Example: Moving to cloud. Suppose a biology lab creates 500 GB of new data for every wet lab experiment. A computer the speed of one EC2 instance takes 2 hours per GB to process the new data. The lab has the equivalent 20 instances locally, so the time to evaluate the experiment is $500 \times 2/20$ or 50 hours. They could process it in a single hour on 1000 instances at AWS. The cost to process one experiment would be just $1000 \times \$0.10$ or \$100 in computation and another $500 \times \$0.10$ or \$50 in network transfer fees. So far, so good. They measure the transfer rate from the lab to AWS at 20 Mbits/second. [19] The transfer time is $(500GB \times 1000MB/GB \times 8bits/Byte)/20Mbits/sec = 4,000,000/20 = 200,000$ seconds or more than 55 hours. Thus, it takes 50 hours locally vs. 55 + 1 or 56 hours on AWS, so they don't move to the cloud. (The next section offers an opportunity on how to overcome the transfer delay obstacle.)