Complementing STPA with Sensor Systems Architecture

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The Theoretical Connection

- Every sensor has performance limits
- Performance depends on the environment
- Most real world applications need more than one sensor and some support functions for confidence in the outputs

Useful Sensor Concepts
- Field of View
- Field of Regard
- Revisit Interval
- Duty Cycle
- Resolution
- Sensitivity
- Noise
- Clutter discrimination
Example: Physical Intrusion Sensor Hazards

Operational Response Plan:
Start a high severity incident involving external authorities if there's an adversarial intrusion

Has a physical damage event occurred?

Is there evidence of adversarial action?

No way to discriminate clutter from adversarial signal

No operational testing or calibration

No Processing, Exploitation, and Dissemination (PED)

Sensor

Sensor

Anticipated adversarial signal is rare

Clutter is ubiquitous

Environment
The Sensing Team exists to invent, test, and develop systems that improve Akamai’s ability to monitor network security at scale across its global assets.

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