

WIND RIVER

**Wind River Boosts Development Productivity 30%,
Cuts Time-to-Market 20%**

Coverity Prevent Business Benefits

- **30 percent** reduction in engineering time otherwise invested in code review.
- **20 percent** time-to-market reduction for Wind River customers.
- Wind River expects that Coverity Prevent can pay for itself in as little as one year with faster time to market and higher code quality for products and services.

Coverity Prevent Features

- Accuracy of the defects found is very high.
- Low false-positive returns reduce error correction workload.
- Ease of integration into engineering infrastructure enabled rapid adoption.

About Wind River

Wind River based in Alameda, California, is a public company founded in 1981 and is traded on NASDAQ (WIND). Wind River has a market capitalization of over \$1 billion dollars and provides solutions for a number of industries including: aerospace and defense, automotive, consumer, industrial and network infrastructure.

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—Robert Ellis, Wind River’s Director of Engineering

Overview

Wind River is the global leader in device software optimization (DSO). Wind River technology is currently deployed in more than 300 million devices worldwide by industry leaders like Apple, Boeing, Hewlett Packard, Mitsubishi, Motorola, and NASA. Wind River Professional Services enable leading electronics vendors such as Nortel, Philips, Samsung, and Siemens to design, develop, and deploy innovative products on or ahead of schedule, at or below budget.

Challenge

The executive management team at Wind River set quality as a top priority throughout the organization. In its plans to implement some levels of the Capability Maturity Model (CMM), engineers wanted to identify the resources needed to meet management’s push for quality.

Solution

Wind River’s industry-leading Device Software Optimization (DSO) platforms include an open, extensible, Eclipse-based development suite, a choice of operating systems to match customer’s requirements, a professional services practice to extend customer capabilities, and a comprehensive hardware and software partner ecosystem.

DSO is a holistic, enterprise-wide solution to the challenges generated by increasing complexity in developing and running device software. Key tenets of the DSO solution include standardization of technologies and processes across projects, teams, and sites, and the embrace of open standards to provide companies with the broadest possible choice of tools, technologies, and architectures. Wind River’s DSO solution is built on a choice of operating systems, an ecosystem of validated and integrated partner technologies, and expert services and support available around the world, around the clock.

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Device Software Optimization: Starting at the Developer

In order to continue to provide the tenets of DSO as they have for over 20 years and meet the quality initiatives identified by executive management, Robert Ellis, Wind River's Director of Engineering, went looking for Lint-like programming and error detection tools.

Whatever tool Ellis and his team chose had to prove itself by measuring and managing quality within engineering. The parameters surrounding the initial screening were two-fold. First, the tool had to fit into the existing infrastructure. Second, the tool had to fit into Wind River's implementation of the Capability Maturity Model (CMM) to evaluate and measure the maturity of software development processes within the organization. The search was a short one. From a technical fit perspective Coverity's Prevent was the clear choice. "We compared and evaluated a number of programming and error detection tools and Coverity was superior," said Ellis.

Seamless and Straightforward Installation

Wind River's infrastructure is comprised of Windows, Sun Solaris and Linux tools. The code analysis tool chosen had to also work natively with Wind River's flagship product, VxWorks—an operating environment itself. Wind River supports VxWorks on countless and varied hardware environments and customers regularly embed VxWorks in a device somewhere. VxWorks is flexible and CPU agnostic as a result. The code analysis tool had to be as well. "Ease of integration with Coverity Prevent was seamless and the usage is straightforward," said Ellis. "We went from trial to purchase in three weeks."

On the CMM planning, Ellis points to the technical features of Prevent as meeting the goals of Wind River's implementation. Specifically he points to the accuracy of defects found, the low false-positive returns and the overall very straightforward usage of Prevent as keys to evaluating, measuring and managing the software development process. "We use Prevent as our only static code analysis tool," said Ellis.

Once the decision was made to go with Coverity, the next challenge was to assign a project to Prevent and test its capabilities for production to the fullest. Ellis did not hesitate to select a high profile event for Prevent—the development of the next version of Wind River's real-time operating system (RTOS), VxWorks 6.0. As Ellis notes, "Code analysis was not done previous to version 6.0, we did peer reviews only." This fact opened Prevent to two immediate challenges: first, be the first reference platform for this kind of automated testing at Wind River and second, gain acceptance by engineering to ensure adoption.

Coverity's Impact: Fewer Bugs, Faster Time to Market

The results with Prevent were almost immediate, "We found several important defects. It does validate the purchase of the tool," said Ellis. Additionally, in the year plus since adoption of Prevent, Wind River has blended Coverity into its engineering in three key ways: 1) Managers expect engineers to fix the defects Coverity finds, 2) There is an on-going push to reach zero defects that Coverity finds and 3) The expectation is that overall defect rates will continue to lower over time and this low defect rate will be a factor that improves engineers performance.

In early 2005, Wind River released VxWorks 6.0, which was developed, tested and analyzed with Coverity's Prevent. Today, Wind River has over a dozen engineers running the administration level of Prevent and all of engineering looks at the results. The plan is to have everyone in engineering running Prevent at the desktop and that the ensuing results will be positive for both Wind River and its customers "We believe that not only our time to market but time to market for our customers improves with our use of Coverity," said Ellis.

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About Coverity

Since 2002, Coverity Inc. has provided source code analysis solutions that are a leap forward for software engineers who build reliable, secure systems. Based on years of research at the Computer Systems Laboratory at Stanford University, Coverity Prevent is now providing customers such as Oracle, Juniper Networks, Wind River, NASA, Palm, France Telecom and nVidia Corporation a revolutionary way to build more reliable code while simultaneously shortening the time to market.

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