1. P2P File Transfer Rate

   The size of the file is 1MB, which is also 1000KB. Each chunk consists of 1KB of the file, so in total we need 1000 chunks for the entire file being sent. In P2P transfer model, chunks are transmitted in parallel. If we assume that the nine peers has one chunk at the beginning of transferring, each peer still need to receive 999 other chunks. This means that we need at least 999 parallel transfers to make sure all peers receive the file. Since each peer transmit 1 chunk per second, in total we need 999 seconds for all peers to have a complete version.

2. Packet Loss

   For each transfer, the probability of failure is 99%.
   In order to get a 99.9% chance of successful transmission in general, we hope to make sure that the chance of failure is less that 0.1%.
   Thus, we have $(0.99)^x = 0.001$, and by using calculator, we have $x \approx 687.316$
   Therefore, Host a should send at least 688 times to Host b.