CS 536 Lab 1
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Bonus Question

1) www.cs.purdue.edu
   RTT: 0.377ms
   Distance: nearly 0
   SOL Lower Bound: nearly 0ms
   The signals we send cannot travel speed of light through the wires and we cannot have 0 ping time realistically as the signals travel at a lower speed that SOL.

2) www.iupui.edu
   RTT: 3.927ms
   Distance: 100 km
   SOL Lower Bound: 0.6ms
   Our distance is based on Straight line distance, however even though we overestimate distance, SOL latency will not be majorly impacted and hence following indirect routes is not a major factor. The signals we send cannot travel speed of light through the wires.

3) www.osu.edu
   (Midwest)
   RTT: 6.968ms
   Distance: 333 km
   SOL Lower Bound: 2.2ms
   Our distance is based on Straight line distance, however even though we overestimate distance, SOL latency will not be majorly impacted and hence following indirect routes is not a major factor.

4) www.mit.edu
   (East coast)
   RTT: 67.227ms
   Distance: 1335 km
   SOL Lower Bound: 8.6ms
   Taking a road trip at the speed of light from Purdue to MIT will take 10ms, which means that distance is not a big factor. It doesn't make a major difference. However, since the distance is larger, the packets dropped, and data loss can be higher and therefore it can take more time to complete as same bits might have to send multiple times.

5) www.berkely.edu
(West coast)
RTT: 142.073ms
Distance: 3060 km
SOL Lower Bound: 20ms
SOL dominates over the distance and hence distance although plays a role isn't a huge factor. It doesn't make a major difference. However, since the distance is larger, the packets dropped, and data loss can be higher and therefore it can take more time to complete as same bits might have to send multiple times.

6) www.tsinghua.edu.cn
(Across Pacific)
RTT: 206ms
Distance: 10766 km
SOL Lower Bound: 60ms
Assuming we are using Optical fiber, the electrons/photons bounce back and forth in the fiber multiple times which might potentially greatly increase the distance travelled and increase the latency. Since the distance is larger, the packets dropped, and data loss can be higher and therefore it can take more time to complete as same bits might have to send multiple times.

7) www.oxford.edu
(Across Atlantic)
RTT: 97.6ms
SOL Lower Bound: 40ms

Assuming we are using Optical fiber, the electrons/photons bounce back and forth in the fiber multiple times which might potentially greatly increase the distance travelled and increase the latency. Since the distance is larger, the packets dropped, and data loss can be higher and therefore it can take more time to complete as same bits might have to send multiple times.