CSE 484 / CSE M 584: Physical Security

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Announcements

- Monday, 3/6: Last day of lecture (side channels)
- Wednesday, 3/8: Informal conversation about security, research, industry, etc (meeting in CSE2, smaller room)
- Friday, 3/10: Charlie Reis (Google, Chrome, Site Isolation)

Announcements

- Extra Credit Homework 3 online
  - Part 1: Read (short!) fiction and do security analyses
  - Part 2: Use the "fiction writing process" to explore security + society + people
- Final Project Deadline
  - Was told official final time was Monday, 3/13, 8:30-10:20
  - But I think a Monday morning deadline is difficult
  - Deadline: Wednesday, 3/15, 10:20am

Physical Security

- Relate physical security to computer security
  - Locks, safes, etc.
- Why?
  - More similar than you might think!
  - Lots to learn:
    - Computer security issues are often abstract; hard to relate to
    - But physical security issues are often easier to understand
  - Hypothesis:
    - Thinking about the "physical world" in new (security) ways will help you further develop the "security mindset"
    - You can then apply this mindset to computer systems, …

Remember This Example?

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Physical Security: Adversarial Goals

- **Confidentiality:** adversary should not be able to enter and steal information (e.g., see spy movies, or think about bank computer screens facing windows)
- **Integrity:** adversary should not be able to enter property and remove items, damage items, or place new items (e.g., installing spy device)
- **Availability:** adversary should no be able to deny legitimate entry (denial of service) into an environment (e.g., put superglue in a lock, or gum, or break a wrong key in lock)

Physical Security: Approaches to Security

- Prevention
  - Stop an attack
  - E.g., door locks and fences and bars on windows in physical world environment
- Detection
  - Detect an ongoing or past attack
  - E.g., video camera in physical world environment
- Response
  - Respond to attacks
  - E.g.., home alarm system that calls police when entry is detected

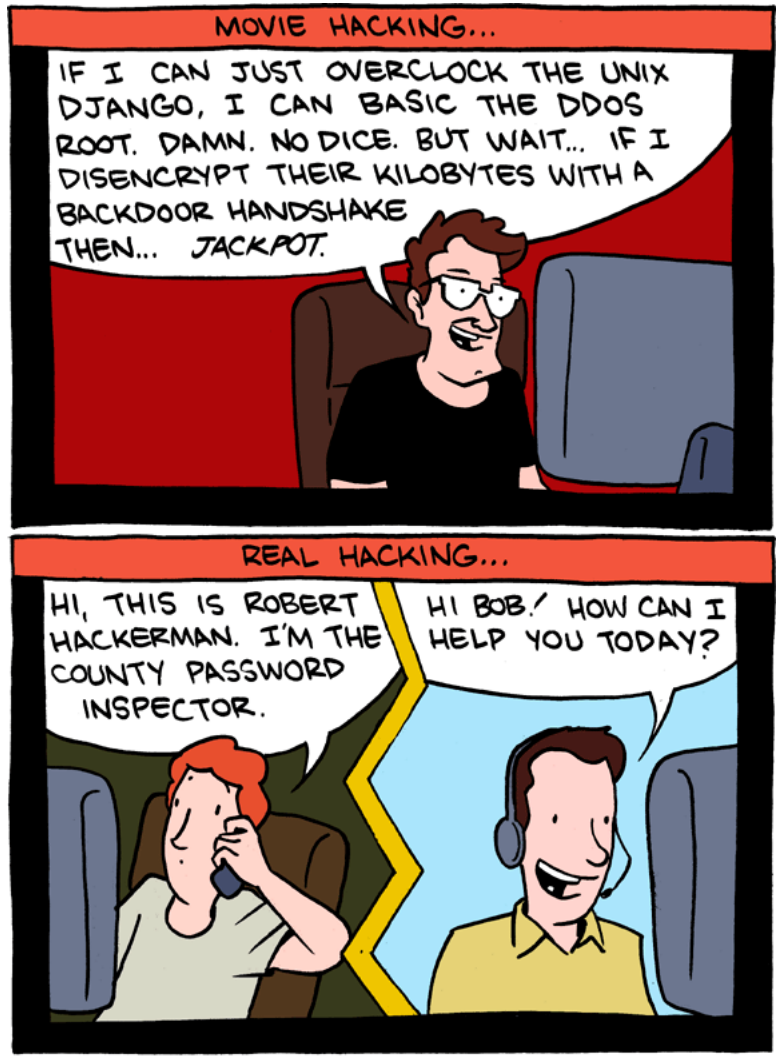
Physical Security is Part of Digital Security

- Securing a system involves a whole-system view
  - Cryptography
  - Implementation
  - People
  - **Physical security**
  - Everything in between

- This is because "security is only as strong as the weakest link," and security can fail in many places
  - No reason to attack the strongest part of a system if you can walk right around it.

Brief (Related) Tangent: Social Engineering

- Art or science of skillfully maneuvering human beings to take action in some aspect of their lives
  - See, e.g.: "The Art of Deception: Controlling the Human Element of Security" by Kevin Mitnick and William Simon
- Used by:
  - Hackers. Penetration testers. Spies. Identity thieves, Disgruntled employees. Scam artists, Recruiters, Salespeople, Governments. …



https://www.smbc-comics.com/?id=2526

Lockpicking

- The following slides will not be online.
- But if you're interested in the subject, we recommend:
  - Blaze, "Cryptology and Physical Security: Rights Amplification in Master-Keyed Mechanical Locks"
  - Blaze, "Safecracking for the Computer Scientist"
  - Tool, "Guide to Lock Picking"
  - Tobias, "Opening Locks by Bumping in Five Seconds or Less"
- Careful: our understanding is that, under current law, possessing lock picks is legal in Washington State, but not everywhere!