SIGAGUARD

CASE STUDY

Data Center Cyber Security Solution

THE CLIENT

The Client provides a wide array of solutions to data center services at three subterranean installations in Israel. The data center facilities serve the most important institutions in the region and comply with Tier 4 TIA/EIA international standards for both power supply and air conditioning systems.

THE CHALLENGE

The data center's main function is to provide continuous uptime for the mission-critical applications it houses. Any downtime in a data center can impact business continuity. The top causes of unplanned downtime in data centers include UPS failure, cyber attacks, human error, electrical deficiencies, and HVAC malfunctions. This particular data center requested a resilience solution for cybersecurity and operations to protect and ensure reliable performance.

THE SOLUTION

SigaGuard was connected to a variety of electrical devices and equipment—all of which are integral to maximizing data center uptime and performance.

SIGA provided direct monitoring of raw electrical signals (Level 0), coupled with unique machine learning algorithms that analyze and provide real-time, reliable status of critical end-devices with remote monitoring. Customized anomaly alerts were also delivered as required.

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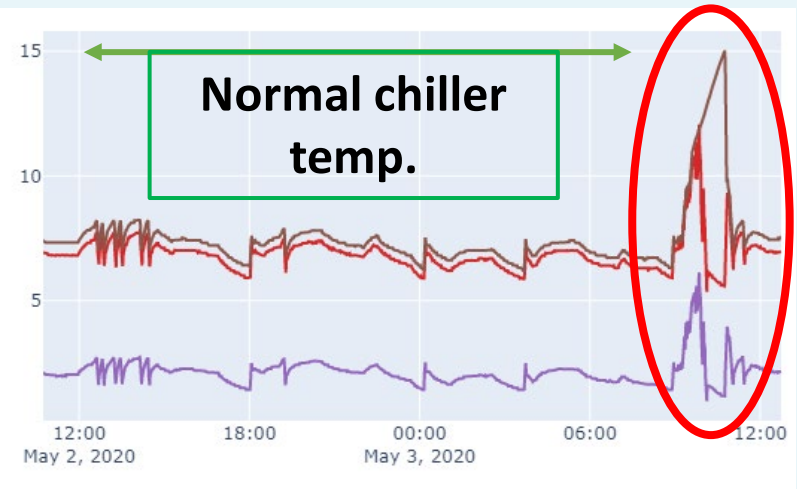
FAILURE DETECTION

In April 2020, an unusual anomaly—the miscorrelation of on-site chiller temperatures—was detected and alerted by the SIGA ML algorithms. The alert was sent to operators for investigation.

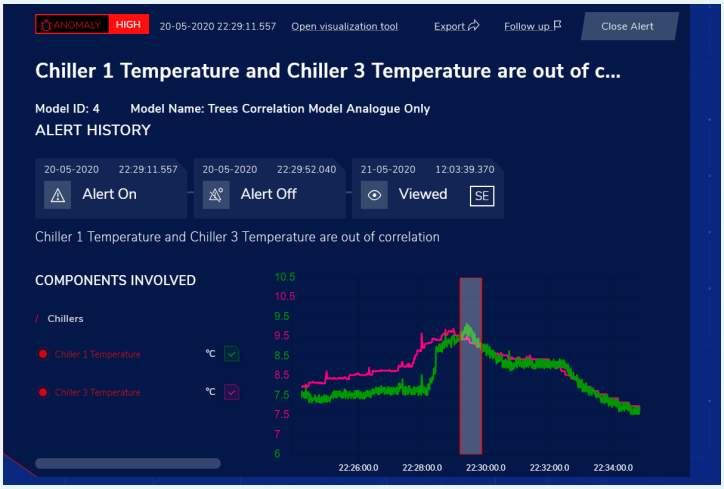
Further investigation showed that due to a power outage, the chillers came in and out of operation uncontrollably without raising any SCADA alarms (because the temperatures did not cross any thresholds).

This type of chiller behavior can ultimately lead to complete failure of the coolant supply to the servers and the crashing of the entire site.

Thanks to SIGA's predictive failure alerts, operators were able to take control measures to fix the failure—averting costly downtime—without any damage to the system.

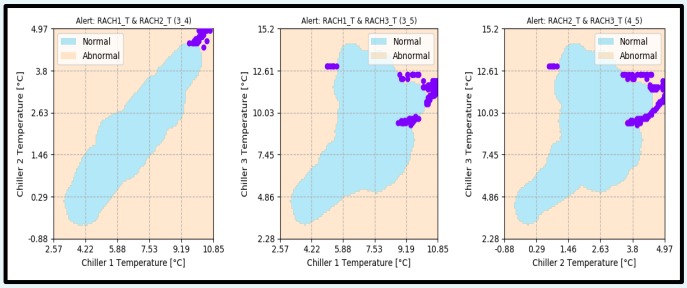


The anomaly was initiated by a power outage which raised the temperatures of the chilled water.



SigaGuard alert to operators in the SIGA dashboard

Temperature correlation map: Purple dots show miscorrelation points



CONCLUSIONS

Resilience and redundancy are critical to any data center. The potential costs of downtime and the benefits of uninterrupted uptime are too important to ignore.

SigaGuard safeguards data center assets by using an out-of-band network to monitor raw, untampered electrical signals. These signals are analyzed by SIGA's unsupervised machine learning software to provide operators with real-time alerts on anomalies or operational failure indicators to maximize uptime.