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Condition Management

Reduce Unscheduled Downtime and Shift From Reactive to Proactive Maintenance

Condition Management software is a unique, intelligent, real-time software solution that collects and analyzes real-time diagnostics from all plant production assets. Condition Management software drives appropriate actions to improve overall asset performance and manage the corresponding operations, engineering and maintenance activities.

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Summary

Product at a Glance

- Connects the control, safety and maintenance environments of a plant

- Integrates to Schneider Electric Enterprise Asset Management solution as well as solutions such as IBM Maximo® and SAP/PM

- Assists in managing the complexity and risks in today's manufacturing environments

- Leverages large amounts of condition information available from devices, systems and process readings and alarms that come from all sources in the plant

Condition Management software provides early failure detection to increase asset availability, reduce costs and avoid unnecessary maintenance and downtime.

Deal with Complexity in Your Operations

Condition Management software deals with the complexity of your operations by supporting many devices and assets from different suppliers. The solution also helps organizations move from a reactive to a proactive maintenance environment by predicting and correcting issues before they affect the plant. Condition Management software is an integral part of the Foxboro® EVO™ Control System, providing one of the critical links between operations and business systems — a fundamental element in delivering on the promise of Asset Performance Management.

In today's manufacturing environment, companies are constantly striving to meet growing production demands with current equipment and facilities while continuing to reduce costs in order to deliver the maximum return on assets (ROA). To accomplish this, organizations must find the optimum balance between availability and utilization, while fully addressing all of the risks (regulatory, environmental, health and safety) inherent to operating in today's complex environments.

To effectively manage within this requirement, there are four major challenges:

- Moving to a proactive and predictive model for operations and maintenance
- Dealing with complexity
- Knowledge management and the complex issues of an aging workforce and staff turnover
- Improving communication and coordination between operations, engineering, maintenance and the other business functions to ensure that all decisions are aligned to deliver the maximum return

Delivering this balanced and integrated view is the focus of the Asset Performance Management (APM) solution, where Condition Management software is one of the key enabling products that deliver directly to these challenges.

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Real-time Condition Management software

Condition Management software builds upon its award-winning technology to provide the collection of real-time condition data from an even broader range of plant data sources, and to interoperate with the full range of Schneider Electric and third-party applications supported through the application environment.

Condition Management software delivers a wide range of benefits:

- Avoids unnecessary maintenance by moving to both Condition Based Maintenance (CBM) and a Reliability Centered model for Operations and Maintenance (RCO/RCM). Over 25% of maintenance done today is unnecessary and can introduce additional failure risks.
- Provides early failure detection to increase asset availability, reduce costs and avoid unnecessary downtime. Unplanned outages represent an average of 5% in lost production, where the impact is often much more significant.
- Supports continuous improvement through an integrated workflow management capability, ensuring accurate and consistent response to developing conditions.
- Provides operations, engineering and maintenance personnel with easy access to current asset information for better decision making.
- Collects and analyzes data on asset conditions to help optimize asset contribution over its full life cycle.
- Provides integration with the control, safety and maintenance environments.
- Leverages the latest Microsoft.NET technology to provide easy-to-use asset intelligence and business intelligence information.

Optimize Operations and Maintenance

Operations and maintenance personnel routinely make asset-related decisions which directly affect the company's production and business goals. Stockholder equity, quality control, lean manufacturing and customer satisfaction are all impacted by these decisions. That is why arming your operations and maintenance employees with current asset information is so important. Condition Management software provides the critical link to your real-time plant floor data, making relevant information available to the people who need it in order to keep your organization profitable.

Connect, Collect, Analyze, Act

Condition Management software employs a "Connect, Collect, Analyze, Act" architecture to gather, process and disseminate information that is reviewed in its complete context (versus isolated pieces of data) and acted upon across the organization, bringing together operations, maintenance and engineering to solve any issues efficiently and effectively. Figure 1 provides a visual representation of the Collect, Analyze, Act architecture.

Collect

Starting at the "Collect" level, Condition Management software facilitates the consistent, timely collection of a wide range of equipment- and process-related data that is of central importance to understanding asset status and condition. The data collected can be real-time, near-time or offline/ historical. Data can be captured from a wide range of sources, including plant historians, direct feeds from intelligent instrumentation and basic monitoring offerings such as fluid and vibration analysis as well as more complex condition sources such as model-based Equipment Health, Advanced Process Control and Loop Tuning solutions. Condition Management software employs a standards based approach, allowing you to collect data from virtually any source.

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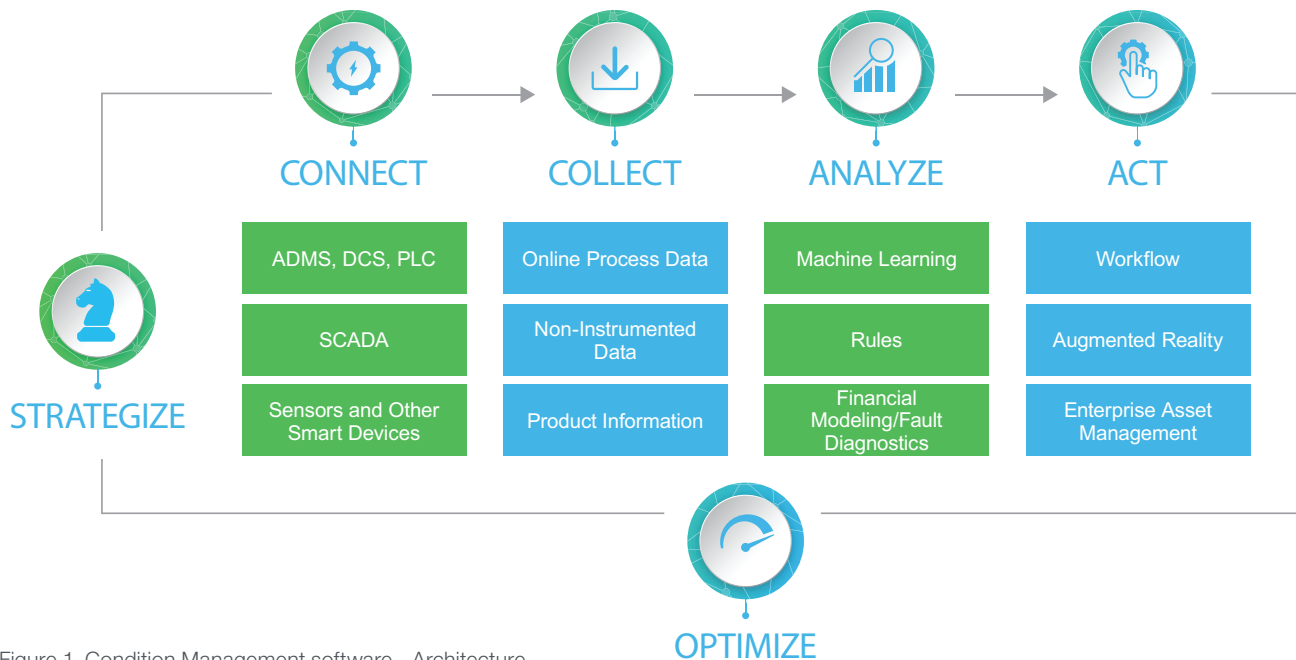Reduce Unscheduled Downtime and Shift From Reactive to Proactive Maintenance

Figure 1. Condition Management software - Architecture

For sustained and continuous performance improvement, it is critical to capture performance trends, issues, actions and results on an ongoing basis to facilitate the required analysis. Condition Management software provides a comprehensive and powerful asset registry where this information is captured and stored and can then be viewed by any of the operational groups. The registry also allows it to capture and disseminate key asset reliability information in support of CBM and RCO/ RCM initiatives.

Analyze

At the heart of Condition Management software is a Multi-Variable Expert System. This rules-based engine provides the context and knowledge management from single variable through full active model support. The analysis can be based on the rules and conditions provided with Condition Management software and can be extended with customer-defined algorithms or models to take advantage of the condition information and tools already available in your organization. Rule sets are created through a powerful set of wizards that guide you through the analysis.

Act

Once the challenge has been properly identified and analyzed, the "Act" element of the architecture leverages a comprehensive workflow engine. This element provides automated communication across all key groups and individuals and is provided through a variety of mediums including e-mail and pager notifications. The actions can include simple warnings and notifications, automated work requests or complex multi-step workflows involving multiple departments in the organization. The solution also fully supports escalations, tracking and audit trails reporting. This is a critical element of any organization's continuous improvement and quality initiatives.

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Integration with Critical Plant Systems

Condition Management software can tie the condition information (and required actions) with any of the critical plant systems and business solutions. In the plant environment, this includes integration with the Control/PLC/SCADA and Safety solutions, where access to key information is provided through the operator console. Operator visualization is seamless. Data is presented through the operator interface, where key information such as asset performance trends, maintenance history and operational specifications are presented to the operator directly on their screen.

The operator can also initiate and track inspection or service work, and have a direct view of relevant operations and maintenance events as they are captured and reported by Condition Management software. This technology is easily installed with most HMI applications, including Foxboro FoxView® and Wonderware® InTouch®. Condition Management software also integrates critical business solutions including your EAM/CMMS, ERP and Business Intelligence systems. For example, the "Act" component can drive a work request/work order in your EAM/CMMS solution and/or update a KPI/ Metric in your Business Intelligence solution.

Configuration

The patented Condition Management software Configuration tool provides the linking mechanism between the Asset Registry and a wide range of plant information sources. It empowers the process engineer to link and configure the monitoring parameters for equipment and measurement points, define the analysis to be applied, and define the required actions/workflow resulting from the analysis.

The Configurator lists, on one screen, the plant floor information points and the plant's assets, as seen in the asset registry. It offers an intuitive drag and drop wizard-based environment, which facilitates the set up of simple or complex conditions across single or multiple assets and measurement points.

Leveraging Advanced Technology

Condition Management software leverages the latest Microsoft.NET technology with intuitive graphics, providing easy-to-use asset intelligence information. Data is gathered 24 hours a day from plant floor assets, data historians and other real-time, near-time and offline data sources. Web Services technology integrates the condition management software capabilities with the enterprise solutions (EAM, ERP, MES), communicating work requests and event information between these solutions.

The Open Web Services approach is also used for the integration of the Asset Registry and workflow engine to the other plant solutions (such as Control/Safety) from Schneider Electric and other providers, as well as links to other EAM/CMMS and ERP solutions.

Extending the Solution

Condition Management software is a key element of a overall Asset Performance Management strategy, providing the central management and communication role. This comprehensive architecture allows your organization to start at a simple level looking simply at key information on critical assets, while providing the path and infrastructure for a comprehensive Asset Performance Management solution. The open architecture allows you to get additional value from the solutions you already have in place, and then extend the value with solutions from Schneider Electric and our strategic partners.

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Implementation Know-How: The Key To Success

As with any technology solution, success depends on effective implementation. Condition Management software has the depth of knowledge and breadth of plant experience necessary to ensure that the condition management solution you select drives the maximum benefit and ROA at the operational management and business management levels. Our approach begins with a structured assessment that allows us to jointly understand the challenges, the opportunities, the potential ROI and the most appropriate strategy to achieve the maximum value in a timely and cost-effective manner.that allows us to jointly understand the challenges, the opportunities, the potential ROI and the most appropriate strategy to achieve the maximum value in a timely and cost-effective manner.

Learn more about reduces downtime and improving maintenance operations efficiency at software.schneider-electric.com/solutions/asset-management/

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