





IOT Solutions Alliance

Case Study

# IoT for Remote Device Management



# Company & Critical Facilities Background

The idea of the Internet of Things has been around a lot longer than the term "IoT". For over a decade, Modius® has been connecting to devices which reside at the edge of the network by collecting, normalizing and consolidating data points from thousands of assets and turning their data into actionable information using built-in analytics and automated processes.

Since 2004, Modius has been a leading provider of solutions for the analysis of data from geographically dispersed devices and equipment to help organizations make better operational decisions and improve the quality of service from these sometimes unmanned locations. When a Fortune 100 financial services company needed an IoT solution for their remote asset management, they turned to Modius and the OpenData® application to provide a complete solution from a company that has years of experience managing devices at the edge.

This San Francisco based financial services company is one of the nation's largest, providing brokerage and related services to over 8 million active accounts. The technology environment is diverse and complex, with in-house and vendor supported hardware ranging from mainframes, distributed systems (e.g. Unix, NT, and Netware), network equipment (e.g. routers, switches, and firewalls), disparate supporting infrastructure (e.g. power and cooling), and diverse management and control systems.

Fortune 100 financial institution saves \$2M annually by eliminating 24/7 staffing for remote sites, and achieves a higher level of reliability and accuracy for IT support services, by implementing the Modius IoT solution for device management.

### Company Profile

Company Modius, Inc Industry Technology Country United States Website www.Modius.com

### Solution at a Glance



Internet of Things



Big Data



Remote Asset Management

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Data collection and monitoring the health of remote assets is a viable first project for many companies considering IoT solutions. The real innovation starts when you have enough data to reliably predict outcomes and automatically adjust on the fly; that's the promise of IoT.

- Craig Compiano, President, Modius Inc.



#### **Business Need**

This financial services organization needed "around the clock" centralized management of its geographically dispersed network of IT equipment and infrastructure. They needed to leverage their staff to cover unmanned sites 24x7 without adding additional personnel.

### Solution

OpenData, an IoT-based remote asset management solution from Modius, was selected as the solution. Modius OpenData Collector software, running on rugged, edge-oriented servers like the Dell Embedded Box PC 3000, collects data near the source device, processes it, and transports it to the OpenData application for further analysis. This centralized information is easily integrated with other applications to support automated processes for superior control and management of all facilities in the portfolio.

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### Unifying a Heterogeneous Environment

Over the years, rapid corporate expansion, a combination of leased and owned facilities, and a hybrid IT environment resulted in a very diverse mix of data centers, equipment and supporting software for this client. When the client began their search for a remote asset management solution, they had a portfolio of fifteen core data centers and smaller satellite data centers, each running one or more Building Management Systems (BMS) for monitoring and controlling the supporting infrastructure. This mix of hardware and software, combined with the distance between these sites was significantly impacting the client's ability to provide timely support. Craig Compiano, President of Modius, explains the client's issue: "With this mixed environment, the client had no central source of data for the 15 data centers and required a different expert in each site to manage the equipment. Providing 24/7 on-site support for these locations was a significant on-going expense."

## IOT, A Perfect Fit

Managing this geographically dispersed environment of mixed equipment is perfectly suited for an IoT platform like OpenData."We installed OpenData Collector software at each site and configured it to collect, normalize and centralize the data from the existing legacy equipment with new sensors installed at each site. These OpenData ollectors can run on existing IT hardware or dedicated IoT gateways like the Dell Embedded Box PC 3000 or 5000 series, process data at the edge, and pass this information to the centralized OpenData application for analysis and action. All the important data from the fifteen different sites was consolidated into a single screen at the NOC, and alarm and alert conditions were passed to appropriate operational teams. Furthermore, the normalized information could be used for better capacity planning and predictive maintenance efforts" says Compiano.

Assets in these locations that were not previously being monitored by the local applications were easily added to OpenData Collector providing a complete picture of the health of this remote infrastructure. This IoT solution for data collection and monitoring at the edge allowed the client to forego adding additional personnel for these remote locations, and centralize management expertise for this mission critical infrastructure.

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# **Unexpected Benefits**

Remote asset management was the primary objective for implementing OpenData, but it wasn't the only benefit achieved by the client. The granularity of data available from the OpenData collector provided the client with insight and knowledge beyond the capabilities of the existing applications. These additional capabilities are summarized in the table on the following page.

### Benefits

Financial company saves \$2M annually by

leveraging existing IT service personnel to cover 24x7 support of remote data center facilities.

Automated and prechedule operational reports save the company over \$100K annually by eliminating the man-hours associated with manual report generation. Multiple catastrophic failures were averted based on OpenData predictive analytics and alarm and alert functionality eliminating costly service interruptions.

Improved MTTD and MTTR metrics based on alarm and alert escalation for monitored devices creating efficient coordination of staff. Reduction in energy costs through automated analysis of operational and efficiency metrics (i.e. continuous commissioning) saves the company \$600K annually.

Deferral of new facility build-outs by using actual load data for power capacity management calculations providing higher utilization of existing power infrastructure.



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Capability	Description	Example
Power (Load) Management	Automated and continuous measurement of power infrastructure	A critical business application went off-line intermittently and the IT team suspected there was a problem with the supply of power to the server. Analysis using OpenData showed that the RPP was supplying power consistently and the problem was quickly isolated to the server hardware.
HVAC Monitoring	Automated and continuous measurement of cooling infrastructure	In a colocation environment, the monitoring of a customer's IT equipment detected a server temperature issue. The colocation operator claimed that the SLA was being met, but OpenData was able to identify the point in time when the CRAC unit started failing and provided trending data that verified when remediation was completed.
Environmental Monitoring & Alerts (Temp. & Humidity)	Automated and continuous measurement of environmental sensors	Combined with PUE and other operational metrics, detailed temperature measurements combined with power measurements allowed for precise fine tuning of environmental conditions, including an increase in temperature set-points. This resulted in savings and improved conditioning of the space.
Energy Management	Automated and continuous measurement of power infrastructure	Previously, the BMS was being used for PUE reporting in a shared 4 MW facility. However, there were many known errors in the accuracy of the calculation due to the complex environment. As a result, no significant efficiency projects were undertaken. Using OpenData and the Modius Field Service Team, an accurate baseline was created and efficiency efforts could be undertaken.
Automated Report Generation	Automated and pre-scheduled standard operational reports to inform all stakeholders with no recurring staff prep time	Load distribution analysis for redundancy and capacity was performed manually on a monthly basis. Automated reporting from OpenData can now supply accurate power readings and capacity planning for facility management. Available redundant capacity analysis is fully automated.

## Only the Beginning

The consolidation of data from multiple OT applications into a central unified view was only the first step in the client's vision of using the IoT capabilities of OpenData to improve service delivery in their 15 data centers. By adding OpenData Collectors and the processing power of the Dell hardware, the client can unlock new streams of data from previously unmonitored equipment to automate processes in real-time. For example, server processor load data can be used to predict the need to automatically adjust HVAC settings for more efficient cooling.

"Data collection and monitoring the health of remote assets is a viable first project for many companies considering IoT solutions," added Compiano. "The real innovation starts when you have enough data to reliably predict outcomes and automatically adjust on the fly, that's the promise of IoT".

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