CSE Recitation5 20161109

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Question1：Use your own word to describe “end-to-end” argument.

- "End-to-end" is a kind of design principle which maintains that functions placed at low levels of a system may be redundant or of little value when compared with the cost of providing them at that low level.We should focus on the realization of the core transmission functions, rather than spend a greater cost to achieve the other functions
- In the low level layer of the network design, we should simplify the structure, when considered the more functional realization, such as data validation and retransmission, security, encryption and other functions , we can put them into the high-level network implementation, then the efficiency will be higher.
- Just like "careful file transfer", it uses checksum to implement "end-to-end check and retry" based on this principle, because under this circumstance we just want to reduce the probability of each of the individual threats to an acceptably small value, so we don't need to carefully think about the security when transfering data in low level and at this time, "end-to-end" will be practical.
- And in another example "delivery guarantees", using "end-to-end" can implement security check and encrypted data and data will not be exposed outside of the application.
- However, whether we should use this principle depend on the real situation we confront and the performance requirement we should meet.
- More often, it is a compromise between communication network and application layer which we should consider carefully.

Question2：Give at lease three cases that are suitable to use this principle

1. When we ought to encrypted data through network
2. When we need to handle data duplication requests
3. When we need high requirement of the order of messages that cannot be disrupted

Question3：Give at lease three cases that are NOT suitable to use this principle.

1. Bank Transfer System, because its low level also needs high security and cannot allow mistakes.
2. When we need high performance then we cannot use end-to-end principle
3. When we develop the coupling between the system modules is very high

Question4：[Discussion] Consider the design of the file system based on inode...

- In my opinion, when it comes to how to divide the disk into different blocks, it may sometimes be inflexible, and if we can let users to decide how to manage and rearrange these blocks when necessary, it might be a good idea.

Question5：[Discussion] The same question, for the OS.

- In my opinion, we can let users to design how to create more efficient volumes to improve performance.