WIND RIVER

WIND RIVER EDGE MANAGEMENT SYSTEM

From real-time light rail train tracking to building energy use management to smart meters transmitting utility usage data, connected computing solutions are rolling out worldwide in many different markets, including industrial automation, networking, healthcare, energy generation, and transportation, among others. This momentum toward the Internet of Things (IoT) offers the potential to make data more efficient, cut operational costs, reduce impact on the environment, improve customer satisfaction, and create new revenue streams.

As more and more connected devices are deployed, the ability to get data off the edge and to a place where decisions can be made and action taken becomes vital. Wind River® Edge Management System makes this possible. It connects machines and devices, managing and collecting machine-generated data, and allowing customers to easily aggregate data off the edge to offer business intelligence that can be used to protect investments, generate new revenue streams, maximize existing infrastructure, and improve business processes.

Edge Management System is a cloud-based IoT platform that enables IoT devices to securely connect to a centralized console, providing device management and solution extensibility. Edge Management System is a pre-integrated technology stack spanning from the device to the cloud that has been validated to work out of the box with complementary components; it is integrated and validated with the Intel® IoT Gateway. The Edge Management System agent enables cloud connectivity to facilitate capabilities such as data capture, rules-based data analysis and response, configuration, file transfer, and more. Leveraging the Edge Management System representational state transfer–conforming (RESTful) application programming interfaces (APIs), customers can quickly build vertical-specific IoT solutions and integrate disparate enterprise IT systems. The cloud-based middleware runs from the embedded device up through the cloud to reduce time-to-market and total cost of ownership.

In addition to the integration with the Intel IoT Gateway, the Edge Management System agent has been integrated with the Wind River portfolio of operating systems, including VxWorks® and Wind River Linux, to support a wide variety of hardware profiles. This combination offers companies the key building block to enable both the connectivity of legacy industrial devices and the next generation of IoT infrastructure.

INNOVATORS START HERE.

KEY FEATURES

- **Device management:** Remote device management capabilities reduce service costs by enabling remote diagnostics and maintenance in addition to facilitating the creation of intelligent, rule-based systems.
- **Security:** Secure software and firmware updates integrated with on-device security features such as white listing and integrity monitoring protect data at rest and data in motion.
- **Telemetry and analytics**: Remote data capture is fundamental to IoT functionality. Sensor and system health data is the source of intelligence in an IoT deployment, and is used to reduce operational expenses and enable innovative business models, in conjunction with intelligent, rule-based systems.

BENEFITS

Edge Management System is a horizontal platform that can connect devices in a broad variety of markets, with capabilities to connect things, manage devices, collect data, change outcomes, and build custom applications.

Connect

- Middleware software and solutions securely connect devices and machines to the cloud and efficiently collect, process, transform, and transfer machine and sensor data to a remote server.
- Included agents and protocols communicate intelligently with connected devices and/or machines, reducing configuration and support costs.

Secure

- SSL encryption conceals data from unauthorized parties.
- State-of-the-art equipment, technology investments, and operational expertise ensure a secure and scalable on-demand infrastructure.
- An end-to-end customizable security strategy covers all levels, including network, application, user, and data security.
- Maintenance of compatibility with security packages ensures the safe deployment of a large scale of IoT devices while leveraging rich IoT capabilities.

Manage

- Data and message-processing capabilities and a rules engine enable action on the data, data normalization, and efficient storage of historical machine or sensor data and files.
- Device management capabilities enable you to configure, monitor, and manage communication devices.
- Hardware systems and administration tools required to install, configure, and operationally manage IoT solutions are included. These often include system-monitoring and performance-tuning tools, and are often provided as a cloud service.

Build

- Pre-integrated application development support integrates machine data and message-driven readings, locations, and alarms into systems and applications.
- Application extensibility provides for agile handling of unique business requirements in rapidly changing environments.
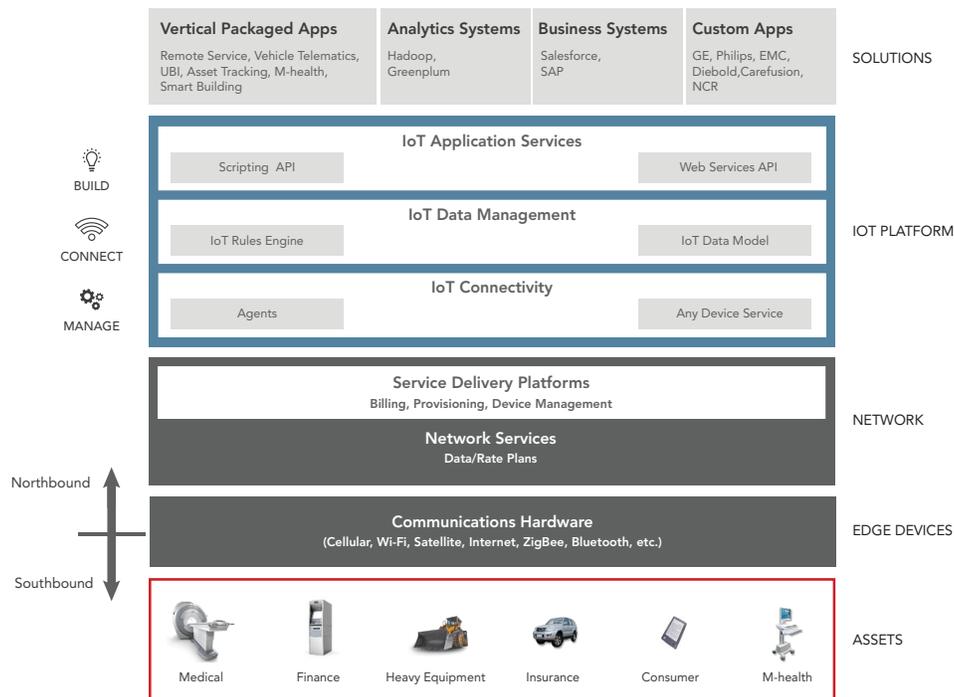
WIND RIVER

Figure 1: Wind River Edge Management System

USE CASES

Predictive Maintenance

In addition to performing automated tasks as directed, connected intelligent devices feed telemetry, sensor, and performance data into central control systems, making predictive maintenance possible. By managing and analyzing this large amount of data, machine-related decisions can be made on the condition of equipment in the field through gateways and alert operators when a problem needs to be addressed, eliminating the time and labor costs associated with scheduled inspections and preventive maintenance.

Market Applications

Energy

Wind turbines each have hundreds of sensors, so maintenance tasks are very expensive. With Edge Management System, energy users could measure the system health of the wind turbine with sensor readings to determine when parts need to be replaced in order to prevent downtime. Predictive maintenance allows users to predict when breakage is imminent and proactively repair equipment efficiently by better managing repair teams instead of reactively making repairs. With edge intelligence, turbine sensors can detect wind shifts and operate more efficiently. Upwind turbines can detect changes in wind direction and then relay that information to downwind turbines, which can be rotated in anticipation of those wind shifts.

WIND RIVER

Transportation

Transportation systems rely on data and automated decisions to ensure safe and predictable service, as well as economic viability for operators. With Edge Management System, operators of buses, heavy fleet vehicles, and more can measure driving behaviors and driver performance, monitor vehicle usage and fuel efficiency, and realize new efficiencies in routing, maintenance, and staffing.

WIND RIVER PROFESSIONAL SERVICES

Wind River Professional Services offers a variety of services to meet your IoT needs. Our offerings span across the entire project lifecycle, including architecture, design, development, porting, integration, and maintenance services; and we leverage our state-of-the-art platform simulation and test tools to accelerate deliverables and provide valuable reporting and documentation. Our global professional services organization provides flexible engagement options for consulting, training, and support that will meet your project resourcing requirements and budget. For more information, visit www.windriver.com/services/.

WIND RIVER EDUCATION SERVICES

Wind River Education Services offers flexible training options to meet your business and learning needs, including public and private courses, custom courses, and on-demand learning. For more information, visit www.windriver.com/education/.

HOW TO PURCHASE

Visit www.windriver.com/company/contact/index.html to find your local Wind River sales contact, or call 800-545-9463 or write to sales@windriver.com.

WIND RIVER