ASSORT

Aviation Security Screening Optimizer for Risk and Throughput

Pacific Northwest NATIONAL LABORATORY

Challenge

The increasing number of air travelers each year presents a challenge as many airports are reaching or exceeding their capacity in terms of resources and space for passenger screening. Fortunately, advancements in technologies like next-generation millimeter wave scanning and novel screening concepts offer solutions to ease this strain. The focus remains on managing risks while enhancing the overall passenger experience for the traveling public.

Solution

The Aviation Security Screening Optimizer for Risk and Throughput (ASSORT) model, developed by **Pacific Northwest National Laboratory** (PNNL), is designed to enhance risk-based approaches for passenger screening and security checkpoint operations. One key feature is its capability to streamline passenger screening processes efficiently and effectively to manage risk levels to meet acceptable standards. Additionally, ASSORT is exploring various traveler categories — general, trusted, and trusted-plus (trusted+) — along with different checkpoint screening Concept of Operations (CONOPS) tailored to each traveler type. Travelers with a higher trust level may experience fewer screening technologies, resulting in significantly quicker processing times at the checkpoint. Furthermore, ASSORT provides users with the ability to obtain cost estimates for different checkpoint configurations and CONOPS.

Operations

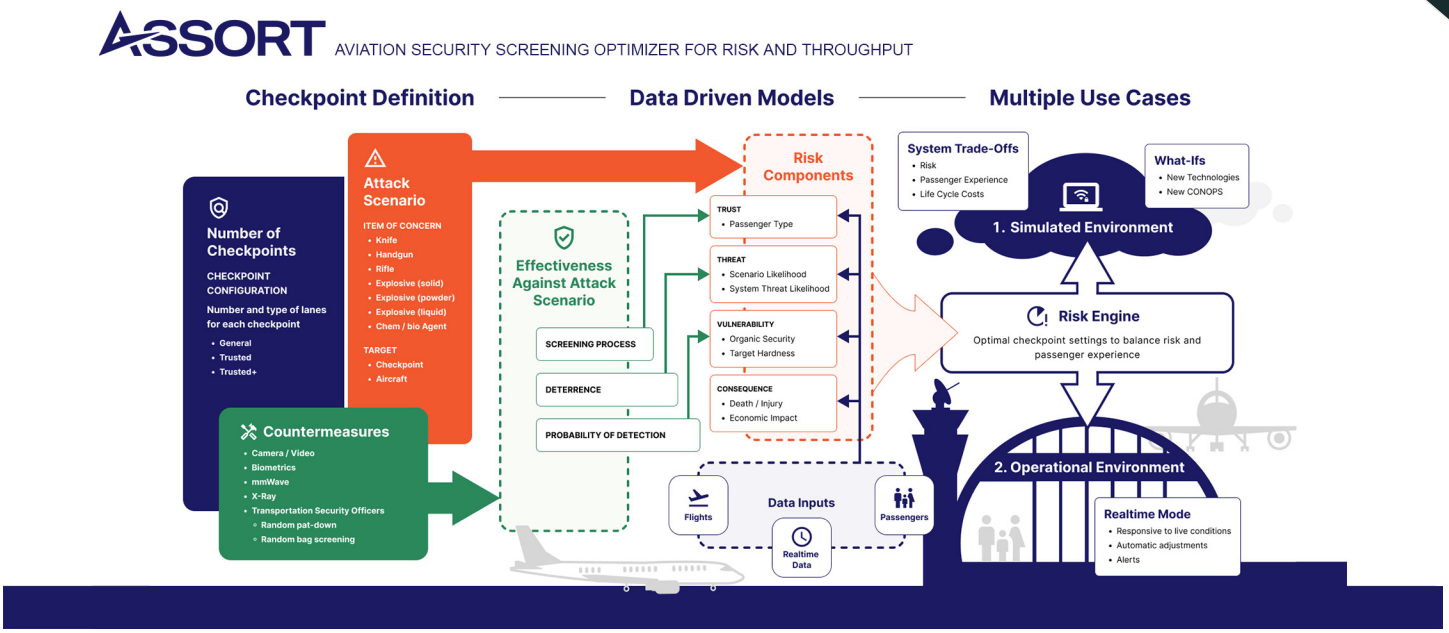
ASSORT delves into a range of representative threat scenarios aimed at the checkpoint and potential risks directed toward an aircraft. Users can customize checkpoint configurations and specific parameters, including detector thresholds and random screening rates. By analyzing real airport passenger data, ASSORT simulates the arrival of every passenger and traveler type at the checkpoint throughout the day. It provides output on risk and throughput for each lane set based on traveler type, allowing users to evaluate the impact of different inputs and checkpoint setups. In the long run, ASSORT is envisioned to serve in two modes: an analytical tool to assess the value of new technologies and operational concepts on risk and throughput, and a system that can adapt in real time by suggesting optimal configurations to balance checkpoint efficiency and security. The platform is designed to be user-friendly and easily accessible through a web portal.

CLICK FOR OPTIMAL CHECKPOINT CONFIGURATION

Impact

ASSORT offers the ability to:

- Calculate the risk of specific threats at the checkpoint and aircraft as a continuous function of time.
- Estimate the throughput of passengers by traveler lane type throughout the day, along with other operational metrics of interest (e.g., queue lengths, wait times, system time, etc.).
- Determine the effectiveness of different technologies and their contribution to risk buydown.
- Evaluate operational shortfalls and the potential impact of emerging threats.
- Evaluate the implications and benefits of new and different CONOPS at the checkpoint.
- Optimize checkpoint configurations to ensure the right size and mix of resources—reducing staffing and life cycle costs.
- Improve the passenger experience at the airport.



Next Steps

Complete development and implementation of ASSORT web portal followed by setup and real-time demonstration of the benefits at select airports with subsequent larger implementation.

CONTACT

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