If any of the following are preventing you from getting your SCADA project off the ground, outsourcing to a SCADA service provider is worth consideration.

1. **Approval for a large capital budget**
   No capital investment required.

2. **Project risk**
   SCADA service providers offer a system that has already been tested, debugged, and proven through multiple deployments.

3. **Restricted schedule**
   SCADA service providers can deploy a system in weeks rather than months.

4. **High system reliability (uptime) requirement**
   The best SCADA service providers guarantee uptime through Service Level Agreement.

5. **Scalability requirement**
   SCADA service providers allow you to buy only what you need, so you can pay for 1 asset now, and add 1,000's incrementally over time.

6. **System maintenance resource limitations**
   Maintenance is the responsibility of the SCADA service provider.

7. **Project team resource limitations**
   No project to manage. The best SCADA service providers offer a turnkey solution.

8. **High network security requirement**
   The best SCADA service providers operate systems with the highest level of security

9. **Communications system expertise resource limitations**
   Communications system is the responsibility of the SCADA service provider.

10. **Technology obsolescence**
    SCADA service providers rely on proven best available technology to maximize quality of service.

Outsourcing Makes
SCADA Affordable for EVERY Application

By: Donald Wallace, Chief Operating Officer, M2M Data Corporation

Have you ever wanted to install a SCADA (supervisory control and data acquisition) system to monitor and control remote equipment or some other asset, but simply couldn't afford to? Well maybe you should take another look. New technologies have drastically changed the price/performance equation to a degree that makes it feasible to use SCADA in almost any application.

A unique combination of modern communications systems and Internet SCADA technology makes it feasible to monitor and control almost anything anywhere in the World from a single SCADA system--quickly, with no capital investment, and no risk.

Is it for you?

The cost-effectiveness of these new SCADA solutions makes it possible to implement remote monitoring and control of a wide range of equipment that has not been served by traditional SCADA. Application examples include:

- Reclosures
- Transformers
- Remote Meters

Although remote monitoring of these types of equipment has clear benefits (improved uptime, planned maintenance, reduced field technician costs, etc.) the value is often relatively low and simply cannot be achieved through the use of traditional SCADA. Outsourcing eliminates the traditional approach and its high resource requirements to plan, execute, and maintain the system.

New technologies and vendors who take advantage of new communications and Internet technologies offer the benefits described above without the demand on user resources. This is possible because the vendor takes responsibility for supplying a turnkey SCADA service that includes system planning (including technology selection), installation, and operation of the system. So users sign-up, collaborate on customization issues (if any), and then start using SCADA data to improve operations and the bottom line.

How's it done?

The advent of the public Internet, which uses open data communications protocols, services, and data formats, offered the promise of interconnectivity and interoperability for all data communication applications—and one of these applications was SCADA. As a result, many businesses have investigated the use of open standards as a way to integrate SCADA data into enterprise IT systems. Others developed Internet SCADA systems hardware and services to make SCADA data inherently compatible with enterprise systems. The result was the emergence of a new approach: outsourced turnkey SCADA services that are totally compatible with enterprise IT systems provided on a subscription basis.

Outsourced-SCADA vendors have a natural incentive-customer service-to minimize cost while maximizing security, integration, interoperability, and system availability. Without a high level of customer satisfaction, the opportunity to outsource doesn't exist.

Affordability

The low cost of outsourced SCADA services is one of the key benefits of the approach. The cost of software development, data center construction, operation, and maintenance is borne by the outsourcing vendor, and is therefore shared across the vendor's customer base, thus lowering the cost to each customer.

The same reasoning may be applied in other SCADA design and operational costs including software and data communications R&D, and data communications services.

Outsourcing eliminates SCADA software license costs. In an outsourced arrangement there are no software licenses to purchase, and no ongoing software maintenance fees to pay. Users access their data from secure web servers using a standard Internet browser from anywhere with Internet access.

The total cost of any SCADA system implementation is affected by a wide variety of factors. In cases where there are very large numbers of remote locations in single system, it is critical that all components of the solution be engineered to eliminate needless cost. Traditionally, one of the single largest costs has been remote commu-

nications, a barrier that is being removed by new satellite services. These new services are engineered to provide cost-effective transportation of data using inexpensive terminals. There are even low-power (and self-powered) units available where power supply is limited or nonexistent.

Availability

Outsourcing SCADA vendors have made investments in data center equipment (servers, switches, router, redundant communications, backup power, physical security, etc.) that cannot generally be justified for a single SCADA project. The ultimate benefit to a user is higher system availability—a benefit that some vendors stand behind by offer service level guarantees.

Integration and Interoperability

The open architecture of an Internet-based SCADA system combined with appropriate field equipment makes it possible to develop integrated and interoperable SCADA systems. The keys to interoperability are data format and transmission protocol standardization, and existing Internet standards provide an ideal solution.

Extensible Markup Language (XML) is already the defacto standard for most ecommerce data transmission. XML was developed to bring greater flexibility and interoperability to web applications. It is a meta-language for describing markup languages and therefore does not specify semantics or a tag set. In other words, XML provides a facility to define tags and structure. XML provides flexibility not available from HTML because the programmer has the freedom to create tag sets and semantics.

The data transmission protocol used on every web site, Hyper Text Transfer Protocol (HTTP), is ideal for Internet SCADA because it is firewall friendly and allows web servers to be used to control data transmission. There is also a version called HTTPS, which provides authentication, and encryption, which are critical security components. The alternatives, TCP/IP or UDP, require the cooperation of the customer's IT department to open ports on servers and thereby introduce potential for cyber attack.

Security

The benefits of using an outsourced Internet-based SCADA service outlined can be achieved while increasing the level of security normally provided in a traditional SCADA system. Experienced outsourced SCADA vendors have implemented processes, procedures, and tools to address availability, integrity, confidentiality, and protection against unauthorized users.

Availability: System up time is maintained at the highest levels through use of redundant servers. Firewall protection is provided at all remote network nodes and servers, along with automated monitoring to detect DNS attacks.

Integrity: Systems ensure data is not modified or corrupted through use of encrypted data signatures, authentication to restrict access, etc.

Confidentiality: Systems ensure restricted access to data through use of encryption, and to the system by employing authentication such as Secure Socket Layer.

Protection against unauthorized users: Multi-layered password protection is generally provided at all levels in the system.

Should you consider outsourced SCADA?

Outsourcing simplifies the planning, funding, deployment, and maintenance of SCADA systems. Project risk may also be reduced to near zero by selecting a provider that includes service level agreements as art of its scope of supply.

So, if resources, human and capital, are limited, if the schedule is short, and you're risk-averse, outsourcing may be an ideal solution. Choosing an outsourcing vendor that offers an Internet-based service will provide an additional benefits: low cost, and the ability to integrate SCADA data into your enterprise IT system. ◆

ABOUT THE AUTHOR

Donald Wallace, a graduate of the University of East London, is a Professional Member of the British Computer Society (www.bcs.org). Heis a past Director of the HART Foundation (www.hartcomm.org), anindustry group formed to standardize sensor data communications, and heholds two patents for wide area telemetry (SCADA). He has over 30 years experience in the design, marketing, and sale of complex systems for industrial automation and data communications applications. He is currently Chief Operating Officer of M2M Data Corporation (www.m2mdatacorp.com), a Denver, Colorado company specializing in the provision of Internet-based SCADA services in oil and gas, power, and government markets.