

# The 100 per cent challenge

## High-throughput container screening in the global supply chain

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To protect nations against weapons of mass destruction, governments have been active in implementing programmes to increase container-handling security. Efforts such as the Container Security Initiative, the Secure Freight Initiative, and the SAFE Ports Act represent the leading edge of legislation aimed at eventually screening 100 per cent of high-risk containers loaded in foreign ports for nuclear materials and other potential weapons. These containers will be screened through a combination of two types of nonintrusive inspection technologies: radiographic imaging to view the contents of closed containers, and passive scanning to detect radiation sources inside these containers. Additional legislation will likely be enacted.

While useful in focusing efforts to address container screening challenges, legislation alone is insufficient. It is futile to implement technologies that ignore the realities of modern commerce – high throughput and minimal physical space requirements. Nonintrusive inspection systems must be designed to meet the goals of both security and commerce. Because shipping volumes can reach as high as thousands of containers per hour at the world's busiest facilities, these systems must be very fast to scan all containers. It only takes one container concealing a threat to create a disaster.

### Available technologies

Because they are entirely passive and emit no radiation, radiation detection systems are easily deployed in high-throughput drive-through configurations. The main challenge facing designers is integrating these systems with radiographic imaging technology, which can interfere with radiation detection. X-ray and gamma-ray radiographic imaging systems come in a variety of configurations. Gantry systems, in which the source and detector array move past stationary, unoccupied trucks with containers, provide bumper-to-bumper scanning but have low throughput. Truck-mounted mobile systems offer a compromise between throughput and bumper-to-bumper scanning as well as ease of relocation. No configuration, however, is better suited to scanning containers than fixed-portal systems, which allow trucks to drive through without stopping or requiring the driver to exit the vehicle.

### A revolution in container screening technology

Science Applications International Corporation (SAIC), a leading manufacturer of nonintrusive imaging and radiation monitoring systems for cargo, is pleased to announce a new product designed specifically to help meet the 100 per cent challenge – the VACIS® IP6500 integrated cargo scanning system.



Figure 1. SAIC's VACIS IP6500 system can process 150 or more containers per hour.

The fixed-portal VACIS IP6500 system combines several technologies to increase security and productivity in the global supply chain with minimal impact on commerce flow. The system's high-energy x-ray source provides detailed images of container contents, even through heavy shielding. Its spectroscopic radiation detection system, integrated within the system cabinet via an innovative process, locates and even identifies nuclear material. With its small footprint and low radiation dose, the system can be used in very limited space. By helping to reveal weapons, dangerous nuclear materials, contraband, and other threats, the system can greatly reduce the need for time-consuming manual inspections.

Above all, the VACIS IP6500 system is extremely fast, processing up to 150 containers per hour in its standard configuration, or 300 or more per hour with added equipment and/or modifications to the system's small access-controlled area – fast enough to scan even high volumes of container traffic.

### Meeting the 100 per cent challenge

Modern fixed-portal container screening systems such as the VACIS IP6500 are compact, safe, and feature high-resolution, high-penetration radiographic imaging and cutting-edge radiation detection and identification, helping inspectors reduce the threat of terrorism perpetrated through the global supply chain. Most importantly, through the use of these systems, the economic and security incentives associated with 100 per cent container screening can be realised with minimal impact to the flow of commerce.

The exciting potential of 100 per cent container screening is becoming a reality – security at the speed of commerce.

#### ABOUT THE AUTHOR



**Alex Preston** is an experienced veteran of the transportation technology industry, with several decades of accumulated international management experience in computer software development and automotive manufacturing, logistics, and procurement. Mr. Preston has served as General Manager of SAIC's Security and Transportation Technology (STT) Business Unit since 2006.

#### ABOUT THE COMPANY

SAIC is a FORTUNE 500® scientific, engineering, and technology applications company that uses its deep domain knowledge to solve problems of vital importance to the nation and the world, in national security, energy and the environment, critical infrastructure, and health. SAIC's STT Business Unit designs and manufactures EXPLORANIUM® radiation detection and VACIS® imaging systems at its ISO-9001 certified facility located near San Diego, California, and installs and supports these systems around the globe. SAIC: From Science to Solutions®

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