

Military Open-Source Software Could Increase Flexibility, Lower Cost

Georgia Institute of Technology

Researchers at the Georgia Institute of Technology are helping the U.S. military analyze and develop the advantages of open-source software -- programs that make their source code open to others so it can be changed and improved.

Bringing many minds to bear on a given program can lead to software that is both high quality and low cost, or even free. For example, the Linux operating system, which licenses its basic source code for free, is now used to run many servers in companies, government and academia.

The U.S. military is interested in open source, too, because it offers the potential for increased speed and flexibility, among other advantages. Scientists and engineers from the Georgia Tech Research Institute (GTRI) are working with military agencies to maximize the open-source potential.

The efforts include helping make source-code tools and applications available and practical for military use, and supporting the Second Annual Working Group (WG2) Aug. 2-5 in Washington, D.C. The first meeting of the Military Open Source (Mil-OSS) working group was held at Georgia Tech in August of 2009, attracting more than 120 people from the military, industry and academia and featuring some 40 speakers.

"The military generally needs software changed quickly, but proprietary programs must be modified by the software's owners, which can take a long time," said Joshua L. Davis, co-founder of the community, coordinator of the event and a GTRI research scientist. "Open-source changes can be tackled by any member of a programming community and are usually delivered quickly, sometimes in hours."

Moreover, he added, the fact that open-source programs could be modified quickly in the field might become very important to the military.

Unlike proprietary programs, open-source software is developed collaboratively by programmers around the world, as in the case of Linux. Open-source web sites, such as SourceForge.net, allow software users and programmers to locate and develop open source programs. SourceForge recently reported more than 230,000 registered software projects and more than two million registered users.

There is a military equivalent of Sourceforge -- www.forge.mil [1]. This secure site supports collaborative development and use of open-source and DoD-community software. Forge.mil, led by the Defense Information Systems Agency, requires users to have specific DoD certificates to register.

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"Mil-OSS is an effort to build a grass-roots group across the DoD, potentially with international partners at some point," Davis said. "The aim is to bring software developers from the military and its contractors together to find opportunities for re-use and collaboration."

Davis envisions a soldier in a war zone having an urgent computing need that he or she can't provide -- perhaps a plug-in to add a needed feature. That soldier would place a request on the Mil-OSS website; a programmer in the U.S. could see it, write some code to satisfy the need, and then make that code available to the soldier.

"That's the way open source is done now in the civilian world," Davis said. "This approach could allow the military to be more effectively included in the collaboration process."

GTRI has already developed a secure web site that lets qualified users download the source code for software tools that are used to test tactical radio systems. The site allows GTRI personnel to communicate and collaborate with customers and other partners.

Davis is also developing a site that could become a repository for all open-source programs produced by Georgia Tech engineers and scientists.

"Basically, this site will publish work being done throughout Georgia Tech and will give folks from industry and the military a place to look at our capabilities," Davis said. "Also, by concentrating all that functionality in one searchable repository, we can give GTRI and Georgia Tech people a place to look for existing programs and help avoid redundancy in software development."

The August Mil-OSS gathering will address the push for military adoption of open-source software and technology and its associated collaborative innovation philosophies. This year's conference will focus on cyber security, among other topics, and is non-classified -- open to all interested parties.

Registration cost for the conference is \$450 for attendees and \$350 for speakers. The event will take place at the Waterview Conference Center in Washington.

For complete information on registration, attendance and other topics, visit <http://www.mil-oss.org/> [2].

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