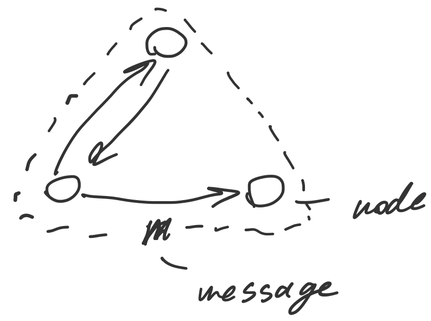
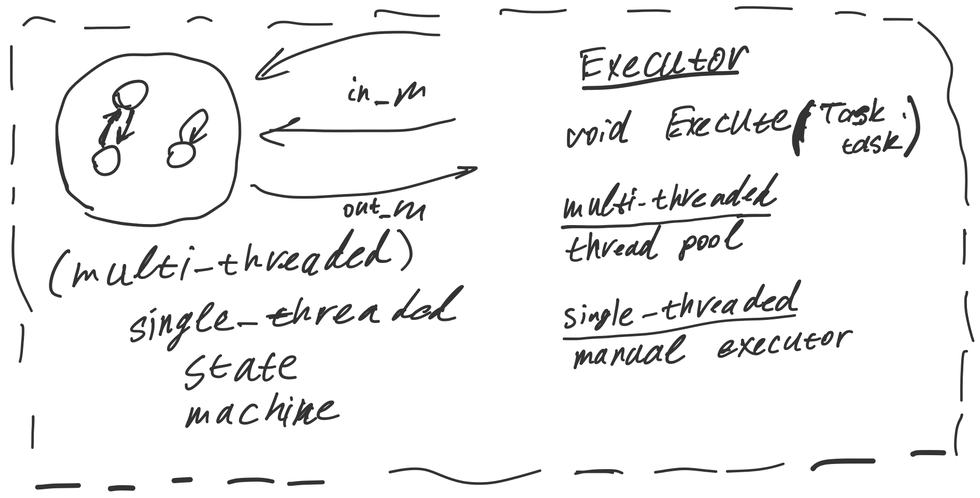
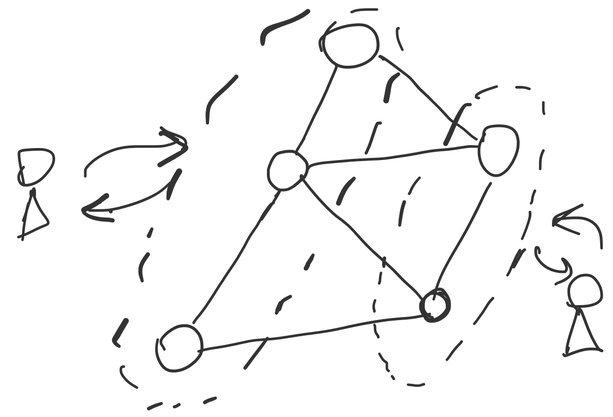
понедельник, 5 сентября 2022 г. 00:28

Data systems:
- filesystem
- database
- key value storage (k, v)
- queue / message broker
- coordination service

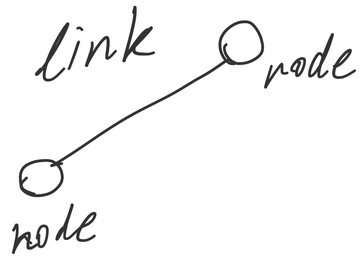
Why distributed?
- Scalability
- Fault-tolerance
- Byzantine faults *







Split brain



TCP

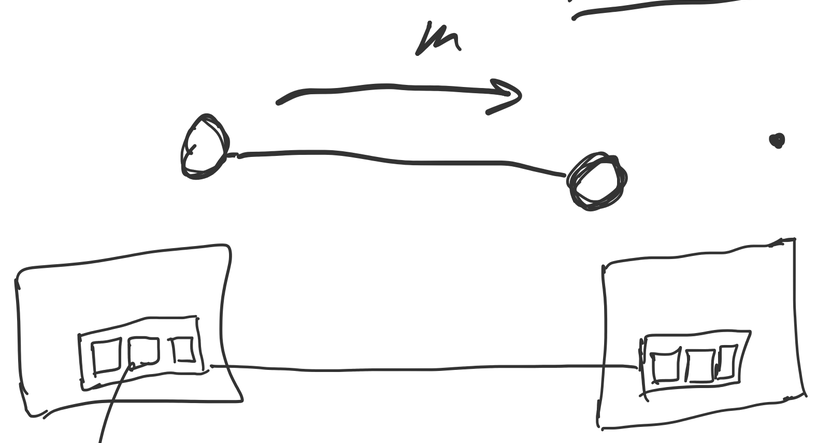
Node

RAM vs Disk:
- capacity
- write/read speed
- persistence

Node:
1) Crash
2) Restart
3) Byzantine faults *

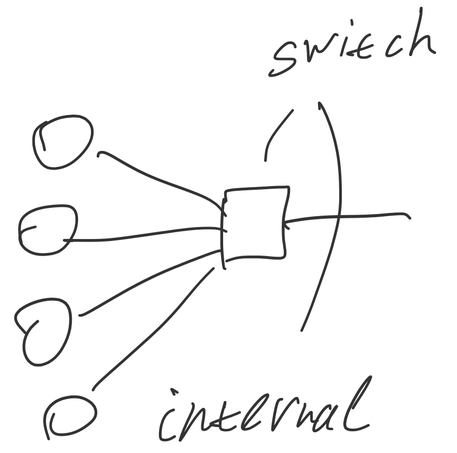
Net:
1) Link break
2) Network partition
3) Byzantine faults *

Network models



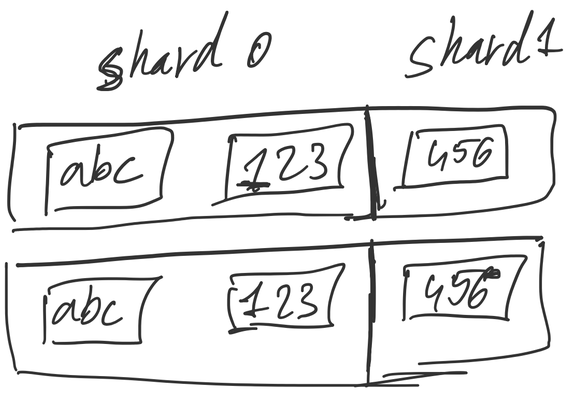
- sync

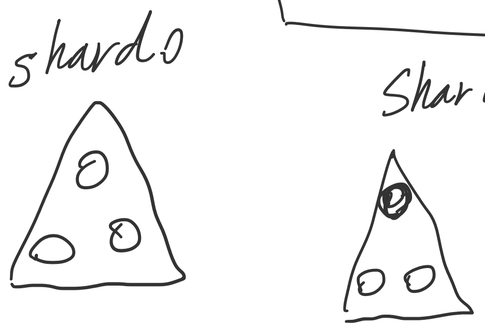
- partially sync
- async

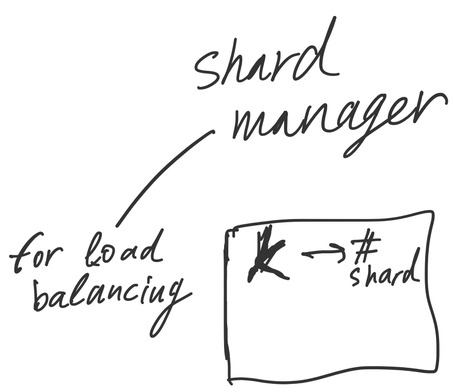


Partitioning (Sharding)

Replication







hash(k*) % 2 = 1

hash(k*) % 3 = 2

k → v

$k_1 \rightarrow k_2 \rightarrow v$

read/write skew