

# MANUFACTURING USE CASE

## VERTICAL: MANUFACTURING

### TOPIC: DATA CENTER VIBRATIONS

#### POTENTIAL CHALLENGE:

- Data Center architects are installing more racks into data centers, potentially intensifying vibrations and causing outages
- Improper care of data center racks may lead to latency which slows application performance
- Poor storage enclosures may interfere with application performance due to increased vibration

#### POTENTIAL SOLUTION: NAGIOS XI

#### POTENTIAL RESULTS:

- The increase of storage density allows for data center architects to maximize space while actively monitoring the data vibration
- Proper training and handling of data center racks mitigate risk and maintain application performance
- Reliable storage enclosures ensure application performance and data protection

## THE CHALLENGE

The sensors, IT equipment and internal networks used to maintain efficiency and uptime throughout manufacturing facilities require constant overseeing. Much of the current manufacturing process is monitored by sensors that receive information directly from the equipment used to turn out manufactured parts. The data provided by these sensors is then collected and stored for analysis utilizing data center racks.

Data center architects are installing more racks into data centers to maximize space and reduce overall costs. In doing so, there is an on-going challenge to maintain heat and vibration within each enclosure. Overheating in the data center can cause equipment failure, system crashes and data loss, ultimately affecting the longevity of components in the data rack and impacting business operations. The increase of heat and vibration can exacerbate the ability of the data center racks to protect a large volume of data, manage the growing number of applications and energy usage, as well as maintain uptime. Maintaining optimum temperature levels to prevent overheating is essential.

With the potential increase in storage density, vibration control in storage enclosures is more critical than ever. Vibration causes inefficient drive performance which leads to higher latency and causes application performance issues. Items such as other racks being serviced, storage enclosure doors closing or even a forklift passing by can all cause external vibration leading to an increased risk of the data that is shared and stored inside.

As manufacturers continue to implement technology tools and they become more interconnected, the need to safeguard data is essential.

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## THE SOLUTION

Many manufacturers are integrating monitoring technology to improve productivity, consistency, and efficiency. Proactive maintenance and reduced downtime can be achieved by utilizing sensors to monitor heat and vibration levels emitting from individual server racks where essential manufacturing data is stored.

With the addition of Nagios XI, Nagios XI's extensive monitoring capabilities can monitor the sensors, proactively managing temperature and vibration levels while simultaneously predicting issues and instability with the data center racks. Nagios XI provides proactive alerts, so data center architects can be immediately alerted when there's an increase of vibration or detection of excess heat, ultimately reducing downtime and keeping systems online.

Nagios XI enables users to monitor a given host from as many angles as deemed necessary. When monitoring servers in a rack, drive space utilization, read/write operations and read/write times are all potential checks users can utilize. Monitoring read/write times allows users to view how long a given disk, or disk array, is spending on those reads and writes. By using the multi-stacked performance graph in Nagios XI, users can assess if there's any correlation between rack vibrations and read/write times. Over time, users will be able to analyze historical data and compare drive failure rates with normal levels of vibration vs. modified levels of vibration. If there's a significant difference in historical data, users can do a cost/benefit analysis of equipping the rest of your racks with vibration absorbing equipment. If there's no significant difference, users can rule out vibrations as a significant cause of drive failure.

While data center architects are installing more racks into data centers, vibration management utilizing Nagios XI and sensors is key to improving data center racks performance, ultimately eliminating system outages, increasing reliability and production efficiency.

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## **THE RESULT**

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Protecting large volumes of data and increasing uptime is imperative to the efficiency of manufacturers. Nagios XI can improve operational awareness, operational efficiency, and ROI on IT systems where data is gathered, stored and shared to improve global production.