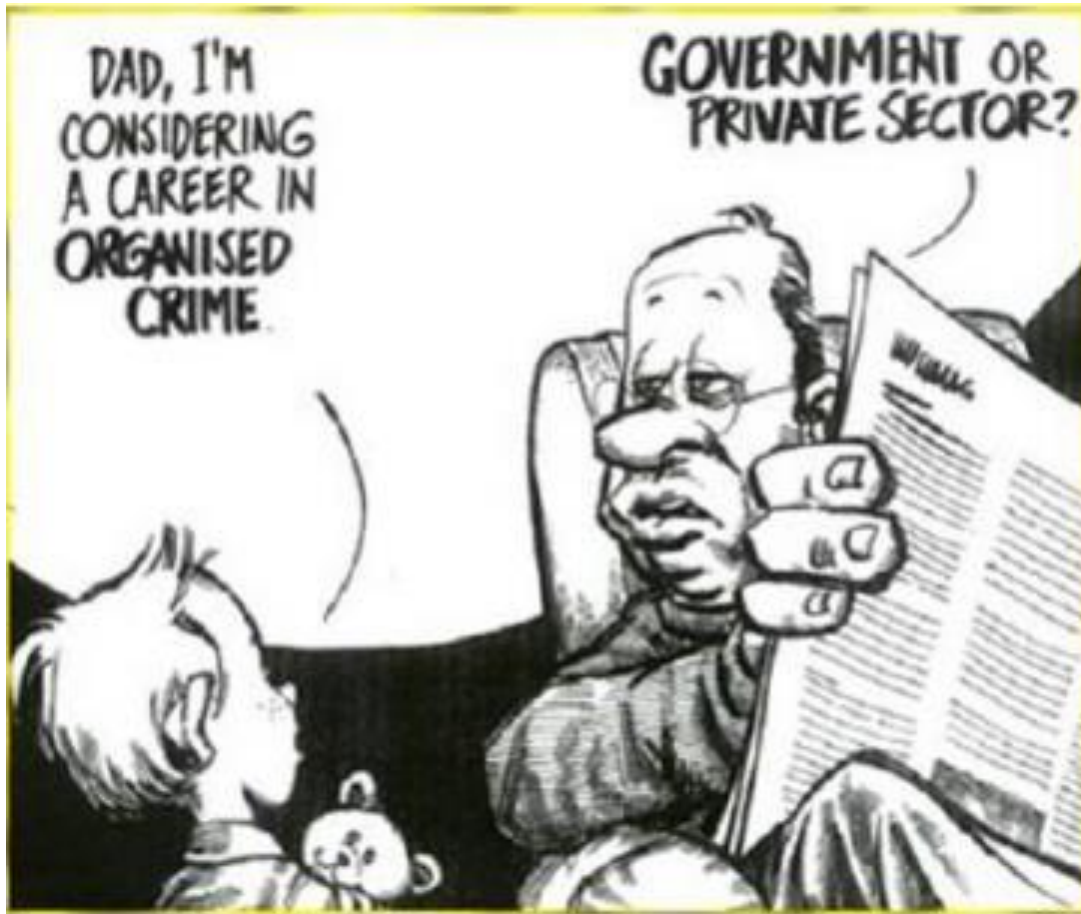


# SECURITY AND ECONOMICS

---

Security, economical gain, and trust

# Perspective?



# What is the gain of hacking?

- Economical
- Image/fame (showing your skills or power)
- Make trouble for someone else
- Fun

# When technical protection fails

- It may be useful to look at the “economics” behind attacks and see how countermeasures may disrupt the hackers “economy” model.
- Arrange so economical gain is eroded
- Create opinion: not really so fun anymore
- “Punishment”: e.g. through laws, taxes, etc.

# The daycare

- Parents come too late to pick up the children when the daycare center is suppose to close.

# The Prisoner's Dilemma

Two suspects are arrested by the police. The police has insufficient evidence for a conviction, and, having separated both prisoners, visits each of them to offer the same deal:

- If one testifies (betrays the other) for the prosecution against the other and the other remains silent (cooperates with the other), the betrayer goes free and the silent accomplice receives the full 10-year sentence.
- If both remain silent, both prisoners are sentenced to only six months in jail for a minor charge.
- If each betrays the other, each receives a five-year sentence.

## **Now the problem:**

Each prisoner must choose to betray the other or to remain silent. Each one is assured that the other would not know about the betrayal before the end of the investigation.

## **How should the prisoners act?**

# PD game in matrix form

	Prisoner B : Silent	Prisoner B : Betrays
Prisoner A : Silent	Each serves 6 months	Prisoner A: 10 years Prisoner B: goes free
Prisoner A : Betrays	Prisoner A: goes free Prisoner B: 10 years	Each serves 5 years

How should the prisoners act?

# Trust is often needed

Discuss where trust is needed

- In using a PKI
- In using TLS connection



# Remember

- When looking for ways to protect your system try to understand what gain others may get from hacking your system.
  - What will be attacked
  - Conditions and when attacks can be expected
  - etc
- The best defenses may not always be technical
- Trust – a fragile notion – is often important somewhere in the system

# Litterature

- The Economics of Computer Hacking, Peter T. Leeson  
Department of Economics, West Virginia University
- Economics and Cryptography, Andrew Odlyzko, AT&T  
Labs, 2001
- Economics, Psychology, and Sociology of Security,  
Andrew Odlyzko, AT&T Labs, 2003