PREDICTIVE MAINTENANCE

Your problem: Manufacturers rightly focus on improving profit margins and growing revenue. Attracting new customers, selling more products and lean practices can help. However, as equipment sophistication increases, so does the ability to monitor equipment. Manufacturers can now develop revenue from maintenance services. Preventive maintenance has its advantages but to really drive uptime and maintain service levels, predictive maintenance is needed.

Our solution: Software AG brings the Internet of Things (IoT), streaming analytics and process analytics into an integrated predictive maintenance solution for manufacturers. The IoT provides access to usage and status data directly from equipment. Streaming analytics combines with predictive analytics to predict machine failure. Process analytics, helps monitor and schedule field service technicians. The end result: reduced technician costs and improved service levels—enabling you to deliver more competitive service contracts at a lower cost.

Problem details

Seamless IoT and machine sensor data integration is critical as well as a low-latency messaging backbone for scalable, fast and reliable transport. Delivering potentially large quantities of data at sub-second speeds is key to downstream activities. webMethods Integration, featuring Universal Messaging, addresses this need with an enterprise-grade service bus for connectivity, messaging, transformation and security of machine data for advanced real-time analytics.

A scalable, flexible platform for streaming analytics is also essential to correlate data from multiple sources and support fast, effective decision-making. The platform must enrich streaming data with a deep understanding of historical and predicted equipment availability and effectiveness to pinpoint when it’s time to repair or replace. Apama, Software AG’s market-leading platform for big data streaming analytics, does this by monitoring and correlating sensor data in real time. With the ability to manage 35 million events per second, Apama identifies unplanned equipment degradation, performance and usage for large fleets of deployed equipment as well as automatically sends data to a prediction engine. Apama alerts operators to maintenance requirements via real-time dashboards and can even instantiate maintenance calls automatically if needed. Apama stands alone as the only platform that can automatically manage alerts based upon criteria, such as time, so it can re-prioritize alerts as they become more or less critical to exception managers.

Why Software AG?

Staying ahead of customers’ maintenance needs requires agility and insight together with:

- Historical maintenance profiles and real-time sensor data
- Condition monitoring to drive prediction model for higher levels of equipment availability
- Accurate prediction of runtime failures and preventative measures
- Optimization of planned downtime but addressing multiple predicted failures at once
- Identification of problematics production points and their impact on uptime
- Monitoring field service technician tasks and performance in real time

Capitalize on a new revenue stream while ensuring higher service quality.
And of course, monitoring the effectiveness of business process is key to monitoring service levels. webMethods Optimize is the real-time process analytics engine to measure and alert on KPIs, such as volume of events and response times, those typical for service providers to manage. The response to identified exceptions and maintenance opportunities is critical to unlocking the value of predictive maintenance.

That’s why intelligent business process management is needed for a wide range of activities, such as dispatching technician, re-routing a shipment and placing an emergency order for consumables. Through webMethods Business Process Management (BPM), the solution can dynamically manage exceptions, interact with service providers in real-time and deliver contextual content to everyone in the service chain.

webMethods is fully integrated with Apama to combine streaming data, such as weather, equipment usage and traffic data, with process data, such as process step activity and inventory availability. webMethods binds the solution to the rest of the enterprise so other maintenance resources can mobilize at unprecedented speed.

**Key benefits**

Software AG’s solution brings equipment manufacturers closer than ever to their customers and turns a costly operational expense into a source of competitive advantage. Benefits include:

- More stringent SLAs and customized maintenance services than competitors
- Improved operating margins due to decreased technician and maintenance costs
- Increased real-time visibility into field service technician tasks and performance
- Improved remedial planning when maintenance requests cannot be completed during planned downtime periods
- Insights into preventative measures—for example, using predictive maintenance as the basis for continuous improvement in preventative maintenance

**Critical aspects of a predictive maintenance solution**

1. Obtaining diverse data types from multiple sources at speed to drive real-time analysis
2. Flexible use of operating data in the context of process capacities and customer requirements
3. Combined streaming and process analytics to understand changes in capacity, usage trends for both customers and service providers