

Success Story: Eaton®

Markets Served
Data Centers



Foreseer® Proactively Monitors and Manages Power at Eaton's New Project BlueGrass Data Centers

Location:

Louisville, Kentucky

Segment:

Data Centers

Problem:

New Data Center needs full Electrical Power Management System

Solution:

Foreseer Services

Result:

Foreseer implementation for proactive and predictive management

"Foreseer gives us the ability to respond to a situation in minutes."

Rob Agar

Eaton's Vice President Enterprise Infrastructure Services and Mission Critical Facilities



Background

Eaton Corporation's 73,000 employees, who work across 507 sites in 54 countries around the globe, rely on information technology services provided by the company's data centers. The centers are mission critical facilities that provide access to over 2,700 applications essential to the operation of the company. Via Eaton's global area network, employees access applications such as e-Mail, Financials, Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Human Resource (HR) and many others from the data centers.

Aware that its 40-year-old data centers in Cleveland, Ohio, did not have the capacity to meet future information service's needs, in 2005 Eaton launched a program (known as Project BlueGrass) to plan, design, and construct two 102,000-square-foot next generation data centers in Louisville, Kentucky, to support its current and future global business needs.

Challenge

Given the mission critical nature of the data centers, Eaton determined that it was critical to implement a technical solution that extended beyond the simple alarm notification process. The company recognized that the key to ensuring the data centers' health and service availability was an Electrical Power Management System (EPMS) that not only addressed issues proactively, but also predictively.

The company wanted a solution capable of monitoring, managing, analyzing, and trending electrical component availability and power usage. Eaton's goal was to implement a high performance, configurable solution that was integratable with other products.

Solution

Eaton's Vice President Enterprise Infrastructure Services and Mission Critical Facilities Rob Agar explains, "To achieve our goals, we chose two primary monitoring and management



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systems to run the Project BlueGrass data centers. We utilize a building management system (BMS) to monitor and manage the mechanical components in both of the buildings. We selected Eaton's Foreseer product as our EPMS to monitor all of the electrical elements in the building's power chain from the utility grid down to the Information Technology (IT) equipment that it services and supports. The two data centers each have redundant electrical support subsystems to ensure high service availability.

"We integrated the BMS system into the Foreseer platform using a parent – child relationship with Foreseer positioned as the parent. We pass 515 data points every second from the BMS system to Foreseer. This process, in conjunction with a dashboard capability, allows us to display a defined set of critical metrics on a single screen. This screen is displayed on monitors distributed in key areas of the facility allowing our team to see the 'real time' state of our facility at any point in time."

The Foreseer software platform allows Eaton to monitor and manage the "power chain" from the utility grid through to the IT technology (server, network, storage) that resides in the data halls, where the

applications live and operate. The power chain includes Main Distribution Switchgear (MDS), Generator Paralleling Switchgear (GPS), Uninterruptible Power Supply (UPS), Computer Room Distribution Switchboards (CRDS), Remote Power Panels (RPP) and Power Distribution Units (ePDU).

It measures availability, loading, and consumption in real time. Foreseer makes it possible to monitor the operation and status of all of the electrical components that are running in the buildings. It trends measurements on those components over time looking for changes. When changes are detected, the information is used to investigate and respond proactively prior to experiencing service-impacting failures.

This system has a natural and intuitive interface. Its tag-based alerts (tied to equipment) and hierarchical navigation capabilities allow the operator to quickly drill down to and into the specific piece of equipment that is degrading or has failed. Other navigational links allow the operator to use a touch screen interface to quickly move directly from one piece of equipment or level to another without navigating back up to the root and down again.

Results

Agar reports, "Foreseer allows our Mission Critical Facilities Team (MCFT) to proactively monitor and support the electrical infrastructure of both Project BlueGrass buildings with a team of only four resident engineers, who are on site for 10 hours five days per week. Foreseer detects electrical system failures and sends alerts to Eaton's central alerting system, which will notify the MCFT staff member on call.

Unlike traditional reactionary alarm notifications, which can have inherent lag times of four to eight hours from problem identification to situation resolution, Foreseer gives us the ability to respond to a situation in minutes."

With the ability to monitor all of the electrical components within the building and trend critical metrics over time, Foreseer ensures high IT service availability through proactive management. With preset thresholds, analytics and trending, this tool allows the team to anticipate failures before they actually happen.

Agar notes, "The systems monitoring and running these buildings are making decisions based upon the conditions inside and outside of the buildings. Foreseer is an integral

part of that automation. If the systems operate properly and as designed we receive warnings (through trending reports) in terms of changes occurring in the buildings in advance and can proactively manage repairs before failure. These are 'lights out' facilities except for the 40-50 hours per week when our team is on site.

"Since Foreseer is an open system, it enables us to integrate other critical facility systems that we use in the facilities. We have already integrated the BMS into Foreseer. Our next step is to integrate our Security System and Fire Alarm System into Foreseer.

"Foreseer gives us the ability to proactively and predictively detect changes before service is compromised, thus ensuring optimal data center health. With Project BlueGrass' flexible, modular, and scalable design, Eaton has created new data centers capable of supporting its business over the next 20 years."



Key metrics are selected and displayed on a single dashboard.



Foreseer is highly configurable to reflect the actual facility layout with alert tags.

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