CSE 484 / CSE M 584
Computer Security

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Original slides provided by Franzi and using elements from previous quarters
Security Reviews

- **Assets** (what should be protected)
- **Adversaries** (possible attackers)
- **Threats** (actions by adversaries to exploit system)
- **Vulnerabilities** (weaknesses of system)
- **Risk** (how important are assets, how likely is exploit)
- **Defenses**
A CRYPTO NERD'S IMAGINATION:

His laptop's encrypted. Let's build a million-dollar cluster to crack it.

No good! It's 4096-bit RSA!

Blast! Our evil plan is foiled!

WHAT WOULD ACTUALLY HAPPEN:

His laptop's encrypted. Drug him and hit him with this $5 wrench until he tells us the password.

Got it.
Much like cars, various airplane systems are controlled by computers.

This is especially true for airplanes using ‘fly-by-wire’

Assets, Adversaries, Threats, Vulnerabilities, Risks, Defenses?
Security Review

• **Assets** (what should be protected)
  – Lives of passengers
  – Airplane

• **Adversaries** (possible attackers)
  – Terrorists
  – Ground crew
  – Pilot

• **Threats** (actions by adversaries to exploit system)
  – Unauthorized person can take control of plane
  – Interfere with electronics of plane
Security Review

• **Vulnerabilities** (weaknesses of system)
  – Cockpit door
  – On board WiFi
  – USB connections

• **Risk** (how important are assets, how likely is exploit)
  – High risk asset

• **Defenses**
  – Airport security
  – Air marshal
  – Isolated flight control electronics
More Practice Security Reviews

• Some ideas for topics:
  – Pacemakers
  – Facebook
  – CSE Building
  – Smartphones
  – Airport security
  – ... ?
Attack Trees

- A way to diagram how to attack a system
Attack Trees

Enter bank vault

Through walls
  - Defeat lock

Through floor
  - Break door

Through door
  - Disable bolts

Through ceiling
  - Break hinge
Looking Forward

• Ethics form due April 8
• Lab 1 will be released soon, next section should be about buffer overflow attacks
Feel free to contact us!

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