



Dynamic Aviation Security Risk Modeling

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MSR

Problem

The aviation community lacks tools to design and adapt security measures in proportion to risk

- **No means to measure security design effectiveness**
- **The threat is dynamic**
 - Information on the nature of the threat is sparse and stale
 - Current security risk management focuses on the static
- **Realism requires modeling adversarial reactions**
 - The portfolio of threats will change in response to visible shifts in security

Background

Weak link in airport security revealed



“Feds Charge Airline Employees With Smuggling Drugs Through JFK “([ABC](#))



“TSA officials expect long lines if employee screening becomes law “



Objective



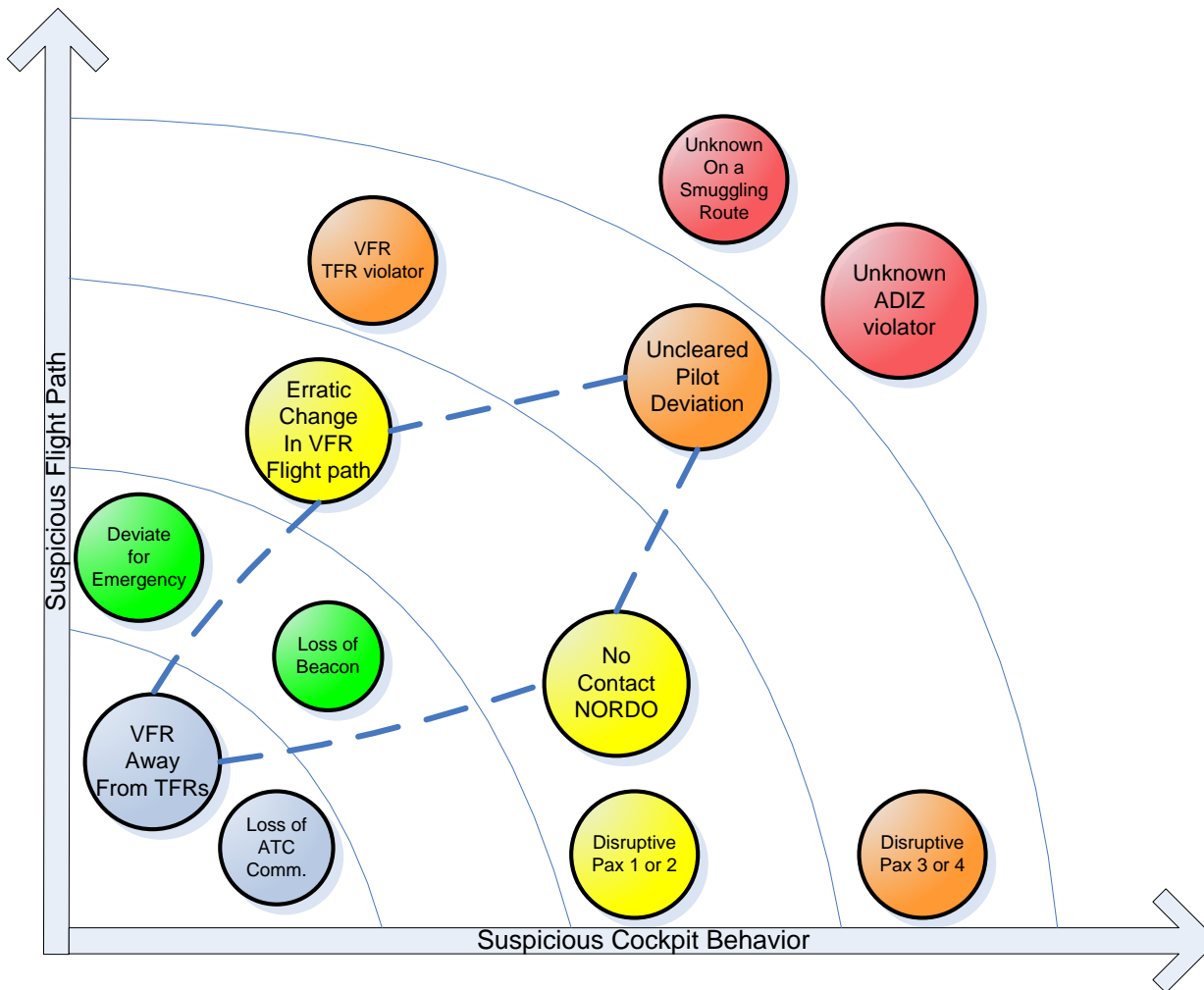
- **Provide basis for integrated risk management**
 - **Create a means for evaluating relevant information in a risk model**
 - **Land side: Support transition to risk-based screening of individuals**
 - **Air side: Understand “aircraft as an airborne threat”**

Activities



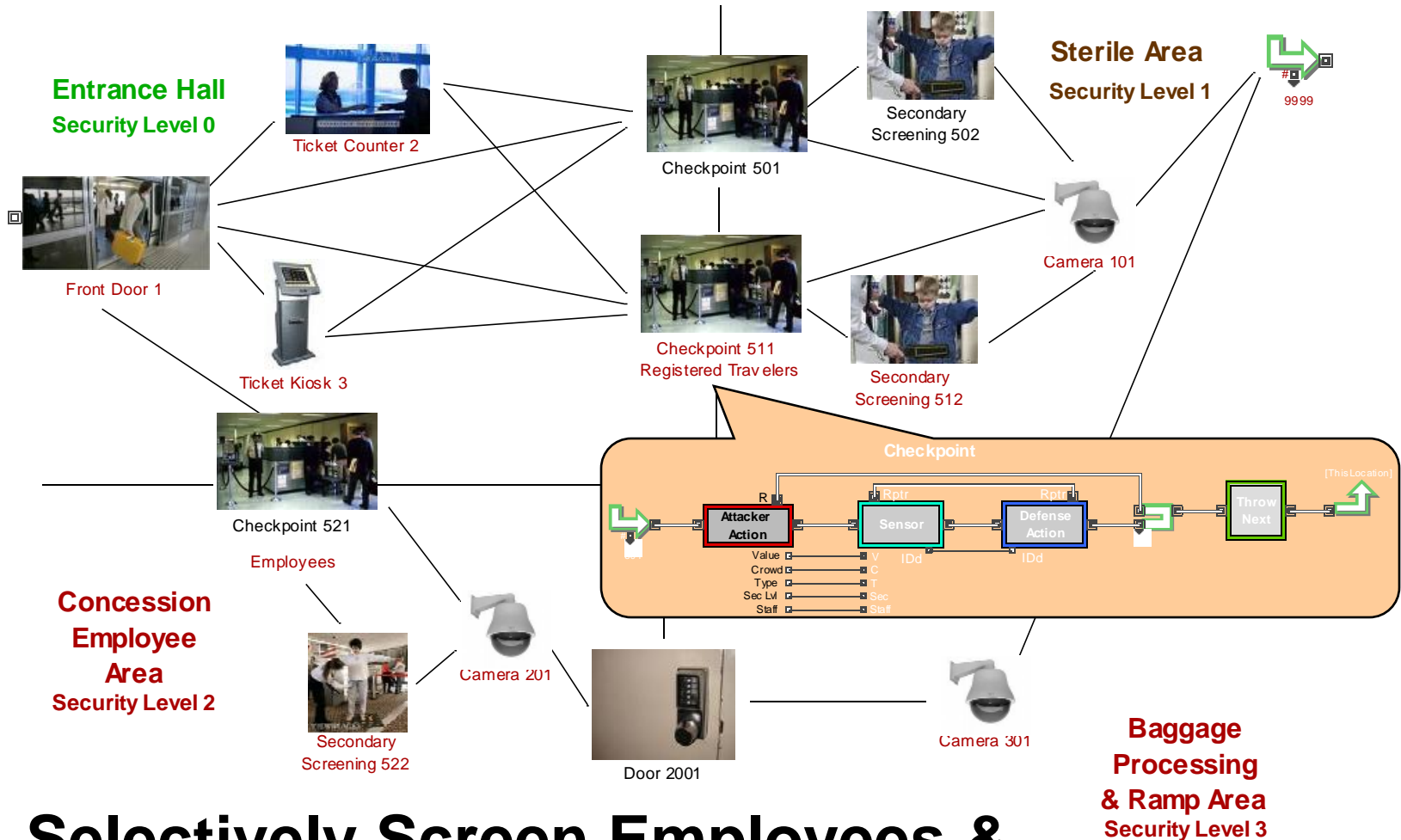
- **Analyze specific factors considered in real-time flight risks assessments**
- **Create influence diagrams or other structures for representing the risk factors associated with a flight**
- **Create a model to assess risk trade-offs in airport security**
- **Compare relative risk of 100% and selective screening for registered travelers, employees, and regular passengers**

Highlight



Control of the cockpit and flight path are key factors in flight risk

Demonstration



Selectively Screen Employees & Registered Travelers

Impacts



- **Knowledge generation for NextGen Integrated Risk Management concept of operations and requirements**
- **Collaboration with C2C on DHS Science and Technology screening demonstrations transition to aviation use**
- ***Panels and Papers***
 - ***AAAE/TSA Aviation Security Summit, December 2007***
 - ***Institute of Industrial Engineers Conference, May 2008***
 - ***Winter Simulation Conference, December 2008***

Future Plans



- **Apply the selective screening risk model to design adaptive security for an actual venue as part of a strategic initiative**
 - Work with TSA perimeter security and checkpoint of the future tasks forces
- **Develop flight risk assessment framework**
 - Complete the framework of aircraft as a threat
 - Involve TSOC, FAA, and DOT security in red teaming
 - Understand risk of aircraft as a target