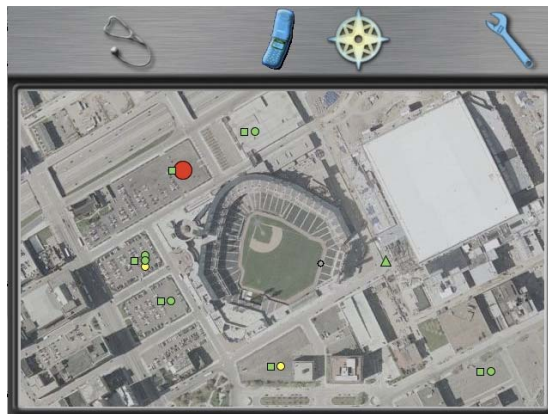


Eclipse Equinox Helps the US Army Sniff out Trouble

As the 2006 Detroit Super Bowl audience of over 76,000 people sat riveted to the season finale, a small, dedicated team worked behind the scenes to ensure their safety from terrorist and other threats. Members of the Michigan National Guard Weapons of Mass Destruction Civil Support Team (WMD CST) quietly patrolled the perimeter of the stadium, including the parking lots and access roads looking for evidence of chemical and other weapons. More than their eyes, ears and noses, they were testing Cyrano, new technology from the US Army Tank – Automotive Research Development and Engineering Center (TARDEC) and Band XI International of West Hartford, CT.

Currently, the Eclipse-based Cyrano runs on a handtop computer, such as a Sony Vaio U8G and monitors sensors for nerve agents, cyanide, radiation and other threats in real-time, integrating GPS to present each soldier in the field with a unified display of the entire theater. As each National

“Equinox allows us to apply core functionality to virtually any sort of problem that involves reading sensor data. That makes the US Army more agile and protects the taxpayer’s investment.”



Cyrano was tested at the 2006 Super Bowl, providing National Guardsmen with situational awareness of WMD threats.



Guardsman patrolled the Super Bowl, Cyrano not only displayed threat status for their location, they could also see at a glance the location and status of any other team member.

A Solid Foundation

Built on the Eclipse Equinox OSGi runtime, Cyrano exemplifies the US Army’s dedication to responsive, agile software

development that solves problems in months rather than years. At the heart of Cyrano’s design philosophy is a mobile, connected and

extensible platform for collecting data from any sort of sensors and presenting a simple-to-understand reading to one or more soldiers, freeing their eyes, ears and hands for other tasks. The system can scale to provide situational information for an entire theater, and can be used to look for

threats as diverse as weapons of mass destruction and mechanical problems with a vehicle fleet. As John

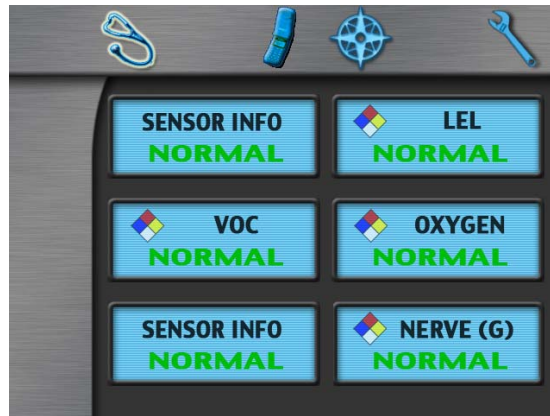
Cunningham, an industry leader in OSGi development and President of Band XI explains, “Weapons of mass destruction are just one class of environmental information for which Cyrano can be configured to look. The Equinox OSGi framework gives us the freedom to repurpose Cyrano for a wide range of military needs. In fact, we worked closely with TARDEC to extend their existing system so that Cyrano could enhance the military’s use of vehicles in the field.”

Rapid Development meets Changing Threats

Embracing the Equinox OSGi framework and other Eclipse technologies illustrates the US Army’s commitment to new software development approaches. Equinox had many advantages that were well suited to the requirements for Cyrano and sped development. In particular, the ability to remotely start and stop services and change configurations without rebooting, combined with the rich set of available services geared to remote systems, provide a solid foundation for development.

The Cyrano project members took an agile development approach, releasing new candidates weekly at first, and now monthly. Eclipse’s versioning tools made it easy to move between platforms and share code remotely, while JUnit allowed them to isolate faults by segregating the testing of components

using Test Driven Development (TDD) strategies.



The Equinox OSGi runtime allows new sensors to be added to Cyrano with no burden to the user.

The Equinox OSGi framework also gave them a head start for functionality like peer-to-peer and client-server communications functionality, while the Eclipse Standard Widget Toolkit (SWT) greatly eased the process of developing a bitmap-driven, highly customized touch-screen UI to meet the

needs of Cyrano users. Taking advantage of these innovations enabled the agile approach and shortened the period between planning and testing from months to weeks.

Remote Maintenance keeps Soldiers Equipped

When soldiers are sent into a new situation, their units can be automatically updated from a centralized server to meet the anticipated threat with the right sensor support. “Our users are National Guardsmen, typically with other pressing tasks to think about, so it was vital that we could make headless configuration and maintenance a non-issue for them,” relates Captain Philip Rusiecki, Survey Team Leader with the Michigan National Guard. As new weapons of mass destruction sensors are developed, Cyrano’s component model and the agile approach will make it fast and simple to add support. Indeed Mark Salamango, Chief Pervasive Architect with TARDEC points out that Cyrano is really about consolidating information into simple views, aggregating those

views from soldier to soldier in real time for situational awareness, and enabling effective communications. Equinox allowed core functionality to be applied to virtually any sort of problem that involves reading sensor data, making the US Army more agile and protects the tax payer's investment.

Since the Detroit Super Bowl in February 2006, the National Guard has conducted a second successful test of Cyrano at NASCAR,

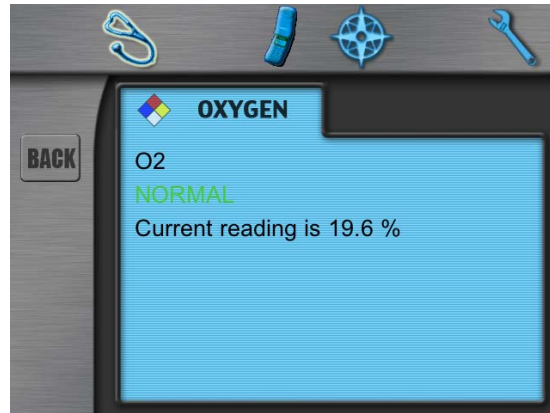
protecting over 160,000 people. TARDEC and Band XI are confident that with funding they can further

develop the platform to meet the needs of over sixty WMD Civil Support Teams and first responders around the US. They are already looking to customize Cyrano for other applications such as vehicle fleet management, where real-time system diagnostics and prognostics in the field could provide key strategic advantages throughout the Army.

Recently, Mr. Salamango received an inquiry within the Army Research establishment for ideas related to convoy management. By briefly relating the requirements, Band XI was able to pull together a prototype solution in a matter of days. The demonstration was well received and further strengthened Mr. Salamango's reputation within his command as an effective problem solver. Salamango points out the important role Eclipse technology played in allowing them to rapidly prototype and respond to new requirements, and helping enhance

the effectiveness and safety of fighters in the field.

TARDEC and Band XI have years of experience working with Eclipse, and Cyrano has reconfirmed their commitment to the platform. They are looking forward to integrating the



A simple touch screen interface allows distraction-free operation for soldiers in the field.

Eclipse Update Manager and the Eclipse Communications Framework's support for Apple's Bonjour auto discovery and configuration protocol into future releases of Cyrano.

As new requirements arise, they will always look to Eclipse first for a solution. As

Cunningham relates, "Equinox is absolutely essential for our applications going forward. It makes reliable development and deployment of loosely coupled, but highly cohesive applications possible in very short timeframes."

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