Cargo

Locals offer a better mouse trap

By Rick Eyerdam

One would think that when a smart businessman builds a device that could track a container and monitor the safety of its contents across the globe that the shipping world would beat a path to his door.

And one might think that a simple, PC-based software "solution" capable of dispatching independent truckers to the ports and tracking them and their container loads to their destination would be in demand from Mumbai to Mobile amid the scourge of cargo theft.

Let's assume that the inventor of the smart box tracking system is a former Customs agent and former FBI agent who has collaborated with one of the great old hands of the shipping industry and proven his system with an international shipping company. That ought to increase the cache of the tracking device.

Not necessarily.

Would a patent be enough? Nope. In fact, the U.S. Patent Office has issued a patent for the "smart box" container-security tracking device invented by Jim Giermanski, a former Customs agent, and backed by Frank Rovirosa, head of the Rovirosa family that operates Port Everglades Terminal and partners in the Port of Miami Terminal Operating Co.

Jim Giermanski

Rovirosa calls the Powers International's Smart Container System "exactly what is needed to meet the goals of container security and to

insecurity

protect our containers from theft and terrorist threats."

According to the company, the system meets the World Customs Organization's Framework of Standards to Secure and Facilitate Global Trade guidelines adopted unanimously in 2005 by the 166 member countries, including the United States. The WCO's new standards include the goal of logistics security control from origin to destination. Yet there are no government officials or corporate giants beating a path to their door.

The same goes for Kaz Chary, a self-described Brahman comedian and a real computer wizard who is all but obsessed with writing the script that makes it possible for trucking company dispatchers to tell shippers and carriers exactly where their precious cargo is, within 340 meters.

His current product, Drayage Management System, is being used by at least 40 trucking companies in south Florida at the urging of Maersk, Crowley and several other major carriers. They say it is far better than stacking handwritten papers in a wall full of bins.

"When a shipper calls Maersk at the APM terminal to ask about a container, the carrier is expected to know where it is," Chary explained. "Maersk can only tell them it left the terminal, not where it is or when it will arrive. They were not satisfied with that, so now their trucking companies all use the Drayage Management System."

Kaz Chary

How it works

Drayage Management System is a PC-based client-server application that runs on a Microsoft Windows Platform. It requires a 60-gigabit hard-drive server, Asymmetric Digital Subscriber Line services and a 20-gigabit workstation running Windows XP Pro.

Chary and his staff train the dispatcher who quickly learns to use the tidy display for order entry, dispatch, mapping, matching, debts and credits, invoicing and settlement, maintenance, terminal, companies, driver lists, chassis inventory, rates, per diems and the all important debits and credits. The system generates 50 customizable reports.

The two things it does best, according to the major union truck dispatcher in south Florida, is to keep close track of drivers and permit the company to generate bills the carriers are willing to pay

The Drayage Management System is in use at several south Florida ports and terminals.

without dispute in a timely fashion.

John Krissel, compliance director for Southern Ocean Transport, also discourages shrinking because truckers carry the Global Positioning System transmitters that are part of the Chary package. They show the dispatcher if they linger too long at a stop or deviate from their normal path from the terminal to the shipper.

Chary also offers his Online Trucker Management software that provides electronic linking with trucking companies. Shippers and intermediaries can implement an integrated work order management system, allowing automated tracking and monitoring of work orders across numerous trucking companies. OTM software provides a framework for creating, managing and tracking transportation work orders that are directly derived from the export, import or other requirements.

Chary has plans for tracking pallets with radio-frequency identification and a global elaboration of his systems. And he is seeking investors to help him grow. So is Giermanski, whose plea for better cargo security was published recently in the American Shipper and online at The Journal of Commerce without mention-

ing his smart box. The Journal of Commerce is a sister publication of Florida Shipper.

The smart box

Powers International's Smart Container System begins by recording the identity of the person responsible for monitoring the "stuffing" and securing of the container at the foreign point of origin. The system can store trade data that will link the specific container to other documentation contained in the user's logistics software system, detect and report any breach, provide tracking information and report its own hijacking, all via worldwide satellite communication.

This system was selected for evaluation in Europe under the leadership of the European Aeronautic Defense and Space Co. (EADS/Airbus) and tested in trials that began with installation in South Carolina. The containers were then transported to Bremen, Germany, where they were stuffed for shipment to the MSC terminal at Port Everglades.

Germany's Bremer Innovations-Agentur GmbH worked with Powers to make sure the container electronically captured shipping data, then identified the person supervising the stuffing of

the container at the point of origin and the identity of the person with first access to the container at destination.

Test containers

The test containers detected and reported several breaches via satellite on their way from Germany to Port Everglades. The Powers device also found a container that had missed the loading at Bremen but was thought to be onboard the MSC vessel.

Giermanski is the former FBI agent and former Customs agent. He said the product is designed for high-value or high-risk cargo and can pay its own way in reduced shrinkage or reduced offloading times at U.S. ports.

Options include sensing devices that can detect the smell of explosives, monitor and adjust temperature and track humidity within the sealed container.

Making the case

In his white paper on container security, Giermanski pointed out that in May 2005, three scientists — Davabhaktuni Srikrishna, A. Narasimha Chari and Thomas Tisch — released a paper on detecting nuclear materials in transport. Their conclusions were that

terrorists are most likely to use highly enriched uranium, not plutonium, because assembly of the highly enriched uranium bomb is not as technically complex as a plutonium bomb.

The problem is that terrorists can circumvent a network of fixed detectors because fixed detectors not only lack sufficient proximity and exposure to the vehicle in transit but also do not screen many types of vehicles. Furthermore, the laws of physics define the limits of passive detection, which will always be limited by its natural rate of radioactivity, and the attenuation of radioactivity is sharp with distance and shielding.

Second, the physics of detection are fairly simple. Gamma rays and neutrons from shielded highly enriched uranium are detectable only at short distances and when there is adequate time to count a sufficient number of detected particles. The closer a detector is to the source of emission and the longer it "sniffs," the greater the probability of detecting highly enriched uranium. In March 2006, the U.S. Government Accountability Office's undercover investigators brought radioactive material across the Mexican border. The primary portal scanning equipment did not detect the radiation. It was discovered only during secondary inspection when Customs and Border Protection scanned a particular box in the trunk of the car.

Fixed scanner problems

Fixed detectors now used in major seaports to scan containers have built-in problems. If highly enriched uranium is shielded inside a container, the detector must contend with the shielding of the container body, and the shielding of highly enriched uranium. If a terrorist weapon had 10 centimeters (about four inches) of shielding, it would take a detector a day-and-a-half to detect it from 20 inches away. The X-ray machines currently used at ports simply cannot get close enough, or scan long enough to detect the presence of highly enriched uranium.

It will take scientists two or more years to develop scanners that will detect shielded radioactive weapons, and the detectors probably will not be commercially available for six years or

At the Port of Miami, threat assessment is accomplished with the aid of a portable VACIS machine, pictured here.

more. However, the administration wants to continue to use fixed detectors. Last summer, the Department of Homeland Security Domestic Nuclear Detection Office announced plans to award contracts for the next-generation system to detect shielded radioactive materials.

If terrorists succeeded in smuggling a nuclear or radiological weapon into the U.S. in a container, they would only need radio-frequency identification technology to detonate it. The Federal Communications Commission has approved the use of RFID technology on containers, and Homeland Security has accepted it for use in seaports and land ports-of-entry. Any knowledgeable technician who knows the frequency can design a device that will trigger the weapon of mass destruction when a fixed or hand-held transceiver beams a radio wave at the container.

Satellite technology

"Smart" containers using satellite technology are not as susceptible to this kind of RFID triggering, according to Giermanski, chairman of Powers, the smart container maker. His system when attached to the container constantly receives and responds to coded signals from a satellite in an established protocol. Each container has its own unique signal. Having a system that "talks" to each container individually makes it much more difficult to use a random signal to trigger a bomb. To corrupt the system, a terrorist would have to design a specific device to detonate in a specific container.

Giermanski suggests that because it takes an extended time and close proximity for a sensor to detect shielded highly enriched uranium, it would make more sense to put such a sensor in a container for the duration of an ocean voyage, and sound a warning via a satellite communications system. When the container arrives in the U.S., it would not have to be passed through fixed radiation detectors. The system would qualify members of the Customs-Trade Partnership Against Terrorism for Tier 3 status, and Customs could expedite the handling of their cargo.

"There are container systems available today that can detect radiation, or a container breach, and sound an alarm via satellite at a cost of a few dollars a month," Giermanski said. "It is both amazing and disappointing to witness the lack of vision by Homeland Security and Congress in adopting this system. They call for smart containers, satellite communications and tracking, verifications and end-to-end supply-chain security, but fail to realize that they are already here. For the sake of politics, or favors, or their lack of understanding of alternatives, we all are at risk." ◥