

Correctness of Failures:-

Assumption 1: There is atleast one correct replica

Assumption 2: In all the failure cases we assume that at most $t-1$ servers are faulty

Assumption 3: The second part of the transfer operation (deposit in dest bank) will never fail**.

**Given the destination bank always exist. We can create non-existent account but not a bank.

Case 1: Failure of Head

The transfer operation will be dealt in similar way as any other update operation.

For more details please refer to Case 1 in general proof of correctness.

Case 2: Failure of Tail

If the tail server fails, the new tail (which is the predecessor of the old tail) will already have the transfer operation in the sentReq List.

For more details please refer to Case 2 in general proof of correctness.

The new tail will probe the sentReq list to find if there's any transfer req whose response is not received.

If yes, it will resend the request to the destination bank (by first querying for the dest history).

It will then send the response back to the client and ack down to the predecessor.

Thus being consistent with the Inprocess Request Invariant.

Case 3: Failure of Internal Server

The transfer operation will be dealt in similar way as any other update operation.

For more details please refer to Case 3 in general proof of correctness.