Outline for January 20, 2016

Reading: text, §16 (15 in first edition)  
Assignments due: Presentation paper selection, Jan. 22  
Project selection, Jan. 22  
Homework 1, Jan. 25

1. Access Control Lists  
   a. Full access control lists  
   b. UNIX method  
   c. ACLs: describe, revocation issue

2. Capabilities  
   a. Capability-based addressing  
   b. Inheritance of C-Lists  
   c. Revocation: use of a global descriptor table

3. MULTICS ring mechanism  
   a. Rings, gates, ring-crossing faults  
   b. Used for both data and procedures; rights are REWA  
   c. \((b_1, b_2)\) 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 \(a\)  
   d. 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 \((W \text{ or } A)\)  
      rings 36–63: cannot access \(d\)