

## Lecture 19 Outline

**Reading:** *text*, §16.5, 17.1–17.2

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1. Examples
  - a. Security pipeline interface
  - b. Secure network server mail guard
2. Confinement problem
  - a. What it is
  - b. Covert channels
  - c. Rule of transitive confinement
  - d. Difficulty of preventing leaking
3. Isolation: virtual machines
  - a. What it is
  - b. Example: KVM/370
  - c. Example: VAX/VMM
4. Isolation: sandboxes
  - a. What it is
  - b. Adding mechanisms to libraries or kernel
  - c. Modify program or process to be executed
  - d. Example: Janus