

Recovery (WAL)

19/13)

Ch 16 of sailboat book

Goal: recover from a crash
reduce overhead (disk interactions)
ensure data is consistent

Log records: describes a single DB write
↳ seq of logs

Types of log records

ex.
- Update record

$\langle T_i, x_j, v_1, v_2 \rangle$

old value \swarrow
new value \nwarrow

txn id \nearrow
the update loc \nwarrow

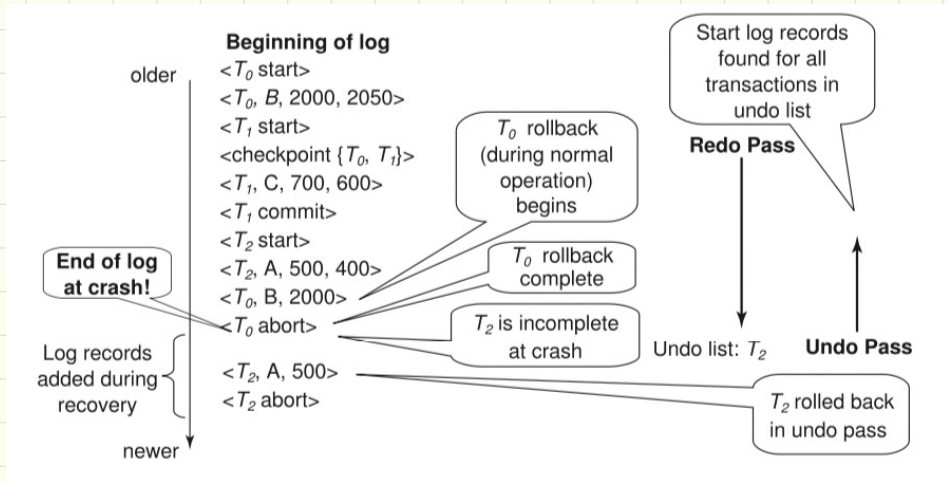
txn start
 $\langle T_i \text{ start} \rangle$

txn commit
 $\langle T_i \text{ commit} \rangle$

txn abort
 $\langle T_i \text{ abort} \rangle$

money transfer

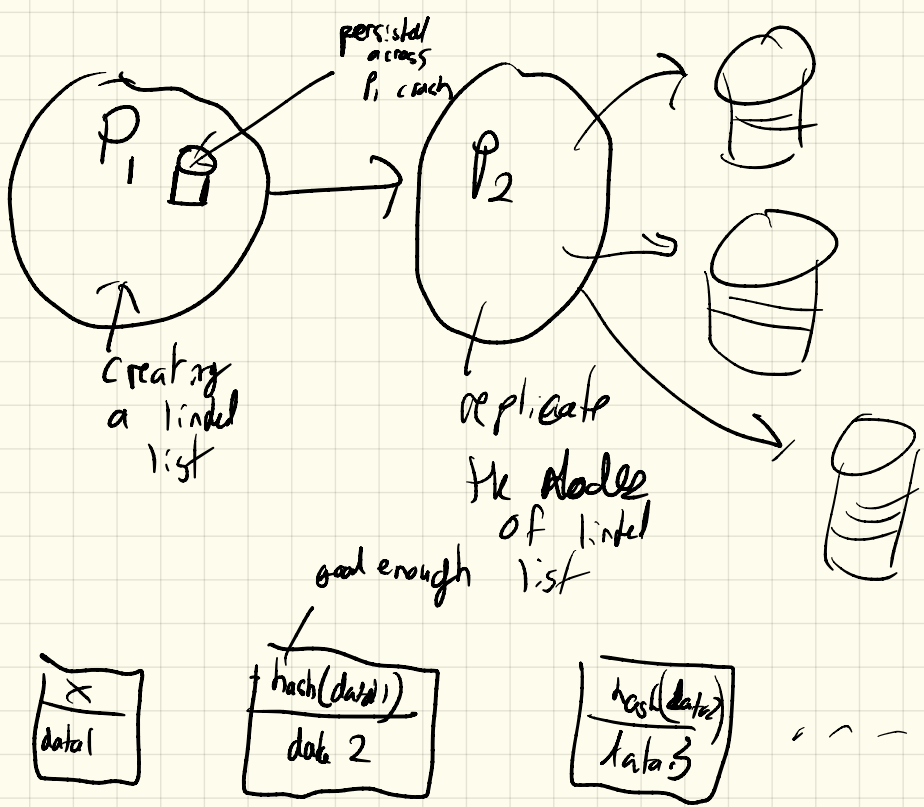
$\langle ? \text{ start} \rangle$			
$\langle ? \text{ a } 100 \rangle$	907		
$\langle ? \text{ b } 200 \rangle$	2107		
$\langle ? \text{ commit} \rangle$			



Problem: when to write log
 - write to a buffer

Problem: loose buffer at system crash

- **Write ahead log rule!**
- before a block can be written to ^{stable} storage all log records about that block must be outputted to stable storage



- P_1 get prev hash
- P_1 get next data
- P_1 form the next node
- P_2 write the node

$\langle \text{abc123} \text{ start} \rangle$
 $\langle \text{abc123} \text{ tail s1 s2} \rangle$

$\langle \text{abc123 commit} \rangle$