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| Commission/Decommision on a Adhoc Basis |
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# Commision/Decommision on a Adhoc basis

Suppose we have two datanodes already (these are my hostnames)

aj20

aj4

To Decommission

Adhoc basis

Poweroff machine aj4 or stop datanode on aj4

Within few minutes NN will realize the powered off machine is not available.

To commission

setup aj15-java,ssh access,unique ip address, hadoop package,

edited config files

(core-site---nn , mapred-site--jt,hdfs-site--path for dn,tt & masters,slaves being empty)

bin/hadoop-daemon.sh start datanode

bin/hadoop-daemon.sh start tasktracker

.......

new dn pings nn, sends heart beat, sends block information

nn recognizes and considers DN added to the cluster

.......

confirm through dfsadmin -report

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Remember Rack Awareness

We update machines in topology.data file which is read by topology.sh

If we did not add new dn's ip address in topology.data file, when we try to add it , DNs will not start with a message showing a message in datanode log "cannot add a non rack dn in a rack aware cluster"

Refer to the following scenario

Topologies are unfortunately cached in Hadoop today and not refreshed until restart.

So if you add a DN before properly configuring its topology, its improper default will stick and you'll need to restart the NN to make it lose that cache. Hence, your second process of configuring first, starting last, makes more sense.

Perhaps you may also want to configure a better default that suits your regular topology levels, such that even if you make a mistake,

the node still starts up.

A Question to ponder:

>Do you know how to add new datanode into a rack-aware cluster without restarting the namenode, in cdh4 distribution? As it is said that adding a new datanode is a hot operation that can be done when the cluster is online.

>

>I tried that but it looked not working until I restarted the namenode. what

> I did is:

>

> (the cluster has had 4 data nodes and i am adding the 5th)

> 1. Add the new node (qa-str-ms02.p-qa) into /etc/hadoop/conf/hosts.include,

> and into /etc/hadoop/conf/slaves

> 2. Add the rack entries for qa-str-ms02.p-qa (192.168.159.52) into

> /etc/hadoop/topology.data that topology.sh, the topology script, is

> checking, confirming that ./topology.sh qa-str-ms02.p-qa works well. the

> rack entry looks like:

>

> qa-str-ms02.p-qa /dc1/switch1/rack1/node5

> 192.168.159.52 /dc1/switch1/rack1/node5

>

> 3. On the namenode: sudo -u hdfs hdfs dfsadmin -refreshNodes

> 4. On the new datanode: sudo /etc/init.d/hadoop-hdfs-datanode start

>

> However, the datanode failed to handshake with the namenode and it soon

> exited. the namenode log said:

>

> 2012-11-21 18:06:11,946 INFO org.apache.hadoop.net.NetworkTopology: Removing

> a node: /default-rack/192.168.159.52:50010

> 2012-11-21 18:06:11,946 INFO org.apache.hadoop.net.NetworkTopology: Adding a

> new node: /default-rack/192.168.159.52:50010

>

> 2012-11-21 18:06:11,946 ERROR org.apache.hadoop.net.NetworkTopology: Error:

> can't add leaf node at depth 2 to topology:

> Number of racks: 3

> Expected number of leaves:3

> /dc1/switch1/rack1/node1/192.168.159.101:50010

>

> /dc1/switch1/rack1/node2/192.168.159.102:50010

> /dc1/switch1/rack1/node3/192.168.159.103:50010

>

> 2012-11-21 18:06:11,946 WARN org.apache.hadoop.ipc.Server: IPC Server

> handler 4 on 8020, call

> org.apache.hadoop.hdfs.server.protocol.DatanodeProtocol.registerDatanode

> from 192.168.159.52:53968: error:

> org.apache.hadoop.net.NetworkTopology$InvalidTopologyException: Invalid

> network topology. You cannot have a rack and a non-rack node at the same

> level of the network topology.

>

> org.apache.hadoop.net.NetworkTopology$InvalidTopologyException: Invalid

> network topology. You cannot have a rack and a non-rack node at the same

> level of the network topology.

> at

> org.apache.hadoop.net.NetworkTopology.add(NetworkTopology.java:365)

>

> at

> org.apache.hadoop.hdfs.server.blockmanagement.DatanodeManager.registerDatanode(DatanodeManager.java:619)

> at

> org.apache.hadoop.hdfs.server.namenode.FSNamesystem.registerDatanode(FSNamesystem.java:3358)

>

> at

> org.apache.hadoop.hdfs.server.namenode.NameNodeRpcServer.registerDatanode(NameNodeRpcServer.java:854)

> at

> org.apache.hadoop.hdfs.protocolPB.DatanodeProtocolServerSideTranslatorPB.registerDatanode

(DatanodeProtocolServerSideTranslatorPB.java:91)

>

> at

> org.apache.hadoop.hdfs.protocol.proto.DatanodeProtocolProtos$DatanodeProtocolService$2.callBlockingMethod

(DatanodeProtocolProtos.java:20018)

> at

> org.apache.hadoop.ipc.ProtobufRpcEngine$Server$ProtoBufRpcInvoker.call(ProtobufRpcEngine.java:453)

>

> at org.apache.hadoop.ipc.RPC$Server.call(RPC.java:898)

> at org.apache.hadoop.ipc.Server$Handler$1.run(Server.java:1693)

> at org.apache.hadoop.ipc.Server$Handler$1.run(Server.java:1689)

> at java.security.AccessController.doPrivileged(Native Method)

>

> at javax.security.auth.Subject.doAs(Subject.java:396)

> at

> org.apache.hadoop.security.UserGroupInformation.doAs(UserGroupInformation.java:1332)

> at org.apache.hadoop.ipc.Server$Handler.run(Server.java:1687)

>

> it seems that the newly added topology information didn't work.

>

> when I changed the operation in the following steps:

>

> 1. Add the new node (qa-str-ms02.p-qa) into /etc/hadoop/conf/hosts.include,

> and into /etc/hadoop/conf/slaves

>

> 2. Add the rack entries for qa-str-ms02.p-qa into /etc/hadoop/topology.data

> that topology.sh, the topology script, is checking, confirming that

> ./topology.sh qa-str-ms02.p-qa works well.

> 3. On the namenode: sudo /etc/init.d/hadoop-hdfs-namenode stop && sudo

> /etc/init.d/hadoop-hdfs-namenode start

> 4. On the new datanode: sudo /etc/init.d/hadoop-hdfs-datanode start

>

> then everything is ok and the new node was added into the cluster according

> to dfsadmin -report.

>

> However, the operation of restarting namenode is unwanted.