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Published: 2007-09-14 11:12

Monitoring Network Latency With Smokeping (Debian Etch)

Version 1.0
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Last edited 09/09/2007

This guide shows how to install and configure Smokeping on Debian Etch to monitor network latency. From the **Smokeping web site**: ***"SmokePing is a deluxe latency measurement tool. It can measure, store and display latency, latency distribution and packet loss. SmokePing uses RRDtool to maintain a longterm data-store and to draw pretty graphs, giving up to the minute information on the state of each network connection."***

This document comes without warranty of any kind! I do not issue any guarantee that this will work for you!

1 Preliminary Note

I have tested this on a Debian Etch system. I will use the hostname *www.example.com* for this system in this tutorial. We need a web server on the system to display the graphs. I will install Apache2 and use Apache's default vhost for hosting the graphs. If you use a different vhost, you might have to adjust its settings or copy the *smokeping.cgi* script from */usr/lib/cgi-bin/smokeping.cgi* to the appropriate location.

2 Installing Smokeping

To install Smokeping along with some other recommended packages, we simply run:

```
apt-get install smokeping curl libauthen-radius-perl libnet-ldap-perl libnet-dns-perl libio-socket-ssl-perl libnet-telnet-perl libsocket6-perl
libio-socket-inet6-perl apache2
```

3 Configuring Smokeping

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The Smokeping configuration is in the file */etc/smokeping/config*. Near the beginning of the file, you find some email settings and the URL of the Smokeping web interface. Change them like this:

```
vi /etc/smokeping/config
```

```
[...]
# Please edit this to suit your installation
owner    = Falko Timme
contact  = me@example.com
cgiurl   = http://www.example.com/cgi-bin/smokeping.cgi
mailhost = smtp.example.com
# 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

*** Alerts ***
to = me@example.com
from = smokealert@example.com
[...]
```

(Make sure that *mailhost* contains the primary MX for your email domain!)

Further down the file, you find the *remark* line. Modify it to your likings:

```
[...]
remark = Welcome to the SmokePing website of 'Example Company'
[...]
```

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3.1 Basic Example

We will now do a basic configuration to measure the network latency to certain servers in various countries (e.g. Germany, UK, USA). In this example, I'm going to test the network connection to the servers *www.heise.de* (Germany), *www.bbc.co.uk* (UK), and *web.mit.edu* (USA). You should choose different servers to avoid a DOS!

Open */etc/smokeping/config* again:

```
vi /etc/smokeping/config
```

Find the section that begins with *++ Europe*. Add a stanza for Germany between it and the Switzerland stanza (which you can comment out if you don't want to monitor a server in Switzerland):

```
[...]
++ Europe

menu = Europe
title =European Connectivity

+++ Germany

menu = Germany
title = German Connectivity
alerts = bigloss,someloss,startloss

++++ Heise

menu = Heise
title = Heise
```

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```
host = www.heise.de

#+++ Switzerland
#
#menu = Switzerland
#title =Swiss Connectivity
#alerts = bigloss,someloss,startloss

[...]
```

Further down, modify the UK stanza as follows:

```
[...]
+++ UK

menu = United Kingdom
title = United Kingdom

++++ BBC

menu = BBC
title = BBC
host = www.bbc.co.uk
[...]
```

Then change the USA stanza:

```
[...]
++ USA
```

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```
menu = North America
title =North American Connectivity

+++ MIT

menu = MIT
title = Massachusetts Institute of Technology Webserver
host = web.mit.edu
[...]
```

Save your changes and restart Smokeping:

```
/etc/init.d/smokeping restart
```

Smokeping will now probe the servers by pinging them (by using */usr/bin/fping*) - this is the default test.

Now open a web browser and go to *http://www.example.com/cgi-bin/smokeping.cgi*. This is the start page:

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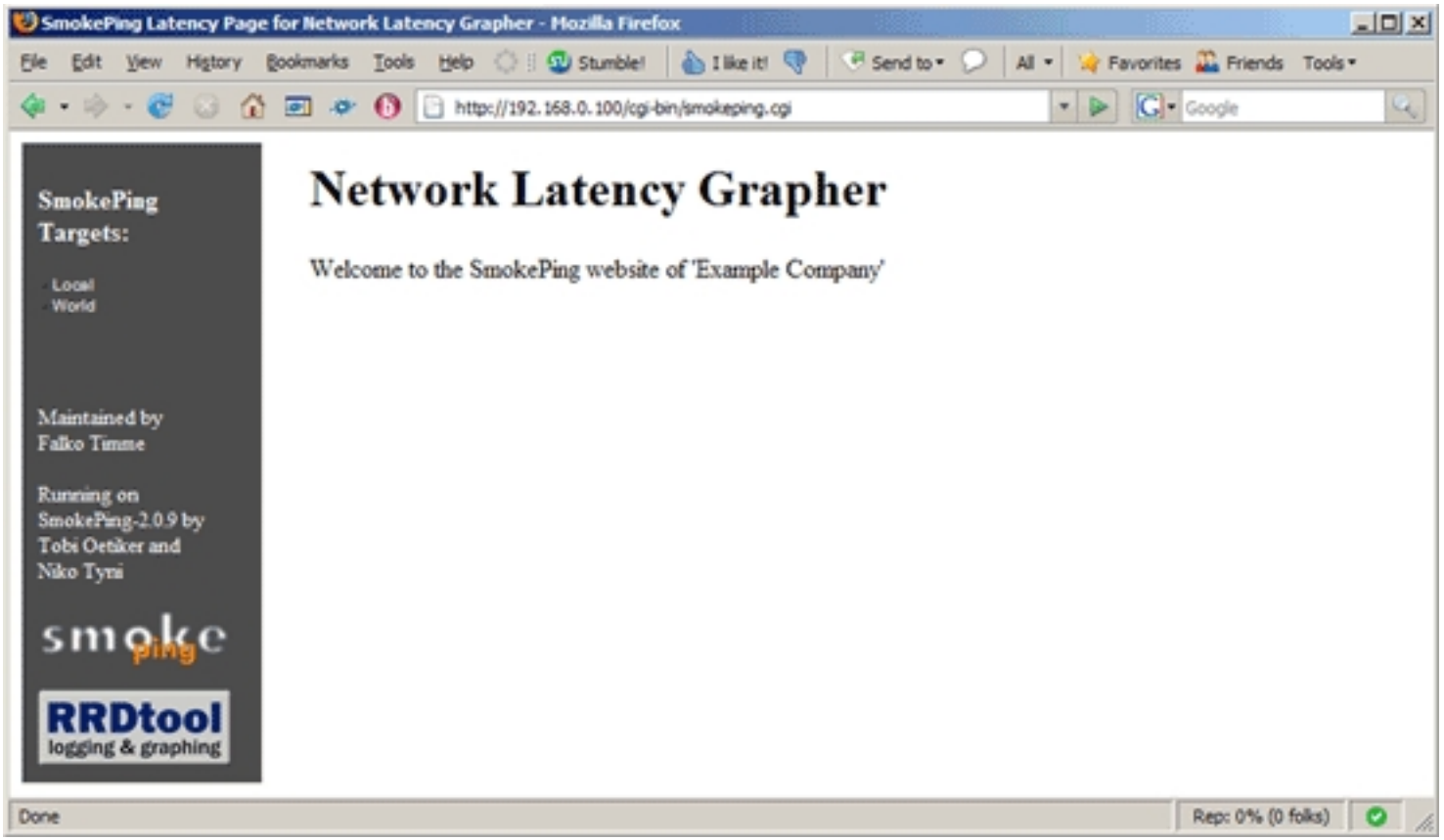

After a few minutes you should see the first graphs. This is how the latency of `localhost` looks (which is configured by default in `/etc/smokeping/config` unless you changed that):

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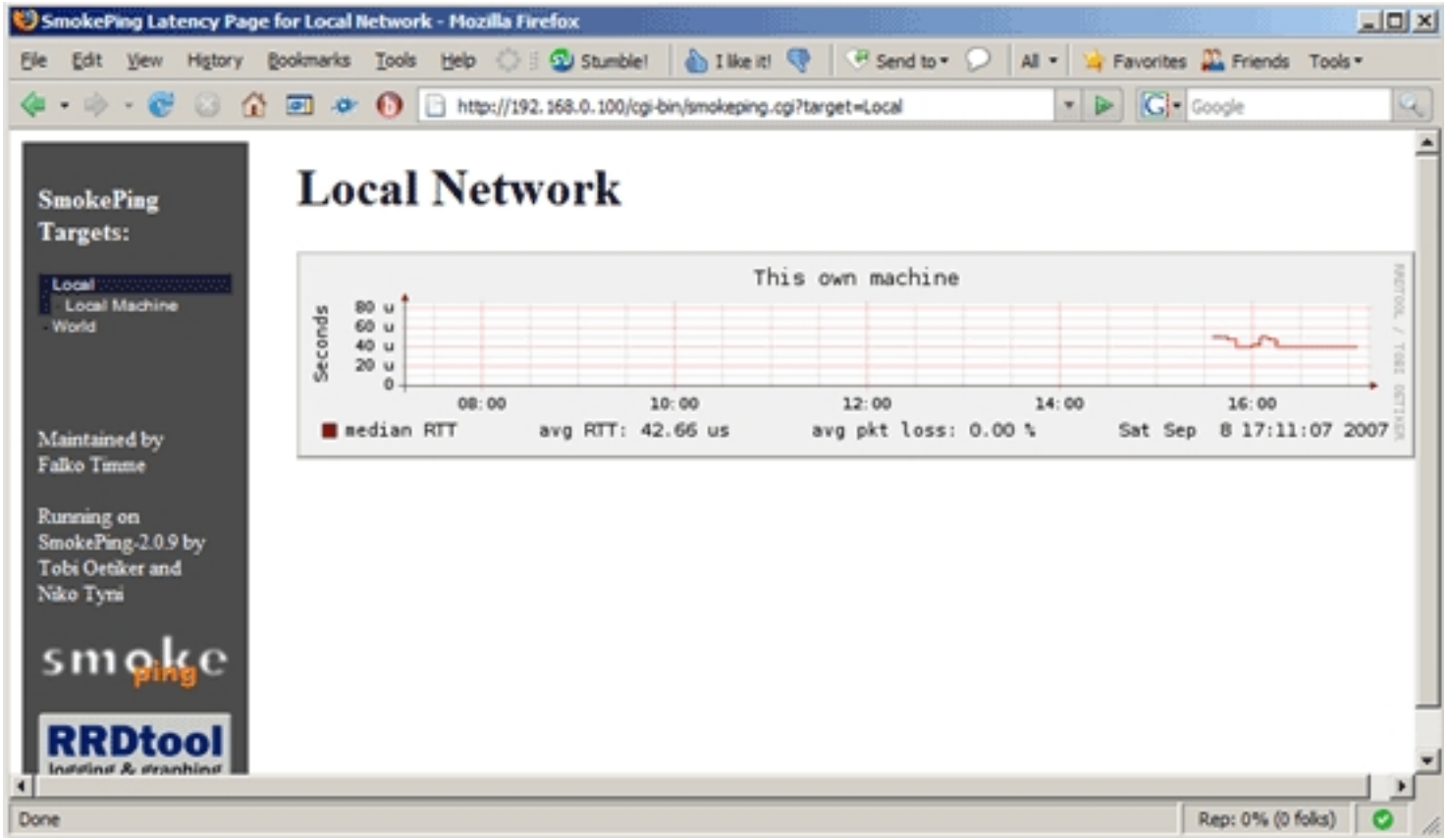

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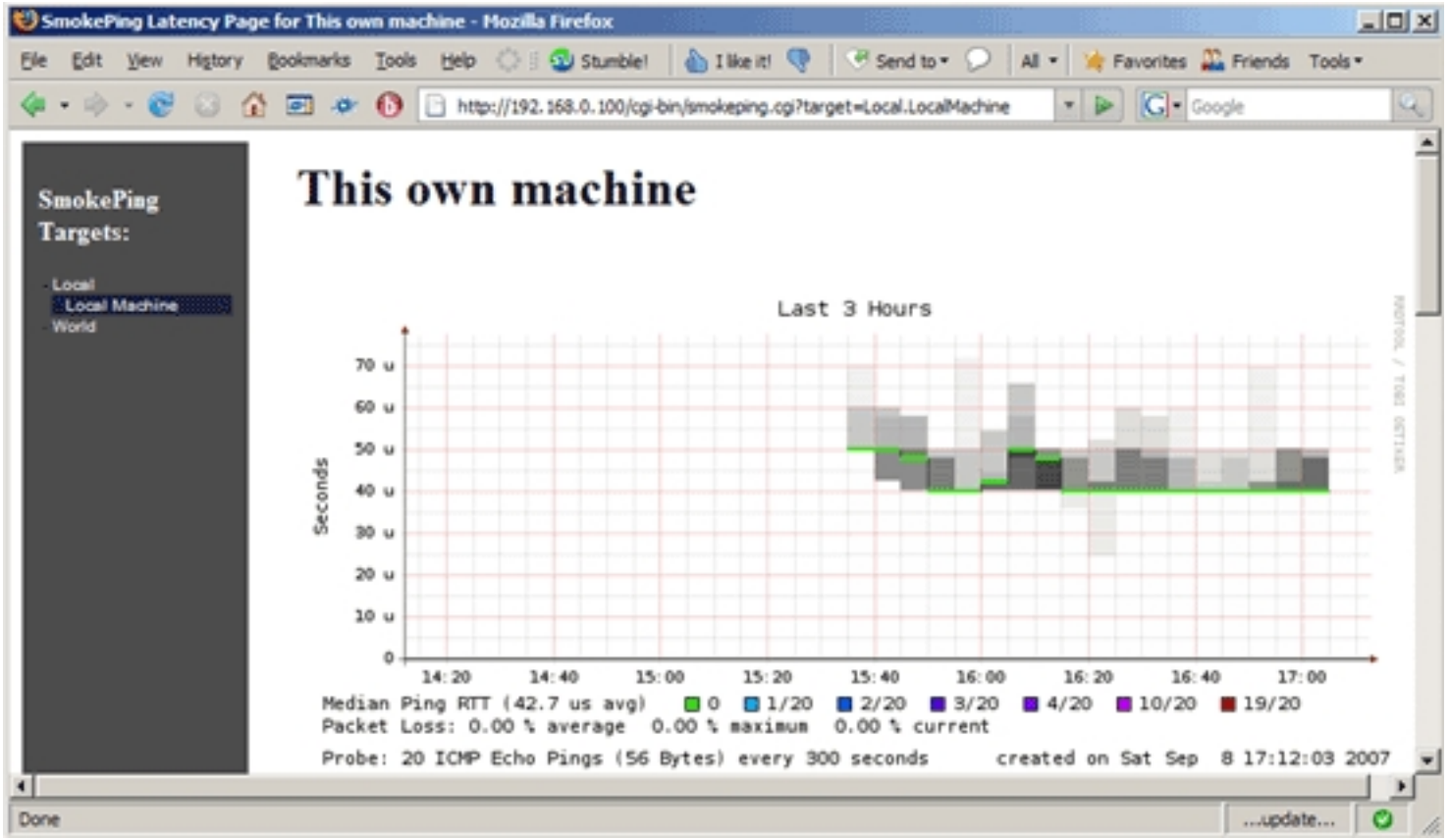

In the menu on the left side we can now go to the countries/servers that we configured earlier and take a look at their graphs:

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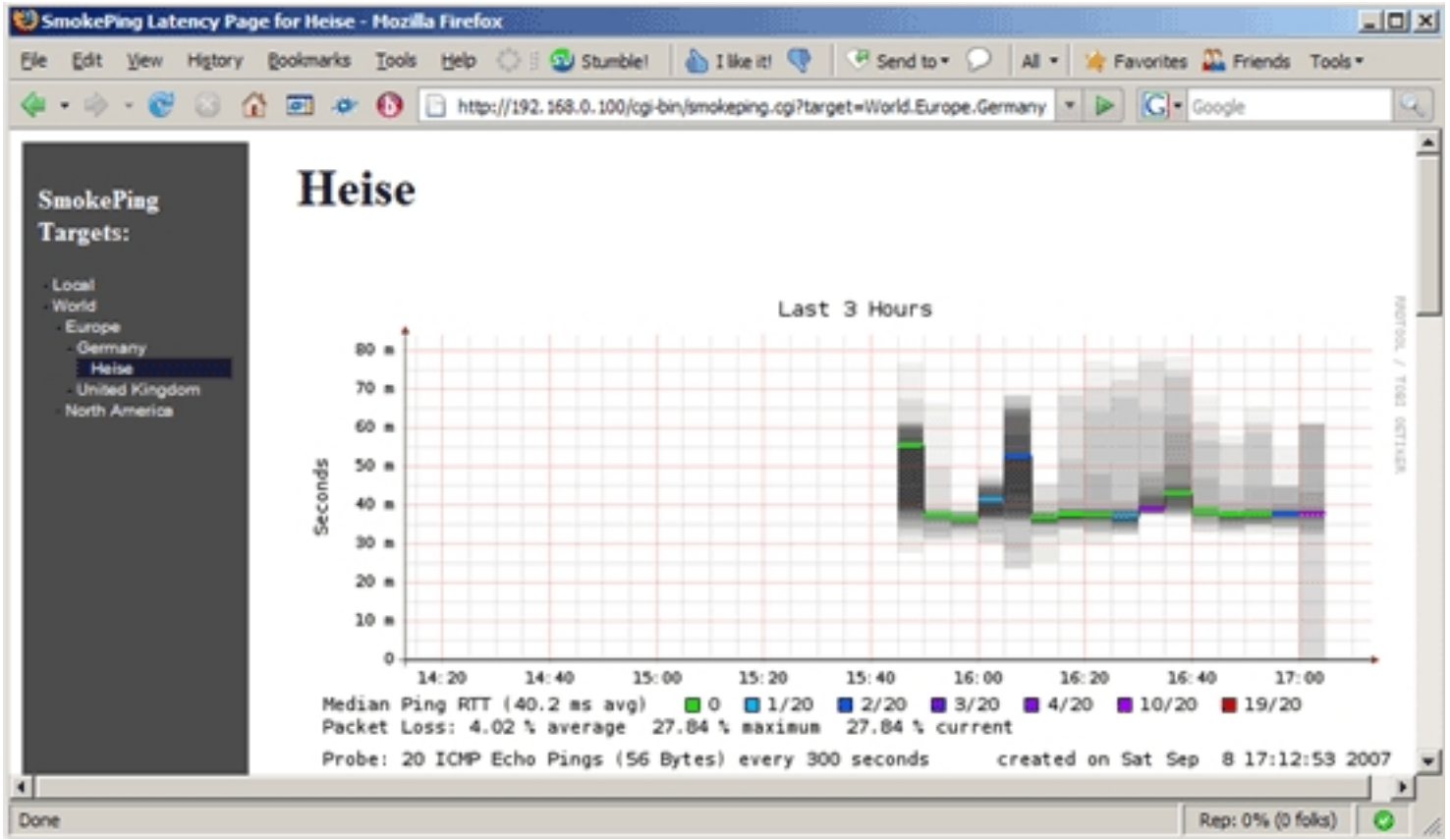

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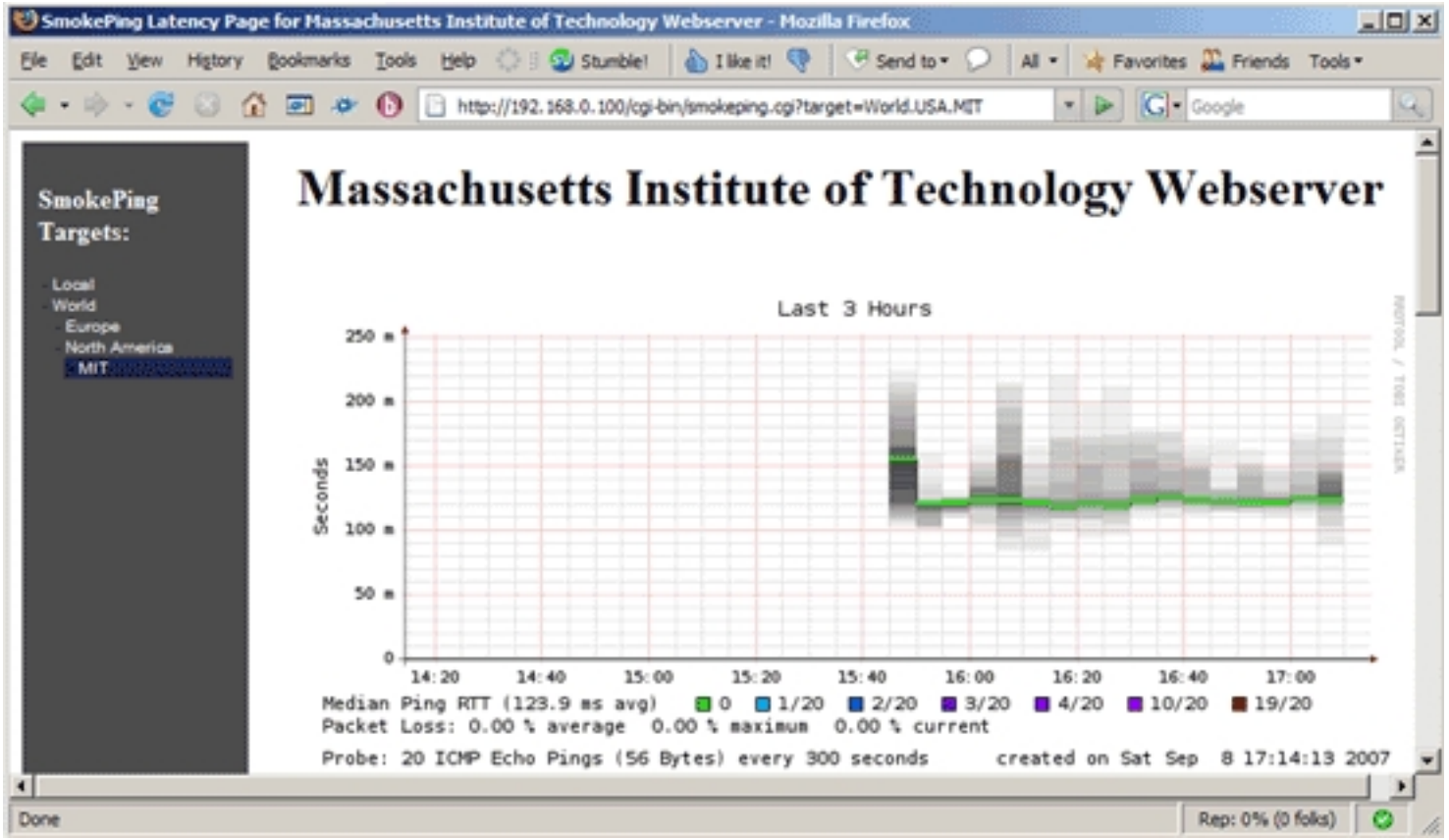

3.2 Advanced Example

Until now, we are only pinging servers, but it would be good if we could do some other tests as well (e.g. measure how fast a DNS server resolves a domain or measure HTTP latency). Therefore we open `/etc/smokeping/config` again and modify the `*** Probes ***` section.

```
vi /etc/smokeping/config
```

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```
[...]
*** Probes ***

+ FPing

binary = /usr/bin/fping

+ DNS
binary = /usr/bin/dig
lookup = domain-to-lookup.com
pings = 5
step = 180

+ Curl
# probe-specific variables
binary = /usr/bin/curl
step = 60

# a default for this target-specific variable
urlformat = http://%host%/
[...]
```

As you see, we've now added tests for DNS (the *lookup* line should contain a domain/hostname that you'd like the name servers (that we still have to configure in Smokeping) to look up) and HTTP / FTP (using Curl).

Now at the end of */etc/smokeping/config*, we can add the name servers / HTTP servers / FTP servers we'd like to monitor (you can enable/disable tests by uncommenting them/commenting them out):

```
vi /etc/smokeping/config
```

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```
[...]
+ services
menu = Service Latency
title = Service Latency (DNS, HTTP)

++ DNS
probe = DNS
menu = DNS Latency
title = DNS Latency

+++ dns1
host = ns1.example.com

+++ dns2
host = ns2.example.com

++ HTTP
probe = Curl
menu = HTTP Latency
title = HTTP Latency

+++ server1
menu = server1
title = HTTP Latency for server1
host = server1.example.com

+++ server2
menu = server2
title = HTTP Latency for server2
host = server2.example.com

#+++ server3
#menu = server3
```

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```
#title = HTTP Latency for server3 (port 8080!)
#host = server3.example
#urlformat = http://%host%:8080/

#++ FTP
#probe = Curl
#menu = FTP Latency
#title = FTP Latency
#urlformat = ftp://%host%/

#+++ server1
#menu = server1
#title = FTP Latency for server1
#host = server1.example.com

#+++ server2
#menu = server2
#title = FTP Latency for server2
#host = server2.example.com
```

As you see, we are monitoring the name servers *ns1.example.com* and *ns2.example.com* using the *DNS* probe we've configured in the **** Probes **** section. We are also measuring the HTTP latency of *server1.example.com* and *server2.example.com* by using the *Curl* probe. If you like, you can also measure FTP latency using the *Curl* probe, but make sure that you specify a new *urlformat* for the FTP section (the default, *urlformat = http://%host%/*, is configured in the **** Probes **** section; for FTP it should be *urlformat = ftp://%host%/*).

Restart Smokeping after your changes:

```
/etc/init.d/smokeping restart
```

After a few minutes, you should see some data for your new tests in the Smokeping web interface (*http://www.example.com/cgi-bin/smokeping.cgi*):

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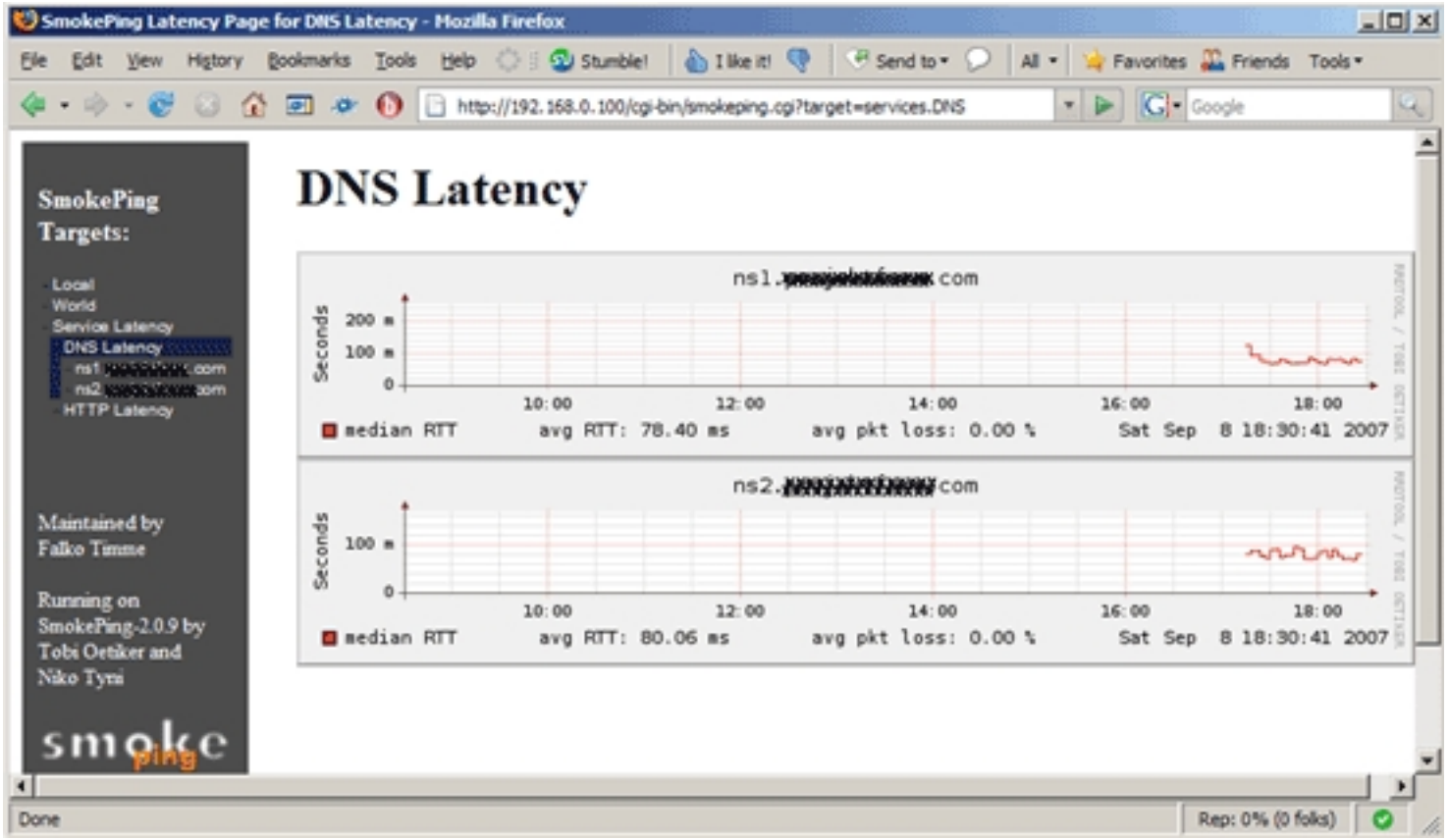

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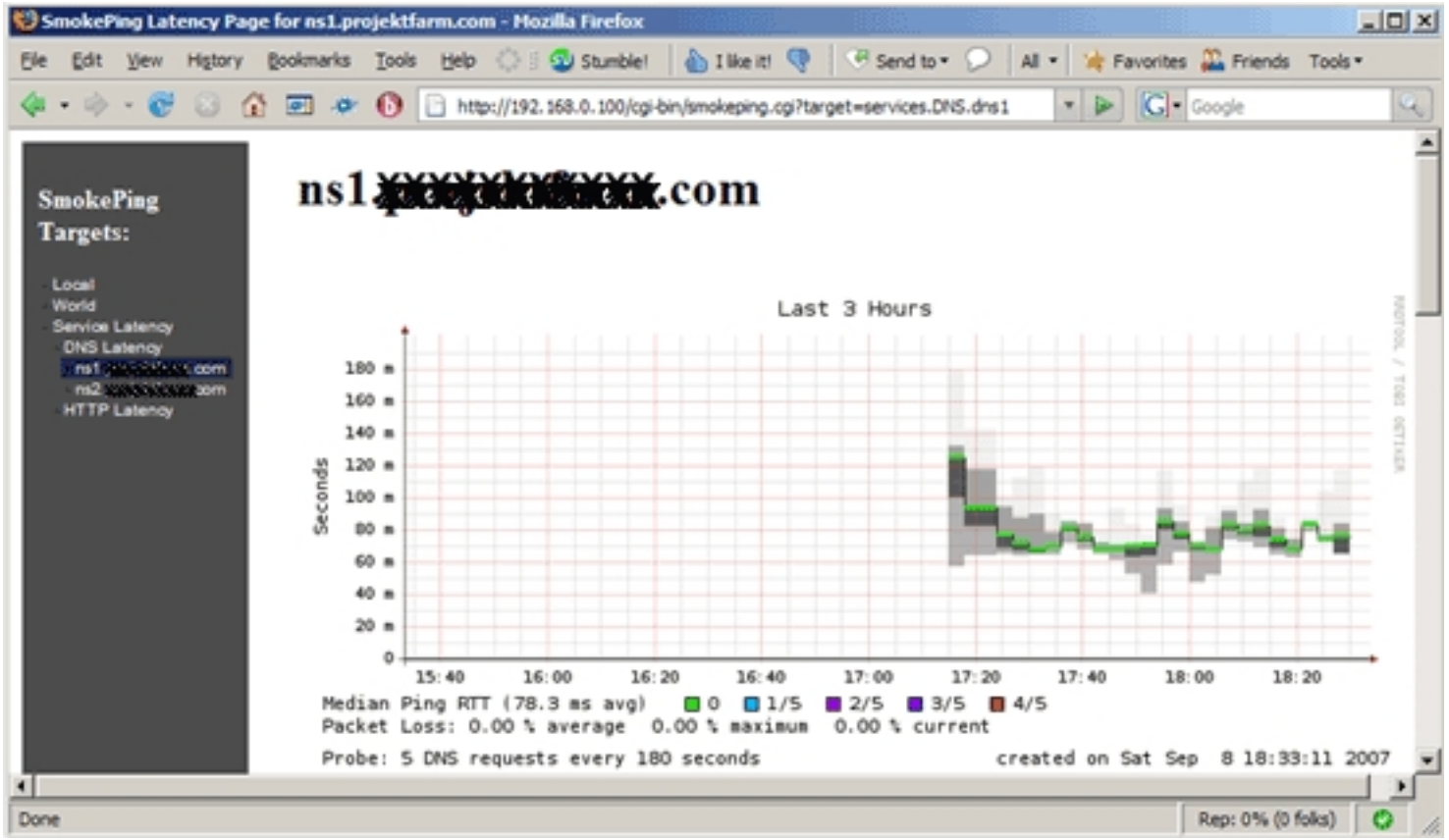

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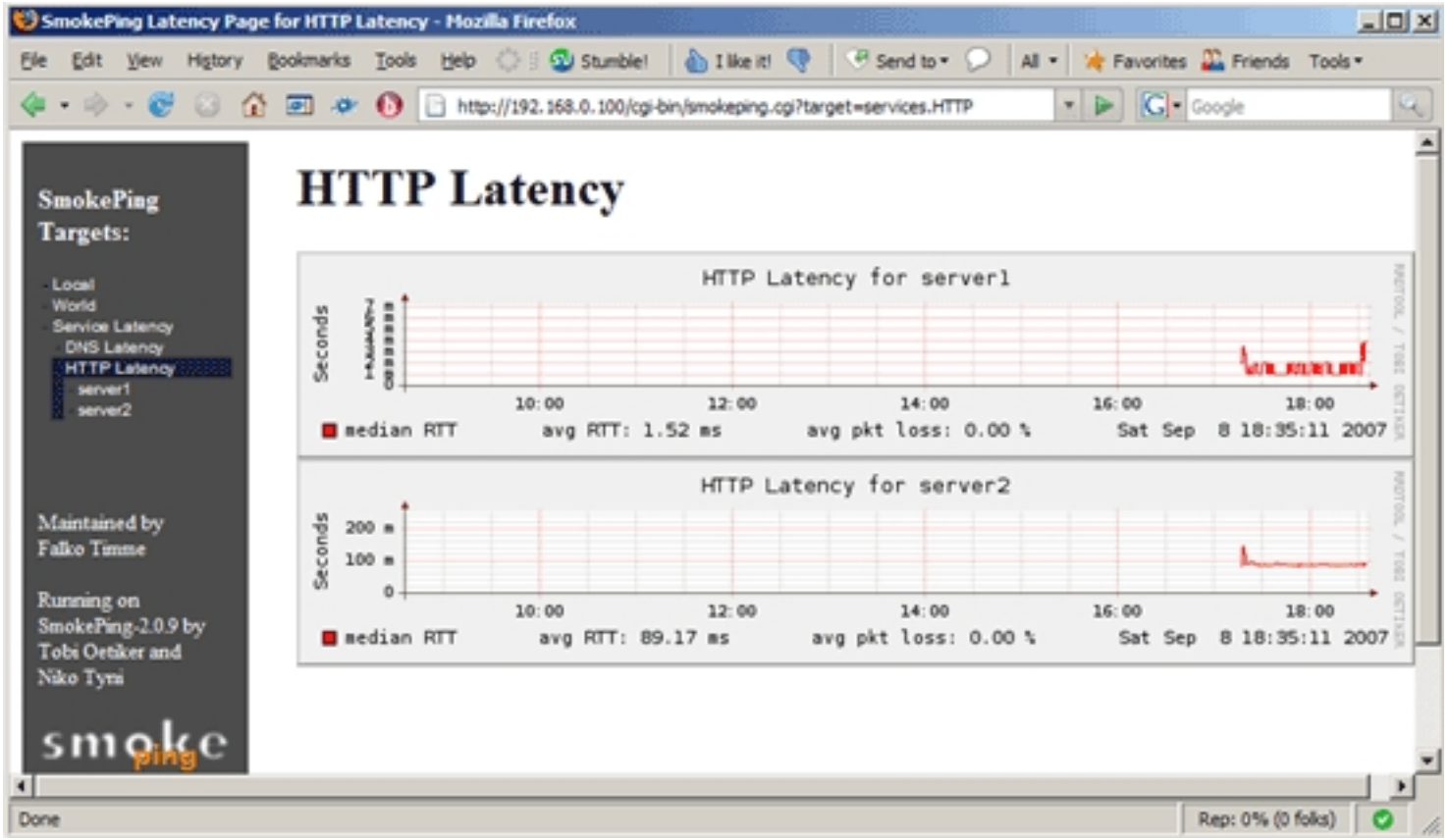

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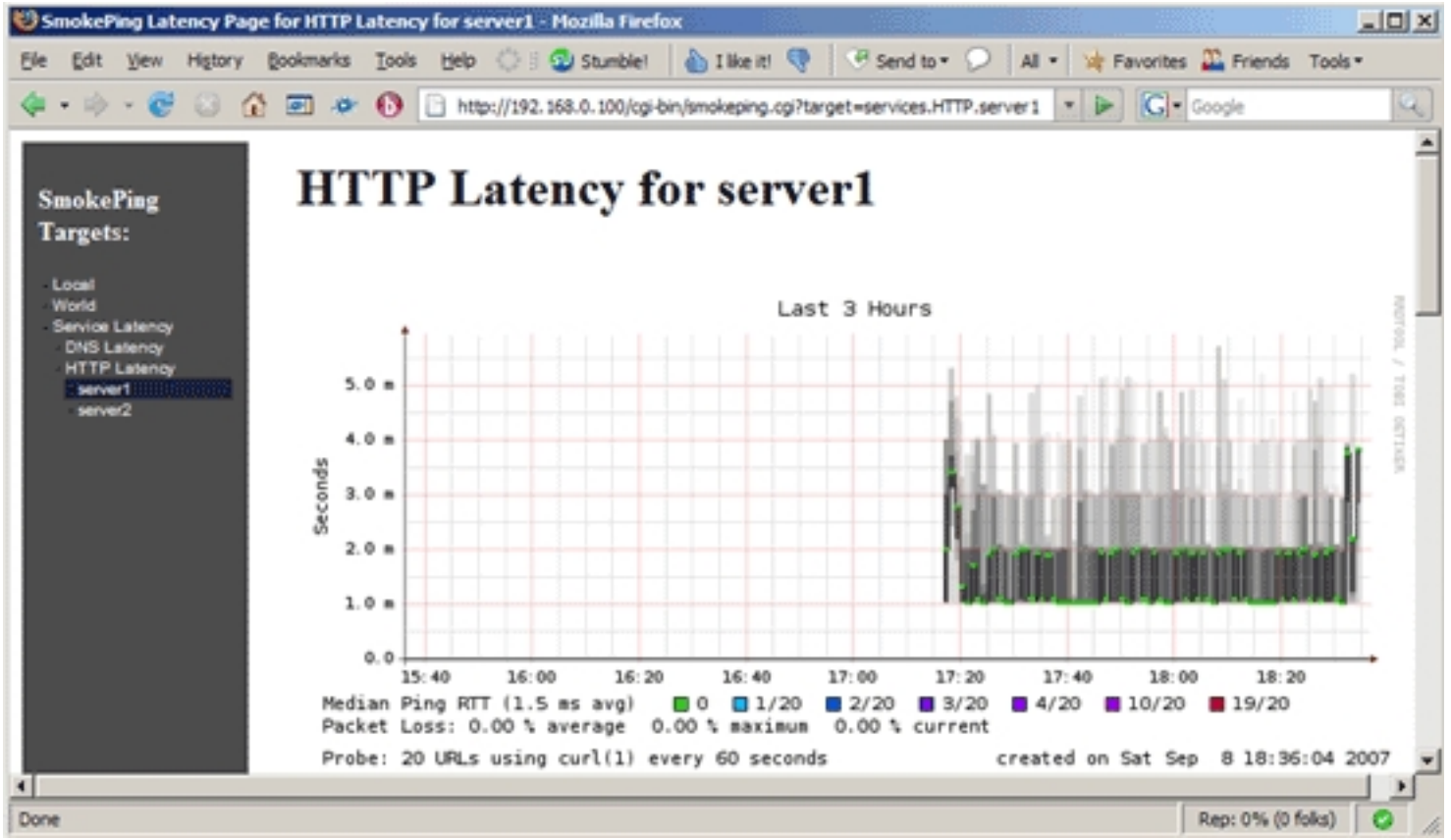

You can read up on the Smokeping configuration and further configuration examples here:
http://oss.oetiker.ch/smokeping/doc/smokeping_examples.en.html

4 Debugging

If you think that Smokeping isn't working as expected, you can try to find the problem by running Smokeping in debug mode:

```
/etc/init.d/smokeping stop
```

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```
smokeping --debug
```

5 Links

- Smokeping: ***http://oss.oetiker.ch/smokeping/index.en.html***
- Debian: ***http://www.debian.org***

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