

VERY EARLY SMOKE DETECTION FOR FOUR HYPERSCALE DATA CENTERS

Case Study

Honeywell



RESEARCH
CORPORATION

BACKGROUND

Data centers have become one of the world's most valuable resources. By enabling cloud computing, e-commerce and remote work, they help businesses across nearly every industry meet growing demand. Due to the immense value and commercial sensitivity of the data stored and processed, it's essential that they have a strategy to reduce risk and minimize downtime.

Critical to such a strategy, very early smoke detection can alert data center operators to an incipient fire in time to deal with it before it can endanger employees, damage expensive hardware or destroy irrecoverable client data.

Given that a single minute of server downtime costs a data center an average of \$9,000, protecting uptime is critical. A Honeywell survey of data center managers across four countries found that 91% of respondents experienced at least one disruptive downtime incident in the past 12 months, most of them associated with an unplanned outage, a cyber or physical security breach, or human error.

Fires pose a particularly serious threat to data centers: Smoke can go undetected in confined spaces, allowing a fire to develop and spread quickly. Electrical systems can malfunction, overload or degrade over time – particularly the racks of lithium-ion batteries that provide a data center with its uninterruptible power supply. Risks also stem from malfunctioning mechanicals, such as an HVAC or CRAC (computer room air conditioning) system or generator. State-of-the-art smoke detection and alarm notification are key to maintaining client trust and protecting the provider's hard-earned reputation.

QUICK FACTS

Project: Installation of very early smoke detection and alarm notification system

Customer: Global provider of data storage/processing services

Location/Facility: Ashburn, Va. (Washington, D.C. metro area)
Four new data storage/processing centers

Solution: Honeywell VESDA-E smoke detection systems and fire alarm control panels

THE CHALLENGE

When one of the world's largest hyperscale operators of full-stack data centers expanded its U.S. operations in the Washington metro area in early 2020, it needed to find a life safety services provider it could trust as a guardian of its data, systems and platforms. The company, which delivers cloud services to millions of customers, knew what it wanted: very early smoke detection and alarm notification systems for its four new facilities. The company recognizes how critical risk management is to all its data centers, but this locale warranted special attention: Data Center Alley, as it's come to be known, spans Fairfax and Loudoun counties in Virginia, but its infrastructure is used globally. An estimated 70% of the world's Internet traffic travels through Data Center Alley every day.

The procurement team specified VESDA by Honeywell based on its aspirating design and long-standing reputation as the best technology of its kind. They also had their eye on costs: A typical system of spot detectors requires about three times as much hardware to cover the same square footage as VESDA – more parts, more labor, more maintenance...more expense all around.

The team also opted for a Honeywell fire alarm control panel, largely because of its integrative capacity with VESDA. A fully integrated system would enable easier alarm data access right at the panel while avoiding the added costs and potential failure points of trying to integrate disparate systems.

They also wanted control panels with graphical user interfaces (GUIs), which Honeywell provides. These make it easier for operators to read data, adjust settings and spot potential maintenance issues. In addition, GUIs show first-responders the precise location of a fire, should one develop, and at the macro level, they allow visibility into system performance from corporate-level monitors at the company's headquarters.

SOLUTION

The client selected the Honeywell system to provide fully integrated, very early smoke detection and notification at its four new Ashburn, Va., facilities.

Another important consideration prompted this decision: Honeywell's global network of approximately 500 engineered systems distributors (ESDs), which take an integrated and holistic approach to installing, servicing and maintaining life safety systems. Since the client already works with numerous Honeywell ESDs at other locations in the U.S. and around the world, Honeywell arranged to have GPS Fire Safety Systems, one of its ESDs that serves the Washington metro area, meet with the procurement team to thoroughly assess their facility needs, collaborate on drawing up plans and schedule the Ashburn installations.

ABOUT THE DISTRIBUTOR

GPS Fire Safety Systems, based in Chantilly, Va., is an award-winning Honeywell ESD serving the Washington metro area. CEO Carlos Argueta noted that the four VESDA installations all met with the client's approval. "Honeywell gave us great support, which made the difference," he said. The proof of their good work came after the fire marshal's inspection – the new systems immediately passed. Based on this success, Argueta hopes to win more work from this client – specifically, in six additional Ashburn data centers the company plans to build early next year. "There isn't a system out there that can do early smoke detection like Honeywell's VESDA," he said. "Installation is much easier and neater than with spot detection."

¹Ponemon Institute, Cost of data center outages," January 2016. [Accessed April 13, 2022].

²Honeywell Building Technologies, Rethinking data centers as resilient, sustainable facilities, August 25, 2021. [Accessed April 12, 2022]

³LightYear, How Ashburn, VA became the colocation mecca known as Data Center Alley, Ginger Woolridge. [Accessed April 12, 2022]

BENEFITS

- Provides earliest possible detection through VESDA aspirating smoke detection (ASD) technology by proactively sampling the air and eliminating non-detections caused by stratification or confined spaces.
- Integrates fire control panel with VESDA to enable full functionality and visibility at the panel, eliminates potential failure points and extra expense of adding a dedicated PC, high-level interface and relays required with disparate systems.
- Makes it easy for operators to read data, adjust settings and spot potential maintenance issues through graphical user interface (GUI).
- Enables full corporate-level visibility into system performance and shows first-responders the earliest possible location of detected smoke source.
- Gives access to Honeywell's global network of factory-trained and certified ESDs for expert installation and maintenance and a localized commitment to customer safety and service.

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