Outline for November 1, 2005

1. Access control and systems
2. Access Control Lists
   a. UNIX method
   b. ACLs: describe, revocation issue
   c. Windows and ACLs
3. Capabilities
   a. Capability-based addressing: show picture of accessing object
   b. Show process limiting access by not inheriting all parent’s capabilities
   c. Revocation: use of a global descriptor table
4. Levels of privilege
5. MULTICS ring mechanism
   a. MULTICS rings: used for both data and procedures; rights are REWA
   b. (\(b_1, b_2\)) access bracket - can access freely; (\(b_3, b_4\)) call bracket - can call segment through gate; so if \(a\)'s access bracket is (32,35) and its call bracket is (36,39), then assuming permission mode (REWA) allows access, a procedure in:
      rings 0-31: can access \(a\), but ring-crossing fault occurs
      rings 32-35: can access \(a\), no ring-crossing fault
      rings 36-39: can access \(a\), provided a valid gate is used as an entry point
      rings 40-63: cannot access \(a\)
   c. If the procedure is accessing a data segment \(d\), no call bracket allowed; given the above, assuming permission mode (REWA) allows access, a procedure in:
      rings 0-32: can access \(d\)
      rings 33-35: can access \(d\), but cannot write to it (W or A)
      rings 36-63: cannot access \(d\)
Puzzle of the Day

Define spam. In particular, what distinguishes spam from unsolicited e-mail?