DHS SCIENCE AND TECHNOLOGY

Curb-to-Gate Security Vision

Homeland Security
Science and Technology

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So What, Who Cares?

Problem

Siloed capability development will not keep up with adversaries or passenger volumes

Proposal

Fundamentally improved aviation security experience is achievable today within reasonable assumptions

Impact

TSA and passengers will benefit from an approved Systems Architecture vision to inform capability development and milestones

Assumptions:

- No “Silver Bullet” Technologies
- Computational and Network capabilities will continue to accelerate
  - Approaching “Infinite Bandwidth” and “Infinite Compute”
  - Latency will remain a challenge
- Limited appetite for construction / infrastructure upgrades
- Passenger volume increases from “pre-Covid” levels
- No significant changes to authorities or privacy protections

Enabling Technologies and Outcomes

Centralized Computing

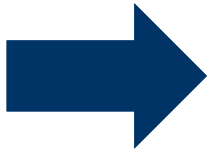
- Time-sensitive calculations done on-premises
- Off-site computing for surge capacity, back up, system-wide analytics

Sensor Data Aggregation

- Enable “fused” algorithms from multiple sensors
- Distributed sensors with “slew to queue”

Terminal-Wide Video Analytics

- Sensor chain of custody
- Passenger-Property Association
- Data aggregation



Intelligent Passenger Routing

- Anonymous and non-credential based
- Iterative screening based on information already collected and aggregated

Per-sensor and System-wide Risk Assessment

- Tied to vulnerability, likelihood, consequence
- Assess “go/no-go” based on all data collected relative to thresholds
- Identify “data anomalies” at scale

Development Roadmap

Dynamic Modeling and Simulation

- Available sensors
- Potential CONOPS

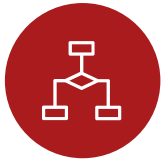
Shared Edge Computing

- Secure interconnects
- Separate vendors
- Hardware
- VMs/Containers

Terminal Wide Sensing

- Terminal-wide Re-ID
- Passenger-Bag Association

Dynamic Algorithms



- Ingest risk data
- Queue other sensors

Fully Integrated

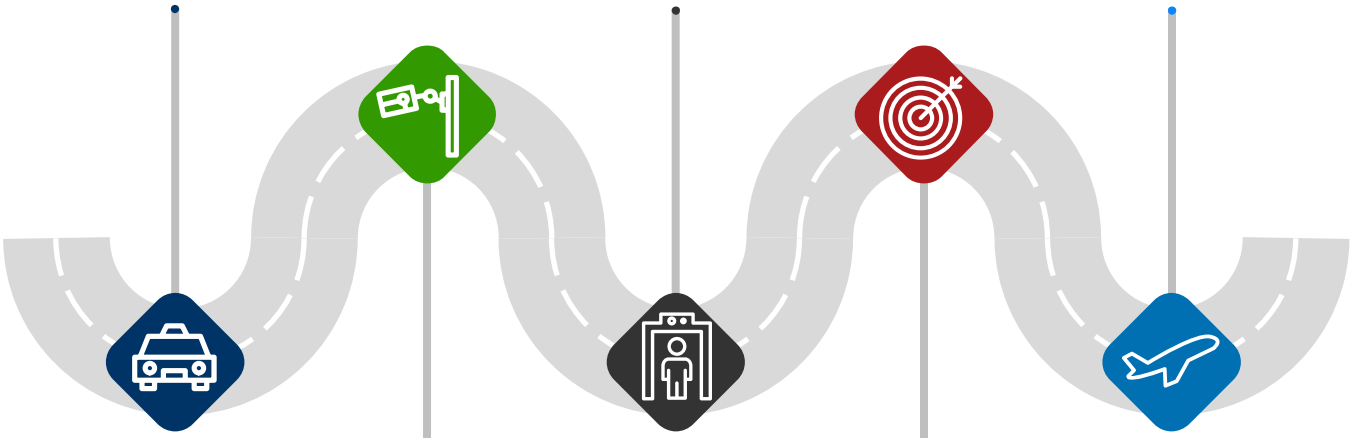
- Interconnect sensors
- Algorithm fusion
- Targeted risk mitigation

End State – Passenger Journey

Arrival
- Unique video ID assigned
- Initial sensor measurements

Checkpoint
- Initial threat assessment
- Passenger directed to screening (if required)

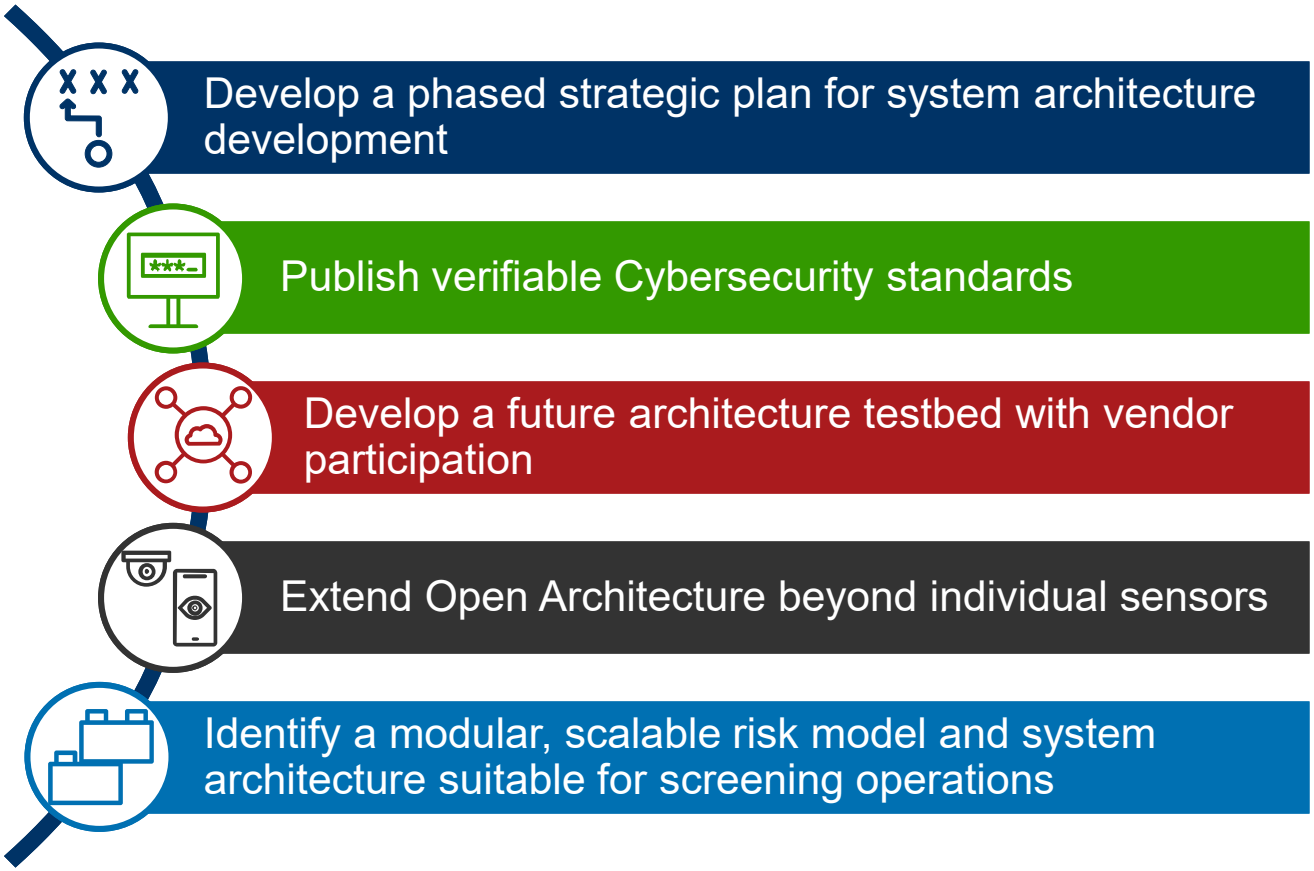
Adjudication
- Final threat assessment
- Validate approval to proceed



Check-In
- Distributed sensors aggregate observations
- Terminal wide-video ensures chain of custody

Resolution
- Targeted checkpoint screening conducted to assess/resolve remaining threat possibilities

Near Term Recommendations



Conclusion

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Sensor Data Aggregation

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Terminal-Wide Video Analytics

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Our Challenge

Intelligent Passenger Routing

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Questions?

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DIVERSE PERSPECTIVES + SHARED GOALS = POWERFUL SOLUTIONS