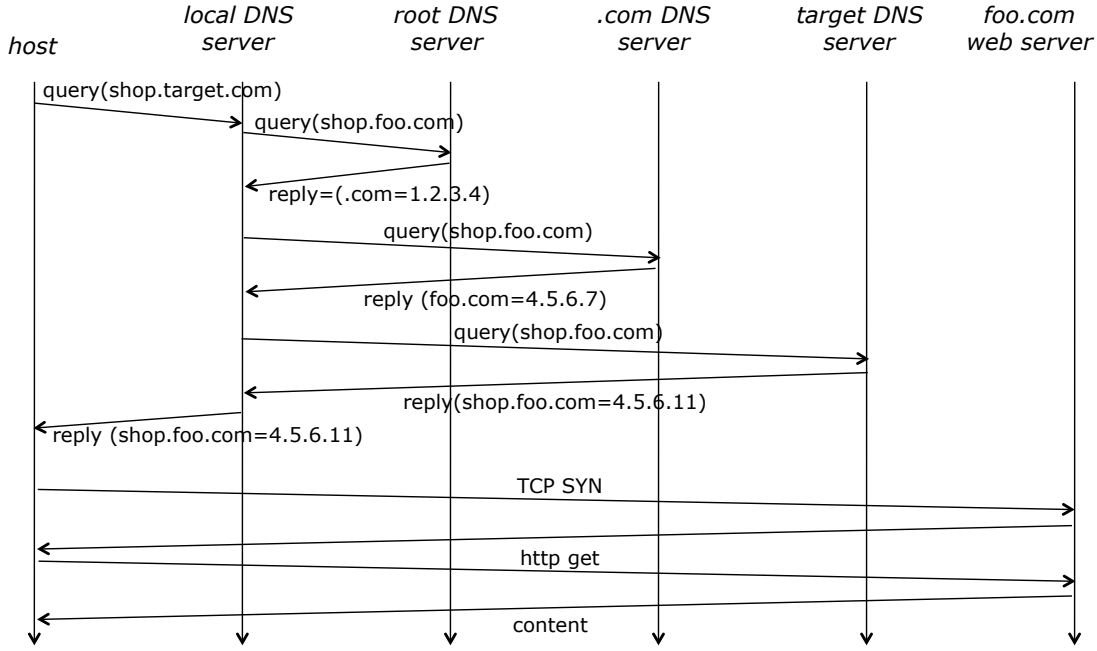
CSE 473 – Introduction to Computer Networks

Quiz 4 Solution

10/22/2013

1. (5 points). The diagram below shows a typical DNS scenario that might occur when a host accesses a remote web page.



Assuming that all caches are empty initially, show the entries that would be added to the local DNS server's cache by the end of this scenario.

.com => 1.2.3.4
foo.com => 4.5.6.7
shop.foo.com => 4.5.6.11

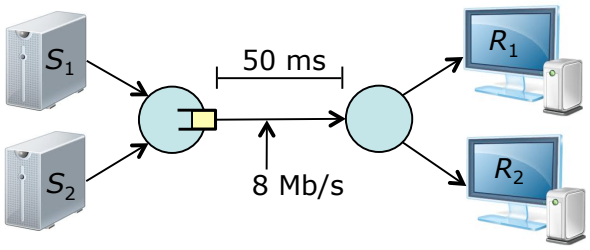
Show the entries that would be added to the host's cache.

shop.foo.com => 4.5.6.11

Suppose the user now clicks on a link to another page on the same server. How many DNS servers must be queried in order to handle this request? Assume non-persistent HTTP.

0

2. (5 points) The diagram at right shows two TCP senders at left and the corresponding receivers at right. Both senders use TCP *Tahoe* and are sending large files. Assume that the MSS is 1 KB, that the one-way propagation delay for both connections is 50 ms and that the link joining the two routers has a bandwidth of 8 Mb/s. Let $cwnd_1$ and $cwnd_2$ be the values of the senders' congestion windows.



What is the smallest value of $cwnd_1+cwnd_2$ for which the link joining the two routers could stay busy all the time?

*RTT=.1, so .1*8 Mb=100 KB is enough to keep the link busy.*

Assume that the link buffer overflows whenever $cwnd_1+cwnd_2 \geq 150$ KB and that at time 0, $cwnd_1=120$ KB and $cwnd_2=30$ KB. Approximately, what are the values of $cwnd_1$ and $cwnd_2$ one RTT later?

Since we're using Tahoe, $cwnd_1=cwnd_2=1$ KB

Approximately how many more RTTs pass before the first sender leaves the slow-start state?

Since ssthresh is set to 60 KB on entering slow-start, it takes about 6 RTTs for cwnd to get above the slow-start threshold, triggering the transition out of the slow-start state.