

Monitoring Network Latency with SmokePing

Introduction

- × What is network latency?
- × What is packet loss?
- × What is smokeping?
- × Importance of monitoring network latency.
- × Purpose of the presentation.

Types of Network Latencies

1

- **Propagation Delay**

Time taken for signal to travel from source to destination.

4

- **Transmission Delay**

Time taken to transmit all bits of a packet onto the transmission medium.

2

- **Processing Delay**

Time taken for a network device to process and forward packets.

5

- **Queueing Delay**

Time taken by packets at the waiting queue of a network device before transmission.

3

- **Jitter**

Variation in the time taken to transmit a packet.

6

- **Handshake Delay**

Time taken to establish a connection in protocols like TCP.

Causes of Packet Loss

- ✘ Faulty hardware.
- ✘ Network congestion.
- ✘ Misconfigurations.
- ✘ Packet corruption.
- ✘ Link or path failure.

Key Components of SmokePing

- Execute latency measurement tasks
- Different probes for different protocols. (ICMP, SNMP)

Probes

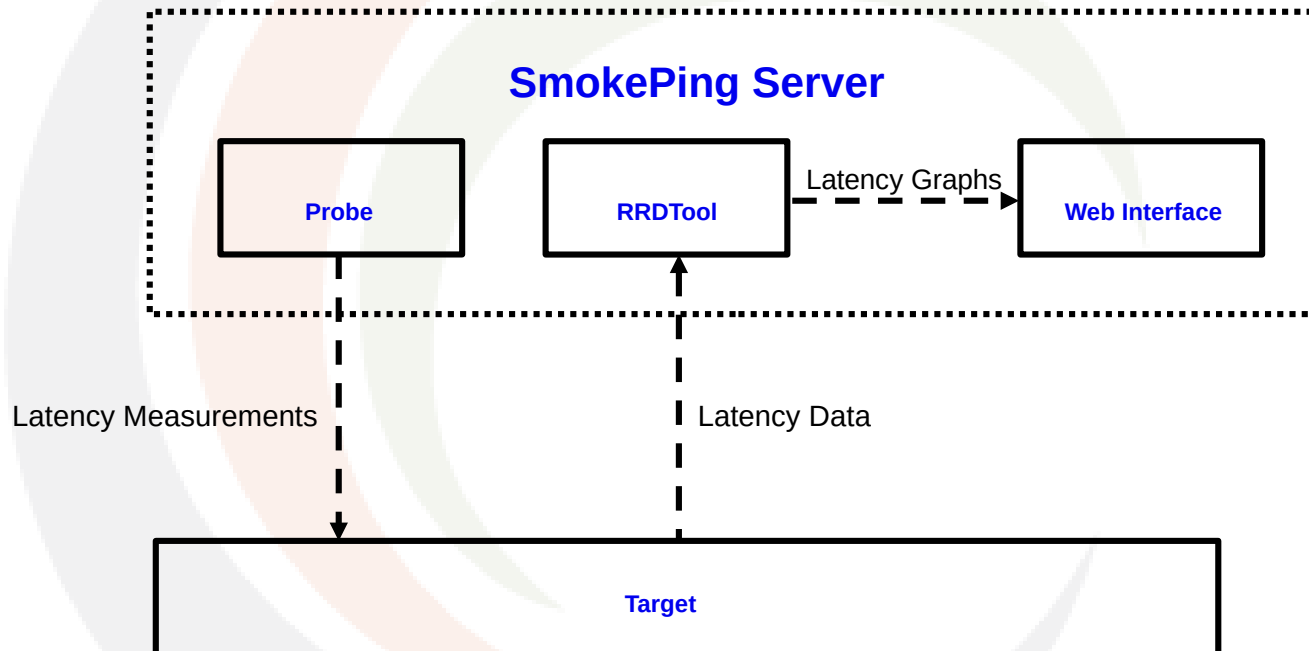
- Stores latency data
- Generates graphs

RRDTool

- Endpoint being monitored (server, router, website)

Targets

How SmokePing Works



SmokePing Installation

1

- **Pre-installation Steps**
Update and upgrade the OS.
`# apt update && apt upgrade`

2

- **Installation**
Install the package from repo.
`# apt install smokeping`

3

- **Basic Configuration**
Configuration files are located in `'/etc/smokeping/'` directory.
Main configuration file: `'/etc/smokeping /config`
Additional configuration files: `'/etc/smokeping/config.d/`

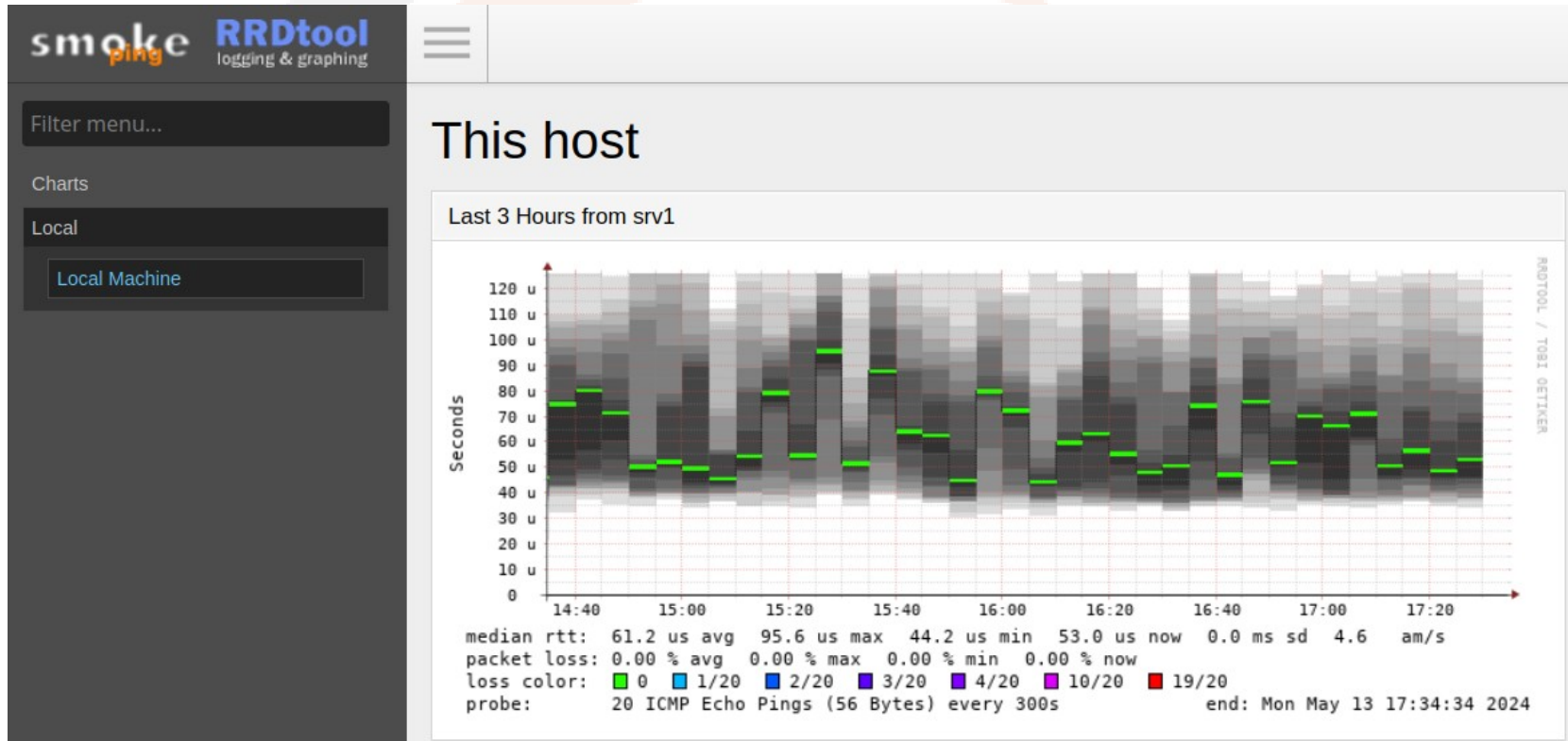
4

- **Starting SmokePing**
Enable and start the service using systemd.
`# systemctl enable -now smokeping`
`# systemctl status smokeping`

SmokePing Configuration

	Configuration file	Example Syntax
General configuration	/etc/smokeping/config	<pre><snip> *** General *** owner = Random Person contact = me@mydomain.ke mailhost = mail.mydomain.ke </snip></pre>
Adding targets	/etc/smokeping/config.d/Targets	<pre><snip> ++ MyServer menu = server title = my server host = myserver.ke probe = DNS </snip></pre>
Configuring probes	/etc/smokeping/config.d/Probes	<pre><snip> + FPing binary = /usr/bin/fping step = 300 + DNS binary = /usr/bin/dig lookup = mydomain.ke </snip></pre>

SmokePing Graphs Explained



- ✗ Menu
- ✗ Title
- ✗ Latency
- ✗ Packet Loss

Common Issues During Installation

Error 'connection timed out', 'connection refused' or 'site cannot be reached' when accessing the web interface.

Solution: Ensure that port 80 and 443 are allowed through the server firewall.

Service Failing to Start with syntax error or configuration file parsing failures.

Solution: Confirm that all the configuration files that have been edited have the correct syntax.

Service Failing to Start due to missing dependency

Solution: Ensure you have Apache, fping, RRDtool, and Perl modules installed.

Error '404 Not Found' when accessing the web interface.

Solution: Check Apache configuration file and ensure the virtual host is configured with the correct document root and access permissions.
Ensure the web server directory has the correct permissions

Delays during target resolution indicated by timeouts or failures in SmokePing logs/ unexpected gaps in the latency graphs.

Solution: Configure a local resolver within the SmokePing server to get quicker responses for DNS queries.

Best Practices

- ✘ Create a copy of configuration files before editing.
- ✘ Regular updates and patches of the application.
- ✘ Server security hardening.
- ✘ Set appropriate alert thresholds for effective monitoring.

Conclusion

- ✘ Recap of key points.
- ✘ Importance of latency monitoring.



Q&A

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