

upon failure of primary replica manager

a leader election algorithm can determine a new primary

when backup RM takes over, all replicas agree on set of performed operations

can be forced by sending write requests using atomic multicast

active replication

1. request phase
2. coordination phase
3. execution phase
- no agreement phase
5. response phase

Gifford's quorum protocol

N replicas

read quorum N_R

write quorum N_W

$$N_R + N_W > N$$

$$N_W > N/2$$

prevents read-write conflicts

prevents write-write conflicts