



The People's RTOS

Wind River Boosts Embedded Linux

The proletariat may carry the seeds of its own embedded operating system, but sometimes even intensive idealism needs a little corporate help. While commercial-grade Linux may sound like an oxymoron, the socially-minded souls who seek to break down the barriers of IP protectionism are far more adept at creating cutting-edge software than at qualifying and supporting the resulting releases. That's where companies like Wind River can make a big difference. Don't picture McDonald's in Red Square. Think instead of a John Deere tractor running bio-diesel on an organic produce farm. It's corporate infrastructure providing assistance to the idealists on their own terms, and toward their own goals.

Open-source operating systems (and specifically embedded Linux) have been making big gains in the device software space. Development teams are attracted by the lack of licensing fees and contracts, lower cost of ownership, perceived portability, and broad availability of the underlying software and source code. Unfortunately, some of the mechanisms that create these attractive benefits also carry hidden (and not-so-hidden) penalties. Finding the right release (distribution), finding or creating a test suite that matches that distribution, getting support (since software that comes from nowhere has nobody answering the phones), and tracking the current and appropriate versions for your application can all pose serious challenges for the system design team taking advantage of open-source's advantages.

Open-source is primarily gaining market share against proprietary, in-house development. Commercial RTOS is holding its ground among projects that prefer the conventional safety and security of outsourcing to a shrink-wrapped solution. However, the NIH-intensive crowd (who normally would have developed their own system from scratch) now has a make-versus-take decision to weigh. The "we can always customize it ourselves" shortcut of embedded Linux increasingly attracts them away to the virtual commune of

shared-source software.

Broad Linux adoption creates a severe support vacuum, however, which attracts commercial activity from many directions. A number of these resulted in derivations of Linux that re-created the hazards of commercial RTOS from a small vendor. Specific, customized versions of Linux locked design teams into the same kind of position they were trying to avoid by choosing an open-source solution in the first place. Royalties, lock-in, and single-source support crept back into the picture with some regularity.

With their latest announcement, Wind River continues to truly embrace the "open" in open-source. They deliver a comprehensive test suite matched to a pristine, standard distribution of Linux, an Eclipse-based development environment, and Wind River's usual support, training, and service. The net effect should be an experience that combines the advantages of purchasing a commercial RTOS solution with the benefits of the happier side of open-source anarchy. As a result, Wind River reports that their year-to-year growth on Linux has been 600%, with a 34% increase in Linux market share.

Wind River's Linux now comes in three sizes: "Large" (for network infrastructure applications), "Medium" (for a broad range of devices), and now "Small" for devices that require a small footprint and fast booting, such as the increasingly ubiquitous cell phones, personal video recorders (PVRs), and set-top boxes. With those kinds of target applications, this is obviously a big-stakes game. Manufacturers can't afford to cast their fates in the open-source wind without the backing of a Wind River-class company to help assure the integrity of their system design.

This Linux-light pairs up with Wind River's venerable VxWorks to complete the company's agnostic approach to the commercial versus open-source question in the high-volume consumer space. Now, Wind River can supply their entire end-to-end solution independent of the customer's preference for a commercial or open-source software base. It's a smart strategy. By isolating themselves from the open-source question, Wind River can focus its marketing efforts on its value-added solutions and services instead of fueling the fires of futile public debate.

At the same time, Wind River is announcing a partnership with ARM that includes support for ARM's TrustZone security technology. By cooperating with a leading hardware architecture supplier, the company has created a high-value collaboration on an issue that is becoming critical to consumer product design teams. With cloning, overbuilding, and outright IP theft taking an

increasingly large bite out of product profits, a reliable, standardized security solution is a welcome addition.

Now, while the rest of us passionately debate the merits of open-source philosophy and postulate about the parallels between publicly shared IP and socialist societal norms, Wind River can watch calmly and smile. They're covered either way. Power to the people.

Kevin Morris, Embedded Technology Journal

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