

## Hwk 2 - Chapter

- **KR, #R3** - *many people disagree on this definition for certain protocols.*  
The process which initiates the communication is the client; the process that waits to be contacted is the server.
- **KR, #R5**  
The IP address of the destination host and the port number of the socket in the destination process.
- **KR, #R8**
  - a) Reliable data transfer  
TCP provides a reliable byte-stream between client and server but UDP does not.
  - b) A guarantee that a certain value for throughput will be maintained Neither
  - c) A guarantee that data will be delivered within a specified amount of time  
Neither
  - d) Confidentiality (via encryption) Neither
- **KR, #R11**  
The applications associated with those protocols require that all application data be received in the correct order and without gaps. TCP provides this service whereas UDP does not.
- **KR, #R17** DUMB, need to give students the message...
- **KR, #P1**
  - a) F b) T c) F d) F e) F
- **KR, #P7**  
The total amount of time to get the IP address is  $RTT_1 + RTT_2 + \dots + RTT_n$ .  
Once the IP address is known,  $RTT_0$  elapses to set up the TCP connection and another  $RTT_0$  elapses to request and receive the small object. The total response time is  
 $2RTT_0 + RTT_1 + RTT_2 + \dots + RTT_n$
- **KR, #P19**
  - a) The following delegation chain is used for `gaia.cs.umass.edu`  
`a.root-servers.net`  
`E.GTLD-SERVERS.NET`  
`ns1.umass.edu(authoritative)`

**First command:**

**dig +norecurse @a.root-servers.net**

**any gaia.cs.umass.edu**

**E.GTLD-SERVERS.NET. A.GTLD-SERVERS.NET. G3.NSTLD.COM.**

**D.GTLD-SERVERS.NET. H3.NSTLD.COM. L3.NSTLD.COM. M3.NSTLD.COM.**

**C.GTLD-SERVERS.NET.**

**;; AUTHORITY SECTION: edu. 172800 IN edu. 172800 IN edu. 172800 IN edu.**

**172800 IN edu. 172800 IN edu. 172800 IN edu. 172800 IN edu. 172800 IN**

**NS NS NS NS NS NS NS NS**

**Among all returned edu DNS servers, we send a query to the first one. dig**

**+norecurse @E.GTLD-SERVERS.NET any gaia.cs.umass.edu**

**umass.edu. umass.edu. umass.edu.**

**172800 IN 172800 IN 172800 IN**

**NS ns1.umass.edu. NS ns2.umass.edu. NS ns3.umass.edu.**

**Among all three returned authoritative DNS servers, we send a query to the first**

**one. dig +norecurse @ns1.umass.edu any gaia.cs.umass.edu**

**gaia.cs.umass.edu. 21600 IN A 128.119.245.12**

**b) The answer for google.com could be: a.root-servers.net**

**E.GTLD-SERVERS.NET ns1.google.com(authoritative)**

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