

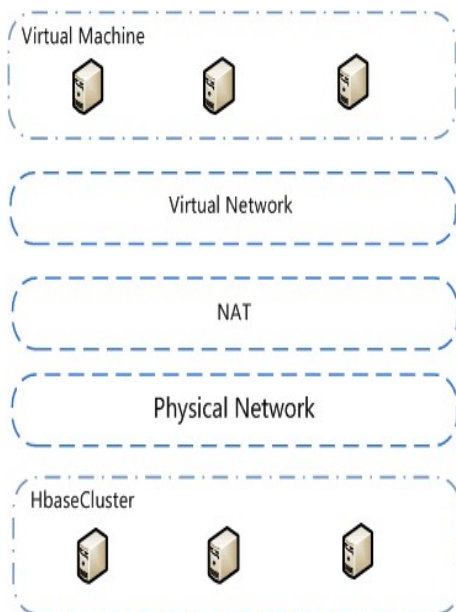
Make Hbase Communication Support Virtual Network

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1 Summary

I'm a engineer of cloud computing , and I'm in charge of to make Hbase as a cloud service. Our Hbase cloud service architecture shown as follows:



- VM
User's Hbase client work in vm and use virtual ip address to access hbase cluster.
- NAT
Network Address Translation, vip(Virtual Network Address) to pip (Physical Network Address)
- HbaseCluster Service
Hbase Cluster Service work in physical network

2 Problem

Vm use vip to communicate with hbase cluster, but hbase have only one way to communicate with each server using host which is setting by parameters `hbase.regionserver.hostname` or `hbase.master.hostname`. When HMaster startup will publish master address and meta region server address in zookeeper, then the address is pip(Physical Network

Address) . Because hbase cluster work in physical network. But the problem is that when vm get the address from zookeeper is pip, not vip. If I set host as vip, it will has problems for hbase cluster communication inside. so it needs two ways for communication setting by parameters.

3 Solution

- protocol extend

change struct ServerName as:

```
message ServerName {
    required string host_name = 1;
    optional uint32 port = 2;
    optional uint64 start_code = 3;
    optional string name=4; // new field
}
```

It will be publish in zookeeper. We can choose host_name or name configured by parameters hbase.client.use.hostname

- metatable extend

Add a column to hbase\meta named info\nameLocation . So the original column info\server configured with hbase.regionserver.hostname, and the new column info\nameLocation configured with hbase.regionserver.servername

- hbase-server

When regionserver startup, configured hbase.regionserver.hostname as pip and configured hbase.regionserver.servername as vip. Then hbase.regionserver.hostname will be writed in ServerName's host_name, and hbase.regionserver.servername will be writed in ServerName's name. When hmaster startup, configured hbase.hmaster.hostname as pip and configured hbase.hmaster.servername as vip. Then hbase.hmaster.hostname will be writed in ServerName's host_name, and hbase.hmaster.servername will be writed in ServerName's name.

- hbase-client

Add a parameters named hbase.client.use.hostname to use vip or pip.