent $30,000. They would have either killed the project or not have been happy with what they got for $30,000.”

Krohmer recommended Ignition by Inductive Automation, and explained: “For the same price we were able to supply the software, the hardware, and set up their initial system and start collecting data.

How to Get Ahead
Look for Licensing “By the Server”

Web-based software is gaining in popularity because it gets installed once on a central server location, and then can be accessed anywhere via a client machine.

To ensure long-term cost effectiveness for the software you put on your control system, seek out web-based SCADA software that is licensed by the server, not by the tags or clients. Unlimited licensing dramatically changes how the budget can be distributed across the project.

Some companies advertise “unlimited licensing”; but only for a tremendous fee. When considering adding web-based SCADA software to your control system, double check that it includes unlimited tags and clients at an affordable cost so you can actually take advantage of using it anywhere, as much as you want.

Unlimited licensing dramatically changes how the budget can be distributed across the project.

Not having to buy additional licenses fuels innovation. Just think of it: The more eyes you can get on the data, the more creative ideas your team can come up with. Your company will collaborate better and truly attain an innovative advantage over its competitors.
Questions to Consider When Buying SCADA Software

Database Connectivity
What brands of database servers can the software integrate with?
Are multiple simultaneous database connections supported?
How easy is it to connect to databases?
Does the software provide first-class support for integration with relational databases?

Implementation Difficulty
Can the software be installed in under ten minutes?
Is it web-based?
Can you launch unlimited clients?
Can you launch unlimited development clients?
Can changes be deployed to all clients instantly and simultaneously with a single click?
Can you manage all projects from a central location?
Can you deploy clients without installing any software on the host PC?
Is the software cross-platform?

Licensing Costs
Is the software licensed by the server?
Will you have to buy more tags, client licenses, or screens as you expand the system?

When evaluating SCADA software, consider how well the application integrates IT concepts.

Where should you start? When choosing a SCADA software vendor, asking key qualifying questions will help you evaluate how well the software integrates IT concepts.

To the left is a list of questions that will help you through the decision-making process. Answering those questions should give you an idea about how well the software can connect with databases, how easy or difficult the software is to implement, and how much hassle you’ll face with the software’s licensing structure.
Easily Blend SCADA with Information Technology

Ignition by Inductive Automation™ is an industrial application server, used to create systems that cover the full spectrum between HMI, SCADA and MES. Its unique architecture enables accessibility from any computer no matter the operating system, rapid project development and deployment, and massive scalability without complexity.

Web-Based Access Anywhere
Ignition is web-based; it’s server software that is configured via any web browser. The drag-and-drop Ignition Designer and clients are launched from web browsers using innovative web-launch technology. With Ignition, tedious client installations of software are a thing of the past.

Get the Power of SQL Databases
With Ignition, your data is always stored in an open, accessible format. The SQL Historian feature is compatible with any modern SQL database. Ignition has native support out of the box for nearly any SQL database including Microsoft SQL Server, MySQL, Oracle, IBM DB2 and PostgreSQL. The SCADA and reporting features can pull data in from multiple databases simultaneously.

Cross-Platform: Use Any OS
Ignition is written in 100% Java, making it the first mature cross-platform HMI, SCADA, MES package available on the market. Top-to-bottom support for all major operating systems opens new dimensions of architecture flexibility. With Ignition, companies are free to use the system they want – not the system they’re constrained to by outdated technology.

Unlimited Licensing Makes It Affordable
Access is important for efficiency, that’s why it shouldn’t be limited by software licensing costs. With Ignition, buying client licenses or tags will no longer hold up your project. This allows you to put your effort toward adding more functionality into your system, while providing access to everyone who needs it.