Section 8

No Such A record

Some organizations might get touchy about us browsing their DNS records, so we chose an innocuous target: the National Scrabble Association, whose website is presumably www.nsa.gov.

a) In general, what would we expect if we searched for an A record?

b) What would we expect if we searched for the NS record for www.nsa.gov?

c) The A record for wac.87c5.www.nsa.gov.att-acdn.net is:

```
A      wac.87c5.www.nsa.gov.att-acdn.net 12.120.140.185      1 min
```

What does this say about the IP address of www.nsa.gov?

d) We'd like to email the NSA a few questions about the finer points of scrabble (is "CDN" a legal acronym? What about "TCP"?). What record type should we look up if we wanted to know what their mail servers were?

e) In the introduction, we stated that some organizations might not like us looking up their DNS records. Does the NSA know about us?

HTTP

HTTP Performance (based on 2011 HW3)

We would like to download three media files, each of size M. However, we can't start downloading the media files until we finish downloading a webpage, of size P. Assume that HTTP request packets, TCP SYNs and ACKs are very small, the connections can each achieve throughput T (but if there are multiple connections they must share it), and we don't need to wait for the HTTP responses to be acknowledged, nor for TCP connections to terminate.

a) For each of the following scenarios, calculate the time to download the page and media files:

	Page	Media 1	Media 2	Media 3	Total
Sequential requests with non-persistent TCP connections					
Concurrent with non-persistent TCP connection					

Sequential with a single persistent TCP connection					
Pipelined within a single persistent TCP connection					

    b) If we knew the direct links to the media files, and therefore did not need to download the webpage at all, how would this affect the total time?

    c) If the media files are very small, what dominates the total time for each case?

    d) If the media files are very large, what dominates the total time for each case?