

HDFS Architecture

Part - 1



HDFS

Hadoop Distributed File System

by Sumit Mittal



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HDFS ARCHITECTURE



Node 1



Node 2

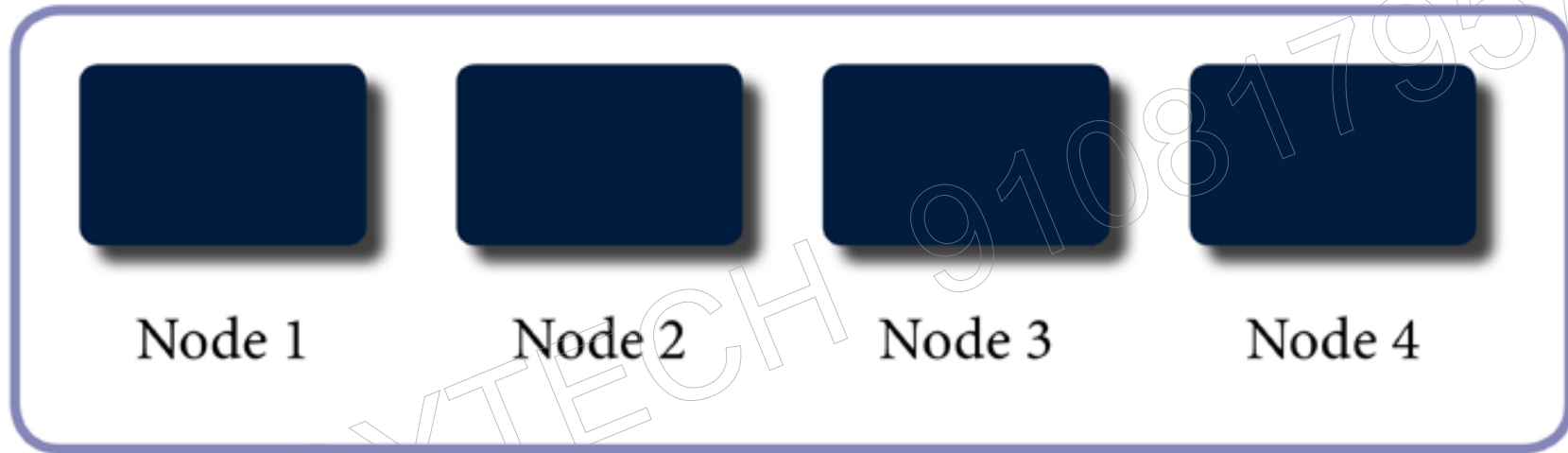


Node 3



Node 4

HDFS ARCHITECTURE



4 Node Cluster

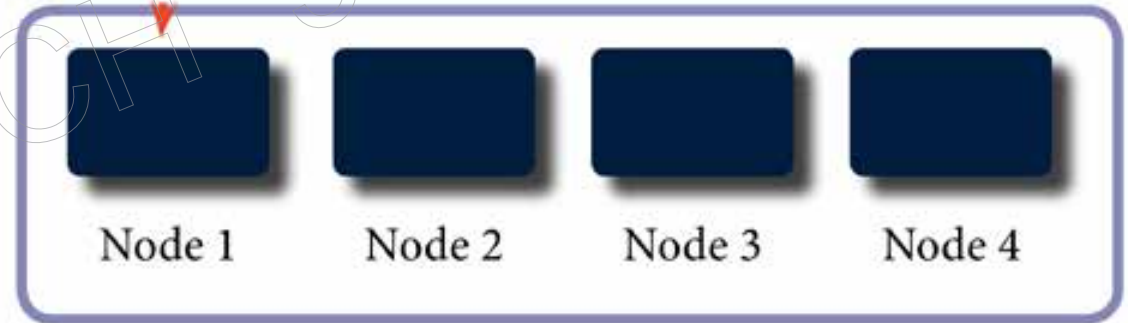


File 1
(500 mb)

HDFS ARCHITECTURE

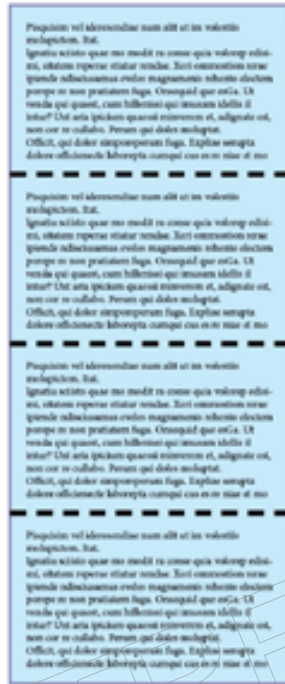


File 1
(500 mb)



4 node Cluster

HDFS ARCHITECTURE

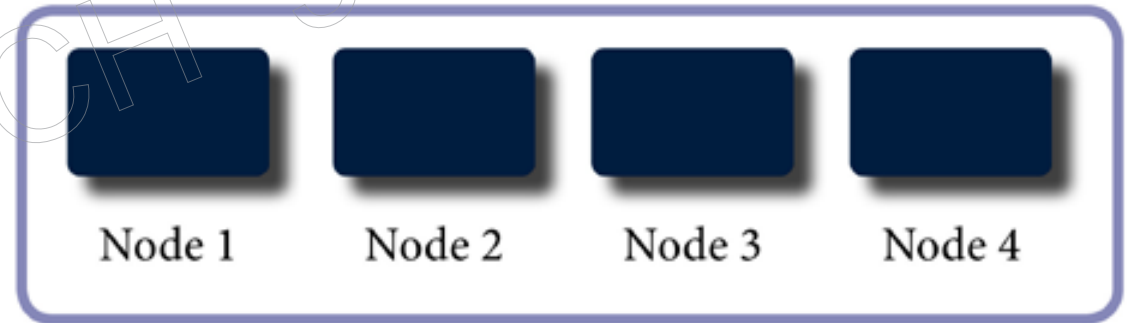


block 1

block 2

block 3

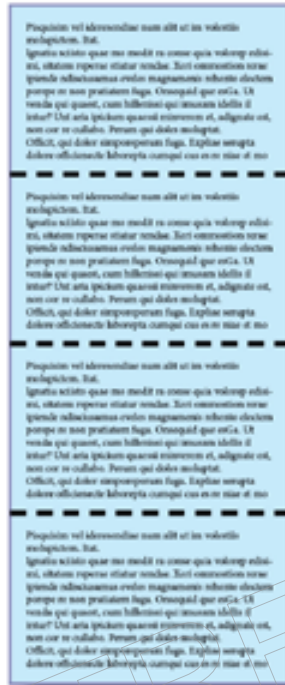
block 4



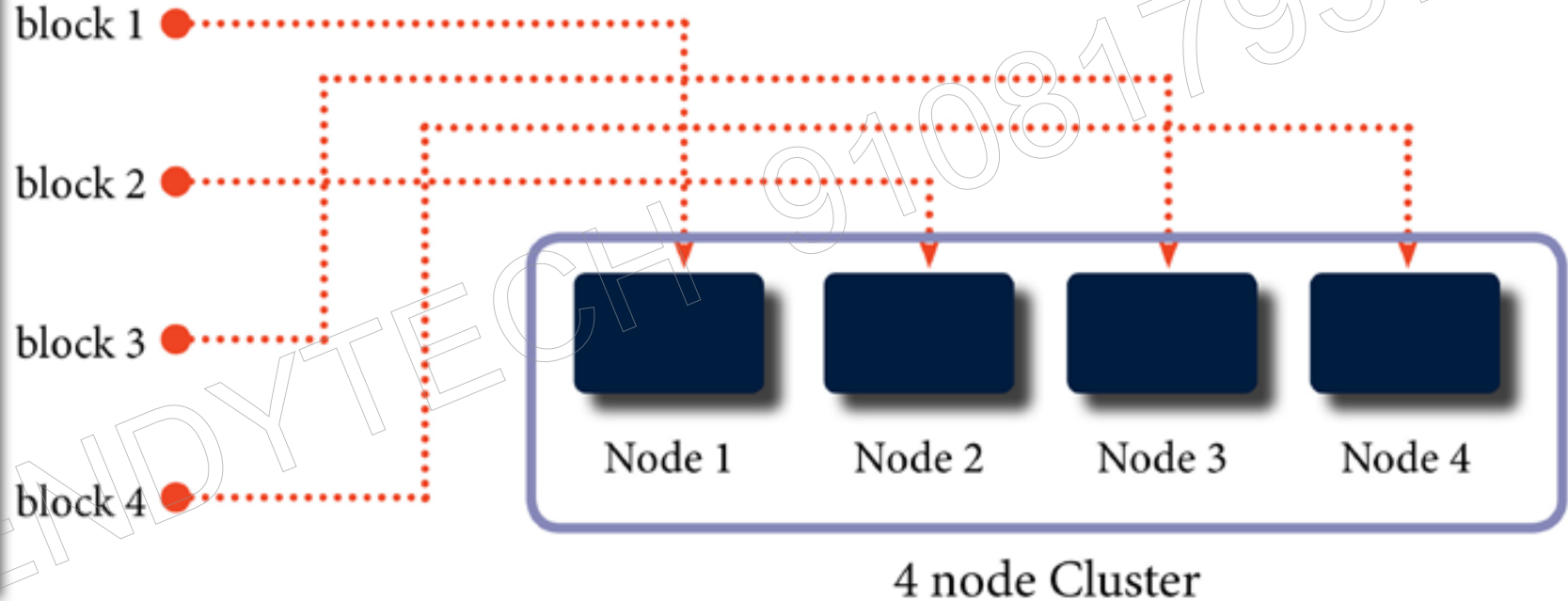
4 node Cluster

File 1
(500 mb)

HDFS ARCHITECTURE



File 1
(500 mb)



HDFS ARCHITECTURE

HDFS Block Size

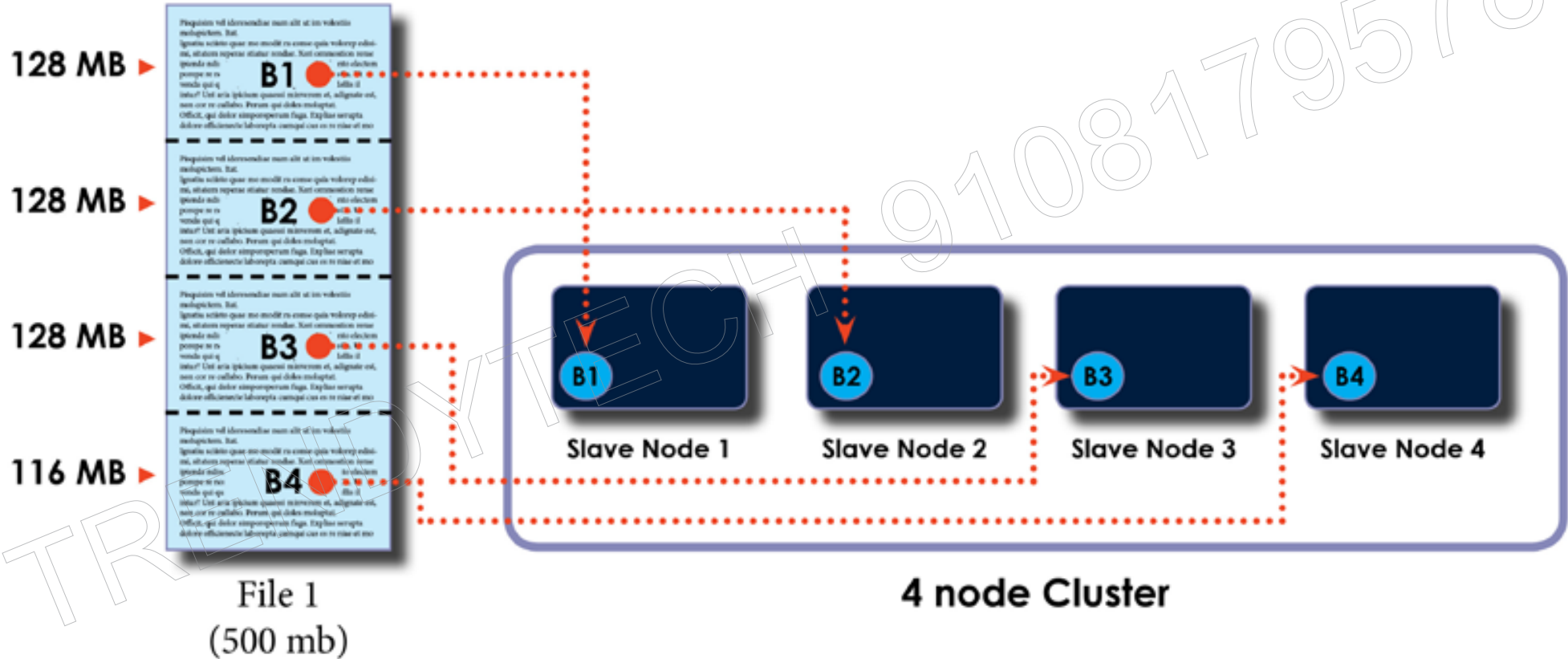


older version

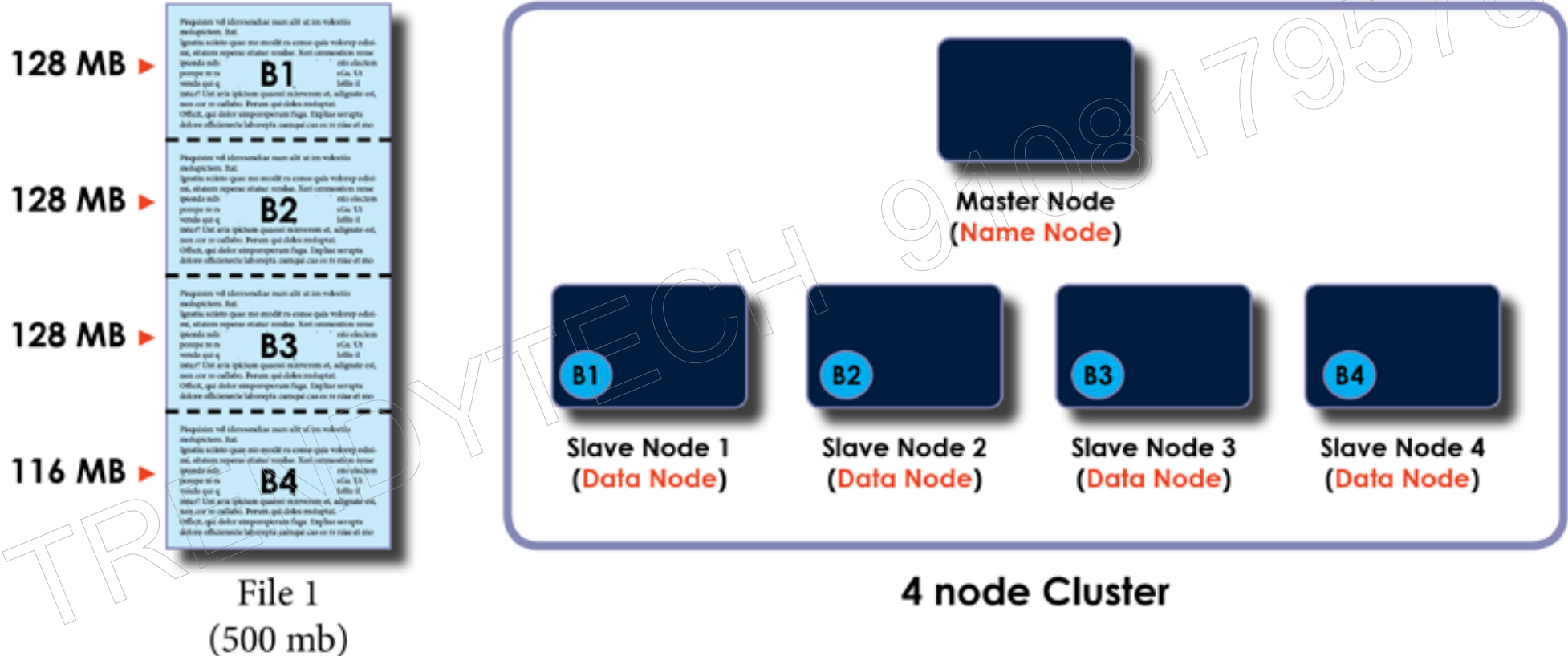


current version

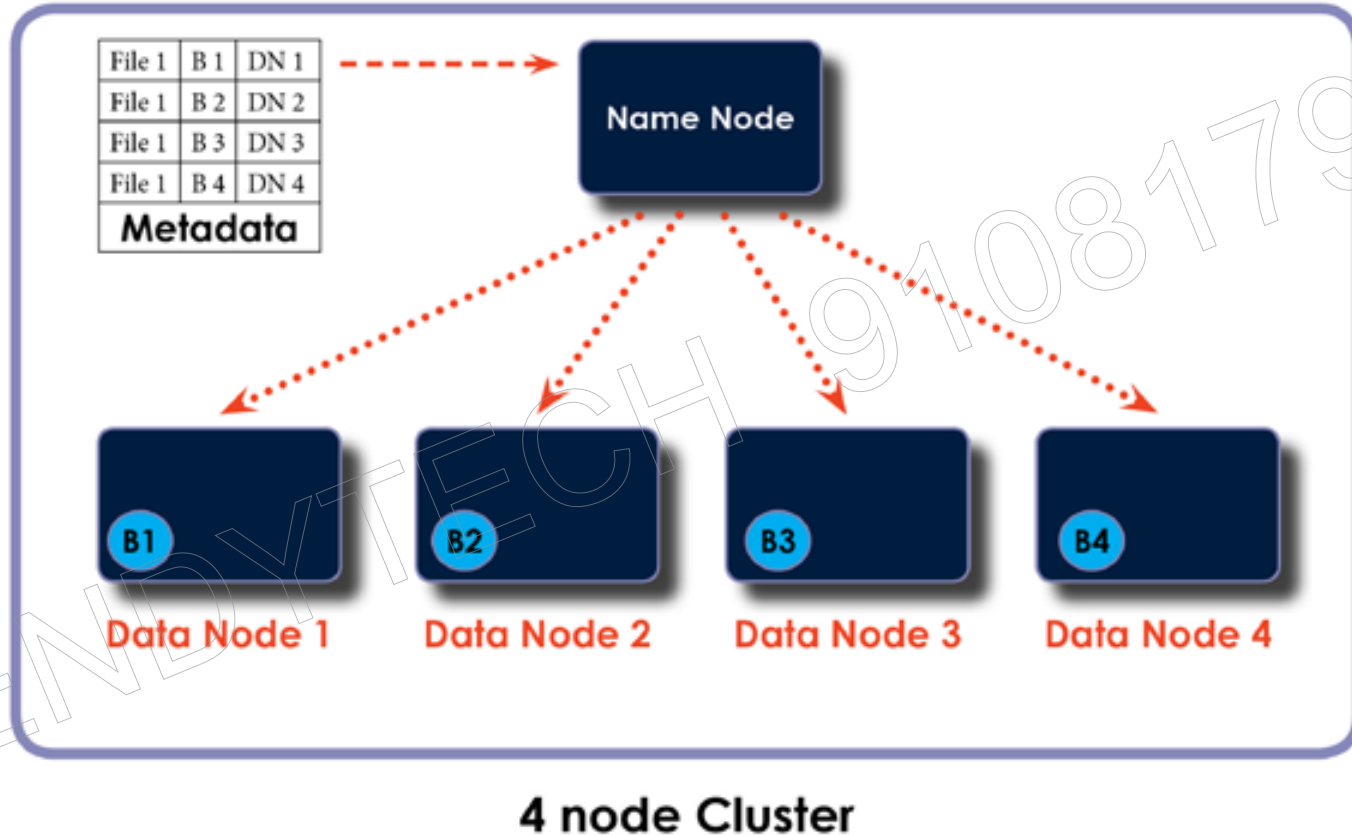
HDFS ARCHITECTURE



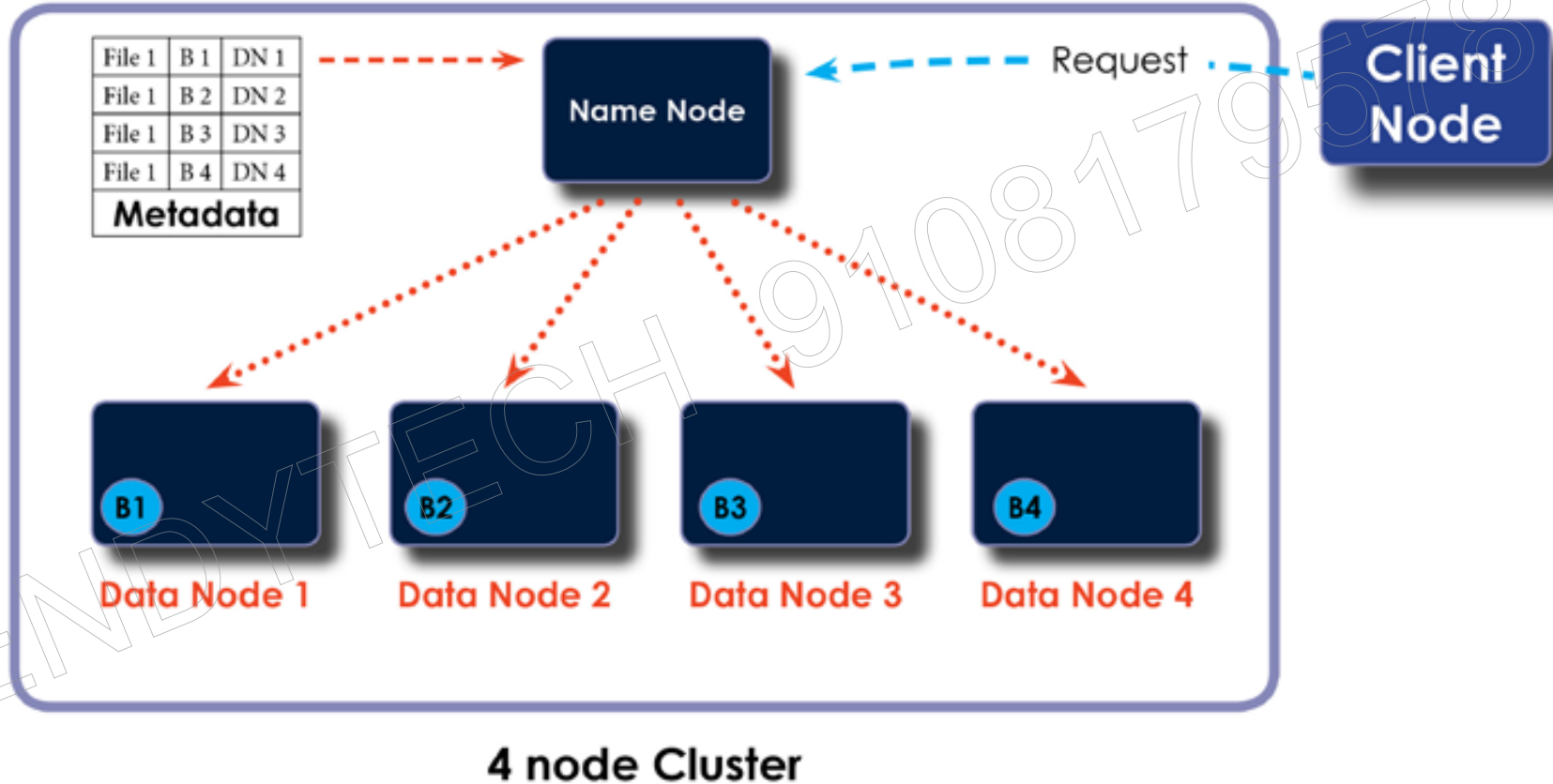
HDFS ARCHITECTURE



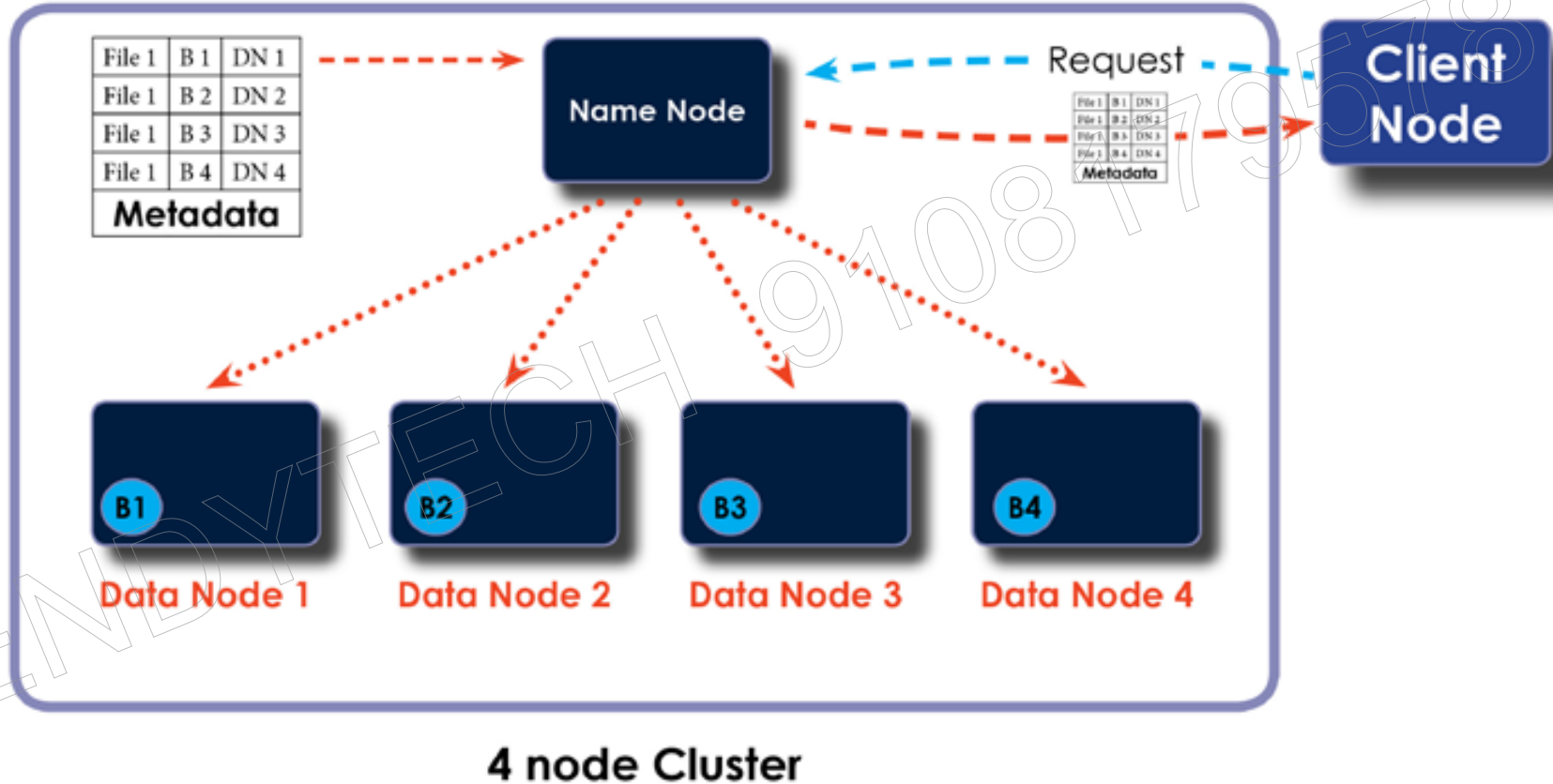
HDFS ARCHITECTURE



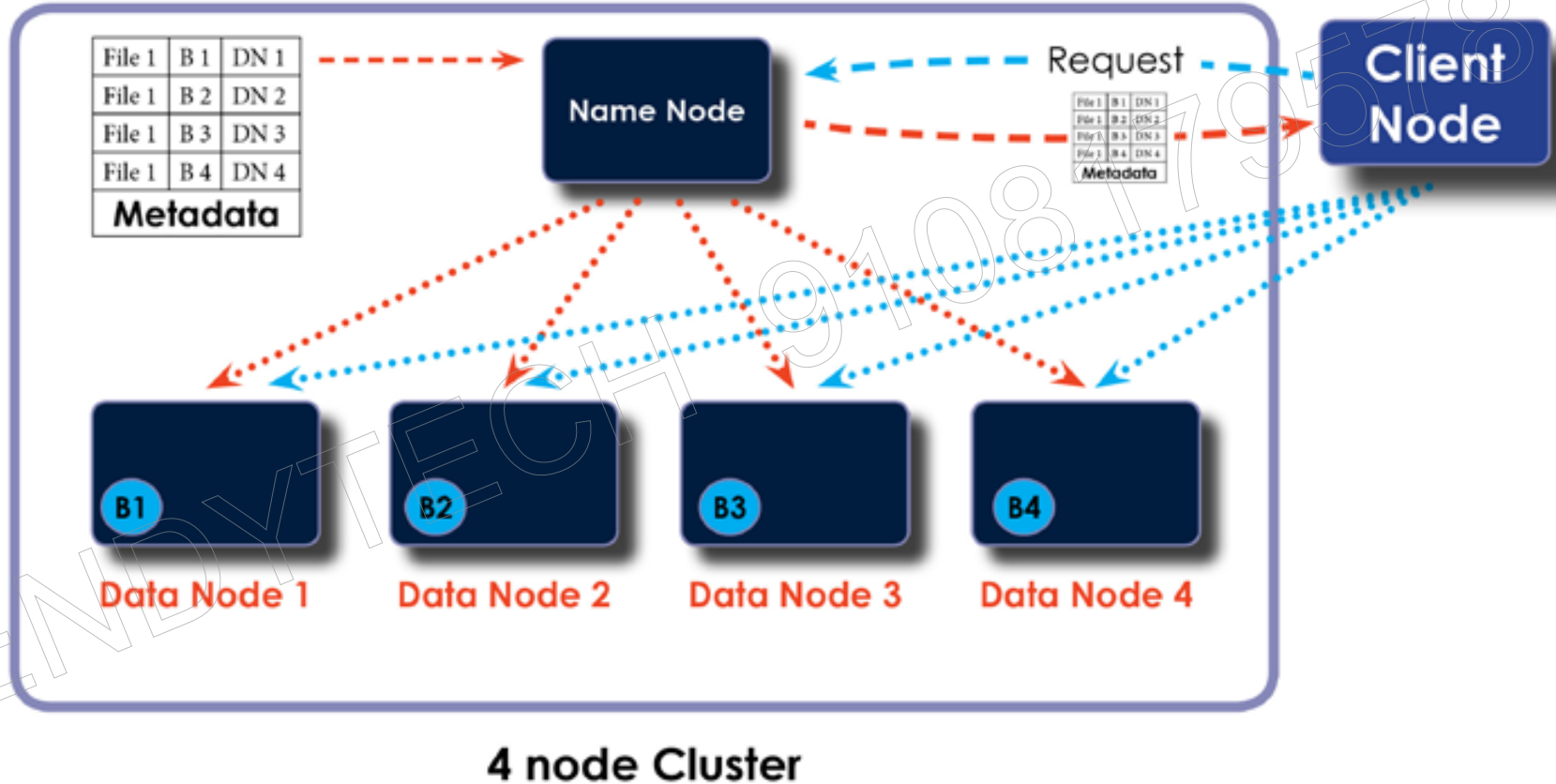
HDFS ARCHITECTURE



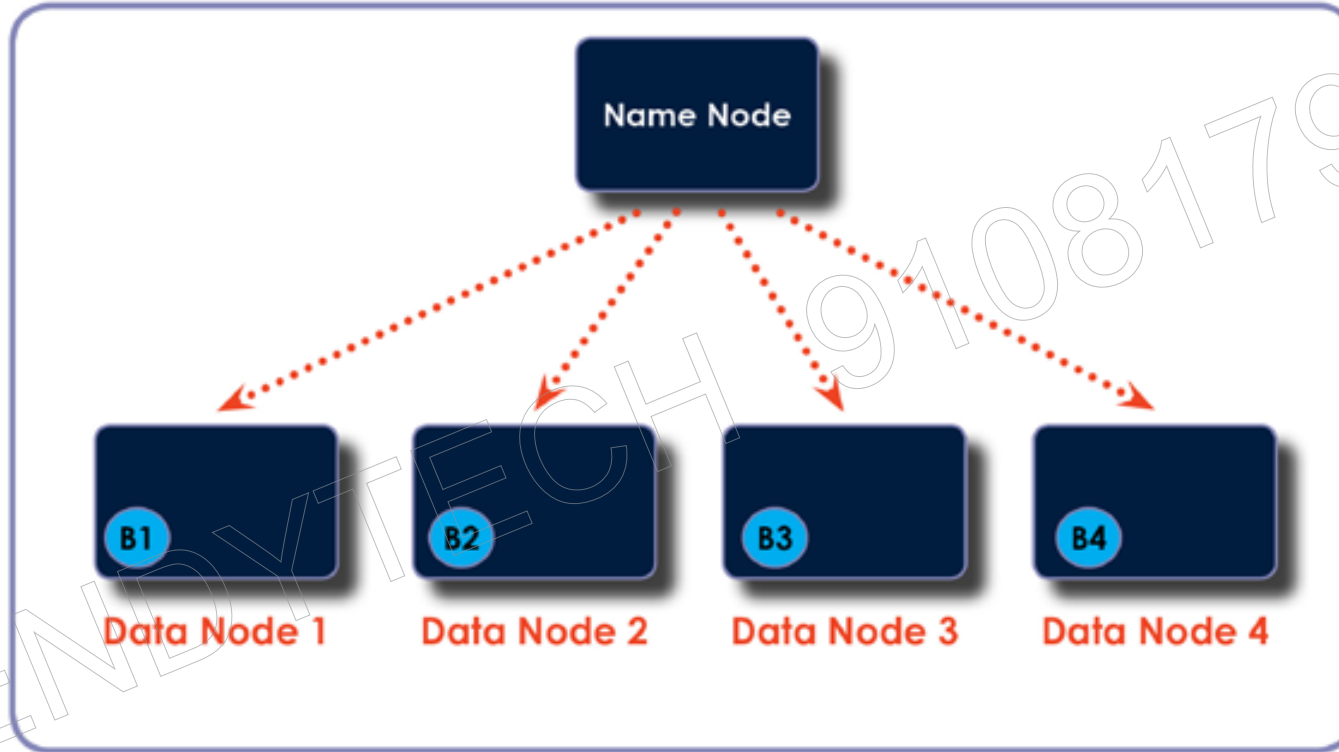
HDFS ARCHITECTURE



HDFS ARCHITECTURE

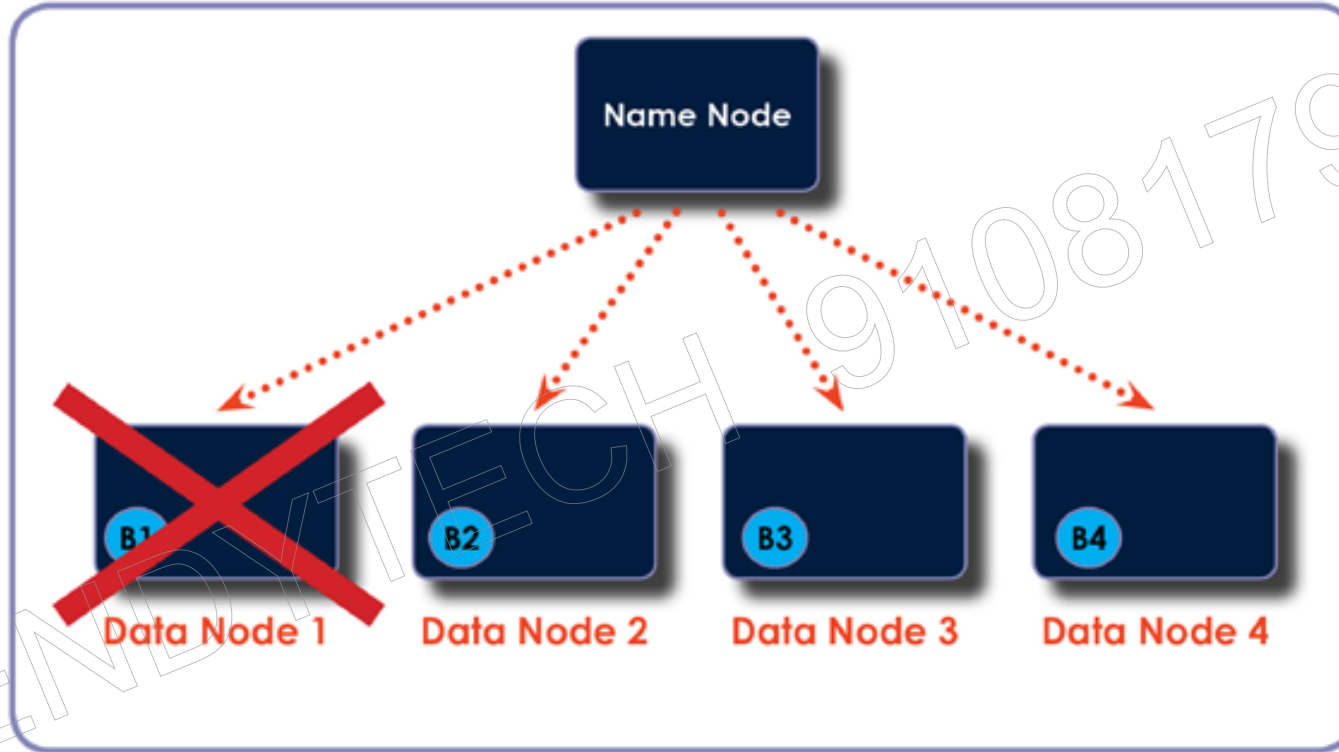


HDFS ARCHITECTURE



4 node Cluster

HDFS ARCHITECTURE



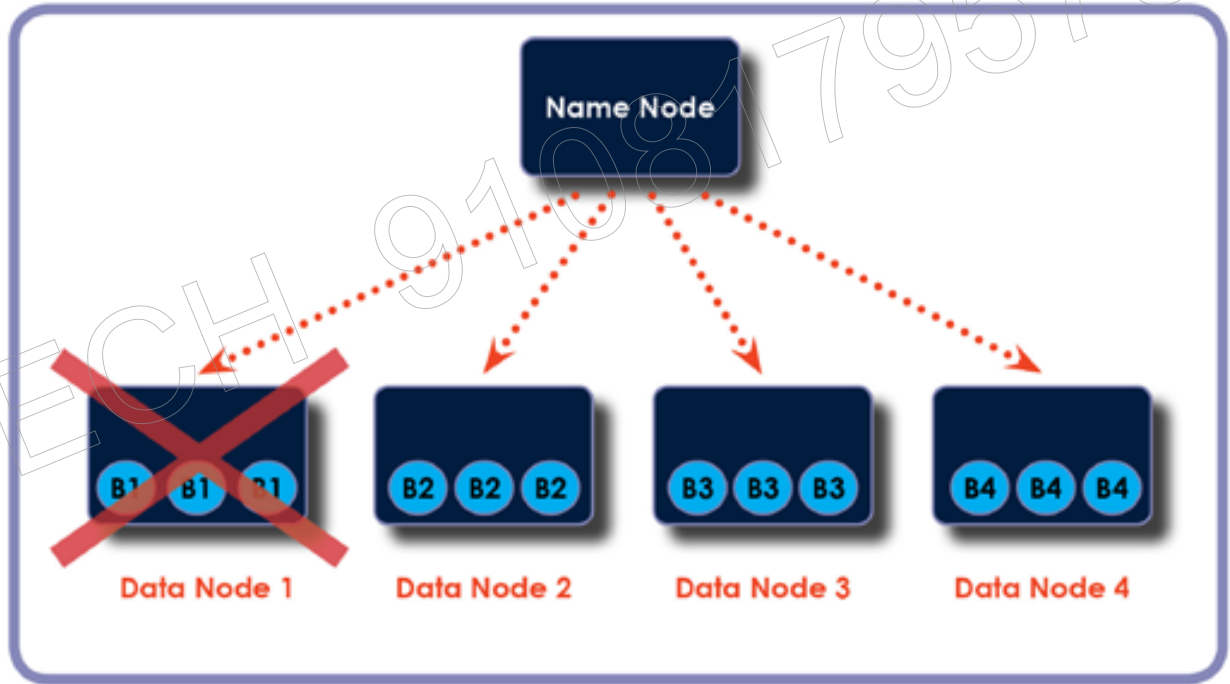
4 node Cluster

HDFS ARCHITECTURE

Replication Factor

Default Hadoop
Replication Factor:

3



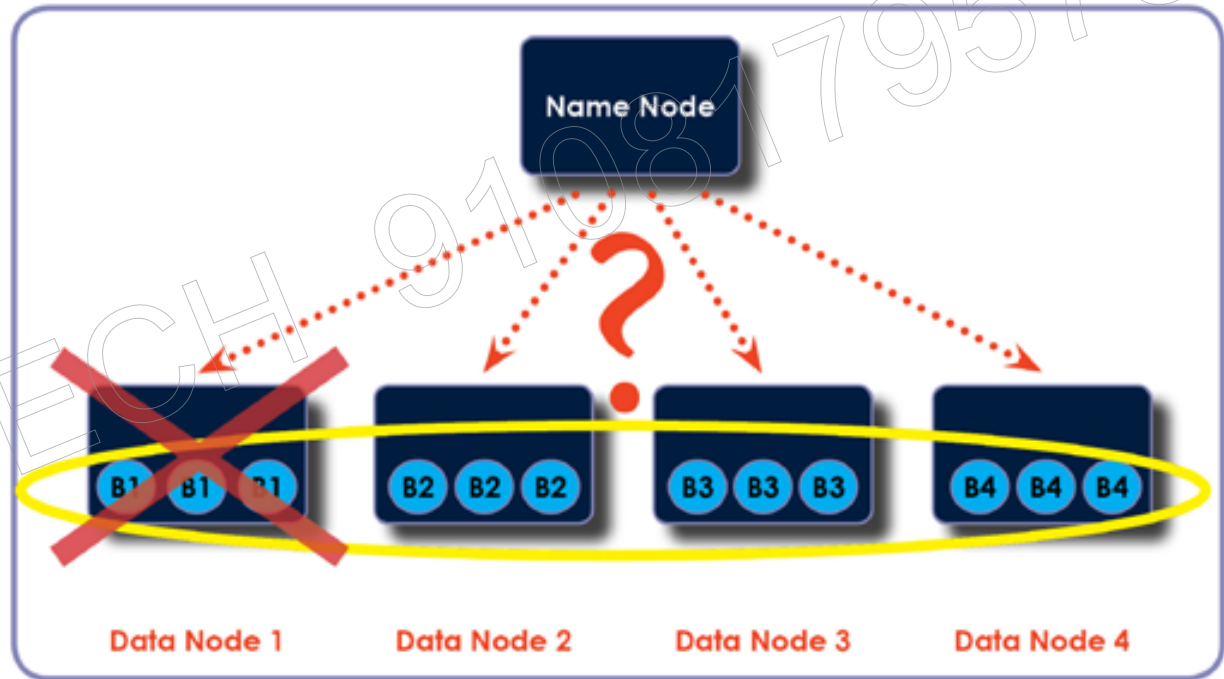
4 node Cluster

HDFS ARCHITECTURE

Replication Factor

Default Hadoop
Replication Factor:

3



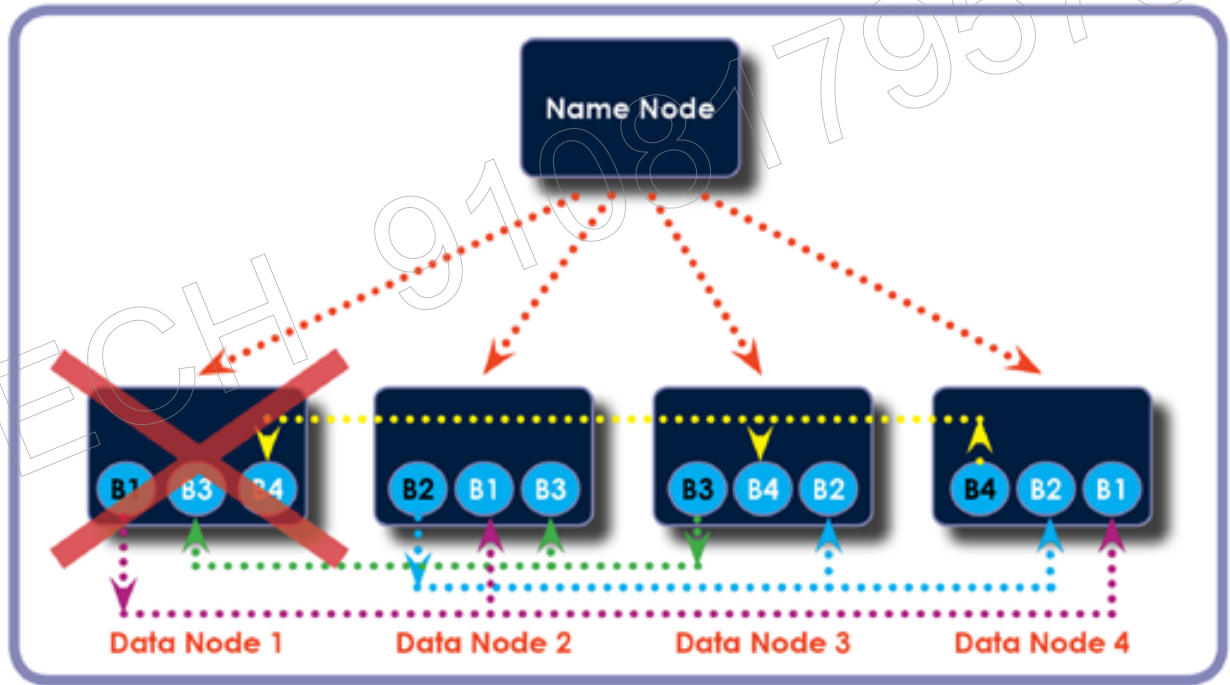
4 node Cluster

HDFS ARCHITECTURE

Replication Factor

Default Hadoop
Replication Factor:

3



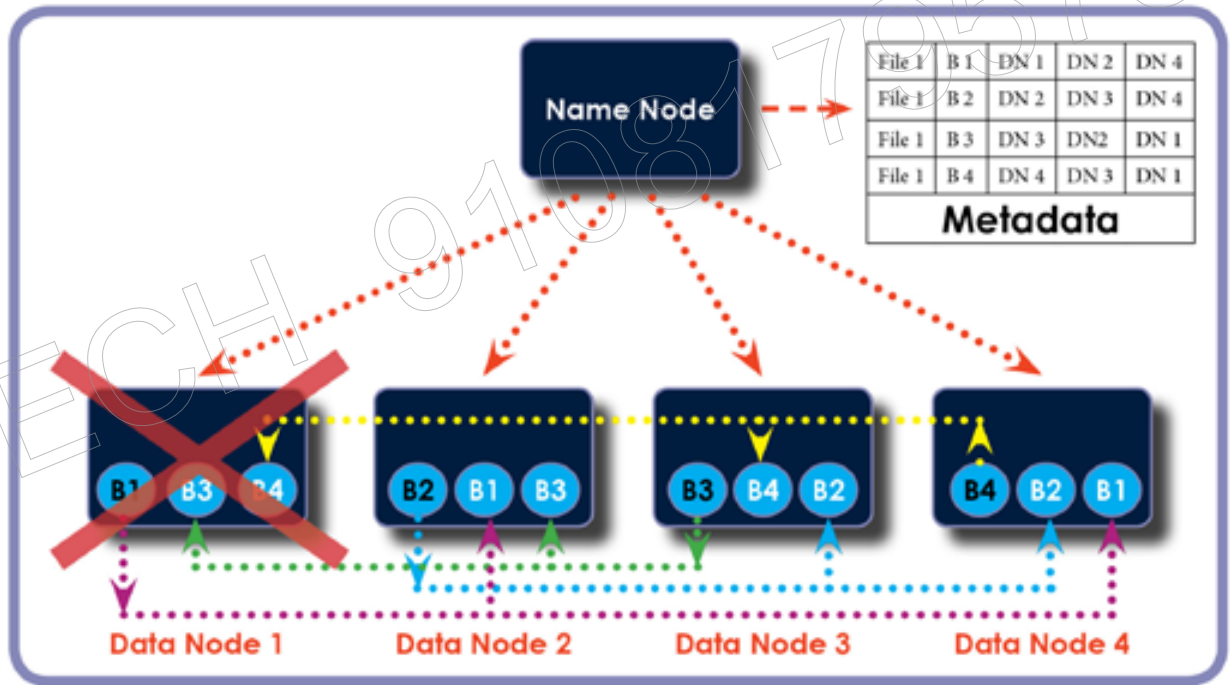
4 node Cluster

HDFS ARCHITECTURE

Replication Factor

Default Hadoop
Replication Factor:

3



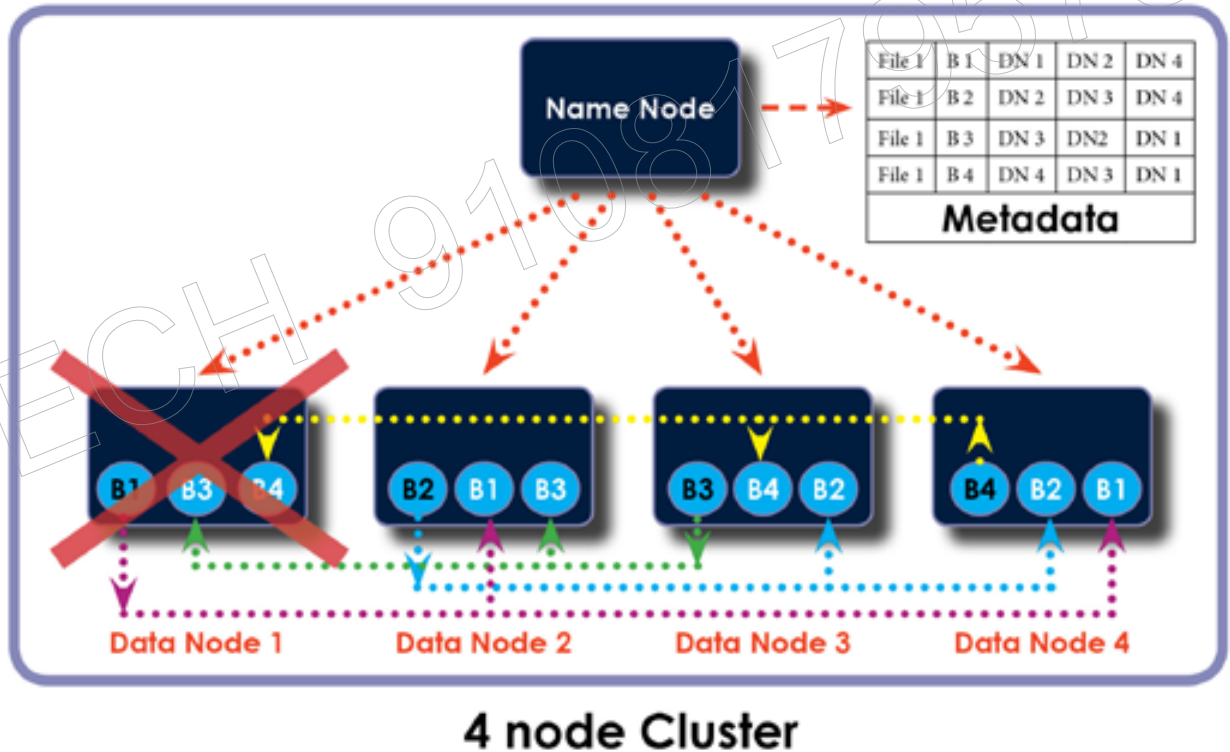
4 node Cluster

HDFS ARCHITECTURE

Replication Factor

Default Hadoop Replication
Factor: **3**

We can change Replication
Factor as per our
requirements

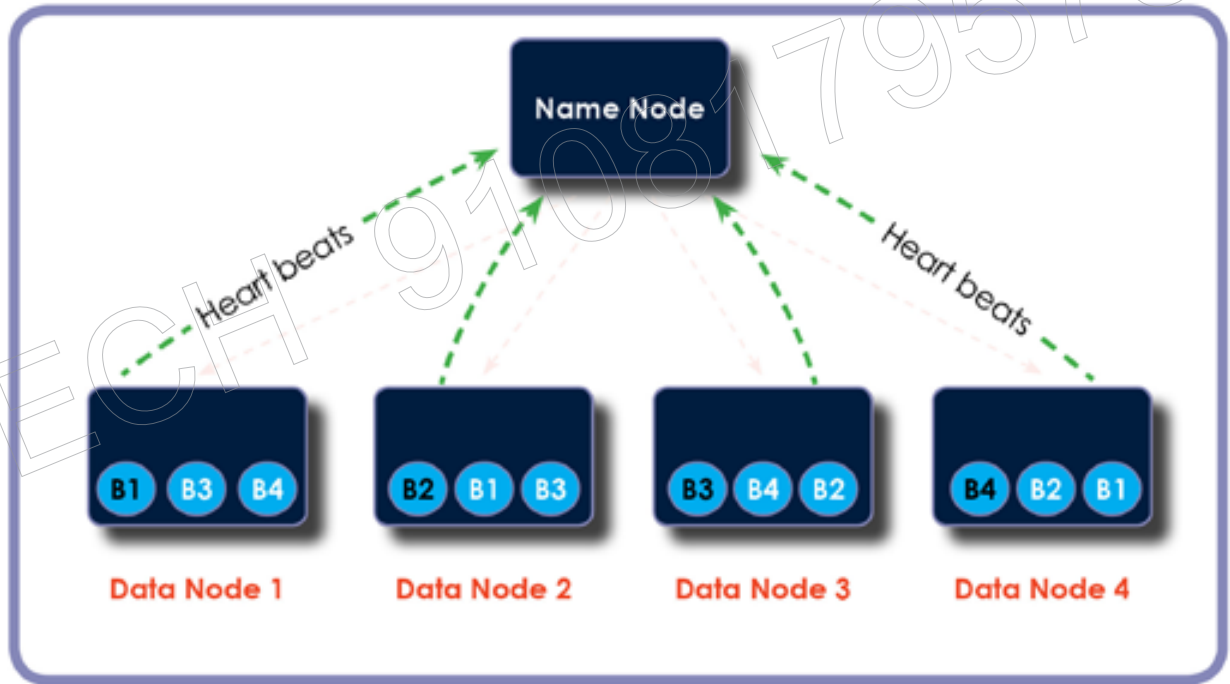


HDFS ARCHITECTURE

Heart Beat

Each Data Node sends heart beats to Name Node in every **3** seconds

If a Name Node doesn't receive **10** consecutive heart beats, it assumes that the Data Node is dead or running very slow

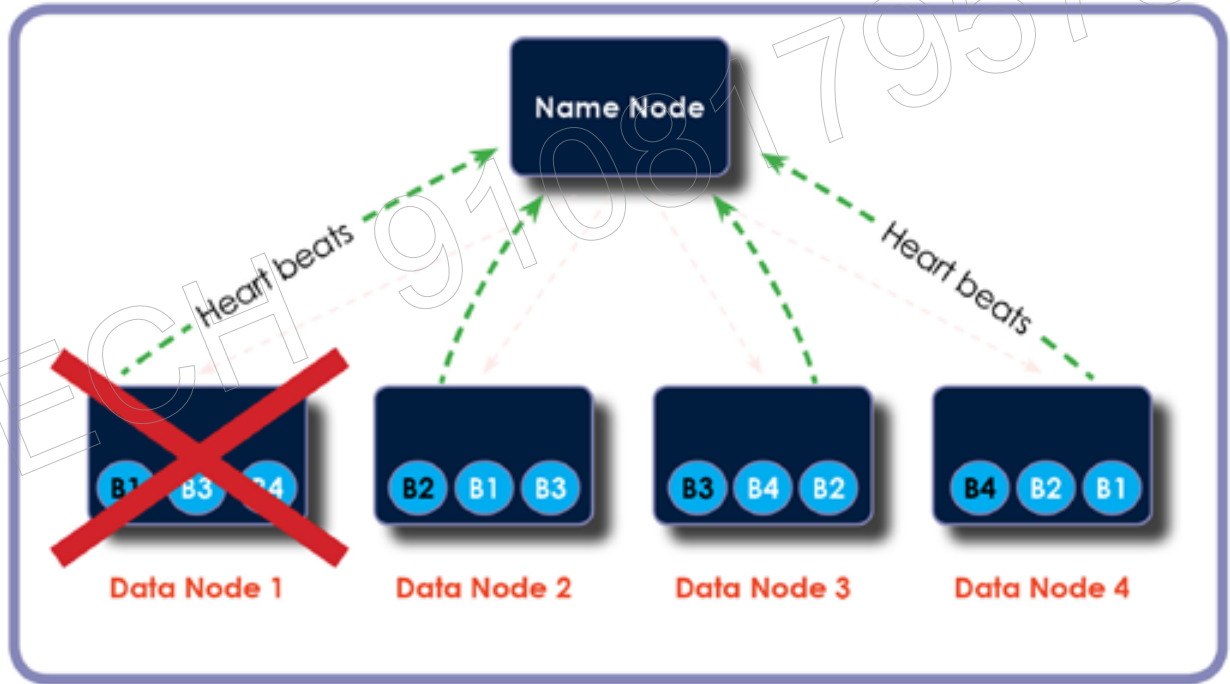


4 node Cluster

HDFS ARCHITECTURE

Fault Tolerance

If a Data Node goes down
the replication factor came
down to **< 3**



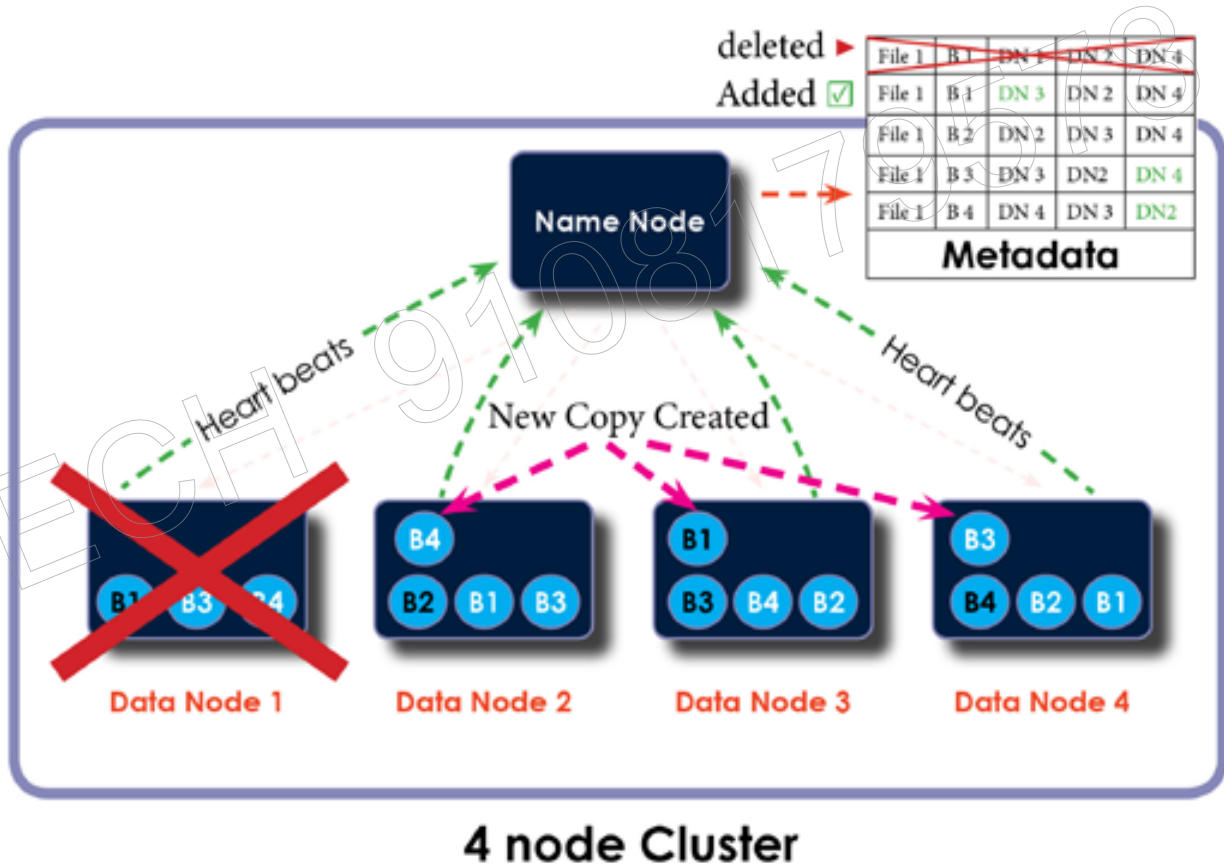
4 node Cluster

HDFS ARCHITECTURE

Fault Tolerance

If a Data Node goes down
the replication factor came
down to < 3

Name Node will create one
more copy to maintain the
replication factor





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