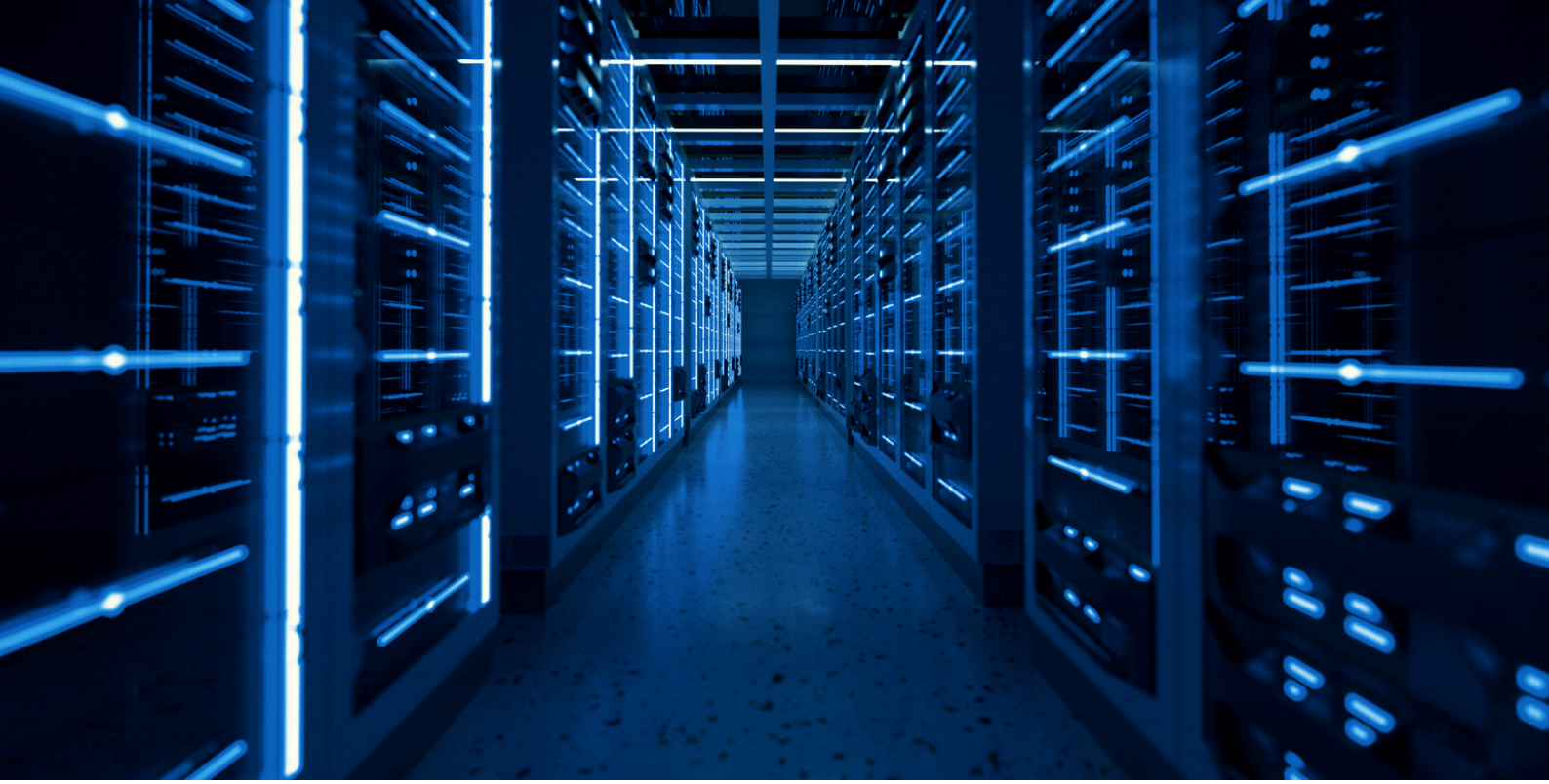


CASE STUDY

PRECISION IN ACTION: MAJOR TELECOMMUNICATIONS COMPANY LEVERAGES TRYSTAR'S TECHNOLOGY FOR DATA CENTER RESILIENCE

TRYSTAR®

BACKGROUND

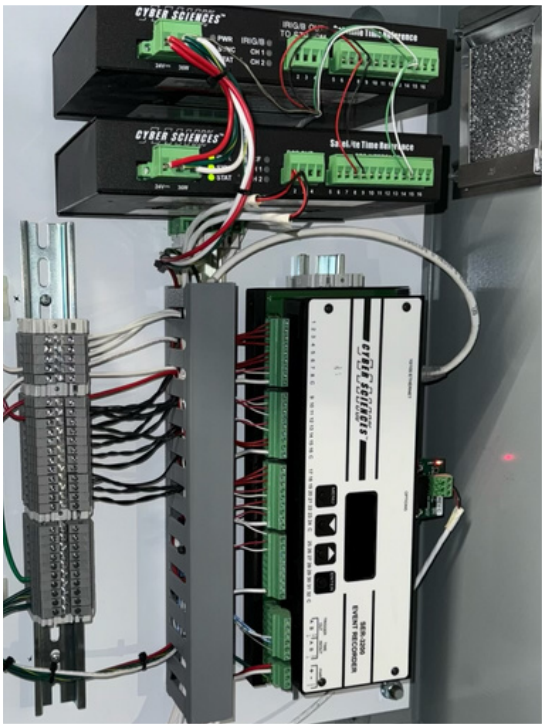
The main purpose of a data center is the safe storage and continuous accessibility of data. Uptime is non-negotiable. Every routine maintenance task must be executed with precision. Any disruption can lead to substantial financial losses and damage to a company's reputation.

To ensure upkeep of the infrastructure, rigorous and scheduled testing occurs on a recurring basis. This includes testing of the most complex electrical components to basic protection systems that are present among even low-tech commercial buildings.

This case study highlights the critical role that Trystar's Sequence of Events Recorder (SER) played in safeguarding operations at the client data center during a potential crisis.

CLIENT OVERVIEW

- $50B+ revenue
- 100,000+ employees
- 30 million+ customers
- 25,000 sq ft data hall (server racks, people spaces in between racks, and perimeter)



THE CHALLENGE:

COMPLEX DATA CENTER OPERATIONS

According to Uptime Institute's 2023 outage analysis report, 40% incidents are due to human errors in following processes. This is one such example.

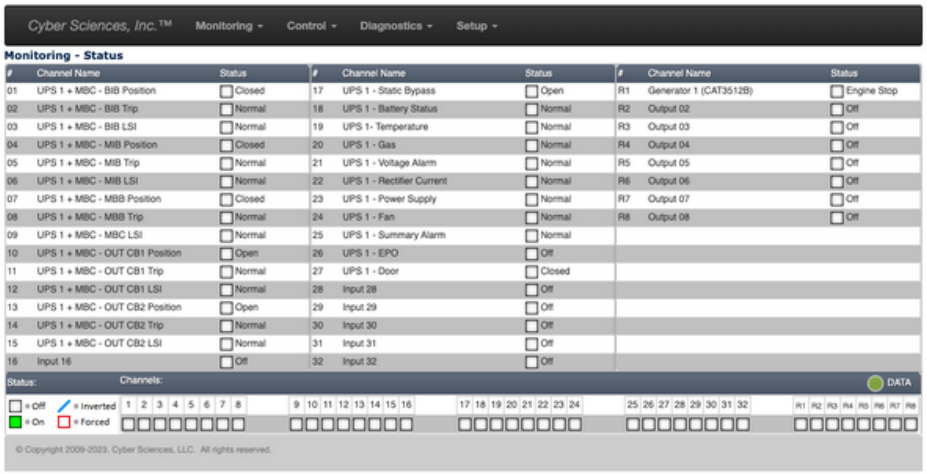
The customer was performing routine fire protection system maintenance. The scope of this fire protection system testing incorporated all fire protection components in the data center.

As per defined Standard Operating Procedures (SOPs), maintenance was to be segmented into separate fire protection regions of the data center.

$8M Estimated cost savings in equipment replacement

Each segment was to be tested separately. The individual operator's role was to temporarily isolate the fire system using the site's building management system software. After the isolation procedure was completed satisfactorily, the operator was to test the fire protection segment assigned to them. The actions were to be logged and any discrepancies noted. The fire protection system was to be unisolated at the conclusion of testing each fire protection segment.

At the conclusion of the testing, the server rack average air temperature in one data hall reached over 90F. The extended high temperature over time caused a protective feature to engage and caused a temporary outage.



> *The event recorder is used for figuring out what the truth really is. We use it to see what's true and what is false. It's the 'cheat code' for our facility.*

SOLUTION & BENEFITS

The customer needed a precise and rapid diagnosis to understand the root cause and mitigate the impact. This is where Trystar's SER came in, providing the critical insights needed to resolve the issue and prevent future occurrences. The lead engineer during this outage immediately consulted the Event Log (each event is given a time stamp to the millisecond) to know what happened and in what precise order, as quickly as possible.

Three important pieces of information were gathered for post-event analysis: what fire protection segment was left unisolated when testing began, exactly when the affected data hall air handling units were secured, and, most importantly, how long average rack temperatures in the affected data hall were elevated over 90F.

In conclusion, the temperature-over-time metric was crucial because it meant avoiding the replacement of damaged servers since tolerance time wasn't exceeded. The time from downtime to uptime was markedly shorter due to the availability of accurate and relevant data gathered by the Sequence of Events Recorder. A cheat code indeed!