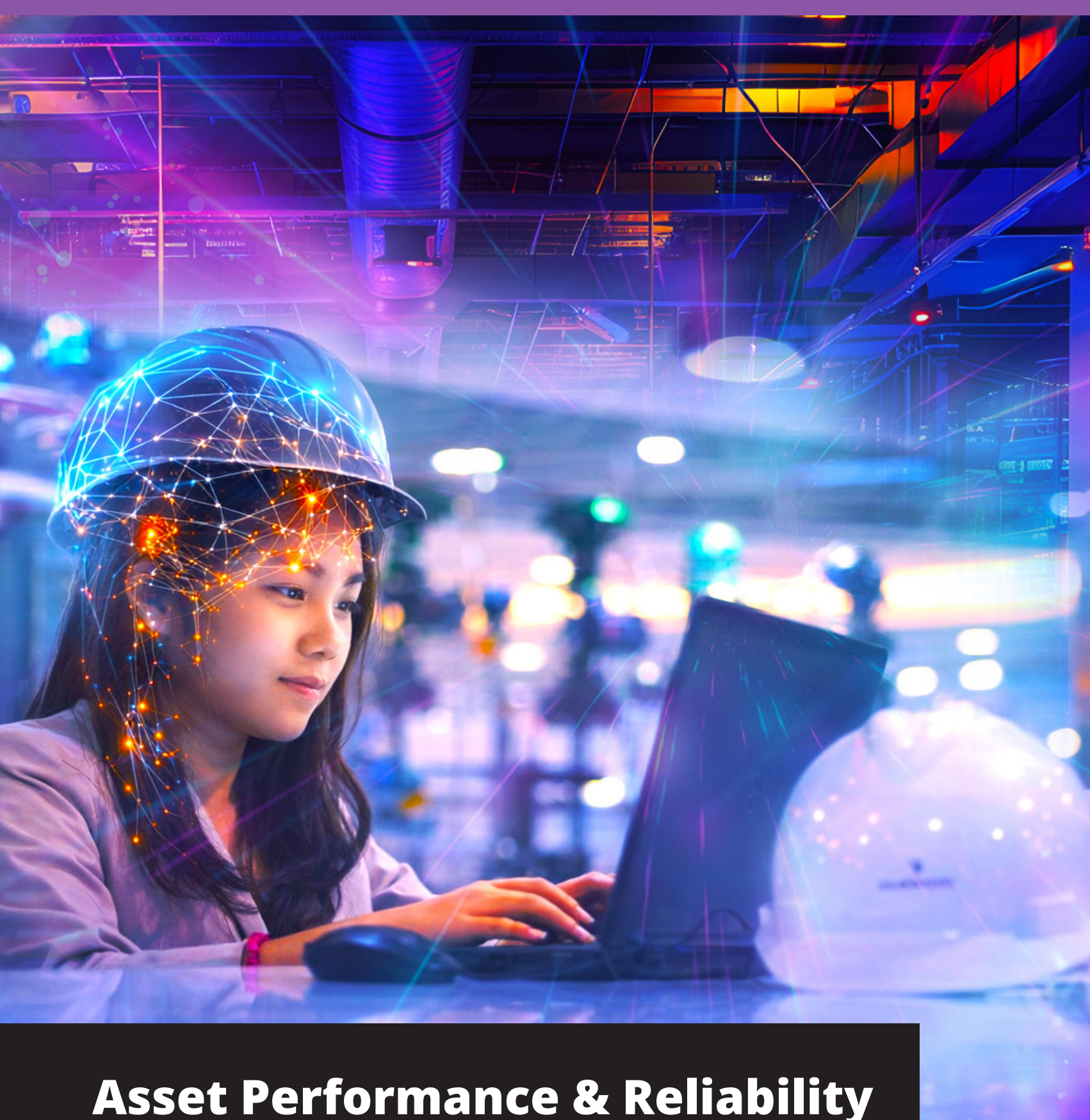




Asset Performance & Reliability

Built for the Entire Data Center Ecosystem

AMS™


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Data Centers Are Facing New Reliability Challenges

As data centers grow larger, more complex, and more dependent on continuous uptime, operators must balance increasing infrastructure demands with limited resources. Minimal on-site staffing, skilled labor shortages, evolving cooling technologies, and rising energy costs are making it more difficult to maintain asset health and operational resilience.

Workforce and Asset Visibility Challenges

Data center teams are being asked to do more with fewer resources.

- › Lean staffing models reduce opportunities for routine inspections and condition assessments
- › Experienced personnel are retiring faster than expertise can be replaced
- › Limited time is available for asset validation, troubleshooting, and follow-up actions
- › Advanced technologies such as liquid cooling, AI workloads, and microgrids require new skill sets
- › Teams need greater visibility into equipment health without adding operational burden

Energy and Cooling Pressures

Power and thermal management have become critical business challenges.

- › Utility constraints can limit facility growth and expansion
- › Increasing energy costs drive pressure to improve efficiency and PUE

- › High-density AI applications place unprecedented demands on cooling infrastructure
- › Water conservation and leak prevention initiatives are becoming more important
- › Sustainability and carbon reduction goals continue to influence operational decisions

Reliability and Operations Risks

Even minor equipment issues can have significant consequences.

- › Unplanned downtime can impact SLAs, revenue, and customer confidence
- › Emerging failures often go undetected until performance is affected
- › Cooling assets must operate reliably under continuously changing loads
- › Maintenance and spare parts costs continue to increase
- › Capacity limitations can reduce available compute resources
- › Cybersecurity concerns extend beyond IT networks to operational technology systems

Critical Infrastructure Assets That Support Data Center Uptime

Reliable operations depend on continuous monitoring and maintenance of the mechanical, electrical, and instrumentation assets that keep cooling, power, and support systems running efficiently.



Thermal Management Systems

The cooling infrastructure responsible for maintaining optimal operating conditions.

- › Chillers and compressors
- › Chilled water, condenser water, and liquid cooling pumps
- › Cooling towers and heat rejection systems CRAC/CRAH units, air handlers, fans, and blowers
- › Heat exchangers and cooling distribution equipment



Backup Power and Generation Assets

Critical systems that ensure power continuity during grid disturbances.

- › Diesel generators
- › Alternators and associated drive systems
- › Gas and steam turbines (where applicable)

Flow Control and Mechanical Systems

Equipment that supports fluid movement, pressure control, and system reliability.

- › Control and isolation valves
- › Pressure regulation systems
- › Flow control equipment
- › Lubrication and auxiliary systems

Intelligent Instrumentation and Connected Devices

The sensors and field devices that provide operational insight.

- › Pressure, temperature, and flow transmitters
- › Level and analytical measurement devices
- › Smart field instrumentation
- › IIoT-enabled sensors and connected assets



Chilled Water Plant

Key Assets:

Flow Meters, Pressure Transmitters, Temperature Transmitters, Control Valves, Valve Actuators

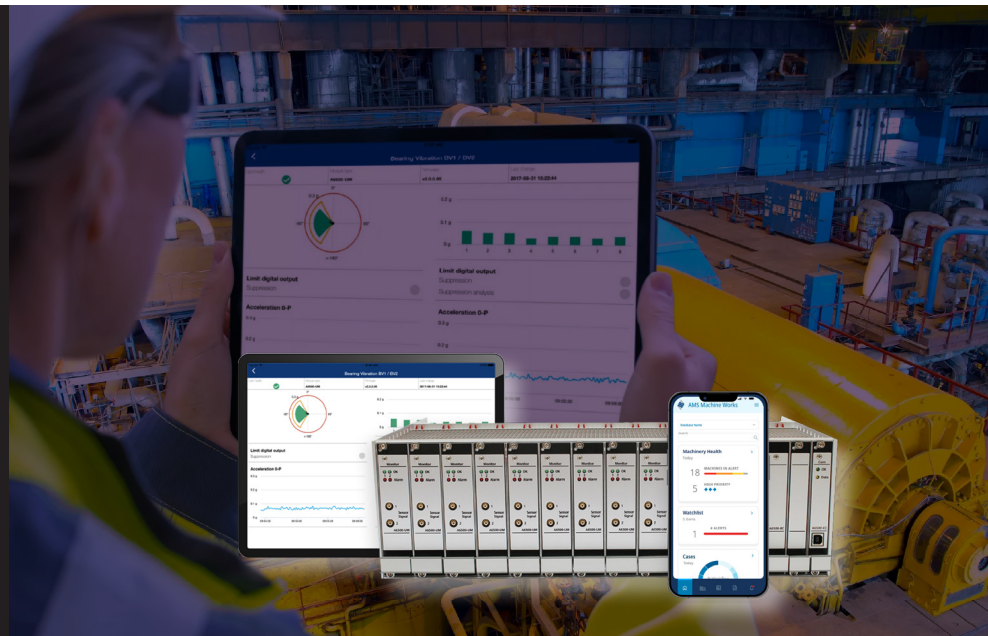
Why It Matters:

The chilled water plant is the foundation of data center cooling, delivering chilled water throughout the facility. Monitoring critical instruments and valves helps identify sensor drift, valve performance issues, and system inefficiencies before cooling performance or uptime is impacted.

Solution(s):

AMS Device Manager (and SNAP-ON applications), AMS Trex Device Communicator

High-Criticality Power Generation Assets



Key Assets:

Turbines, Compressors, Generators, Alternators

Why It Matters:

Backup and on-site power assets are critical to operational continuity. Continuous condition monitoring helps detect imbalance, misalignment, bearing wear, and other emerging faults before they threaten power availability.

Solution(s):

AMS 6500 ATG Online Protection System, AMS Machine Works software



HVAC & Cooling Systems—Mechanical Elements

Key Assets:

Air-Cooled Chillers, Dry Coolers, Cooling Distribution Units (CDUs), Liquid Cooling Pumps, Compressors

Why It Matters:

Cooling infrastructure is the backbone of data center operations. Monitoring motors, pumps, compressors, and associated equipment provides early warning of developing faults, enabling predictive maintenance and improved reliability.

Solution(s):

AMS Wireless Vibration Monitor, AMS Asset Monitor, AMS 2140 Machinery Health Analyzer, AMS Machine Works software

CRAH & CRAC Unit Monitoring—Mechanical Elements, Instruments & Valves



Key Assets:

Supply Fans, Fan Motors, Temperature Transmitters, Pressure Sensors, Control Valves, Valve Actuators

Why It Matters:

CRAH and CRAC units rely on both healthy rotating equipment and accurate instrumentation to maintain thermal stability. Monitoring fan and motor condition alongside temperature, pressure, and valve performance helps detect issues early and sustain reliable cooling.

Solution(s):

Mechanical Elements: AMS Wireless Vibration Monitor, AMS Asset Monitor, AMS 2140 Machinery Health Analyzer, AMS Machine Works software

Instruments & Valves: AMS Device Manager (and SNAP-ON applications), AMS Trex Device Communicator



Cooling Towers & Dry Coolers—Mechanical Elements, Instruments & Valves

Key Assets:

Fans, Motors, Pumps, Temperature Transmitters, Flow Devices, Control Valves

Why It Matters:

Cooling towers and dry coolers are essential for efficient heat rejection. Combined monitoring of machinery health, instrumentation, and valve performance helps detect mechanical wear, vibration issues, sensor drift, and control problems before they impact operations.

Solution(s):

Mechanical Elements: AMS Wireless Vibration Monitor, AMS Asset Monitor, AMS 2140 Machinery Health Analyzer, AMS Machine Works software

Instruments & Valves: AMS Device Manager (and SNAP-ON applications), AMS Trex Device Communicator

Liquid Cooling—Associated Instruments & Valves



Key Assets:

Cooling Distribution Units (CDUs), Liquid Cooling Pumps, Flow Meters, Temperature Sensors

Why It Matters:

As AI workloads drive higher rack densities, liquid cooling becomes increasingly critical. Monitoring flow, temperature, and pump health helps identify developing issues early, protecting performance and reducing downtime risk.

Solution(s):

AMS Device Manager (and SNAP-ON applications), AMS Trex Device Communicator



Pumps— Mechanical Elements, Instruments & Valves

Key Assets:

Chilled Water Pumps, Condenser Water Pumps, Liquid Cooling Pumps, Fire Suppression Pumps, Flow Meters, Pressure Transmitters, Differential Pressure Transmitters, Control Valves, Isolation Valves, Valve Actuators

Why It Matters:

Pumps are critical to data center cooling and life-safety systems. Monitoring pump condition, flow, pressure, instrumentation performance, and valve operation helps identify wear, cavitation, blockage, sensor drift, and control issues before they affect cooling efficiency, hydronic loop performance, fire protection readiness, or facility uptime.

Solution(s):

Mechanical Elements: AMS Wireless Vibration Monitor, AMS Asset Monitor, AMS 2140 Machinery Health Analyzer, AMS Machine Works software

Instruments & Valves: AMS Device Manager (and SNAP-ON applications), AMS Trex Device Communicator



Keep Critical Infrastructure Running

Proactive monitoring helps data centers improve uptime, reduce maintenance costs, and identify potential failures before they impact operations.

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