

## SOLUTION BRIEF

Intel® IoT  
Predictive Maintenance



# Predictive Maintenance Drives Smarter Fleet Management

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**Predixion Insight\* and Intel® technology deliver advanced analytics to keep connected fleets running smoothly**

Predixion Insight\* can run advanced predictive analytics in the cloud—or at the edge on Intel®-based IoT gateways—dramatically reducing data transmission costs.

### **More Control, Lower Costs**

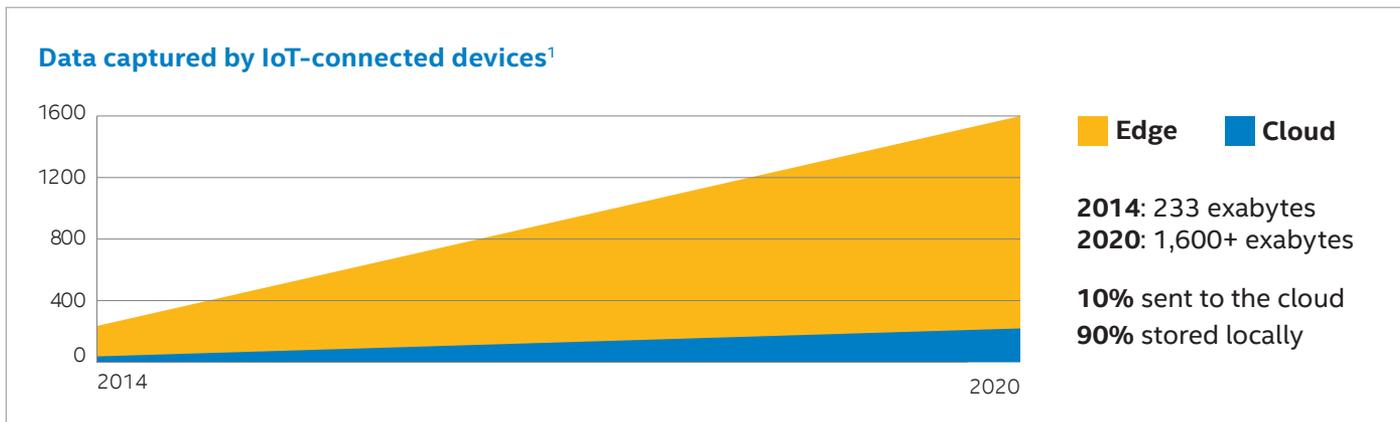
Fleet managers are turning to predictive analytics to stay on top of maintenance and mitigate part failures before they happen. However, managing the large amount of new data generated by vehicle sensors is challenging. Predixion Insight\* can analyze data either in the cloud or edge devices, reducing the volume of information that needs to be transmitted.

Sensors on fleet vehicles collect data about tire pressure, hydraulics, and other parts. The data is sent to Intel®-based IoT gateways on the vehicle, which then process data at the edge for immediate alerts, or send it to the cloud for longer-term analysis. The integrated Wind River Helix\* Device Cloud delivers centralized remote management with a cloud-based platform. By deploying this end-to-end solution, fleet managers can reduce the costs associated with maintenance, while gaining control of scheduling and inventory.

### **Avoiding Vehicle Downtime**

Any organization that relies on vehicles in its daily operations understands how critical it is to keep them up and running. Whether it's a delivery company, a school district, a telecommunications provider, or a municipality, productivity can come to a screeching halt if a vehicle so much as blows out a tire. There are also smaller, but important, losses that can result from deferred maintenance—for example, reduced gas mileage due to low tire pressure.

By outfitting vehicles with sensors, maintenance crews can collect useful information that helps them predict part failures on a large fleet. However, analyzing and managing this massive volume of new data can be overwhelming. Transmitting every byte of data to the cloud is a costly and cumbersome prospect. Instead, organizations are moving toward ways to run analytics at the edge, on the device and gateway level, as part of an end-to-end fleet management solution.



As the volume of data captured by connected devices swells, organizations look for ways to process data at the edge.



### Predictive Fleet Maintenance

In the new data-driven economy, predictive analytics can help businesses compete and government organizations lower costs. Take, for example, a waste management truck. Data can be collected from a variety of sources on the vehicle itself:

- 1 Rear, front, and hopper cameras
- 2 Tire pressure monitor
- 3 Body scale
- 4 Lift scale
- 5 Hydraulics
- 6 Engine
- 7 RFID reader

Data from these sources can be analyzed in real time on the industrial gateway in the truck to alert drivers of imminent failures, or pushed via the gateway to the cloud, for analysis by corporate headquarters and operations. These teams can in turn schedule maintenance tasks and pull the vehicle out of service without impacting scheduled deliveries.

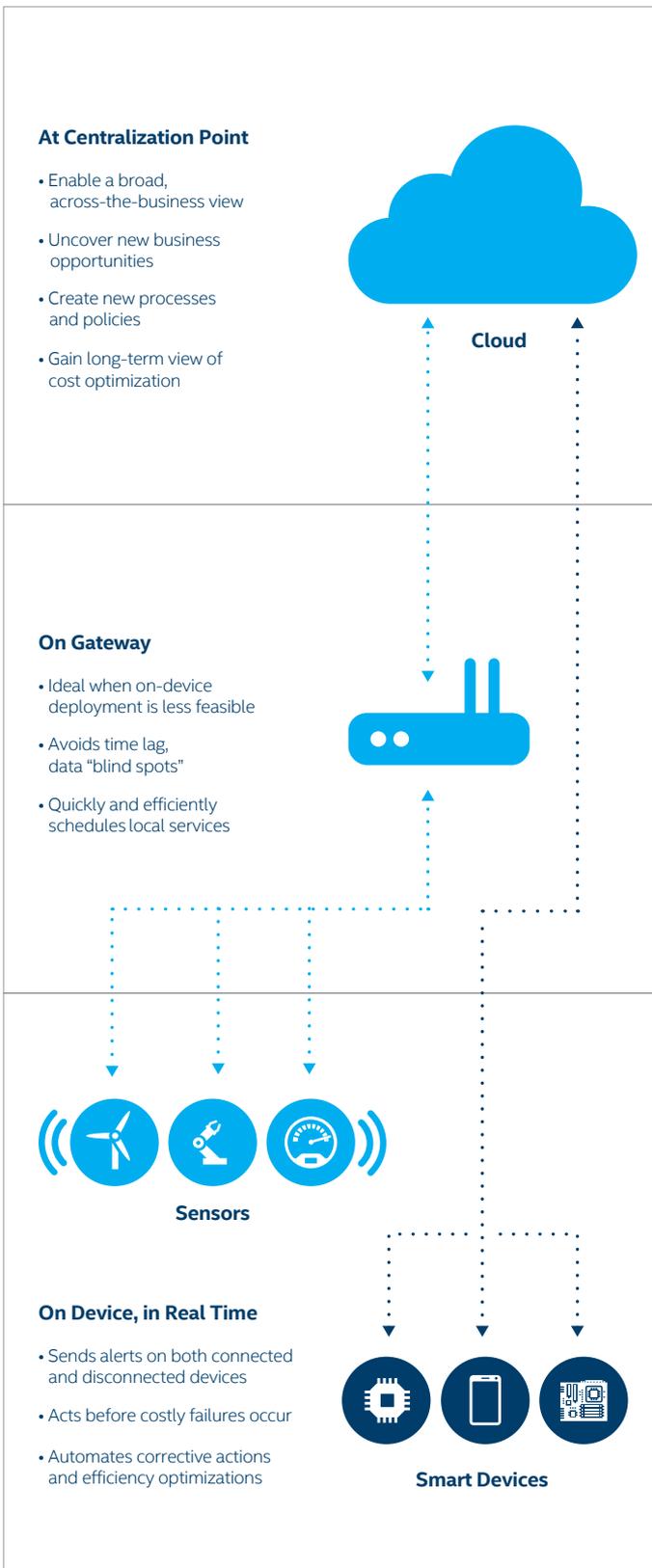
### Advanced Analytics

Predixion Insight is advanced analytics software that can run on devices, on gateways, and in the cloud. It uses real-time data to tell fleet managers which parts on a vehicle are likely to fail, possibly even weeks before the failure is likely to happen.

By keeping delivery trucks, school and city buses, service cars, and other vehicles running smoothly, predictive maintenance can reduce downtime and its related costs, such as nondelivery charges. Predixion Insight makes it possible for fleet managers to lower the overall costs of maintenance by optimizing scheduling, deploying field technicians more efficiently, and ensuring the right parts are on hand with automated ordering and inventory management. In the long term, predictive maintenance can extend the vehicle life span and help managers ensure they have an adequate fleet capacity.



Figure 2: Predixion Insight\* pushes alerts into an end-to-end fleet management solution.



**Figure 3:** Predixion Insight\* delivers advanced analytics that can run on device, on gateway, and in the cloud.

Predixion Insight is easy to embed in a variety of environments, including field, web, and mobile apps. It processes and analyzes data in real time to provide immediate predictions as to pending failures. The software can then push alerts into end-to-end fleet management solutions.

### Secure Processing at the Edge

Predixion Insight is cloud-based, but not cloud-dependent. The software integrates with the Intel-based IoT gateway platform and is centrally managed by Wind River Helix Device Cloud for a solution that can process data at the edge or in the cloud, all while delivering industry-leading security and reliability.

### Predixion Insight

Predixion Insight analyzes data in real time using a predictive model that looks for failure patterns. Because the predictive model can be deployed on the Intel-based IoT gateway platform, the gateway on the vehicle can communicate with the driver's tablet, alerting the driver to possible issues and recommending solutions. Predixion Insight can also be integrated into third-party systems, dashboards, and workflows.

### Intel-based IoT Gateways

Telematics sensors on fleet vehicles collect streaming data and send it to Intel-based IoT gateways. The gateways can then either transmit data to the cloud or process it at the edge, reducing the volume of data that needs to be managed.

### Wind River Helix Device Cloud

With this ready-made, cloud-based platform, devices can securely connect to an organization's network infrastructure. The Wind River Helix Device Cloud offers easy, central management of the end-to-end predictive analytics solution.

## Insights Reduce Costs

When deployed together, Predixion Insight and Intel-based IoT gateways with Wind River Helix Device Cloud deliver an industry-leading predictive maintenance solution. By providing a real-time dashboard that alerts users to impending failures and recommends actions, Predixion Insight can help fleet managers reduce downtime and slash maintenance costs. And with processing at the edge, Intel-based IoT gateways can speed actionable insights while greatly reducing data transmission to the cloud.

For more information on Intel-based IoT gateways, visit [intel.com/iotgateways](http://intel.com/iotgateways).

To learn more about the Intel IoT Gateway platform, visit [intel.com/iotgateways](http://intel.com/iotgateways).

To learn more about Predixion Software, contact [info@predixionsoftware.com](mailto:info@predixionsoftware.com) or visit [predixionsoftware.com](http://predixionsoftware.com).

## INTEL®-BASED IOT GATEWAYS

Along with providing essential connectivity, Intel-based IoT gateways act as data routers and filters between data-generating sources—such as parts of the vehicle—and the cloud. The technology enhances data security, accelerates actionable insight and, more importantly, saves money. With an Intel-based IoT gateway platform, organizations can securely transfer only data that has operational relevance to the cloud, lowering costs for data transmission and cloud storage.



1. ABI Research, "Edge Analytics in IoT." 2Q 2015, [www.abiresearch.com/press/data-captured-by-iot-connections-to-top-16-zettaby/](http://www.abiresearch.com/press/data-captured-by-iot-connections-to-top-16-zettaby/).

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