

Integrating commerce and security at the world's ports

Douglas Stevenson, Director of Global Marketing, L-3 Communications Security & Detection Systems, Woburn, MA, USA

There is an inherent conflict of interest between key players at the world's sea ports. Port operators, manufacturers, shippers, and other commercial supply chain stakeholders are focused on maintaining the flow of commerce while customs, security personnel, and governing bodies emphasise the need for heightened security. It is a widely held belief that, as you add security layers to ports, the flow of goods and services will be disrupted.

As regulators move to address security vulnerabilities, port operators should expect additional scrutiny of their operational processes. To reduce the potential impact of such security measures, port operators and commercial supply chain stakeholders should seek ways to better integrate security systems into their operations. Several high-technology solutions are currently available that can significantly ease the container security screening process.

By becoming aware and involved in new security policies and procedures as they evolve, terminal operators, shippers and other key stakeholders can minimise the impact to their operations by working with experienced systems integrators to assimilate new security systems into existing processes in a way that minimises the impact of the new measures.

The push for more security

In light of recent world events, governments around the globe are clamouring for additional security around seaports, airports, trains, government buildings, and other symbols of commerce and freedom. Governing bodies – especially the US Congress – have targeted the shipping industry as a critical area in need of improvement. Scrutiny of vulnerabilities within the industry will not abate until significant changes are made.

Some regulations have already been put into place, including the requirements placed on shippers and ports by the International Ship and Port Facility Security (ISPS) Code, which is designed to evaluate risk, enabling governments to offset changes in threats with changes in vulnerability for ships and ports.

Briefly, the ISPS Code requires the following of port facilities:

- Port facility security plans;
- Port facility security officers;
- Certain security equipment;
- Monitoring and controlling access;
- Monitoring the activities of people and cargo; and
- Ensuring that security communications are readily available.

In addition to the ISPS Code, over thirty of the world's largest shipping ports have adopted and adhere to the regulations of the Container Security Initiative (CSI), which was created by the US Customs and Border Patrol (CBP). Built on the premise that American borders are the last line of defense for US-bound trade, not the first, CSI extends the zone of security to those ports that conduct the most trade with the US. Since January 2002, CSI has mandated that maritime containers which pose a risk for terrorism are identified and examined at foreign ports before being shipped to the US.

To meet these regulations – which run contrary to the flow of commerce through ports – many ports are paying an expensive and time-consuming price. According to cargo experts at L-3, every

time a customs official flags a container for further inspection, it can cost a port facility up to \$5,000 to retrieve the container and transport it to and from a screening facility. This is partly due to the lack of compatible communications systems between customs houses and port facilities, and partly due to the lack of real estate at ports.

To accommodate the space needed to house screening equipment, many ports have relegated these systems to locations far from the hub of activity, which increases the time and cost needed to screen them. This cost is in addition to the expense of the initial purchase and ongoing maintenance of the screening system.

It remains unclear who will bear the cost of these necessary expenditures. However, port facilities should view this as an opportunity, not a burden. Nothing will happen to advance port security unless someone takes the lead. Port facilities, shippers and other key players have the unique opportunity to stay ahead of regulators and assume a leadership role in determining the most viable security systems. A private solution – created by those who will have to implement and maintain it – will be better, and possibly less expensive, than a government-mandated solution that is imposed upon an unwilling port.

If you can't beat them, join them

Although many commercial supply chain stakeholders believe that any additional steps in the shipping process – regardless of the security impact that they may have – will negatively impact commerce, it is clear that security regulations are gaining strength and international acceptance. Rather than resist these changes, shippers and port operators would be better served if they sought ways to reduce the impact of the regulations through the use of existing technologies.

Three existing technology solutions can immediately be implemented to meet current security regulations that require port facilities to screen containers and verify manifests, monitor for radiation, and accurately track containers.

High-energy X-ray screening

High-energy X-ray technology is a proven security screening technology that has been used in port and aviation security since the late 1980s. Without needing to open shipping containers, high-energy X-ray systems passively screen the contents, providing operators with screened images with superior resolution that are easier to interpret.

A range of cargo screening products are available, including fixed sites, relocatable gantry systems, and mobile units. Due to the limited real estate that is available at most ports, relocatable gantry and mobile systems are the best options. Such systems are more compact than the larger – and more permanent – fixed site installations and therefore offer ports greater flexibility.

Several solutions are available using high-energy X-ray technology that can be used in port facilities, including:

- L-3's CX-3800G (gantry): A re-locatable, highly flexible cargo screening system, capable of inspecting trucks, ISO intermodal shipping containers, vans, and automobiles. Each system utilises a 3.8 MeV high-energy X-ray that can penetrate up to 270mm (10.6 inches) of steel. As the regulatory agency that oversees some of the

busiest ports in the Middle East, Sharjah Customs (United Arab Emirates) required a screening system that offered superior images of the contents of containers, without disrupting throughput at two key ports which handle more than 1.5 million tons of cargo each year. The CX-3800G met their needs because it achieves a throughput rate of approximately 25 full containers per hour, in addition to providing manifest verification, detection of stowaways, explosives, weapons, drugs, and other contraband (Figure 1).

- L-3's CX-3800M (mobile): although the CX-3800G is more compact than a fixed-site, some ports will require a more flexible cargo inspection solution. L-3's road-worthy CX-3800M (mobile) X-ray screening system can not only maneuver within a port facility, but can also be driven to other locations outside the port, if the need arises. Similar to the gantry system, the CX-3800M system has the capability to penetrate up to 270mm (10.6 inches) of steel using a state-of-the-art 3.8MeV linear accelerator. Using the CX-3800M, operators can quickly verify manifests, detect stowaways and seek out threats, explosives, weapons, drugs and contraband. Ever conscious of the need to not slow commerce, the L-3 CX-3800M has a throughput of over 20 trucks per hour and is capable of imaging the contents of a fully loaded, 18-wheeled tractor-trailer or 40ft cargo container with unparalleled detail. Already deployed in the Netherlands and with the Italian Border Police, CX-3800M mobile screening systems are also scheduled to be delivered to other European nations throughout 2005 (Figure 2).

Radiation portals

Attempts to conceal and smuggle shielded illicit nuclear materials and radioactive sources within a vehicle or container can be detected by using radiation portals that are available today. These systems use advanced passive scanning technology to detect hidden sources and nuclear material in closed, moving vehicles, containers and railcars. Such systems can scan an entire container, trailer or railcar in seconds, enabling security personnel to screen all traffic passing through a facility or checkpoint with minimal impact on throughput.

The two primary targets for these systems are special nuclear material used in the creation of atomic weapons and radioactive dispersal devices that use large commercial radioactive sources coupled with a high explosive to provide a non-nuclear blast, leaving significant radioactive contamination.

Optical character recognition

To facilitate a port's ability to track containers and increase efficiencies, optical character recognition solutions should be utilised. There are several solutions on the market that provide a video inspection portal that can read container ID, license and chassis numbers directly from moving equipment. This information can be made available to terminal management systems to increase terminal productivity, efficiency, accuracy, and



Figure 1. The CX-3800G (gantry) cargo screening system.



Figure 2. The CX-3800M (mobile) X-ray screening system.

security. Several technologies, including advanced digital imaging, radio frequency (RF) identification, and optical character recognition, can be combined to process drivers, vehicles and cargo. Such systems are designed to improve the transfer of containers at transportation distribution terminals.

Seamless integration

When integrating the X-ray screening, radiation portals and/or optical character recognition into regular port operations, a systems integrator, such as L-3, can evaluate current processes to determine how to best incorporate these technologies. For example, there is inevitable downtime when a container is not in transit. This time would be better used for X-ray screening.

An experienced systems integrator can help a port facility to evaluate the most effective means to satisfy multiple requirements of maintaining a steady flow of commerce and meeting new security measures. The integrator will examine all existing processes, including the port facility's current relationship with customs, to determine a solution.

Because no two ports are exactly the same, there are no cookie cutter solutions. However, a seasoned systems integrator will have the expertise and breadth of knowledge to help a port facility to recognise the value of security systems and to integrate them in such a way that minimises the impact on commerce.

ABOUT THE AUTHOR



Douglas Stevenson has held senior management positions in marketing, strategic planning and business development for over 15 years. As director of global marketing for L-3 Communications Security & Detection Systems, Inc., he is responsible for development and implementation of the company's domestic and international marketing and communications initiatives.

ABOUT THE COMPANY

The company is a leading supplier of X-ray security screening systems, offering a broad array of products to the aviation, transportation, customs, border control and public building security markets worldwide, with representation in over 60 countries and one of the most extensive sales and distribution networks in the security industry. L-3 Security & Detection Systems is a division of L-3 Communications, a Fortune 500 merchant supplier of high technology products for aerospace, defense and homeland security with annual sales of over \$6.5 billion and over 38,000 employees worldwide.

ENQUIRIES

Douglas Stevenson
L-3 Communications Security and Detection Systems
10 Commerce Way
Woburn
MA 01801
USA

Tel: +1 (781) 970-1799
E-mail: douglas.stevenson@l-3com.com
Web site: www.l-3com.com