

Slide 1

Administrivia

- Reminder: Homework 6 due today.
- All written homework must be turned in by class time Monday, programming problems by 5pm Monday.
- There could be a set of extra-credit problems. Interest? Decide Monday?
- (Look at updated version of last slide from Wednesday.)

Slide 2

Security, Revisited

- Today — some miscellaneous topics from Tanenbaum's chapter on security and from online sources.
- Hot topic, worth more study!

Buffer Overflows

Slide 3

- How many times, when you read the technical description of a security flaw, do you notice the phrase “buffer overflow”? (For me — often.)
- You already know what a buffer overflow is, from writing programs in C, and how it can lead to interesting(?) bugs.
- How can this be turned to advantage by crackers? Tanenbaum provides a brief description. A frequently-mentioned paper is called “Smashing the Stack for Fun and Profit”. Let’s look at it briefly . . .

Viruses, Worm, and Other Malware

Slide 4

- Some malware spreads without help from users. Interesting example in textbook — 1988 Internet Worm.
- Other stuff requires humans to do something that allows execution of something code-like from a source that might not be trustworthy. (Look again at slide from 11/16 lecture.)

Slide 5

Designing a Secure O/S — Tanenbaum's List

- Make design public. ("Security through obscurity" isn't.)
- Make default "no access". (Lack of needed access is more likely to be reported.)
- Check for current access (i.e., don't authenticate once and then continue to allow access indefinitely).
- Give each process the least privilege possible.
- Make the protection scheme simple, uniform, and designed into lowest level, not an add-on.
- Be sure scheme is psychologically acceptable to users.
- (Above is from 1975 paper based in MULTICS. Tanenbaum adds "Keep it simple!")

Slide 6

Some Good Lines

- Companies should have a rule disallowing mistakes (p. 627, paraphrasing).
- "Features are the enemy of security." (p. 653)

Minute Essay

- Over the course of the semester I've told several "war stories" — tales of woe that taught me (or someone) something. Do you have a favorite war story to tell?

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