MODULE 5 CONSISTENCY, REPLICATION & FAULT TOLERANCE

Client Centric Consistency Model

1) Eventual Consistency
   → weak consistency model
2) Monotonic Reads
3) Monotic Writes
4) Reads your writes
5) Write follows reads

Data Centric Consistency Model

1) Strict Consistency Model
2) Sequential Consistency
3) Linearizability
4) Causal consistency
   → weaker than sequential model
5) FiFo Consistency
   → weaker than causal consistency
6) Weak consistency
7) Release Consistency
8) Entry consistency

Data Centric Consistency

- Used for all clients in system
- Does not have lack of simultaneous update
- Data Specific
- Globally accessible
- Aims to provide system wide consistency on database

Fault Tolerance

- The ability of the system to continue functioning in the event of partial failure

1) Availability
2) Robustness
3) Recoverability

Message Ordering

1) Unordered multicast
2) FIFO ordered multicast
3) Causally ordered multicast
4) Totally ordered multicast

Message logging

- It enabled recovery by reducing no. of checkpoints
- Checkpointing is costly in terms of writing state on stable storage
- In message logging, transmission of message is replayed to achieve globally consistent state
- There is no need to write state on stable storage

Client Centric Consistency

- Used for individual client
- Has lack of simultaneous update
- Client Specific
- Not globally accessible
- Aims to provide client specific consist view on database

Replication model

1) Master Slave model
2) Client Server model
3) Peer to peer model