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Navy's SHARE Repository Seeing Steady Growth In First Six Months

By Geoff Fein

In the six months since the Software, Hardware Asset Reuse Enterprise (SHARE) repository has been established, more defense contractors have been turning over their software to the Navy in an effort to enable companies to develop or suggest improvements to Navy surface warfare systems.

The service is now preparing to issue a second *Federal Business Opportunities* announcement detailing what government-owned software currently resides in the repository, Capt. James Shannon, program manager, future combat systems open architecture, told *Defense Daily* in a recent interview.

That notice should be issued in the coming weeks, he said.

In recent months both **General Dynamics** [GD] and **Raytheon** [RTN] have turned over software to the Navy for inclusion in the repository.

However, it will take time for the Navy to go through each submission to verify that neither contains any proprietary information, Shannon said.

"It takes a while to go through all the stuff we have to determine that it is truly government owned, that there are no proprietary markings, that there are no copyright markings, no patents," he said. "It takes weeks to do that. We have to speed up that process, but it doesn't take years, it doesn't take months. I think our initial experience has been good actually."

When the SHARE repository opened, it had two government owned software systems: Aegis 7.1 and the Ship Self Defense System (SSDS) Mark 2.

Lockheed Martin's [LMT] Aegis weapon system is broken down to include displays, the Spy radar and the weapons coordination system, Shannon said. Raytheon's SSDS Mark 2 is the computing power that does the computation that enables the sensors to talk with the weapons on non-Aegis ships.

"We have a lot of things, guns, missile systems, and radars that all feed into SSDS Mark 2," he added.

The decision on what software would initially go into to the SHARE repository was made by Rear Adm. Michael Frick, Program Executive Officer Integrated Weapon Systems (PEO IWS). According to Shannon, Frick wanted to focus only on things that fell under IWS-surface combat systems.

When the government took ownership rights of the two systems, Frick didn't want program managers to control it, Shannon added.

"He wanted someone else to control it, because in our mind, that's really how open you can show a system is," he said.

The concern was, Shannon added, that a program manager could sit on a request for access to software, a move that would fly in the face of the Navy's assertions that it is supporting an open architecture business model.

In November, Raytheon delivered a complete set of specifications, design documents, source code and user guides for the DDG-1000 Total Ship Computing Environment Infrastructure (TSCEI) Release 4.1 to the PEO IWS (*Defense Daily*, Nov. 9).

"We just released our TSCEI components. Over 2,300 artifacts [were] delivered with unlimited data rights. The Navy can use that on any platform they like. That is at the SHARE library at [Naval Surface Warfare Center] Dahlgren [Va.]," Bob Martin, director of software for the DDG-1000 program, told *Defense Daily* in an interview last year.

And earlier this month, General Dynamics delivered its Littoral Combat Ship (LCS) Open Data Model providing the service with unrestricted rights to the entire mission architecture for LCS.

"[We are] giving it to the Navy with unrestricted rights. It includes the entire mission architecture for the entire LCS, which we believe is a step no one else has taken to date," said Lou Von Thaer, president advanced information systems (*Defense Daily*, Jan. 8).

"[We are] doing this because when we look at the Navy's needs over the future, and where we set our strategy, they need more innovation and affordability into how they are going to put combat systems on ships going forward, so they can afford the number of ships they need to support their mission," Von Thaer added at the time.

Shannon points out that what goes into the repository is not open source but open architecture-design to specifications. "We are talking about some unique military applications, but not everything per se."

Software that is truly open source can't go into the repository because it would violate open source licensing agreements. "We can only put in the repository things the government owns on its own, either through government purpose rights or unlimited rights."

With some open source agreements, there might be a requirement that the government provide information back to the contractor providing the code. "We didn't want to violate any of those agreements. That's why we kept that stuff out," Shannon said.

Unlike a library, a company cannot just drop in and browse the repository's shelves. When a company first contacts the Navy to gain access, that firm, if they already have ongoing business with the Navy, will have to submit a contract number. If they don't have a government contract, they will have to enter into a Cooperative Research Development Agreement (CRDA). At that point, if a company's request is for unclassified information, they must sign a licensing agreement and a non-disclosure agreement before accessing the repository.

The licensing agreement ensures that should a company develop something as a result of the intellectual property the Navy shared with them, they will have to provide government purpose rights to that product, Shannon said.

"What we are trying to prevent is the old problem [in which] we give something to a company and they put 10 percent of their own investment into it and try to sell 100 percent of it back to us as totally new intellectual property," he said.

The goal of establishing the repository is to level the playing field so that companies have more than one avenue to seek out opportunities, Shannon said. "We want to widen the competitive base both in terms of cost and intellectual competition."

"The only way you can increase that competitive base is you make sure that any potential developer understands what is in [our] design and what we are looking for. So if we go out with an RFP (request for proposal) to do an improvement to a specific combat system, how is a company going to compete if they don't know what is already out there," he said. "What most companies have been telling us is they think they can help us, but they are not sure. If only they can have access to certain things and understand the systems, they will at least be in a better position, so that when we go out with an RFP they will be able to compete in a fair and open way. That was one of the drivers to developing this (repository)."

Shannon said he is not sure what direction the repository will go, but he does expect it to grow. "It definitely will grow with more systems in there, because we have been directed to make that happen. It's going to take time to populate it."

"The big open architecture policy and the movement the Navy has been [doing]...at first, a couple of years ago, people were skeptical about it. But the fact that today we are putting systems that were solely owned or thought to be solely owned by other companies and the fact we have shared them with other companies, I will tell you OA (open architecture) has arrived," Shannon said. "We are definitely working to change our Navy business model and we are seeing industry change their business models as a result. They are supporting us in the direction we are going. We take that as a positive sign, and the scope of it is going to get larger. But we think the plans we have in place should be able to handle that larger scope."