

## HUMANITARIAN EFFORT YIELDS BRILLIANT TECHNOLOGY, TEAMWORK

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They were soldiers and sailors, doctors and relief workers, technologists and managers. Over the course of a few days, they transformed a barren lava bed into a cutting-edge test bed of communications and collaboration.

Their overarching goal, in a project dubbed "Strong Angel II" (<http://strongangel.telascience.org>) was humanitarian: to help create a way for military and civilian disaster-relief people to deal more efficiently with each other -- and with the people who need assistance -- in the turmoil that follows catastrophes.

I first wrote about the project two months ago, when it was still in the planning stages. During three recent days on the site, which was meant to approximate some of the harsh conditions aid workers would find in the wake of war or natural disaster, I observed much more than some brilliant technology. I saw how people with poles-apart political perspectives could blend, in common purpose, to achieve remarkable results.

The endeavor was subtitled, "Designing the Edge" -- a recognition that increasingly ubiquitous data networks have turned some traditional notions of command and control almost inside out. Now, when people at the edge of networks can get the information they need in a timely way, and get what they know to others, they can work faster and more efficiently.

Led by Commander Eric Rasmussen, a Navy doctor who has been working on humanitarian projects for years, the team demonstrated some of what's possible. The technology ranged from advanced wireless networking to powerful collaboration tools. Some came from companies selling proprietary products. Others were based on open-source projects where anyone can freely use and modify the software code, and the goal is ultimately to make all of the technology as open as possible.

Silicon Valley played a role. A digital video start-up from San Jose, VSee Lab ([www.vseelab.com](http://www.vseelab.com)), experimented with software it has created for high-quality video conferencing. VSee's founder and chief technology officer, a recent Stanford doctorate graduate named Milton Chen, put Web cameras through some paces, including one underwater transmission to a

nearby laptop.

Laptops were everywhere, of course, and most were running Groove Networks' powerful collaboration software, which lets people share information smoothly and securely. With Groove, people can work offline and then synchronize data when they connect, in a way that ultimately lets everyone on the network -- without any centralized "server" computer -- update to the latest information.

### Data collection

In one demonstration, dubbed "Pony Express" after the horse-based relay mail system of yesteryear, a car equipped with wireless networking and laptops went from remote location to location, gathering and distributing information. The potential value for humanitarian organizations is enormous because it can simplify essential data collection in the field without forcing workers to install complex communications systems in disaster areas.

A major goal of Strong Angel, which was funded largely by the Pentagon's Defense Advanced Research Projects Agency, or DARPA ([www.darpa.mil](http://www.darpa.mil)), was improving people's ability to understand each other, namely through translation services. For example, U.S. forces and humanitarian workers in Iraq need to know what the Arab media are saying about the war, the American occupation and the continuing Western presence. And they need to know it quickly.

In one demonstration, a satellite dish outside a tent was capturing and recording the Al-Manar TV station, a Hezbollah outlet in Lebanon. Audio was extracted from the news broadcasts and converted to text in a speech-to-text program. Then the Arabic text was translated, also by a machine, into English. The results, twice removed from what the announcers said, were approximations. But they captured the gist of the reports.

### Human, computer skills

The video, audio and texts (Arabic and English) went into a database. Sean Colbath, a member of the Strong Angel team who works for BBN Technologies Speech and Language Processing Group in suburban Boston, pulled out short video segments that looked especially interesting or relevant to the key topics of the day. He bundled them into a file that went to a human translator on the U.S. mainland, who provided an accurate rendering of what the broadcast snippet actually told the audience.

This blending of human and machine translation capabilities makes the

best use of both. The machines get us part of the way. Humans capture more subtlety, but machines can winnow out a lot of the dross first.

These examples only scratch the surface of what the Strong Angel people were accomplishing. I've posted several more detailed descriptions on my Web log, with pointers to additional information.

What the team members had in common, apart from wanting to do something useful, was their admiration for Rasmussen, the leader of the project. He's a remarkable man, focused and dedicated. We need more like him.

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