



Top Ten Internet SCADA Mistakes

Common pitfalls that will sink Internet SCADA projects.

Avoid these, and you'll be well positioned for success.



Internet SCADA technology has matured to the point where deployed systems can become strategic business assets, and many of the common technical and design risks are recognized and avoided. By keeping a constant eye on the business drivers, and being armed with the knowledge of the most common Internet SCADA pitfalls, you'll be well positioned to pull off a successful project and quickly begin reaping the benefits of this evolving SCADA standard.

1. Promising what you cannot deliver or more than the customer needs

Timing and availability of the Internet differ from traditional SCADA delivery systems

Solution: Manage expectations. Internet systems can provide more than adequate response times for most SCADA applications with 99 percent or higher levels of availability.

2. Building Internet SCADA around polling

Traditional RTUs are slaves programmed to respond to requests from a master. Internet protocols, services, and techniques make this architecture ineffective and obsolete.

Solution: Web servers accept and process requests from many Web clients simultaneously. Internet SCADA is best on a "push" architecture where remote field devices are programmed to intelligently transmit data to the master server. Transmission can be triggered at specified intervals (every five minutes) or when conditions warrant.

3. Ignoring the end users

Change is always a challenge. Field managers may see Internet SCADA as supplanting some of their value. Earlier attempts may have failed.

Solution: Listen to the users' fears and address their concerns. Use an experienced Internet SCADA provider that has insight and experience in implementing the process, including change management, with users.

4. Not bothering with SCADA "Surety"

SCADA security and continuity, or "surety," is a major issue when monitoring critical assets on the Web. Denial of service, altered data and false commands are potentially dangerous to operations.

Solution: All networks are vulnerable to viruses, worms, and denial of service attacks. Network monitoring, firewalls, encryption, certification of users and data backup are effective techniques if handled by proven service providers with experience hosting SCADA systems and the operations they serve.

5. Assuming any SCADA can do the job

Beware of SCADA applications with generic data acquisition and control. Individual industries require information to be filtered and displayed in specific ways. The requirements for gas plants may be different than for electric substation transformers.

Solution: Choose an Internet SCADA solution that includes modules already customized for your vertical market.

6. Buying into proprietary technology

Many Internet SCADA vendors use a "snap on" Web interface attached to proprietary applications. These will be difficult to extend or integrate later so you are still trapped with a closed system.

Solution: Choose a vendor with a central, open, accessible monitoring framework for the enterprise. The benefit of open interoperability is the ability to change monitoring, alarming, analysis and control functions as your business changes.

7. Overbuilding the user interface and overwhelming the user

Internet SCADA designers often are caught up in the bells and whistles of Web development tools. The mix of graphics, asset illustrations, schematics, SCADA symbols and raw data can obscure the critical information for the end-user. More does not necessarily mean better.

Solution: Don't overwhelm the user with more data and graphics than they can use. Get buy-in by keeping the interface simple, displaying important data up front and using color sparingly for critical alarm conditions. Added benefits include being less costly to develop, easier to maintain and more open and flexible.

8. Choosing a vendor based only on price

Buying only on price is almost never a good idea. It is particularly dangerous in a relatively new market such as Internet SCADA. Low bidders may be new small companies giving away business to establish a market foothold. There may not be enough money for these companies to stay in business through your project, or to be there for ongoing support and upgrades. Small companies may be outsourcing development work overseas without the ability to manage language, culture, and quality issues. Often high bidders may be young companies charging what they think they can get or more mature companies with unnecessarily high overhead.

Solution: Experienced buyers suggest throwing out the highest and lowest bids and then aiming for a partnership with a vendor who can deliver the optimum price-performance combination.

9. Not including support after the project

Buying support service for Internet SCADA after committing to a system can be very expensive and unsatisfactory. At that point, the vendor has little incentive to bargain on service level or price since their next sale to you is probably years away.

Solution: Think about service levels and support before committing to a project. Be sure to negotiate a warranty and SLA with uptime guarantees that match the reliability needs of your application.

10. Treating Internet SCADA as a technology rather than a business issue

Internet SCADA is a business-critical technology because it can reduce diagnostic and repair visits to remote sites, increase product flow and revenue on a pipeline and avoid shutdowns for improved customer service. Many of these benefits could be lost if the design of the project is purely a technical endeavor where an IT or engineering team is left to focus on the nuts and bolts of technology implementation.

Solution: Position Internet SCADA as a strategic business asset by keeping a constant eye on the business drivers and arming yourself by knowing the most common pitfalls of system design and deployment. By taking these two steps, you'll be well positioned to set up a successful Internet SCADA project and quickly reap the benefits of this evolving SCADA standard.

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