

# Network Management & Monitoring

## Smokeping - Part II

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### 0.1 5. Add new probes to Smokeping

The current entry in the Probes file is fine, but if you wish to use additional Smokeping checks you can add them in here and you can specify their default behavior. You can do this, as well, in the Targets file if you wish.

To add a probe to check for HTTP latency as well as DNS lookup latency, edit the Probes file and add the following text TO THE END of that file:

```
+ EchoPingHttp

+ DNS
binary = /usr/bin/dig
pings = 5
step = 180
lookup = www.nsrc.org
```

The DNS probe will look up the IP address of www.nsrc.org using any other open DNS server (resolver) you specify in the Targets file. You will see this a bit futher on in the exercises.

Now Save and exit from the file and verify that your changes are working:

```
# service smokeping reload
```

## 0.2 6. Add HTTP latency checks for the classroom PCs

Edit the Targets file again and go to the end of the file:

```
# editor Targets
```

At the end of the file add:

```
#  
# Local Web server response  
#  
  
+HTTP  
  
menu = Local HTTP Response  
title = HTTP Response Student PCs  
  
++pc1  
  
menu = pc1  
title = pc1 HTTP response time  
probe = EchoPingHttp  
host = pc1.ws.nsrc.org  
  
++pc2  
  
menu = pc2  
title = pc2 HTTP response time  
probe = EchoPingHttp  
host = pc2.ws.nsrc.org  
  
++pc3  
  
menu = pc3  
title = pc3 HTTP response time  
probe = EchoPingHttp  
host = pc3.ws.nsrc.org  
  
++pc4  
  
menu = pc4  
title = pc4 HTTP response time  
probe = EchoPingHttp  
host = pc4.ws.nsrc.org
```

You could actually just use the “probe = EchoPingHttp” statement once for pc1, and then this would be the default probe until another “probe =” statement is seen in the Targets file.

You can add more PC entries if you wish, or you could consider checking the latency on remote machines - these are likely to be more interesting. Machines such as your own publicly accessible servers are a good choice, or, perhaps other web servers you use often (Google, Yahoo, Government pages, stores, etc.?).

For example, consider adding something like this at the bottom of the Targets file:

```
#
# Remote Web server response
#

+HTTPRemote

menu = Remote HTTP Response
title = HTTP Response Remote Machines

++google

menu = Google
title = Google.com HTTP response time
probe = EchoPingHttp
host = www.google.com

++nsrc

menu = Network Startup Resource Center
title = nsrc.org HTTP response time
probe = EchoPingHttp
host = nsrc.org
```

Add your own hosts that you use at your organization to the list of Remote Web Servers.

Once you are done, save and exit from the Targets file and verify your work:

```
# service smokeping reload
```

### 0.3 7. Add DNS latency checks

At the end of the Targets file we are going to add some entries to verify the latency from our location to remote recursive DNS servers to look up an entry for

nsrc.org. You would likely substitute an important address for your institution in the Probes file instead. In addition, you can change the address you are looking up inside the Targets file as well. For more information see:

<http://oss.oetiker.ch/smokeping/probe/DNS.en.html>

and

<http://oss.oetiker.ch/smokeping/probe/index.en.html>

Now edit the Targets file again. Be sure to go to the end of the file:

```
# cd /etc/smokeping/config.d          (just to be sure...)
# editor Targets
```

At the end of the file add:

```
#
# Sample DNS probe
#
```

```
+DNS
```

```
probe = DNS
menu = DNS Latency
title = DNS Latency Probes
```

```
++LocalDNS1
```

```
menu = 10.10.0.241
title = DNS Delay for local DNS Server on s1.ws.nsrc.org
host = s1.ws.nsrc.org
```

```
++GoogleA
```

```
menu = 8.8.8.8
title = DNS Latency for google-public-dns-a.google.com
host = google-public-dns-a.google.com
```

```
++GoogleB
```

```
menu = 8.8.4.4
title = DNS Latency for google-public-dns-b.google.com
host = google-public-dns-b.google.com
```

```
++OpenDNSA
```

```
menu = 208.67.222.222
title = DNS Latency for resolver1.opendns.com
```

```
host = resolver1.opendns.com

++OpenDNSB

menu = 208.67.220.220
title = DNS Latency for resolver2.opendns.com
host = resolver2.opendns.com
```

Now save the Targets file and exit and verify your work:

```
# service smokeping reload
```

Look at additional Smokeping probes and consider implementing some of them if they are useful to your organization:

<http://oss.oetiker.ch/smokeping/probe/index.en.html>

## 0.4 8. MultiHost graphing

Once you have defined a group of hosts under a single probe type in your `/etc/smokeping/config.d/Targets` file, then you can create a single graph that will show you the results of all smokeping tests for all hosts that you define. This has the advantage of letting you quickly compare, for example, a group of hosts that you are monitoring with the FPing probe.

The MultiHost graph function in Smokeping is extremely picky - pay close attention!

To create a MultiHost graph first edit the file Targets:

```
# editor Targets
```

We will create a MultiHost graph for the DNS Latency probes we just added. To do this go to the end of the Targets file and add:

```
#
# Multihost Graph of all DNS latency checks
#

++MultiHostDNS

menu = MultiHost DNS
title = Consolidated DNS Responses
host = /DNS/LocalDNS1 /DNS/GoogleA /DNS/GoogleB /DNS/OpenDNSA /DNS/OpenDNSB
```

And, as always, save and exit from the file Targets and test your new configuration.

```
# service smokeping reload
```

If this fails you almost certainly have an error in the entries. If you cannot figure out what the error is (remember to try “tail /var/log/syslog” first!) ask your instructor for some help.

You can add MultiHost graphs for any other set of probe tests (FPing, EchoPingHttp) that you have configured. You must add the MultiHost entry at the end of a probe section. If you don't understand how this works you can ask your instructors for help.

In addition, on the workshop NOC there are sample configuration files available, including one for SmokePing that includes multiple MultiHost graph examples.

## 0.5 9. Send Smokeping alerts

If you wish to receive an email when an alert condition is met on one of the Smokeping checks first do this:

```
# cd /etc/smokeping/config.d
# editor Alerts
```

Update the top of the file where it says:

```
*** Alerts ***
to = alertee@address.somewhere
from = smokealert@company.xy
```

to include a proper “to” and “from” field for your server. Something like:

```
*** Alerts ***
to = sysadm@localhost
from = smokeping-alert@localhost
```

Now you must update your device entries to include a line that reads:

```
alerts = alertName1, alertName2, etc, etc...
```

For instance, the alert named, “someloss” has already been defined in the file Alerts:

To read about Smokeping alerts and what they are detecting, how to create your own, etc. see:

[http://oss.oetiker.ch/smokeping/doc/smokeping\\_config.en.html](http://oss.oetiker.ch/smokeping/doc/smokeping_config.en.html)

and at the bottom of the page is a section titled **\*\*\* Alerts \*\*\***

To place some alert detection on some of your hosts open the file Targets:

```
# editor Targets
```

and go near the start of the file where we defined our PCs. Just under the “host =” line add another line that looks like this:

```
alerts = someloss
```

So, for example, the pc1 entry would look like this:

```
++pc1

menu = pc1
title = Virtual Machine 1
host = pc1.ws.nsrc.org
alerts = someloss
```

If you want to add an alerts option to other hosts go ahead. Once you are done save and exit from the Targets file and then verify that your configuration works:

```
# service smokeping reload
```

If any of the hosts that have the “alerts =” option set meet the conditions to set off the alert, then an email will arrive to the sysadm user’s mailbox on the Smokeping server machine (localhost). It’s not likely that an alert will be set off for most machines. To check you can read the email for the sysadm user by using an email client like “mutt” -

```
# apt-get install mutt
# su - sysadm                (changes you to the sysadm user from root)
$ mutt
```

Say yes to mailbox creation when prompted, then see if you have email from the smokeping-alerts@localhost user. You probably will not. To exit from Mutt press “q”.

To leave the sysadm user shell type:

```
$ exit
#
```

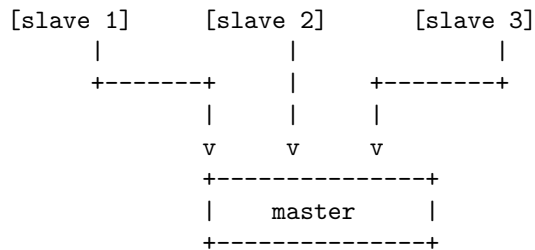
## 0.6 10. Slave instances - Informational Only

This is a description only for informational purposes in case you wish to attempt this type of configuration once the workshop is over.

The idea behind this is that you can run multiple smokeping instances at multiple locations that are monitoring the same hosts and/or services as your master instance. The slaves will send their results to the master server and you will see these results side-by-side with your local results. This allows you to view how users outside your network see your services and hosts.

This can be a powerful tool for resolving service and host issues that may be difficult to troubleshoot if you only have local data.

Graphically this looks this:



You can see example of this data here:

<http://oss.oetiker.ch/smokeping-demo/>

Look at the various graph groups and notice that many of the graphs have multiple lines with the color code chart listing items such as “median RTT from mipsrv01” - These are not MultiHost graphs, but rather graphs with data from external smokeping servers.

To configure a smokeping master/slave server you can see the documentation here:

[http://oss.oetiker.ch/smokeping/doc/smokeping\\_\\_master\\_\\_slave.en.html](http://oss.oetiker.ch/smokeping/doc/smokeping__master__slave.en.html)

In addition, a sample set of steps for configuring this is available in the file sample-smokeping-master-slave.txt which should be listed as an additional reference at the bottom of the Agenda page on your classroom wiki.