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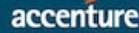
USC-Created Company Advises On Randomization Of Security Measures

By: Mickey McCarter

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John Pistole, the chief of the Transportation Security Administration (TSA), often refers to random patrols or inspections as a key element of his agency's security strategy at US airports.

As recently as March 14, 2013, Pistole told the House Committee on Homeland Security that "TSA will always incorporate random and unpredictable security measures throughout the airport" to make it difficult for terrorists to observe patterns in security measures and thereby evade them.

However, there is another key motivator for randomizing security measures -- limited resources. TSA and other security organizations only have so much money, so they seek to maximize their resources and cover as much ground as possible with randomized security.

That concept was first explored in 2007 when the Center of Excellence for Risk and Economic Analysis of Terrorism Events (CREATE) at the University of Southern California teamed up with Los Angeles International Airport to explore ways to make the most of the airport's law enforcement capabilities.

Erroll Southers, now an associate director at CREATE, was intelligence chief for the Los Angeles airport authority at the time. Principal creator Miland Tambe and others at CREATE collaborated with Southers and airport officials to produce the Assistant for Randomized Monitoring Over Routes (ARMOR), software that views challenges associated with patrols and surveillance as a Bayesian Stackelberg game, calculating various random actions with regard to high-risk targets and types of adversaries.

The University of Southern California recently privatized the concept, spinning off the company Armorway in March to provide ARMOR-based security solutions on a commercial basis. Southers and Tambe are among the founders of the new company, which counts Los Angeles International Airport among its clients.

In a recent discussion with *Homeland Security Today*, Southers said ARMOR was ideal for applications for large, stationary terror targets like stadiums and airports but perhaps limited in effectiveness for targets with lots of moving parts like the Boston Marathon, a large open outdoor sporting event.

"I think it's an applicable concept in a patrolling strategy in something like a marathon because it is such a wide open and long event to protect. You have a 26-mile race course but you have 48 miles to protect in Boston," Southers said.

"It would challenge adversaries perhaps a little bit more with the fact that they don't know where the patrols are going to be or how they are going to get in or where the screening is going to occur. A marathon is really hard for ARMOR. I think it's an add-on. I don't think it's an answer; I think it's an enhancement," he said.

But ARMOR achieves maximum utility when applied to a facility where authorities could set up fixed checkpoints for entry if they had the resources. Whether they do or not, ARMOR could assist.

"Now ARMOR for a stadium for screening people going in, it's a really good enhancement. You have people going into a fixed location. They have to go through a portal to get there. Anybody can walk out of the door of their home and join a marathon race course. That's why it's hard. But if you have patrols that are scheduled randomly, you will give the impression of a force multiplier," Southers explained.

The CREATE program has stood up several different applications of ARMOR, including ARMOR Intelligent Randomization in International Scheduling (IRIS), used by the Federal Air Marshal Service; ARMOR Game-theoretic Unpredictable and Randomly Deployed Security (GUARDS), used by TSA; ARMOR Port Resilience Operational Tactical Enforcement to Combat Terrorism (PROTECT), used by the US Coast Guard; and ARMOR Tactical Randomization for Urban Security in Transit Systems (TRUST), developed for large urban transportation system like those in Los Angeles or Chicago.

The Coast Guard recently extended the pilot phase of ARMOR-PROTECT from ports in Boston to New York and Los Angeles/Long Beach.

"The goal is to make patrol patterns unpredictable for an enemy that is trying to conduct surveillance to plan an attack and yet simultaneously ensure that patrol time is used effectively to ensure maximum protection of high-value targets in the port," Tambe said in a statement on Feb. 27, after

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the project came to California. The Coast Guard is assessing the rollout of the program to all 361 US ports.

For all iterations of ARMOR, the goal is to randomize patrols in a way that provides maximum protection in a way that anticipates an adversary's reaction with minimal assets.

The proper use of ARMOR proves more efficient and effective than blanketing an area with law enforcement, particularly in American communities that thrive in an open society, Southers said.

"You know how it is, he who tries to protect everything, protects nothing," Southers said.

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