

# CASE STUDY

BUILDING AUTOMATION CONTRACTORS

## Verizon Communications

*Telecom Giant Leverages Open System To Its Advantage*

As systems have continued to evolve, and automation has taken on an ever increasingly important role in facility management, stakeholders, such as telecom behemoth Verizon Communications, are abandoning the traditionally proprietary building management setups, and embracing the Open Systems evolution. Created in 2000 when Bell Atlantic acquired GTE, Verizon is the largest local phone service provider in the U.S. with control of one-third of all local phone lines. Verizon Wireless, the company's joint venture with Vodafone, is the leading wireless provider in the nation with more than 29 million customers.

To complement its state-of-the-art data management center, Verizon selected a state-of-the-art building automation system (BAS) standardized to a LonWorks based solution from Echelon Corporation. Located at 50 Varick Street in New York City, the mixed-use facility presents a highly demanding environment for HVAC and lighting, ranging from battery, computer, and carrier and switching rooms to personnel offices. Managing such an intricate infrastructure-and managing it within a fixed budget-is a revolving challenge. A contributing force behind the pressure to make the change was economics. With reduced budgets and downsizing, Verizon needed a more cost-effective way to do business. Subsequent factors and concerns included system reliability, room for future growth, and the adaptability of the system to future requirements. The underlying agenda was to bring about a BAS that could maximize efficiency as well as utility cost savings.

### The Power to Choose

The BAS was characterized by a plethora of equipment manufacturers, each conforming to the relevant standards to ensure interoperability, but each implementing those parts not covered by an applicable standard in their own way. One aspect of building automation sys-



tems, and the one that continues to be of interest to Verizon, is its management. This is an essential area in any medium to large systems, but is one that is fraught with problems. Many utilities and products exist to manage a system. Unfortunately the majority of these products tend to be vendor specific. At Verizon, this led to a situation where the system consisted of inhomogeneous equipment from a variety of vendors. As a result, the company was subjugated to a costly dependence on these proprietary system manufacturers for upgrades and expansions. And had any of those equipment manufacturers go out of business or no longer support a particular installation, Verizon would have found itself having to replace what they had or amass a number of different systems that could

## Project Team

**Owner & Developer:** Verizon Communications Inc., NYC

(Continued)

## Key Benefits

Choosing a LonWorks based setup means Verizon is no longer bound to a single provider of any system or product at 50 Varick Street - selection of a vendor is now based on performance, features, and costs. Through its bid, T.E.C. Systems Incorporated was selected as the controls integrator to implement the LonWorks upgrade. T.E.C. Systems, an Echelon Authorized Network Integrator and member of the Open Systems Alliance has been a leading integrator of LonWorks based systems since 1995.



not communicate or exchange data with each other.

In 2001, Verizon took advantage of a planned retrofit and extension of the existing BAS and operator workstations to introduce LonWorks technology, a non-proprietary architecture that provides an open network to which many systems can be integrated. The LonWorks solution for open systems has gone a long way towards alleviating an owner's dependence on proprietary building automation systems, by making device dependent information available in a standardized way.

### System Design

Spearheaded by T.E.C. Systems Inc., the first phase of the system included the installation of a LonWorks Network Services (LNS) database, and a standard Graphical User Interface (GUI) to display all raw sensor data on the Server PC using customized Wonderware™ programming. LNS provides a powerful client-server architecture that permits multiple installers to simultaneously configure the control system. This capability simplifies the task of training installers, allows device manufacturers to give the programming interface a unique look and feel, and permits tool vendors to offer products that are both unique looking and interoperable. Notable features of the GUI includes simple point-and-click navigation, graphs all raw sensor data on real-time and historical time charts, allows for each cell, line, or area to be easily viewed, thus showing multiple comparisons on graphs, displays desired ranges of each sensor and the real-time point within the range, and displays high and low alarms, if desired, on each display window. Additional network infrastructure components included LonWorks free-topology twisted-pair backbone, Magnatek networkable variable frequency controllers, Neurologic

networkable temperature and humidity sensors, and Echelon's LonMaker for Windows configuration tool. Subsequent phases included the addition of Plexus LDX-10 user interface panels, Echelon LonPoint control modules, and i-LON 1000 internet routers, upgrade to an Internet Protocol (IP) backbone, and installation of additional Yaskawa variable frequency drives and neurologic sensors.

### Results & Conclusion

The trend in the industry is clear. Facility management guidelines are progressively more oriented towards interoperable and non-developmental items. This metamorphosis is affecting all manner of communication systems, from management of information systems to mechanical infrastructure and other mission critical systems.

For Verizon, Open System products offer the advantage that devices can be selected from among different manufacturers: the company is no longer tied to any one manufacturer's closed technology. Aside from the cost savings achieved by open competition, the company is safe in the knowledge that replacement products will be available if any one manufacturer goes out of business or discontinues products. Service contracts can be openly bid since no proprietary devices will be used, thereby avoiding single source service contracts. It is likely this shift to open systems will enable Verizon to insert technology faster. The key is that a standards-based open systems architecture affords the company the flexibility to take advantage of new technology that comes along, regardless of the manufacturer or vendor, provided it is compatible with the open systems architecture it has selected. This of course, was not possible with the rigid, custom-built, and proprietary systems previously in operation at the facility.

### T.E.C. Systems Incorporated

54-08 Vernon Boulevard, Long Island City, NY 11101

09/03 Printed in the USA

©T.E.C. Systems 2003 All rights reserved

