

## Wind River Field Diagnostics

Until recently, Device Software Optimization (DSO) targeted the metrics of time, cost, and quality during the average 18-month device development cycle. However, the durability of today's hardware radically extends the deployed product life cycle. A device sold today may well see 10 years of service and, to remain competitive, require many software patches and updates over time. The manufacturer's profit margin now depends on maintaining product value and containing the support cost of a device in the field over an extended period—but developing diagnostics and management capabilities in-house is technically demanding and prohibitively expensive for all but the largest companies.

### Initiate and expand remote services

Wind River Field Diagnostics is a scalable, secure remote diagnostics system that enables device manufacturers to observe, diagnose, and resolve problems on remotely deployed devices. An enterprise-class Web server application that facilitates server-to-server and server-to-device communication, Field Diagnostics offers a range of configurations that provide OEMs with these capabilities:

- Aggregation and management of time-of-failure fault information from remote devices
- Immediate feedback from failed devices
- Enhanced ability to characterize device performance
- Secure sharing of archived fault information among field, test, and support teams
- The ability to remotely update application code, control device behavior, and modify device attributes

### Sensorpoints extend the expertise of development teams

Wind River's unique Sensorpoint technology enables engineers to become key participants in their products' test and support procedures. A Sensorpoint is software used to instrument "live" applications dynamically without modifying the application source code, rebuilding the application, reflashing boards, or rebooting the device. The Field Diagnostics infrastructure enables OEMs to deploy devices with developers' knowledge designed in, in the form of Sensorpoint libraries that can be enabled as needed to securely interact with the fielded device.

Using Sensorpoints, support teams can collect detailed performance and time-of-failure data from deployed devices, permitting fact-based analysis and eliminating the need to replicate failure conditions in the lab. From the Device Management Server, the development team can push fixes back to the device. When Sensorpoints are not in use, they can be disabled to minimize impact on system footprint.

### Server applications power data collection and knowledge share

Two enterprise-class JBoss server applications—the Device Management Server and Site Managers—collect and archive logs from devices under test, store Sensorpoint libraries, and, as data accumulates, become an increasingly valuable knowledge asset. The ability to access and analyze extensive performance metrics lets companies establish software benchmarks and make intelligent, fact-based decisions about upgrades and new product investments.

### Reduce support costs and optimize SLAs

The impact of these capabilities on the cost and quality of customer support is enormous. With reliable remote device monitoring and data collection, support engineers can quickly diagnose and correct faults, often without an on-site visit. The ability to dynamically instrument deployed devices and collect real-time data reduces time and money spent trying to replicate field conditions in the lab, shortening time-to-resolution. The ability to anticipate and correct issues before they manifest as device failure dramatically increases uptime and customer satisfaction.

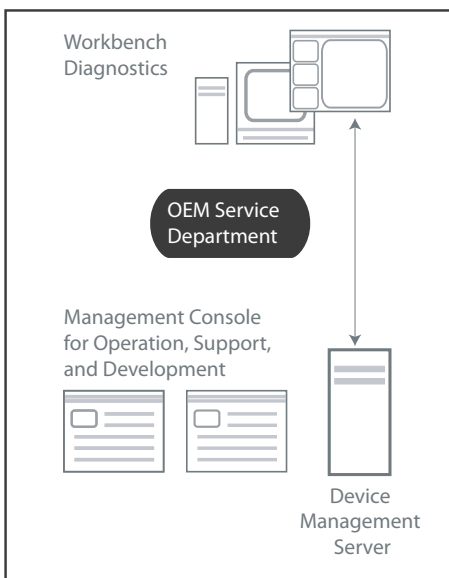
### Bridge the gap between development teams and field engineers

Designed to interface seamlessly with Wind River Workbench, our Eclipse-based development suite, and to leverage the device management capabilities built into Wind River run-times using Workbench Diagnostics, Field Diagnostics advances the state of services delivery. When development and support engineers share a common toolset and can freely exchange information and capture knowledge, device quality benefits. Extending a customizable, standards-based, commercial-grade platform across the entire device software life cycle raises productivity, controls cost, and improves profit margins. It mitigates the risk involved in the remote software upgrades that will keep a product desirable over time.

## Scalable, distributed server architecture improves communication

Wind River Field Diagnostics exploits a highly developed Web services architecture, security protocols, and standard APIs to provide fast, stable communication between devices, sites, the Device Management Server, and the in-house development team.

- Local and centralized data management: Web services architecture; J2EE, RDBMS, XML/SOAP
- Device management: Device ID, model, customer
- Role-based access control
- Secure data exchange: driven by end-customer; firewall-friendly
- Sensor point library management: repository; functional groups; distribution, enablement, tracking
- Web-based management console
- Integration with Workbench Diagnostics toolset



A typical implementation of Field Diagnostics

## Commercial-grade security protects your investment

Field Diagnostics leverages industry-standard technologies to provide commercial-grade data security and device availability at all points in the distributed remote device management system:

- Authorization, authentication, and data encryption through SSL
- Password protected user accounts with variable privileges
- Point-to-point secure sessions through SSL
- Firewall-friendly

## Why Field Diagnostics?

- Improve customer experience
  - Reduce total cost of ownership and data-gathering burden
  - Accelerate mean-time-to-repair
  - Minimize downtime
  - Improve system performance and utilization
  - Improve service operations
  - Enable consistent service practices worldwide
  - Handle more customers and products with the same resources
  - Experience fewer engineering escalations
  - Leverage key personnel more effectively
  - Track true installed inventory
  - Accelerate new product deployment
- Reduce service costs
  - Reduce call times and costs, time to troubleshoot, and “no problem found” calls
  - Automate resolution of common problems
  - Enable auditable SLAs, avoid penalties
- Increase service revenue
  - Sell more service contracts, renewals
  - Offer more competitive, proactive service
  - Enable new managed services

## Why Wind River?

### Partner Ecosystem

Our extensive network of partners extends the capabilities of Wind River products by offering out-of-the-box integration and support for key technologies. Our customer support team is trained to troubleshoot partner technologies in use with Wind River products, making ours the most comprehensive and best supported partner ecosystem in the DSO industry.

### Professional Services and Support

Wind River Professional Services, a CMMI Level 3-certified organization, can configure Field Diagnostics to adapt to your processor, architecture, and operating system needs. Our world-class support organization, posting better than 80% customer satisfaction, stands ready to resolve your technical issues.

### Experience, Reputation, and Expertise

With our solutions in more than 350 million deployed devices, Wind River has a 25-year track record of innovation and reliability. We can afford to develop and support the next-generation technologies that enable you to grow your product line. A vibrant, publicly traded company, Wind River is positioned to stay the course with established device manufacturers and new companies alike.