NORTHWESTERN UNIVERSITY

Stratus ensures **always-on availability** for building management systems

Northwestern University, a renowned institution of higher learning, is recognized both nationally and internationally for its educational programs and pioneering research. The University enrolls about 8,000 full-time undergraduates, 8,000 full-time graduates and 3,000 part-time students a year. Northwestern's two U.S. campuses are located in Illinois on Lake Michigan: a 25-acre campus in downtown Chicago, and a 240-acre campus in suburban Evanston. In addition to academic buildings, dining halls, and student and faculty housing, the campuses are home to state-of-the-art research facilities, performing arts centers, and even an art museum—all of which require highly sophisticated and reliable facilities management.

Quick Facts

Problem
- Building control systems for monitoring, command, and control of conditions within building environments
- Unified interface and framework for top level building control functions
- High availability software solution to ensure continuous operations

Solutions
- Johnson Controls Metasys® building control system
- Siemens APOGEE® building control system with Insight® workstations
- Tridium NiagaraAX Framework®
- Stratus everRun MX high availability software

Results
- Johnson Controls Customer Support
- Siemens Customer Support
- Tridium Customer Support
- Stratus 24/7/365 support services

A Leading Research Institution's Need for Continuous Operation

As one of the nation's premier research institutions, Northwestern needs to ensure that all building control systems are continuously operational in order to maintain highly stable environments. When applying for private or public research grant funding, the University has to provide in-depth historical information to demonstrate that it has a proven, reliable infrastructure in place to keep building environments within required specifications. Even the slightest variability in conditions like temperature, humidity, air flow, and air quality can skew scientific findings and render ongoing research work useless.

"If our building control systems go down, a researcher could lose years' worth of work," said Specialist Todd Voigt, User Support Lead in Northwestern's Facilities Management IT department. "This would not only hurt the University's reputation, but it could result in the loss of research royalty income—potentially millions of dollars in the case of a significant discovery that is later licensed for commercial use."

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Northwestern's Facilities Management IT department

Northwestern's need for always-on building control automation extends beyond its research facilities alone. The Mary and Leigh Block Museum on the University's Evanston campus boasts a permanent collection of nearly 5,000 artworks and brings world-renowned art to campus through temporary exhibitions. To protect existing collections and qualify for artwork loans, the museum must ensure stable climatic conditions.

Stratus® everRun MX®: The High Availability Solution of Choice

Northwestern had been using a traditional fail-over configuration where a second server was used as a standby for restarting its Tridium NiagaraAX Framework, Johnson Controls Metasys, and Siemens APOGEE building control systems in the event that the primary server failed. The University used a popular failover and recovery software solution, but found that it lacked the level of stability and reliability needed to keep these mission-critical systems up and running all the time.

Northwestern's Facilities Management IT department decided to evaluate alternative high availability solutions in order to ensure continuous operation of its building management systems. Because Tridium, Johnson Controls and Siemens all have large system installations running on Stratus everRun redundant server systems at customer sites worldwide, IT decided to take a closer look at the everRun MX software solution. However, because all of Northwestern's server-based software applications run in a virtualized VMware® environment, the IT team needed to make sure that everRun could operate within this existing infrastructure.

"After discussing our requirements with the everRun team, we understood that at the Windows® and application level, the system doesn't care whether it's running on a physical server, in a VMware Virtual machine (VM), or in an everRun-protected Virtual Machine (PVM)," explained Voigt. "Clients on the network can't tell the difference either, so it turned out that everRun could operate seamlessly in our virtualized server environment without adding a lot of complexity."

After conducting due diligence, Northwestern's Facilities Management IT department decided that everRun MX software provided the exceptional fault-tolerant protection, high application availability, and ease of use that the University required.

A Remarkably Smooth Implementation Experience

Northwestern purchased and implemented Stratus everRun MX to support high availability of its NiagaraAX, APOGEE and Metasys building control systems. Each application runs in its own Protected Virtual Machine (PVM) with its own Windows operating system. NiagaraAX runs in a Level 3 (fault-tolerant) PVM while APOGEE and Metasys run in a Level 2 (high-availability) PVM based on downtime tolerance thresholds. "I don't think I've ever had a better experience implementing a software solution," added Voigt. "And everRun pretty much runs itself, taking over synchronizing, monitoring, correcting and repairing problems in the application environment to prevent downtime."

Delivering High Availability for Building Control Systems

Since implementing the everRun MX software solution Northwestern has enjoyed continuous availability of its building control applications ensuring the level of seamless facilities management needed at a leading research institution.

"When it comes to keeping our building management systems up and running, everRun just works; we almost don't really have to think about it," said Voigt. "Gone are the days when I'm getting calls at 2:00 a.m. or on the weekend saying there's a problem related to the servers or the high availability solutions. everRun just works and works."

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