

Homework 5

Typeset your solutions using Word, Page, Latex (pref.) and only hand in a pdf. For drawings, consider using powerpoint unless you have a graphics program.

Problem 1:

Use Whols to ascertain the AS through which the following route (obtained using traceroute) travelled. You only need to verify routing domains, e.g. only do one look-up for 132.48.10.*. However, you need to do a web-search to find out what company this is. For instance, 4.16.38.69 is controlled by Level 3 Parent LLC headquartered in Broomfield, Colorado, has parent CenturyLink and an income of US\$3.4 billion in 2015. 4.69.133.29 is controlled by the same entity. This blog might be helpful: <https://www.redhat.com/sysadmin/traceroute-finding-meaning>.

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traceroute to xavier.ac.in (162.241.27.33), 64 hops max, 52 byte packets
 1 10.0.1.1 (10.0.1.1)  2.414 ms  1.428 ms  1.377 ms
 2 rtp000211rts.jesres.mu.edu (134.48.119.1)  3.739 ms  7.042 ms  3.939 ms
 3 172.31.255.21 (172.31.255.21)  59.362 ms  2.649 ms  2.981 ms
 4 134.48.10.250 (134.48.10.250)  3.782 ms  1.981 ms  2.745 ms
 5 134.48.10.4 (134.48.10.4)  2.557 ms  2.864 ms  3.738 ms
 6 134.48.10.12 (134.48.10.12)  4.168 ms  3.254 ms  4.196 ms
 7 134.48.10.30 (134.48.10.30)  3.665 ms  2.657 ms  2.502 ms
 8 6-2-11.ear3.chicago2.level3.net (4.16.38.69)  5.492 ms  6.050 ms  6.576 ms
 9 ae-2-2.edge1.chicago10.level3.net (4.69.133.29)  6.921 ms  9.919 ms  9.279 ms
10 * * *
11 * * *
12 ae4.cs1.iah1.us.eth.zayo.com (64.125.28.55)  39.500 ms  34.595 ms  34.509 ms
13 ae1.mcs1.iah1.us.eth.zayo.com (64.125.28.97)  33.114 ms  33.373 ms  35.148 ms
14 ae4.mpr1.iah81.us.zip.zayo.com (64.125.30.213)  33.688 ms  33.130 ms  35.258 ms
15 64.124.202.50.ipyx-120228-001-zyo.zip.zayo.com (64.124.202.50)  37.104 ms  35.946
ms 36.123 ms
16 72-250-192-2.cyrusone.com (72.250.192.2)  36.414 ms  36.037 ms  35.493 ms
17 po100.router2b.hou1.net.unifiedlayer.com (162.241.0.5)  35.655 ms  34.918 ms
35.370 ms
18 162-241-150-59.unifiedlayer.com (162.241.150.59)  35.519 ms  35.158 ms
   162-241-150-61.unifiedlayer.com (162.241.150.61)  36.116 ms
19 162-241-27-33.unifiedlayer.com (162.241.27.33)  50.645 ms  56.013 ms  54.496 ms
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Problem 2:

Apply Dijkstra's algorithm on the following graph for Node A. Show the state of the calculation every time you declare a node to be processed. You can either give a list of all nodes together with their labels or you can annotate drawings of the tree. (If you are using MS Office, powerpoint has the best and easiest graphics. You can even convert those to pdf and insert them into latex, using pdflatex.) The numbers along the edges represent distances. When you are done, show the sink tree.

