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Handout for 6.033 Recitation 26 (Last one!)  

1. Background on Lampson’s famous paper "Hints for Computer System Design".

2. Let’s pick some of the hints and discuss how some of the systems we’ve studied -- including DP1 and DP2 -- did or did not follow the hints.

Here are some of the hints:

- Do one thing at a time, and do it well  
- Get it right  
- Leave it to the client  
- Handle normal and worst cases separately  
- Plan to throw one away; you will anyhow (From _The Mythical Man-Month_)  
- Keep secrets (Secrets are "assumptions about an implementation that client programs are not allowed to make")  
- Divide and conquer  
- Use a good idea again (he means to reuse good ideas in the same system)  
- Cache answers  
- Use hints ("[A hint] is different [from a cache entry] in two ways: it may be wrong, and it is not necessarily reached by an associative lookup.")  
- When in doubt, use brute force  
- Compute in background  
- The end-to-end argument  
- Log updates  
- Make actions atomic or restartable

Here are some of the systems we’ve studied:

- Therac-25, Unix, X Windows, RaceTrack, MapReduce, Ethernet,  
- Internet routing system, TCP, NFS, NATs, DP1, DNS, Google’s index,  
- Log-structured File System, ARIES, 2-phase commit, RAID, Unison, authentication systems, witty worm, encryption systems, digital signature systems, ATMs in England, DP2

3. What did you all think of the papers?  
   --Which ones did you like?  
   --Which ones didn’t you like?  
   --Which ones were comprehensible? Incomprehensible?

4. At the end of all of this, what has 6.033 been trying to say?

NOTE: The reverse of this sheet has a selection of 6.033 haikus from some of you (recall that there was an extra credit opportunity to write a few 6.033 haikus).

Good luck on quiz 3, and have a great summer!
We read old papers,
Since they are yet to become,
Burdened with big hacks.
   --Thomas Robinson

Therac twenty five
Your concurrency problem
Is the death of me
   --Nima Veiseh

yes, Ethernet bus,
we will wait one RTT.
collision thwarted!
   --Tony Hwang

Frans on a mission
Hammer home the day’s buzz word
Authentication
   --Aditya Rathnam