# CPS 373 Homework 2

Christopher Chapman (cchapman@fandm.edu)

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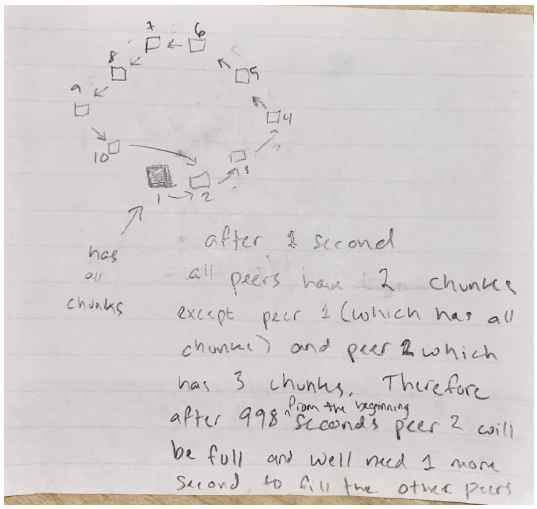
## 1. P2P File Transfer Rate

| | |
|---|---|
| File Size | = 1 MB |
| Transfer Chunk Size | = 1 KB |
| Transfer Rate | = 1 Chunk Per Second = 1 KB/s |

I'm assuming, based on the instructions, that `Peer 1` has all the chunks and each other peer already has a chunk that only itself and `Peer 1` have.

After 1 second, all peers have 2 chunks except `Peer 1` (which has all chunks) and `Peer 2` which has 3 chunks. Therefore, after 998 seconds from the beginning, `Peer 2` will be full and we will need 1 more second to fill the other peers. **So it will take a total of 999 seconds.** To supplement my answer I've included a sketch of my scenario / explanation.




## 2. Packet Loss

`Host a` sends a packet to `Host b` with a 1% successful transmission rate. How many times do we need to send the packet to ensure a 99.9% successful transmission of the packet?

**We would need to send the packet 100 times or more.** To explain, lets say we send the packet twice. Each time the packet has a 1% chance of being successfully delivered to `Host b`. We add the probabilities together: 0.01 + 0.01 or 2*(0.01) which is 0.02 or 2%. Now if we send the packet 100 times, and add the probabilities together: 100*(0.01) which is 100%.