Red Hat Readying Real-Time Product Release

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Red Hat has decided to later release a separate real-time version of RHEL 5 rather than bundle the technology into RHEL 6, the next version of its enterprise server operating system software.

Red Hat customers are already testing the code for the upcoming Red Hat Enterprise Linux real-time product, which is expected to be released later in 2007.

The decision to release a separate real-time version of RHEL 5 marks a significant shift for Red Hat, which initially planned to bundle the technology into RHEL 6, the next version of its enterprise server operating system software.

But, given that RHEL 5 was only released in March 2007, potential users would have had to wait until the second half of 2008 at the earliest for the real-time technology, currently referred to internally as Red Hat Enterprise Linux RT.

"Our customers in the financial services, telecommunications and federal sector told us that they were - not prepared - to wait for this technology until RHEL 6 is released," Tim Burke, director of emerging technologies at Red Hat, based in Raleigh, N.C., told eWEEK in an interview.

"They want something now, and they want it from Red Hat, as they recognize that it is extremely invasive technology that affects the core foundation of the Linux kernel - things like scheduling and interrupt

handling - and they want it done by the people who are among the main kernel maintainers upstream," he said.

Red Hat also plans to productize the open AMQP (Advanced Message Queuing Protocol), which will be its implementation of the protocol, Burke said, noting that most of those users also have high-speed messaging needs. "But our AMQP offering will not require customers to be running RHEL RT," he said.

The real-time technology is essentially about determinism and latency, about being able to have guarantees that transactions will complete within finite periods of time, and that the highest-priority processes and applications will be able to run without being pre-empted by lower-priority applications or low-level system services, Burke said.

Scott Handy, vice president of worldwide marketing and strategy for the System p at IBM, a close Red Hat partner based in Armonk, N.Y., said he approves of the decision to release the real-time technology earlier.

"This is a double win for customers, as it gives them the competitive advantage of getting access to this technology early, as well as the assurance that it will also be mainstream later on," Handy told eWEEK, referring to the fact that Red Hat is also driving the mainstream community initiative around the real-time upstream Linux kernel work.

Almost 50 percent of the 1.2 million lines of code for this effort have moved to the mainline kernel over the past year. "It will take a little over a year to get the remaining code integrated and upstream," Burke said. "It's a slow and methodical process to get it all in, and we're typically getting one feature into each major kernel release, which is every three months or so. That way it's easy to isolate root cause of errors and the like," he said.

While pricing for the new real-time software has not been finalized, it will be priced separately from standard RHEL 5 and will not be included as part of the normal customer contract for that server software, Burke said.

The current plan is to have a capability set that is primarily a kernel drop and replacement for standard RHEL 5, he said, noting that this was advantageous from an application and compatibility perspective and allowed Red Hat to focus all of its efforts on the kernel and associated tool development.

"That means we don't have to worry about doing a full separate distribution and dealing with all the worries that come with that, as well as with the 1,200 packages besides the kernel that are in the standard RHEL distribution," Burke said.

Red Hat is already distributing real-time test code to interested customers and partners who are testing it in-house and, once it receives the validation from them that it is giving them the low-latency they need, "then we will be in a really good position to very quickly turn around a product effort," he said.

While an exact release data has not been set, as that is dependent on final customer validation, this is being measured in "small numbers of quarters, not years," he said, adding that its pricing would, in part, be based on the external validation of the technology. "If it really knocks it out of the park, then it will command more value," he said.

The real-time initiative comes on the back of Red Hat's new model for next-generation capabilities, which allows it to continue to work with the open-source community while also developing early service-based relationships with customers around new technologies.

But Burke points out that the real-time product will not be suitable for all of its customers. In fact, in a number of bake-offs that compared other Linux real-time variants against standard RHEL 5, "what we found is that, through the engagement of our professional services group to get the system properly tuned - things like CPU shielding, interoperability binding and the setting of proper application prioritization - we've been able to beat their real-time offering with our standard product," he said.

This means that a properly tuned RHEL 5 would meet the needs of the vast majority of its customers, so RHEL RT is being aimed squarely at those customers who really need to go the last mile so as to get the complete and full determinism, he said.

"If a customer's needs can be met by fine-tuning RHEL, they will be much better off going that route. As such, the real-time product is not intended to be high-volume, it's for more of a niche market," Burke said.

While IBM's Handy agrees that demand for the product might not be huge, he points out that it will be from an extremely sophisticated customer set. "There will be demand for this product from Wall Street, government agencies and telcos - telephone companies - , who usually have very large IT budgets."

Burke said almost all of the major Wall Street institutions have expressed interest in the product and are committed to testing it. They have also signaled their intention to run it in-house, as they know they are going to have to move to real-time. "It's a matter of when, not if," he said.

But, as this requires a full end-to-end test, the core platform group as well as the application teams all need to get involved. This has been scheduled and those federal and financial services customers are now starting to get actively involved, he said.

While Burke also dismissed the recent deal between Microsoft and Novell, saying it had had no effect on Red Hat and would not deter Red Hat from continuing with its open development practices, he accused Novell of continuing to focus on proprietary extensions.

"We would welcome more participation from Novell on the real-time development side. They have been pursuing their own, separate strategy in this regard, but we have been seeing a pick-up in participation from their developers for the community project of late, which could indicate that they finally see this as the most long-term, sustainable, viable option for the technology," he said.

But this is not an issue for IBM's Handy, who said one of the great things about open source is that it shows there are multiple ways to solve a problem.

"I never thought it was strange to have two camps and to have the distributions aligned differently. In the end, that kind of 'coopetition' is a good thing, and helps ensure that only the best code makes it upstream into Linux," he said.

In fact, IBM and Red Hat are already collaborating to deliver a new Real-Time Linux application development and deployment platform offering customers the ability to run systems that can perform at increased processing rates with high levels of reliability.

The new platform includes IBM WebSphere Real Time, a real-time J2SE (Java 2 Platform, Standard Edition) Java Virtual Machine, with a real-time version of Red Hat Enterprise Linux 5 running on IBM System x and BladeCenter AMD- and Intel-based servers.