Assignment 1, Networking

Jay R Bolton

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Week 2 homework, Chapter 1, first half
Kurose Ch 1, R3, R5, R11, R12, R13, R15, P1, P2, P3

1 Review Questions

R1.3 A host stores and transmits data while the end system receives it.

R1.5 Cable, DSL, satellite... dsl is generally less expensive and slightly slower than cable, and satellite is generally very expensive.

R1.11 A circuit switched network provides a very reliable connection at the cost of having more unecessary downtime and less connection sharing. TDM provides more bandwidth (all available) but in brief slots of time.

R1.12 L/R_2

R1.13 Packet switching queues packets on demand; if you send the most packets, the packet switch is most likely to process your packets. TDM is not based on demand but on an even division of a length of time.

R1.15 Tier 1 ISPs serve the largest region and have the highest transmission rates. Tier 2 ISPs communicate with a subset of tier 2 ISPs and serve smaller regions.

2 Problems

P1.1

(a) Teller machine sends connection request to bank server.

(b) The bank server responds with a connection reply message indicating that it is okay to now send a request.

(c) The teller machine sends any of the following requests:

i. Authenticate: teller sends encrypted pass and card number. Bank responds with success or failure and possibly an html or interactive page of some sort with links to authenticated requests. The server also modifies its own state and creates an authenticated session for that user. On failure, responds with a failure page and server state is unmodified.

ii. Query balance: during an authenticated session, teller machine sends a query balance request, and the bank responds with a page listing the customer's balance. Without authentication, responds with a failure page.

iii. Withdraw: an authenticated session, teller machine sends a withdraw request. Server responds by changing the state of its database or whatnot for that user and sends a notification page. Without auth, only sends back a failure page. When the server-side code checks balance and finds an overdraft, then responds only with a failure page.

P1.2 **a** $4n$

b n

P1.3 **a** It seems like a circuit switching network would be better, because both TDM and FDM multiplexing does not depend on network usage, but is pre-allocated according to a fixed scheme so would provide a very steady rate.

b Even though the data rates are high enough, that does not account for down times or other failures that might cause queues of packets to back up. I'm not sure this is the answer he is looking for.