The maintenance paradigm is evolving from reactive maintenance to preventive and predictive maintenance.

Modern machines are equipped with smart sensors and on-board computers which collect and transmit real-time information on critical machine parameters like temperature, pressure, load and number of usage cycles. These sensors and embedded computers continuously monitor wear and tear on shop floor equipment and machines in the field, like automobiles, turbines, ships and aircraft.

Real-time analysis of this information can improve safety and minimize production downtime by diagnosing or predicting performance deterioration, efficiency loss and component failure, but the real challenge is to efficiently process this large volume of information in real time and leverage the analysis to drive decision making.

Atos Syntel In Action

Atos Syntel is currently working with a large truck and commercial vehicle manufacturer to enable real-time monitoring of sensors embedded in more than 20,000 of their vehicles in the field — to remotely assess the wear and tear on engine parts and use analytics to plan maintenance operations before a critical failure takes place.

Atos Syntel’s Connect One for Manufacturing combines a Big Data platform to receive streaming data from vehicle sensors and on-board computers, an analytical engine to generate insights in real time, and a messaging publisher for action notifications.

The vehicle’s sensors and on-board computers generate a stream of data, including fault codes, temperature and pressure readings, GPS coordinates, part numbers and VIN numbers. These data streams arrive in a variety of different formats and protocols, which are aggregated and processed by Connect One’s analytical engine.

Real-time analytics are performed on the stream of incoming data, and business rules classify the fault codes into categories such as “Service Now,” “Service Soon,” or “Service Info.” Depending on predefined parameters for the severity of the event, a business action, alarm or notification can be sent to the vehicle driver or fleet owner by email or mobile device.

Built on Microsoft Azure, Connect One for Manufacturing is a highly scalable solution that can handle a huge volume of data input that would overwhelm traditional web servers. Initially built to handle 1,000 incoming messages per second, the system can automatically ramp itself to 32,000 messages per second, and the cloud-based Azure architecture gives it virtually unlimited scalability as the client deploys the system across its vehicle base.
Who Benefits and How?

The vehicle manufacturer is able to monitor and detect faults earlier than ever before — while vehicles are still on the road — giving them the ability to take preventive action, reduce warranty costs and provide improved customer service. The customer, in turn, experiences less downtime, lower maintenance costs and better safety.

In addition, the massive amount of failure analytics data generated can be integrated with the manufacturer’s PLM system to perform a virtual root cause analysis make design changes on future models, giving them a powerful tool to improve product quality.

OTHER POTENTIAL APPLICATIONS

- Equipment manufacturers can monitor machine performance data to identify recurring product defects and trigger product recalls.
- Factory managers can analyze machine wear and failure data to predict breakdowns before they occur, and take proactive maintenance action to avoid catastrophic failures and idle production lines.

About Us Connect One

Atos Syntel is a leading global provider of integrated information technology and knowledge process services. Atos Syntel helps global enterprises evolve the core by leveraging automation, scaled agile and cloud platforms to build efficient application development and management, testing and infrastructure solutions. Our digital services enable companies to engage customers, discover new insights through analytics, and create a more connected enterprise through the internet of things. Our “Customer for Life” philosophy builds collaborative partnerships and creates long-term client value by investing in IP, solutions and industry-focused delivery teams with deep domain knowledge.

To learn more, visit us at www.atos-syntel.net