Inspecting Network Performance

The Network Performance Inspector allows you to examine the network performance among hosts
managed by an instance of Cloudera Manager. You can use this tool to diagnose networking iss
significantly affect the performance of workloads such as MapReduce jobs, Spark jobs, Hive o
queries, particularly when using remote storage. You can run the inspector on-demand, and it
adding a new cluster. You can also run the inspector using the Cloudera Manager API.
The Network Performance Inspector runs the following types of inspections:

- Latency test The inspector runs ping commands from each host to all other
  hosts, and reports the average ping time and packet loss percentage. You
  can run the latency test among the hosts in a single cluster and between
  hosts in different clusters.
- Bandwidth Test The bandwidth test measures the speed of data transfer
  between the hosts. You can use this information to identify problematic
  hosts or networking infrastructure issues so that you take corrective action.
  You can run the bandwidth test only between clusters managed by an
  instance of Cloudera Manager.

Important:
The Network Performance Inspector uses the ping command on each host in the cluster to check
between the hosts. In some operating system configurations, only the root user can run the p
Otherwise, it has insufficient privileges to open a raw socket in order to send the required
If the ping command has insufficient privileges, then the Network Performance Inspector disp
following error message:invocation of script- /opt/cloudera/cm-agent/service/perf/host_perf_
execute due to - "ping: socket: Operation not permitted"
To avoid this error, you must ensure that the ping command have the setuid permissions (not
or CAP_NET_RAW capability enabled to open a raw socket.
Include the specific capability for the ping command on each host in the cluster by running
command::

```
# setcap cap_net_admin,cap_net_raw=+p $(which ping)
```

Check the current capabilities by running the following command:

```
# getcap $(which ping)
```

Running the Network Performance Inspector From the Cloudera Manager Admin Console

Minimum Required Role: Key Administrator or Cluster Administrator (also provided by Full Adm
feature is not available when using Cloudera Manager to manage Data Hub clusters.
To run the Network Performance Inspector:

- Open the Network Performance Inspector from one of the following pages
  in the Cloudera Manager Admin Console:
    - From the All Hosts page:
        a. Select HostsAll Hosts.

b. Click the Inspect Network Performance button to launch the
          inspector.
   – From the Cluster Status page:
       a. Select ClustersCluster Name
       b. In the Status section, click the Hosts link at the top of the list
          of Cluster Services to open the Hosts page.
       c. Click the Inspect Cluster Network Performance button to launch
          the inspector. The Inspect Network Performance dialog box
          opens.
- Enter the following information:
   – Source Cluster – Select a cluster to inspect from the drop-down list.
     Select Run against another cluster to select additional clusters. An
     additional drop-down list displays from which you can select an ad-
     ditional cluster to inspect. Select either the Latency Test or the
     Latency and Bandwidth Test option.
   – Ping Timeout – Amount of time, in seconds, after which the inspector
     reports a failure.
   – Ping Count – Number of times the inspector pings each host.
   – Ping Packet Size – Size, in bytes, of the test packet sent when pinging
     the hosts.
- Click Run. The Cluster Performance Inspector command window opens.
  When the Inspector finishes, click the Show Inspector Results button to
  open the Network Performance Inspector Results page.

Select Show Hosts with Issues to display any problems found by the inspector, or select Show
Network Diagnostic Result page displays a table of results. Each row represents a single hos
Summary column summarizes the performance of the host. Click the summary text to view detail
statistics from this host to each of the other hosts.

The inspector summarizes the latency and bandwidth tests for the hosts using three icons:

Table 1:

Status Bandwidth Test Latency Test
Green
Good network performance.

More than 500 MBits/Second No packet loss.

Orange
Concerning network performance

250 – 500 MBits/Second Any host with a ping latency in the range of
1 to 4 milliseconds.

Status Bandwidth Test Latency Test
Red
Bad network performance.

Less than 250 MBits/Second Any target host that is unreachable by

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hostname (has a 100% packet loss), any
host with a ping latency greater than 4
milliseconds, or any target host with a packet
loss of 1% or greater.
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Poor performance can result from firewall settings, router configurations, network topology
You may need to work with your network administrator to mitigate these issues.
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Running the Network Performance Inspector From the Cloudera Manager API

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You can invoke the Network Performance Inspector using the Cloudera Manager API and the foll
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- /cm/commmands/hostsPerfInspector Invokes the inspector across an arbitrary set of hosts, (including hosts that are not part of the cluster).
- /cm/commands/clusterPerfInspector Invokes the inspector across the hosts in two clusters.
- /cm/clusters/cluster Name/commands/perfInspector Invokes the inspector across the hosts of a specified cluster. For more information, see the Cloudera Manager API REST documentation.