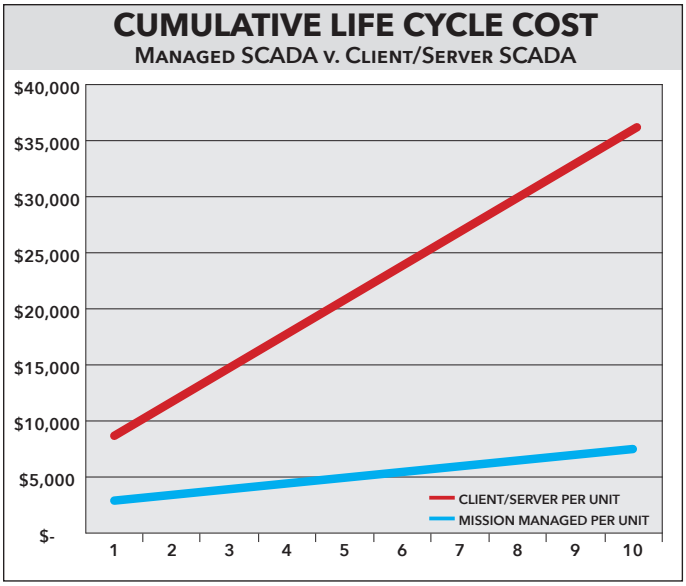
Managed SCADA

What is Included?

What exactly is included in the annual service fee purchased with a field Remote Terminal Unit (RTU)? What are the actual ongoing costs of the Mission system? Are there any hidden fees? Do I have to buy cellular service to make the RTU work? Are there charges for excessive alarm notifications? Are there any software licenses I have to purchase? How many people can use the system? How long is the RTU data kept? What happens if an RTU is damaged? What about security?

Here's the bottom line: the Mission annual service fee includes everything a utility needs to run a Mission unit in a secure fashion with no risk of hidden fees. This includes all cellular service, the servers that manage and archive the data, web portals, reports, and alarm functions. Mission offers a few optional functions (Tank and Well controller software, OPC Data Transfer, expanded I/O) at additional cost, or simply buy the RTU with the annual service. Then use any existing computers, smart phones, or tablets to access the SCADA system via the secure web logins.



Guaranteed Price Stability

Mission pledges a predictable cost of ownership and has guaranteed that the annual service fee will never increase more than the rate of inflation. This guarantee has been in effect since the company was founded in 1999. No competitors make the same written pledge. For more information, see the Business Performance Guarantee on the back page of this document.

Software as a Service (SaaS)

Mission combines Software as a Service (SaaS) with purpose-built hardware to provide a highly reliable and cost effective turn-key system. The SaaS business model provides more features

Executive Summary

Cellular Services

- Cellular airtime; no overages
- Direct relationships with AT&T, Verizon, and access to many other carriers through Telenor
- Secure socket connections for responsive telemetry

Alarm Notifications

- Phone, fax, email, web, pagers, or text messages; no toll charges
- Sophisticated call–out destination and schedule options
- Alarms can be acknowledged via all methods (except fax and pager) or with a simple toll–free number
- Call–outs recorded and available for review on the web portal
- Numerous "nuisance alarm" reduction features

User Interface and System

- Web portal with state–of–the–art technologies; live data feeds, infinite scrolling, responsive window sizing, active graphics, and more
- Mobile app for smartphones and tablets (123SCADA)
- Customizable overview map of all units at a glance
- Over 50 reports, data views, charts, and graphs optimized for the sensors and features of the RTU
- All historical data available to view comparative analysis or download to a spreadsheet
- Powerful analytical tools like Supergraph
- All systems managed, hosted, and routinely enhanced by Mission

Options and Advanced Features

- Optional automated remote control features like Tank and Well Control, Pulse Based Automated Remote Control, Digital and Analog Interconnect
- Optional real–time OPC link for customers with traditional SCADA HMI
- Expansion boards and service plan for additional data requirements beyond the built-in I/O

Security

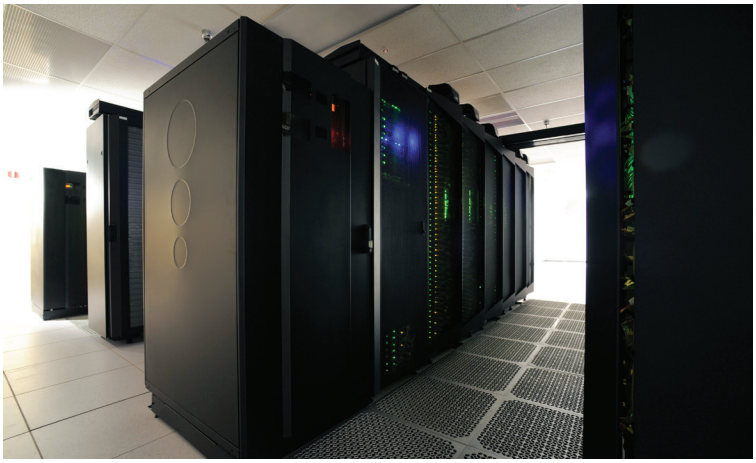
- Data from RTU to servers is encrypted by Mission and sent by carrier over private networks
- RTUs cannot be accessed from the public internet
- Web pages accessed via TLS 2048–bit key encryption
- Logins require credentials; Superadmin can maintain access control list
- Best practices enforced for networks, routers, firewalls, malware protection, and physical access

Support and Warranty

- Toll–free, no–cost technical support
- One–year parts warranty
- Replacement costs for printed circuit board (PCB) and cellular radio of current model Mission branded RTUs will be no higher than $450 and $300 respectively.
- Technology and obsolescence guarantee
- Complimentary training and webinars

with less effort at a substantially lower cost than can be achieved in–house. This business model is ideal for applications that are repeatable, like collection system monitoring and smaller water systems.

The Mission Engineers design all of the electronics and author the software, so we are in full control. Since the data is presented over the web, enhancements are provided system wide with no effort on the utility's part. By combining standardized field hardware, national cellular data networks, and full-featured SCADA software into a single solution, we are able to provide a reliable, managed service specialized for the water and wastewater industries.



Mission operates its SCADA service from a carrier grade data center located near Atlanta, Georgia.

The utility staff has enough to deal with when managing a water and wastewater system. Let Mission manage and monitor the SCADA system.

The Alternative to Managed SCADA

Before Mission, the only way water utilities could harness the benefits of automation via SCADA was to build their own proprietary system. This required going through the specification and bid process and then managing the engineering, construction, and debugging phases of a new technology. This is a time-consuming and expensive proposition. Once the system is running, IT staff is generally required as well as software support agreements.

In-plant processes, like treatment plants and water manufacturing, best served by traditional client/server SCADA systems can accept data from the Mission system via an optional OPC link. This eliminates the complexities of maintaining a utility-wide communications network for the remote assets associated with a collection system.

Included with the Mission Annual Service Fee

On Boarding – After setup forms are received, Mission staff configures the web portal, labels RTU inputs, and enters the call-out destinations for each customer. Mission Technical Support is available to discuss best installation practices and help test inputs before units are put into production. With minimal training, virtually all system parameters from the web portal can be adjusted. With a smartphone, all of the conveniences of the web portal are available in the field. Free training webinars are held weekly to quickly acclimate new users.

Support – A large part of the Mission value proposition is technical support. Talk directly with Mission Technical Support Specialists, use the ticket section of the web portal, or email questions to techsupport@123mc.com. Mission maintains a team of technicians for live telephone technical support from 8 A.M. to 7 P.M. Eastern. After hours support is always available on a responsive callback basis for emergencies at no extra charge.

Current Status – Upon login, the Map view displays all units on a local, customizable map. Clicking on the RTU icons displays additional information such as levels, pressures, or flows. Color codes are used to reflect alarm states, faults, or items of interest. Animated icons show pump running status for real time units.

Alarm Reporting – The Mission system has unparalleled alarm reporting functions. The system can dispatch over 40 phone calls per minute and is scaled as our installed base increases. From the web portal, set up a "phone book" of alarm recipients and the alarm call–out schedule. This even includes Mission's exclusive call recording feature that allows playback recordings of alarm call-outs, eliminating any questions regarding received alarms. The system has a number of nuisance alarm reduction features that eliminate annoying alarms. Alarm notification outcomes are logged. Unique day, night, and weekend schedules are supported and easily setup via the drag-and-drop interface.

Mobile Device Application – The 123SCADA mobile app is available for free download from the app store. Respond to alarm notifications or look at full data from the easy-to-use interface. The app makes on-site RTU setup and configuration easier than ever before. Through the app, scan the QR code on the RTU and receive a prompt to access RTU view, RTU info, and RTU config for the selected device. These options provide access to configure RTU call–out settings, view the status of device inputs, and change basic device information.

The integration of geolocation indicates the location of a device without manually inputting coordinates. Additionally, if they choose to share their location, staff members can be found on the map with location markers. This feature streamlines workflows by providing the ability to route and coordinate service calls.

Using a mobile device camera, take pictures of site equipment such as RTUs, antennas, enclosures, and expansion modules, and submit them directly to a support ticket, making it even more efficient for Mission Technical Support to troubleshoot and resolve system issues.

Cellular Data – All cellular charges are included in the annual fee. Mission buys airtime in bulk and aggregates it across thousands of RTUs. There are no separate overage charges or

early termination fees. Mission has designed its RTUs to send and receive data very efficiently. In the rare case that we notice a runaway sensor, our Technical Support team will assist in resolving the issue so that useful data is received. Mission understands water and wastewater applications, and we know how much data pump stations, wells, tanks, and instruments require. With nearly 30,000 RTUs deployed, we are the largest purchaser of cellular data airtime in the water and wastewater industry.

Mission monitors the connection status of field units. Technicians are alerted when we see a general reduction of the online units in the area. Since Mission is in control of all aspects of the system, we can quickly identify the problem and address it internally, get the cellular carrier involved, or assist with the resolution of a local issue.

Ready–Made Reports and Data Folders

- Alarm, alert, and dispatch logs with easy access to call recordings
- Pump information: runtime, starts, alarms, daily, monthly, variance (displayed in tables and graphs)
- Digital data
- Analog data (displayed in tables and graphs)
- Flow data
- Rainfall from national weather service or local tipping bucket (tabular data, graphs, and integrated with other reports like pump runtime)
- Specialty reports: Sanitary sewer overflow/combined sewer overflow (SSO/CSO), Safe Drinking Water Act (SDWA), chlorine, etc.
- Engineering reports: capacity estimator, volumetric calculations
- Weekly management reports for overall system performance
- Disabled inputs reports
- Site access reports: electronic keys
- Website access: by user and IP address
- Unit health: check-in history, cellular connection history, voltage reports, solar data

Commands – MyDro 150 and MyDro 850 feature three output relays that can be controlled from the web portal with the appropriate password. Use these to manually command pumps or open and close valves. MyDro 850 units can be automated via digital interconnect, where a change of a digital input at one location begets a relay change at another. Use the optional Tank and Well solution to automatically close relays based on an analog value at another location. An optional analog output board is available for setting remote variable values, or with real time units mirroring one analog value to another location.

Security

Remote TeIrminal Connectivity

Mission adopts multiple measures to ensure that data is protected at every step – from RTU to end-user. The Mission RTU is purpose–built; it functions for a specific set of tasks, is programmed to understand very limited protocols, and operates without Windows or Linux and their vulnerabilities. The RTU cannot accept an outside connection from an unknown device; the IP address is assigned within a private range. From the RTU to the carrier, Mission encrypts the over–the–air data using two algorithms, one at the application layer and the other at the wireless carrier level. Once the encrypted data reaches the cell towers it is forwarded to the Mission servers over encrypted private networks (VPNs).

Servers

Mission servers are located in a high security data center that requires biometric scans for entry and is guarded 24 hours per day, seven days per week. Access is limited to a small number of Mission personnel. The facility is engineered to withstand a direct F–4 tornado strike and is surrounded by an eight–foot security fence. The site has multiple electric utility interconnects encased in concrete from the substation to the site and 26 MW of generator capacity to last 72 hours. Redundant cooling and fire suppression systems are also in operation. Connections to the internet backbone consists of multiple peering connections across 14 carriers, redundant internal networks, and a 24–hour network operations center.

Web Access

Once the data is delivered to our servers, it is made available via 2048–bit Transport Layer Security (TLS) encrypted website. All activities are logged and monitored. Repeated failed logins are blacklisted by IP address. Access from outside of US and Canada is automatically flagged.

Defense in Depth Security Strategy

The defense in depth security strategy involves layering security measures into the system. Firewalls are configured to minimize entry points and require high levels of validation; VPNs are used to secure the constant connections with cellular providers. Antivirus and antispam tools are used to block malware. The overall system is monitored from several vantage points, which alerts Mission engineers to any anomaly immediately. Mission follows industry standard best practices with respect to configuration and maintenance of all tools and sub-systems.

Practical Issues

Internal threats and shared, stolen, or casual passwords account for many security breaches today. Employing best practices within the organization can reduce security threats. Mission offers five levels of user credentials – Public, Read-Only, Operator, Administrator, and Superadmin. It is recommended to assign a Superadmin to maintain credentials for all users. User accounts require a minimum of 6 characters and must include a number. The general rule holds that passwords should be changed every six months.

Comparison of Alternatives

Cellular communications reduce the risk of interception at the RTU due to the complex modulations and the spread spectrum nature of modern radio access technologies. With private radio network (PRN) and wireless Ethernet based SCADA systems, the customer must commonly implement encryption on their own. Many private radio based systems are unencrypted and point–to–point wireless. Ethernet WPA/WEP key standards are notoriously easy to circumvent. The beauty of the Mission managed service is that security issues are outsourced to the cellular provider and the professionals at Mission, leaving the utility to focus on what they do best.

Continuous Enhancements – Unlike traditional SCADA software that is installed and maintained locally, Mission's SaaS system is continuously maintained and enhanced at our central servers. The enhancements and new features developed by the engineers of Mission are immediately available at no extra charge. Each year Mission develops new features, some big, some small, all with a focus on the water and wastewater industries. An investment with Mission grows in value over time!

Software and Database Maintenance – The Mission engineering team maintains, archives, and optimizes the system continuously. Terabytes of data are stored on high-speed Storage Array Networks. With a staff of engineers, Mission maintains a more responsive and reliable system.

Hybrid Systems – The optional OPC Data Link is used to synchronize RTU data on Mission servers with a traditional SCADA-HMI server. This allows operators to look at one system while receiving the advantages of managed and low-cost RTU connections. OPC security is assured via credentials and an optional VPN.

Low Risk Field Hardware – After the one–year hardware warranty expires, Mission provides a low–cost replacement parts commitment. Simply stated, the printed circuit board (PCB) and cellular radio of current model Mission branded RTUs will be no higher than $450 and $300 respectively. In addition, we offer a technological obsolescence guarantee that eliminates risk of an orphaned technology. These are some of the ways we have maintained an attrition rate of less than 1% per year.

Business Performance Guarantee

Price Stability Guarantee

For as long as the customer chooses to use the Mission service, the price for monitoring will not increase from the initial term price by more than the amount equal to the annual compounded inflation rate. Term-price inflation considerations are based on an annual review of the previous year's Consumer Price Index for all Urban Consumers (CPI–U), All Items, the broadest domestic measure of consumer inflation as reported by the U.S. Bureau of Labor Statistics (https://www.bls.gov).

Replacement Hardware for the main electronic components (printed circuit board (PCB) and cellular radio) of current model Mission branded RTUs will be no higher than $450 and $300 respectively.

Technology Guarantee

Mission guarantees the radio telemetry technology as the customer wishes to utilize Mission services. If the originally installed radio telemetry technology becomes unavailable, Mission will provide a replacement module for the customer to swap out and replace the non-performing radio telemetry component. The new radio module technology will be equal to or better than the original radio telemetry technology.

If Mission cannot make radio telemetry technology available to the customer within 120 days of the original radio telemetry cessation, then Mission will refund any prepaid and unused service fees and offer a device upgrade per the Obsolescence Guarantee below.

Obsolescence Guarantee

From time-to-time Mission intends to introduce hardware and service improvements to existing hardware models and to introduce new hardware/service offerings. Customers utilizing the managed service offerings of Mission may wish to upgrade previously installed equipment to the newest model offering. Customers may trade-in and/or upgrade equipment for a price equal to the new model price minus the current trade-in value for the existing field equipment. The trade-in value is defined as being 100% of the original MSRP in the first year (from date of purchase), 80% of the purchase price in the second year, 60% in the third year, 40% in the fourth year, and 20% for subsequent years. Additionally, if the new equipment has a different annual service fee associated with it, the new fee will be applied to the customer's annual service at the time of field commissioning of the newer device.

Mission is simply a better way to perform SCADA.

MISSION COMMUNICATIONS

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