

**YOUR PARTNER FOR COMPLETE
SITE MANAGEMENT**

KENTROX[®]

INTRODUCING INNOVATIVE SOLUTIONS FOR REMOTE SITE OPERATIONS

Every second of every day, your customers rely on your network to perform flawlessly. That's why operators worldwide trust Kentrox to help them take control of their network quality.

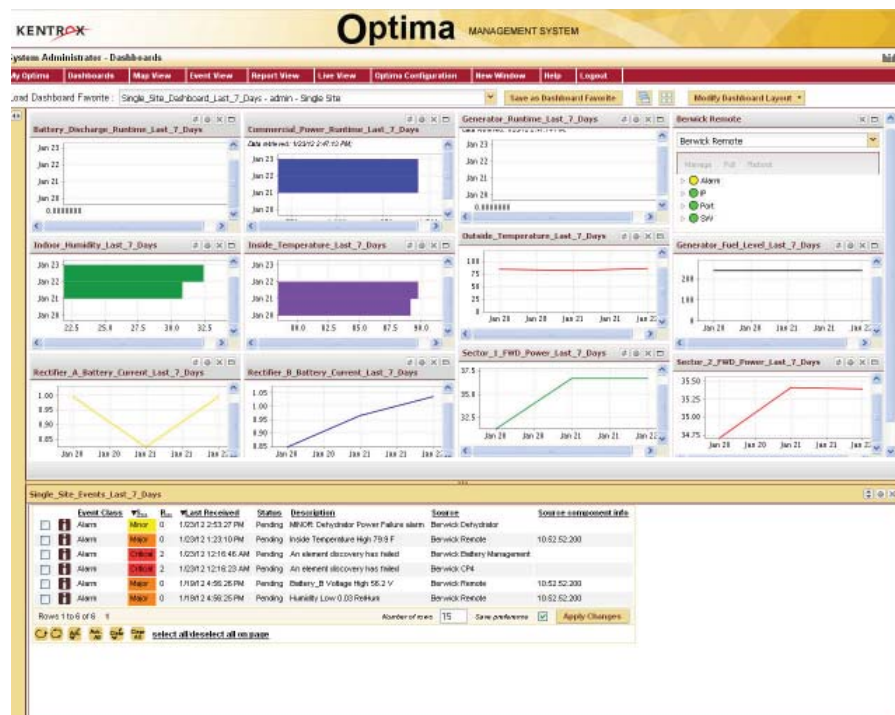
Network complexity is continually growing, and existing models for network site management create spiraling operating costs. That's why Kentrox provides network operators with site management solutions designed to help automate site management while dramatically reducing operating expenses and improving network quality and customer satisfaction.

CUT REPAIR TIME BY 50%

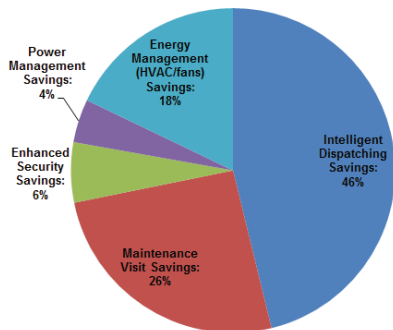
- > Remote diagnosis and repair
- > Intelligent dispatches – faster results

A world-class innovator of site management solutions for mobile and fixed-line operators, Kentrox has earned a reputation in the industry for consistently delivering solutions with exceptional quality and reliability. We are dedicated to working closely with our customers to ensure they take full advantage of our solution benefits – maximizing return on investment and operational efficiencies.

The customizable Executive Dashboard shows network status and performance for multiple sites across a region or a designated timeframe.



Average Savings Per Site Per Year
(Mature Market)



*Network Operator Savings:
Before and After Optima*

ONE SOURCE FOR COMPLETE SITE MANAGEMENT

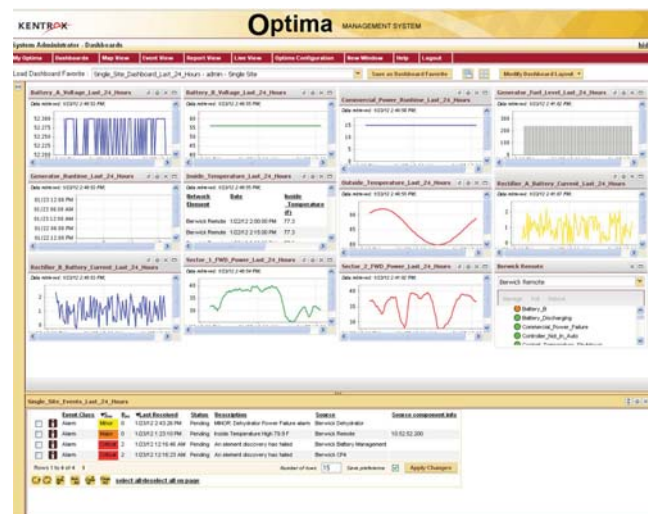
Providing a comprehensive view of all remote locations in your network, Kentrox site management solutions deliver the most complete site management on the market today. Because the Optima management system is vendor-neutral, network operators can automatically monitor and manage **all critical site elements** remotely, including security and power systems, environmental equipment and conditions, backhaul circuits, local loop equipment, radios, and antennas.

Kentrox provides our customers with a quick return on investment, helping them achieve or surpass cost-containment objectives. By adopting a single system to monitor and manage all site elements, network operators avoid the expense and nuisance of multiple implementation projects, multiple management systems, and multiple training and ramp-up cycles.

REDUCE OPERATING COSTS, IMPROVE AVAILABILITY

Optima gives technicians the ability to monitor and control site and equipment problems remotely – without an expensive truck roll. Technicians are more efficient and productive in dealing with network outages, thereby significantly reducing maintenance-related operating expenses.

Instant problem detection and remote repair provide immediate correction of common site conditions. Required on-site maintenance can be scheduled and combined with other local site visits rather than dispatched on an emergency basis. Degrading conditions can be repaired proactively before service is affected or an outage can occur, resulting in improved network availability and a superior customer experience.

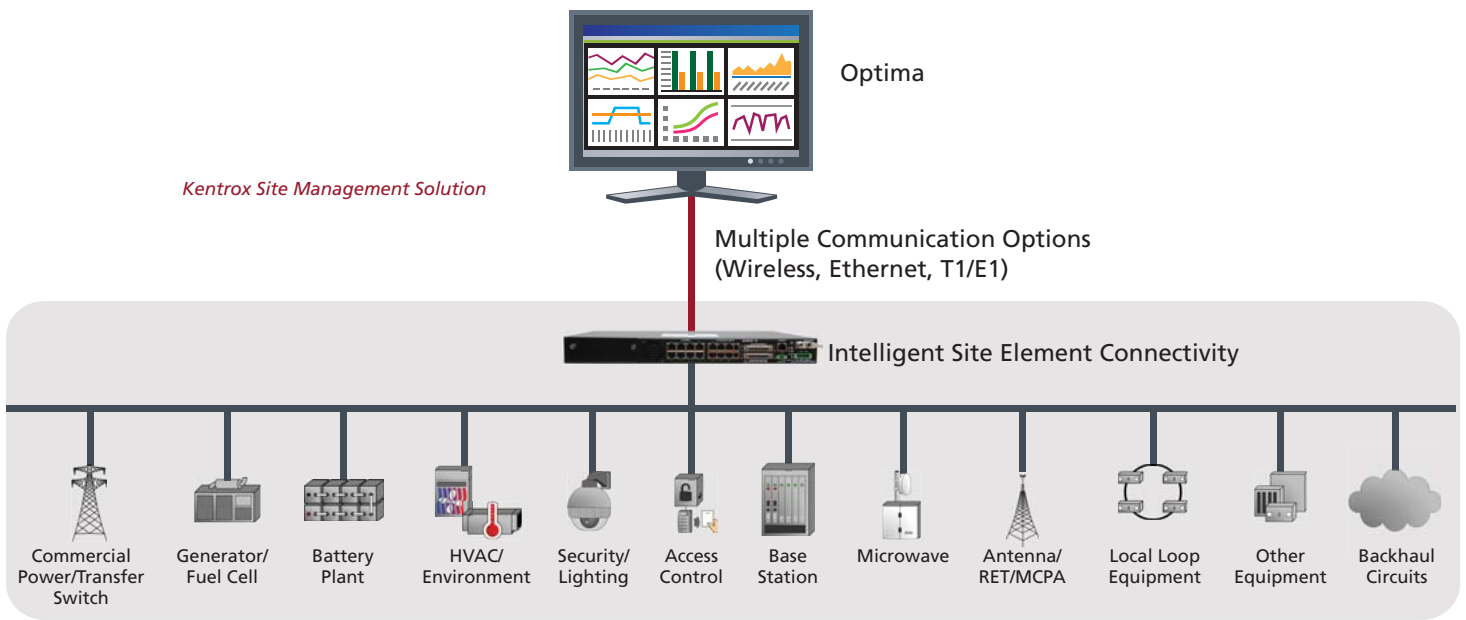


With the Site Dashboard, technicians can review performance and status data to diagnose problems at a specified remote location.

KENTROX SITE MANAGEMENT SOLUTION:

- > **Reduce operating expenses** by reducing or eliminating diagnostic and “no problem found” truck rolls, while improving technician diagnostic and repair efficiency
- > **Increase network availability** by reducing mean time to repair (MTTR) and proactively resolving potential outages
- > **Enhance the customer experience** by improving network quality and increasing the labor capacity for network improvements and growth

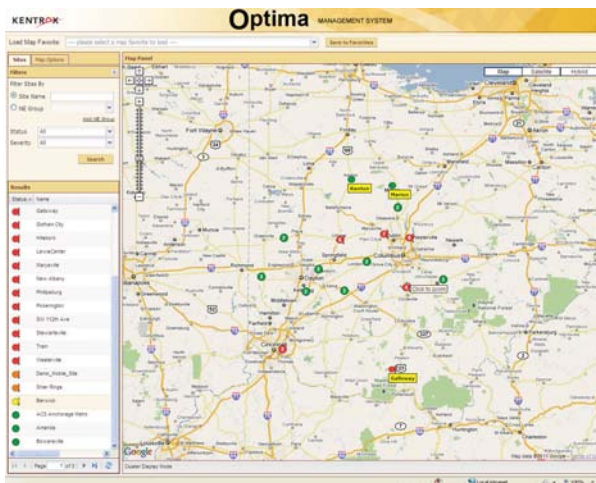
Providing a complete picture of the conditions of critical site components remotely, Kentrox gives technicians 360° real-time views of network sites through customizable, web-based dashboards. The Kentrox solution can be configured to manage environmental conditions, local loop equipment, heating/cooling systems, power levels, generator activity and reserves, battery life, site security and access systems, antenna tilt, microwave, radio, lighting, and other site equipment.



**INCREASE TECHNICIAN
EFFICIENCY BY 25%**

- > Remote diagnostics and control
- > Batched dispatches

Remote monitoring enables scheduled maintenance events rather than expensive, reactive truck rolls. Remote control of common conditions provides immediate correction of service-affecting problems. Vendor-neutral, Optima is designed with maximum flexibility to support embedded legacy systems and next-generation devices.



Map and GIS integration enable real-time network views with point-and-click site and location visibility.

- > With Kentrox site management solutions, **mobile operators** can remotely monitor all physical cell site elements, including backhaul circuits, radios, antennas, power, security, HVAC, wireless repeaters, and other mobile network assets. With user-definable alarms, technicians are notified of degrading conditions and status changes, providing essential data for proactive maintenance – without an expensive truck roll. With Optima, mobile operators can even remotely control valuable and mandated preventive maintenance routines, such as RET antenna and HVAC adjustments and generator run-time management.

> Kentrox site solutions provide fixed line operators with remote equipment management capabilities while dramatically reducing operating costs and improving network quality. Optima provides protocol mediation for legacy systems and manages local loop equipment and power, environmental, and security systems for comprehensive remote management of outside plants, huts, and other critical infrastructure sites.

EXAMPLE APPLICATIONS

- > Alarm transport
- > Environment management
- > Fuel management
- > Power management
- > Protocol mediation
- > Remote Electrical Tilt (RET)
- > Secure wireless management
- > Site security management

The Events List provides notification of degradations, events, thresholds, and alarms, helping technicians accomplish proactive repairs before service is affected.

APPLICATIONS

Power Management: The comprehensive solution offers commercial power monitoring, battery monitoring, and generator management. The complete network view and history reporting provides a single, consolidated view of all primary and back-up power system status while meeting the need for accurate reports.

Site Security Management: The Kentrox solution gives technicians remote access from any laptop to a consolidated view of alarms associated with cameras, doors, and other remote site equipment. It allows remote access for camera configuration changes and pan/tilt/zoom control and supports multiple camera vendors. It provides a common interface to access core network elements, site security equipment, power systems and more.

The screenshot displays the Optima Management System interface. At the top, it says 'KENTROX Optima MANAGEMENT SYSTEM'. Below the navigation bar, there's a section for 'Event View' showing a list of events. The table below has the following columns: Event Class, Status, Reg., Last Received, Status, Description, Source, and Source Component Info. The events listed include various alarms such as 'MAJOR Device MCHD', 'CRITICAL DU CELL Overvoltage', 'CRITICAL DU PCS Alarm Signal', 'CRITICAL DU Power Alarm (S.B.V)', 'CRITICAL DU Temperature Alarm', 'WARNING Diagnostics post-charging alarm', 'VARIABLE Calibration alarm', 'MAJOR Delayed Power Failure alarm', 'Operative Fuel-Low/High 90.7 Galons', 'Battery_A Voltage High 90.1 V', 'Inside Temperature High 79.9 F', 'Low Fuel level - 113.00 Galons - Capacity is 600.00 Galons', 'An sensor discovery has failed', and 'An sensor discovery has failed'.

KENTROX SUPPORT AND SERVICES

As your full-service partner, every member of the Kentrox team is dedicated to ensuring you take the fullest advantage of our innovative solutions to maximize your business productivity and return on investment. We maintain close relationships with our customers to ensure that Kentrox solutions are properly designed, configured, deployed, and integrated into your network.

Leveraging our in-depth knowledge of the telecommunications industry, network management systems, and operational support requirements, we deliver scalable solutions to fulfill complex business requirements in innovative ways. This happens through the Kentrox support and services solutions portfolio, which offers the following benefits to our customers:

- > **Tailored support when you need it.** Kentrox Support and Maintenance Agreements for hardware and software solutions, tailored to meet your business needs
- > **Flexible, focused training.** Technical training on Kentrox software and hardware solutions that is administrator- or user-focused, delivered at the customer site or the Kentrox campus
- > **Implementation expertise to ensure successful deployment.** Services for efficiently implementing Kentrox solutions into your network, including site surveys, installation, provisioning, and project management

- > **A suite of additional services to improve productivity in your multi-vendor, multi-technology environment.** Integration services, Optima application configuration, consulting, system administration, and operations process integration are all available to help your organization take the greatest advantage of the capabilities available with Kentrox site management Solutions.

Combining Kentrox services and solutions can improve your time to market and your peace of mind and will maximize your investment value and performance.

- > **With extensive private networks and mission-critical remote sites, utilities and transportation companies benefit from the comprehensive remote management and control available with Kentrox Site Solutions. With Optima, technicians can monitor HVAC, power, and security systems, and other remote site equipment to ensure these sites are running at peak performance.**



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