technology TODAY

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Improving Homeland Security

Over 90 percent of the products of our global society travel to their final destination in a cargo container. These steel boxes are not only used to move cargo from foreign ports but also to move products from U.S. manufacturers to large and small communities all over our continent. They are ubiquitous to the landscape that borders ports, airports, train lines, and highways. You can see mountains of them when you drive past a seaport terminal and trainloads of them when you pass freight railroad lines, as well as single units on trucks or at unloading docks at local stores.

Photos courtesy of Rapiscan, an OSI Systems Co.

Fixed-site inspection system

Most security experts view shipping containers as a weak link in homeland security. At the U.S. Maritime Security Conference that took place last October, I learned about the key issues and solutions that the Customs and Border Protection (CBP) division of the Homeland Security Department is implementing. Steps CBP is taking should improve the safety of the seven million cargo containers that enter our ports each year.

The bad news is that a physical inspection, which involves a seaport inspector opening a container, doesn't happen very often—less than 2 percent of containers are opened. The good news is that a threat matrix protocol determines which containers to check. The best news is that we now have available new nonintrusive inspection technologies that can quickly inspect containers for all kinds of terrorist weapons, explosives, dirty bombs, and illegal drugs.

Rapiscan Security Products Inc. is a subsidiary of OSI Systems. Headquartered in Hawthorn, CA, the company builds many of the security systems now installed in airports and seaports to screen people, luggage, and cargo. To determine the safety of shipping containers, Rapiscan produces fixed-site, nonintrusive units and easy-to-set-up portable systems for inspecting cargo containers at truck weighing stations on interstate highways. (See photos.)

Rapiscan's systems can be configured to bombard a shipping container with a high-energy X-ray beam to determine whether the shape of the cargo agrees with the description on its shipping manifest. The company's systems can also be configured to perform thermal neutron analysis (TNA), which identifies drugs and explosives by their chemical signatures.

Relocatable inspection system

Rapiscan's pulsed fast neutron analysis (PFNA) system creates a three-dimensional view of container contents and identifies chemical and radiological properties. A Rapiscan spokesperson at the conference said that the Rapiscan OSI vehicular detection system is the only nonintrusive system currently on the market that can identify car or truck bombs.

My November 1997 "Technology Today" column described an electronic frisking technology designed to replace metal detectors at airports. Before the current wave of terrorism, these machines were viewed as too intrusive. Homeland Security is now very interested in this technology, which Rapiscan also markets as a personnel screening technology. You can read that earlier column at **http://home.att.net/~alan3-pierce/id19.htm**. Learn more about all of the Rapiscan systems at **www.rapiscan.com**.

Recalling the Facts

1. Products shipped around the world reach their destination in cargo containers using what four modes of transportation?
2. Describe a *nonintrusive inspection technology.*
3. At a shipping port, how would this equipment be used and what would the people using it be looking for?

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