

# Measuring Delay with



**PacNOG 6  
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# Introduction

- Based on RRDTool (the same author)
- Measures ICMP delay and can measure status of services such as HTTP, DNS, SMTP, SSH, LDAP, etc.
- Allows you to define ranges on statistics and generate alarms.
- Written in Perl for portability
- Relatively easy to install. In Debian it's very simple.

# Introduction: “Marketing”

SmokePing keeps track of your network latency:

Best of breed latency visualisation.

Interactive graph explorer.

Wide range of latency measurement plugins.

Master/Slave System for distributed measurement.

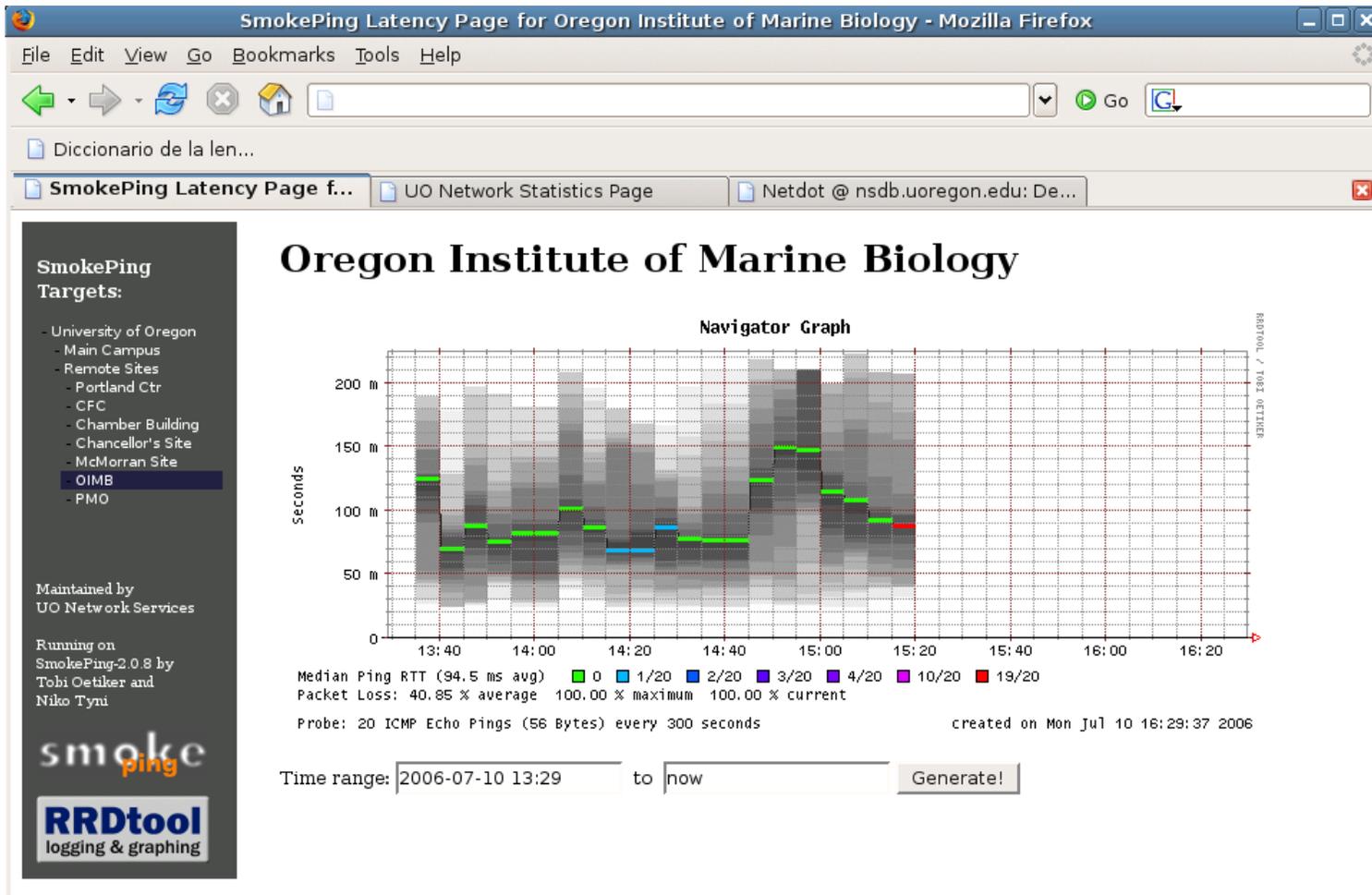
Highly configurable alerting system.

Live Latency Charts with the most 'interesting' graphs.

Free and OpenSource Software written in Perl written by Tobi Oetiker, the creator of MRTG and RRDtool



# The “Smoke” and the “Pings”

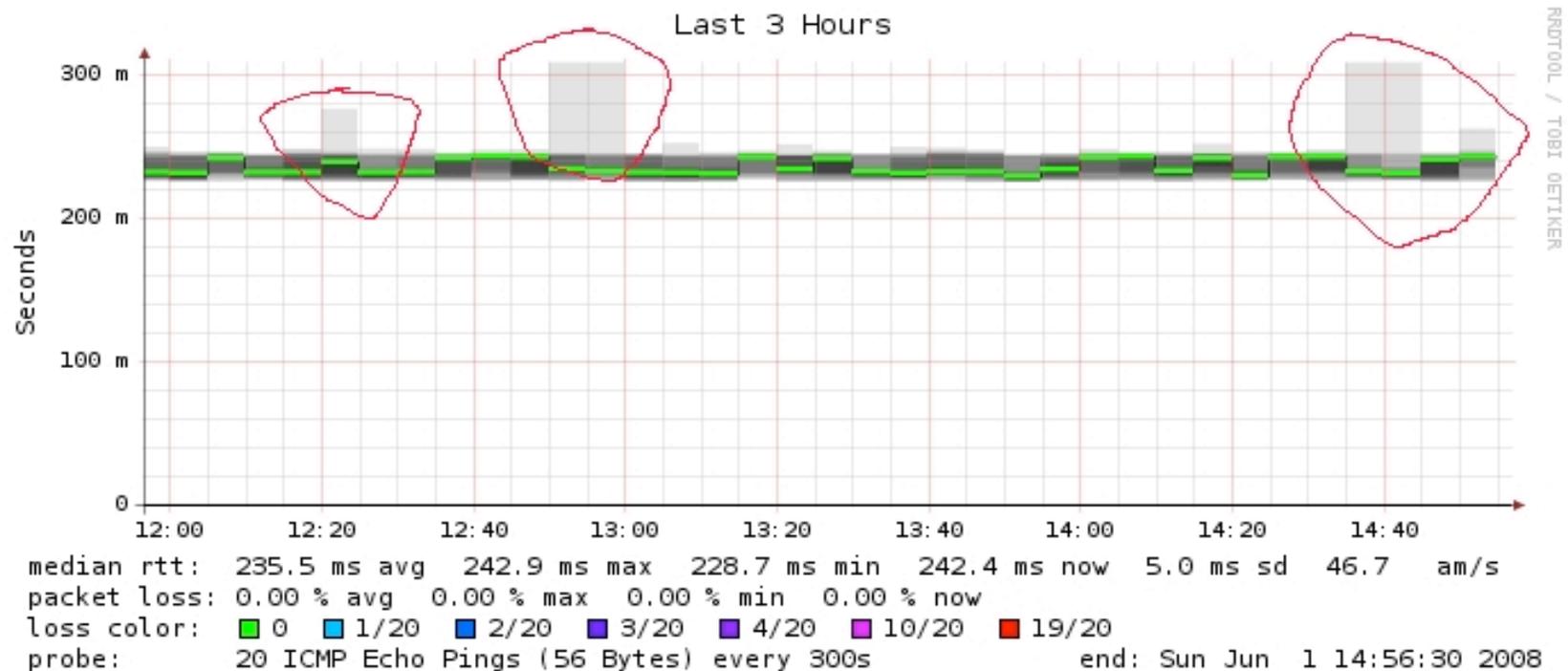


# How to Read Smokeping Graphs

- Smokeping sends multiples tests (pings), makes note of RTT, orders these and selects the median.
- The different values of RTT are shown graphically as lighter and darker shades of grey (the “smoke”). This conveys the idea of variable round trip times or *jitter*.
- The number of lost packets (if any) changes the color of the horizontal line across the graph.

# Another Example

## African Network Operators Group



# Requirements

The following packages are needed or recommended:

- **rrdtool** <http://oss.oetiker.ch/rrdtool/>
- **fping** <http://www.fping.com/>
- **echoping** <http://echoping.sourceforge.net/>
- **speedyCGI** <http://www.daemoninc.com/SpeedyCGI/>
- **Apache** <http://httpd.apache.org/>
- **Perl** <http://www.perl.org/>

# Smokeping: Installation

## Debian/Ubuntu:

- `apt-get install smokeping`
- Configure **`/etc/smokeping/config.d/*`**
- Change Smokeping's appearance here:
  - **`/etc/smokeping/basepage.html`**
- Restart the service:
  - **`/etc/init.d/smokeping restart`**
  - **`/etc/init.d/smokeping reload`**

# Smokeping: Instalation

You will find Smokeping running here:

<http://localhost/cgi-bin/smokeping.cgi>

# Configuration

Smokeping configuration files in Ubuntu 9.04 are:

```
/etc/smokeping/config.d/Alerts  
/etc/smokeping/config.d/Database  
/etc/smokeping/config.d/General  
/etc/smokeping/config.d/pathnames  
/etc/smokeping/config.d/Presentation  
/etc/smokeping/config.d/Probes  
/etc/smokeping/config.d/Slaves  
/etc/smokeping/config.d/Targets
```

Generally we spend most of our time in General, Probes and Targets.

# Configuration: Alerts

```
*** Alerts ***
to = netmanage@localhost
from = smokealert@noc.mgmt.conference.apritcot.net

+bigloss
type = loss
# in percent
pattern = ==0%,==0%,==0%,==0%,>0%,>0%,>0%
comment = suddenly there is packet loss

+someloss
type = loss
# in percent
pattern = >0%,*12*,>0%,*12*,>0%
comment = loss 3 times in a row
```

# Configuration: Database

```
*** Database ***  
  
step      = 300  
pings     = 20  
  
# consfn mrhb steps total  
  
AVERAGE  0.5   1  1008  
AVERAGE  0.5  12  4320  
    MIN    0.5  12  4320  
    MAX    0.5  12  4320  
AVERAGE  0.5 144   720  
    MAX    0.5 144   720  
    MIN    0.5 144   720
```

# Configuration: General

```
*** General ***

@include /etc/smokeping/config.d/pathnames

# Please edit this to suit your installation
owner      = netmanage@noc.mgmt.conference.apricot.net
contact    = netmanage@localhost
cgiurl     = http://noc/cgi-bin/smokeping.cgi
mailhost   = localhost
# specify this to get syslog logging
syslogfacility = local0
# each probe is now run in its own process
# disable this to revert to the old behaviour
# concurrentprobes = no
```

# Configuration: pathnames

You generally do not need to edit this part of the *config* file near the top:

```
sendmail = /usr/sbin/sendmail
imgcache = /usr/local/smokeping/htdocs/img
imgurl   = img
datadir  = /usr/local/var/smokeping
piddir   = /usr/local/var/smokeping
cgiurl   = http://localhost/smokeping/cgi-bin
smokemail = /usr/local/etc/smokeping/smokemail
tmail    = /usr/local/etc/smokeping/tmail
# specify this to get syslog logging
syslogfacility = local0
```

# Configuration: Presentation

```
*** Presentation ***

template = /etc/smokeping/basepage.html

+ charts

menu = Charts
title = The most interesting destinations

++ stddev
sorter = StdDev(entries=>4)
title = Top Standard Deviation
menu = Std Deviation
format = Standard Deviation %f

++ max
sorter = Max(entries=>5)
title = Top Max Roundtrip Time
menu = by Max
format = Max Roundtrip Time %f seconds
```

# Configuration: Probes

```
*** Probes ***

+ FPing
binary = /usr/sbin/fping

+ DNS
binary = /usr/bin/dig
lookup = www.uoregon.edu
pings = 5
step = 180

+ EchoPingHttp
binary = /usr/bin/echoping
ignore_cache = yes
pings = 5
url = /

+ EchoPingHttps
binary = /usr/bin/echoping
pings = 5
url = /

+ EchoPingSntp
binary = /usr/bin/echoping
forks = 5
```

# Configuration: Slaves

```
# *** Slaves ***  
#  
## make sure this is not world-readable!  
## secrets=/etc/smokeping/slave-secrets  
#  
# +slave1  
# display_name=slave_name  
# color=0000ff
```

# Configuration: Targets

We will look at a sample configuration file that we use for the server

<http://nsrc.org/>

```
*** Targets ***

probe = FPing

menu = Top
title = Network Latency Grapher

+ UO
menu = University of Oregon
title = UO webserver
host = www.uoregon.edu

+ UTE
menu = UTE
title = Universidad Tecnologica
Equinoccial

++ HTTP
menu = HTTP
probe = EchoPingHttp

+++ www
menu = UTE web
host = www.ute.edu.ec

++ DNS
menu = DNS
probe = DNS

+++ dns
menu = UTE DNS
host = www.ute.edu.ec
```

# Default Probe: Ping

- Probing for delay and jitter (ping)
- Performance and availability probe of a server:

## Latency

```
+++ LocalMachine
```

```
menu = NOC
```

```
title = The NOC@tack1
```

```
host = localhost
```

```
alerts = startloss,someloss,bigloss,rttdetect,hostdown
```

# Another Type of Probe

- Performance and Availability

```
++ NOCsquid
```

```
menu = Squid on the NOC
```

```
title = www-cache / HTTP for noc@mgmt.conference.apricot.net
```

```
probe = EchoPingHttp
```

```
host = localhost
```

```
port = 8080
```

```
url = http://localhost/
```

# More Types of Probes

**More information available here:**

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

## A few more probes...

- DNS
- HTTP(S)
- LDAP
- Whois
- SMTP
- CiscoRTTMonDNS
- CiscoRTTMonTcpCon
- Tacacs
- WebProxyFilter
- WWW-Cache
- Radius
- IOS
- FPing6
- Etc.

# References

- Smokeping website:

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

- Sample site:

<http://fushizen.net/cgi-bin/smokeping.cgi>

- Good examples:

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