**DATA NODE TEMPORARY FAILURE**

A temporary failure is a failure when a data node becomes unavailable due to some transient issues.

* Network outage: Loss of network connectivity
* Software crashes
* Node reboot for maintenance: Restarting a server or machine

**What is Block Report:**  A block report is a report sent by each data node to the name node, containing a list of all the blocks that are stored on that Data Node.

Helps the Name Node tracks where each block of data is stored

**Heart Beat:** A heartbeat is a signal sent by each Data Node to the Name Node at regular intervals

Tells the Name Node that the Data Node is still alive and functioning

**STEPS:**

* Detection: When we don’t receive the heartbeat for 10.5 min
* Replication: Under replicated blocks are equal to the replication factor.
* When Data Node Recovers: Meta data is uploaded to ensure consistency after the excess replicas are deleted.

**DATA NODE FAILURE PERMANENT**

A permanent failure is a failure when a data node is permanently lost.

* Hardware Failure: Overheating or temporary power loss
* Disk corruption: Inconsistency in data, making it unreadable or unusable
* Decommissioning of a Node: Removing a Node

STEP -1

Detection: After an extended period if we don’t receive a heartbeat then it is marked as lost

Replication: The failed Data Node are marked as lost

If machine Comes Back: The machine is not trusted Data Node can get reintegrated in our system as and fresh node blocks are ignored and cleaned up to avoid data Inconsistency