



# IT MATTERS

by Gerald Woolever

## Maritime Security: Creating a System of Systems

**N**early every containerload represents a point of vulnerability in the pursuit of maritime security. Daily, 17,000 shipping containers laden with cargo of all sorts enter 361 U.S. seaports. Multiply this number by the hundreds of pairs of human hands through which that cargo passes and you can begin to see the magnitude of the port security problem — a far more complex logistics challenge, even, than the successful effort to federalize airport passenger screeners last fall.

To meet this challenge, an end-to-end technology solution is necessary to thwart a determined terrorist from smuggling bio-hazardous materials or even possibly a dirty bomb into the United States.

### Solving the Security Puzzle

Attempting to improve maritime security using disparate and disconnected technology solutions won't work. What's needed is a system of systems where all pieces of the maritime security puzzle can be connected and monitored simultaneously.

A holistic approach would enable all interested parties to track the whereabouts of a single toy, for example, and determine whether the container it is shipped in has been tampered with and where along the supply chain the tampering has occurred.

Who needs to know? Manufacturers, shippers, tugboat and container companies, warehouse crews, longshoremen and their labor unions, trucking and railroad firms, and insurers just for

starters. The port authorities, municipal governments, and the U.S. government also have vital stakes in knowing whether terrorists have tampered with imported goods.

### How to Ensure Smooth Sailing For Port Security

The following four steps will guarantee that high-seas commerce is safe:

**1. Mapping the supply chain.** Government and port authorities must work in concert to understand every point of vulnerability and every stakeholder along the supply chain. This insight forms the basis of an integrated picture of total and secure asset visibility.

**2. Pinpointing supply chain weaknesses.** Individual stakeholders must clearly understand vulnerabilities in the warehouse, at sea, and even on the highway, then take steps to minimize those risks. All parties should assume that terrorists could exploit any weakness.

**3. Establishing supply chain management processes.** Processes must be established to ensure that each container can be tracked in an uninterrupted fashion.

**4. Enlisting technology in the fight against terrorism.** A fascinating array of technology exists to enable shippers, manufacturers, and warehouse workers to monitor distribution of imported products, minimize theft opportunities, and prevent terrorist infiltration. Among these:

■ **Satellite tracking** can be used to

accurately monitor the location and status of containers all over the world.

■ **Highly sensitive radiation monitoring systems**, using sensitive glass fiber sensors, are available to monitor the presence of nuclear materials in a variety of settings.

■ **Intrusion devices**, such as the motion detectors you may have at home, when activated by light and motion, send a signal to the port authority or the warehouse that container tampering has occurred.

■ **Secure, tamper-proof radio frequency identification (RFID) tags**, normally the purview of inventory management, are playing an increasingly important role in homeland security. RFID tags inexpensively identify a container's whereabouts throughout the supply chain.

### End-to-End Monitoring

Separately, while radiation-monitoring equipment and RFID tags perform a vital function, neither provides a system of total asset visibility necessary to improve maritime security from one end of the supply chain to the other. Together, however, combined with sophisticated logistics management capabilities and an understanding of how to leverage these technologies for proactive intrusion detection, the supply chain can be effectively managed and monitored from end to end.

In very uncertain times, a coordinated system of maritime security systems will best protect the nation from those who could do it harm. ■