In Linux We Trust: Indian Jawans
Date: Saturday, January 29 @ 00:49:15 CST
Topic: Information Technology in eGovernment

Since its birth in 1991, Linus Torvalds' baby has been waging many a war against dominating proprietary software empires. Linux has made history again, this time lending a hand to a real world battle scenario.

The Indian Army has become the first military in the world to use the open source operating system to power its handheld computers. As Linux basks in its newfound glory, the news has shocked many who never expected it to reach this far. In fact, the openness of Linux has been severely criticized, on the grounds that its transparency makes it extremely vulnerable for defense and tactical warfare applications.

CXOtoday digs deeper into the facts of implementation that could spell an end to all security fears related to the openness of Linux.

Speaking exclusively to CXOtoday, Samyeer Metrani, general manager, Encore Software (the company responsible for the joint production of SATHI with the Indian Army), informs, "There are only four countries in the world that use handheld computers in the military, and India has become the **first** to use a Linux-based portable on battleground."

SATHI is an abbreviation for Situational Awareness and Tactical Handheld Information. Encore is the same company that had earlier released a commodity computer called 'Simputer' for the Indian market. "The idea was to leverage our existing Simputer technology and turn it into a battlefield computer. Simputer was the only device that had a USB Master, a must need for an integrated battlefield computer," adds Metrani.

"The requirement of the Indian Army was an integrated battlefield computer that could allow a soldier to pinpoint his exact field location on a GIS powered map, allow friendly troops to see his position on their screens, and lastly, allow communication between the two," he explained.

The result is a hi-tech integrated computer that runs on a 128-bit encrypted (DES) standard, capable of withstanding temperatures between -20 C to +70 C, with a range of 5 km, an inbuilt RF modem, and a GPS receiver - all with 24 hours of battery life and weighing just 875 grams. "The device works on a password based system, so it can actually act as a decoy if it falls into enemy hands. If an unauthorized attempt is made to login, SATHI can actually reveal the position of the person attempting the break in to friendly troops, thereby doubling up as a failsafe decoy. A soldier can conveniently mark and share positions with others using a stylus," claimed Metrani.

Competing products in the worldwide market include Talla-Tech's rugged PDAs, which are being used by the US Army.

Linux is used entirely to power the integrated computer. Besides basic Linux apps, back channel communication and interfaces to other equipment are powered entirely by Linux. The mobile device functions somewhat similar to a PDA running in a real time enterprise scenario. Just as PDAs gather field reports and feed them into a central server for reviews by senior management in an enterprise, the army collects military reports from various SATHI's to channel them into a command center that allows the battalion commander to visually see the battle ground from a remote position.

The command center runs a combination of Red Hat 9.0 and Fedora Core 2.

"SATHI is powered by the 2.4.18 GNU/Linux kernel, and is not a standard distribution. It has been specially ported to run on a 400 Mhz ARM RISC processor with 128 MB RAM and 96 MB flash. The openness of Linux was a major reason behind choosing it as a platform. Moreover Linux drivers for USB Master are easily available. The only problem with Linux is that some things just aren't complete. We have done a high level of tweaking in designing SATHI's Linux operating environment, going right into the kernel," claimed Metrani.

Applications like the X Window system and patches for kernel level modifications done by Encore have been released to the public, but certain battlefield applications designed specifically for SATHI are not open. A software called GIPSY converts GIS maps into a readable format for SATHI. As part of an initial development contract, 120 SATHI's have been delivered to the Indian Army, and a lot more are expected to leave Encore's product stable in the near future.

Surprisingly, SATHI was tested and deployed in March last year for counter insurgency operations in Jammu & Kashmir, but due to the sensitive nature of the project, no information was released to the media. The product was initially named Baaz (Bird's eye view of the battlefield). SATHI is expected to be inducted in mechanized warfare and infantry operations shortly.

"When we started, many drivers for hardware like USB Master and Smart Card were not available on Windows CE. Moreover people think that Windows is secure, but that may not necessarily be the case. This tilted the decision in favor of Linux. If broken, Linux is easy to fix and there is always a consolation that if you don't fix it, someone else will. There is absolutely no truth in the statement that open code is a security risk. In fact, when the code is

The project is jointly owned by Encore and the Indian Army, and under the agreement, SATHI can be sold to friendly armies around the world, with prior approval and permission by the defense. The operating environment was developed after two years of intense coding by 15 programmers.

The laudable effort by the Indian Army & Encore has proved the versatility of Linux in running on virtually any system - be it embedded devices or supercomputing constellations. Linux has definitely come a long way.

Source:
By Hinesh Jethwani
Mumbai, Jan 28, 2005
http://www.cxotoday.com/cxo/jsp/article.jsp?article_id=2701&cat_id=908&source=cxtnl

This article comes from Force3 - India.Org :: Forum for Creative Entrepreneurship (NGO in Central India)
http://www.force3-india.org/online

The URL for this story is:
http://www.force3-india.org/online/modules.php?name=News&file=article&sid=27