# **Table of Contents**

Test version installation	3	3
Changes in version 13.0 BETA1		3
Changes in version 13.0 BETA2		1
Changes in version 13.0 BETA3		1
Changes in version 13.0 BETA4		1
Changes in version 13.0 BETA6	6	5
Changes in version 13.0 BETA7	6	5
<del>_</del>	6	

## **Test version installation**

#### **Changes in version 13.0 BETA1**

- 1. [LAG] LACP support. Description
- 2. Only the basic devices for On-Stick must be specified in the LAG description. Mixing On-Stick and conventional devices in one LAG is not allowed. Description
- 3. [LAG] Apply balancing to outgoing traffic LAG. Description

  The type of balancing algorithm to be applied is specified by the lag.balance\_algo parameter. Valid values:
  - $\circ\,$  0 balancing by internal session\_id (this is the default balancing). The session\_id is taken as a hash
  - 1 without balancing the packet will be sent to the paired bridge port
  - ∘ 2 hash from flow key <srcIP, dstIP, srcPort, dstPort, proto>. If there is no flow, we balance by session id.

Additional hash configuration parameters in the lag section: hash\_seed, hash\_offset, hash\_bits

How many significant bits we take from a 64-bit hash during balancing. The balancing algorithm in the general case looks like this:

- calculate a 64-bit hash of some fields of the packet and hash seed;
- we take hash bits bits from the 64-bit hash starting from hash offset bit;
- use the resulting number N to determine the port number in the LAG: port := N mod LAG\_active\_port\_count, i.e.

```
port := ((hash(packet, hash_seed) >> hash_offset) & (2^hash_bits -
1)) mod LAG_active_port_count
```

#### Example:

- 4. [LAG] Added traffic balancing tracing. Description
- 5. [DPDK] Transition to DPDK 23.11
- 6. Modified: for QUIC and QUIC IETF: if no SNI is detected, check by AS
- 7. Modified: when analyzing STUN check AS from Facebook define VASE DPI PROTO FACEBOOK VIDEO, not WHATSAPP VOICE
- 8. [DPDK][rss-engine] Setting RSS hash flags for UDP and TCP
- 9. Modified: openvpn protocol definition
- 10. [BRAS][DHCP] Added: accounting of DHCP packets from subscriber in billing statistics:

- subscriber CPE (i.e. Wi-Fi router) without clients (e.g. at night) sends only license renewal requests. Since these requests were intercepted by BRAS and were not included in the accounting, the session was terminated by idle timeout
- 11. [BRAS][DHCP] Corrected: actions when QinQ/VLAN is changed for a subscriber
- 12. [DHCP] Fixed: framed-pool renew In some cases incorrect DHCP responses were generated. Added tracing to DHCP packets log for framed-pool renew.
- 13. [DHCPv6] Fixed: receiving packets from the relay. Previously it was checked that the relay was on the fc::/7 network. Now this check is unnecessary and has been removed the relay can have any address.
- 14. [PPPoE] Fixed: DHCPv6 options parsing from Radius
- 15. Fixed: SIGHUP processing only if fastDPI is fully initialized. A crash is possible if a SIGHUP is received during the fastDPI startup process
- 16. [AJB][PCAP] Trace/debug packet recording moved to new API
- 17. Added: wechat protocol support for UDP

#### Changes in version 13.0 BETA2

1. [DPI] Support for additional markup of autonomous systems mark1, mark2, mark3. Description

```
vi test.txt
209446 mark1
cat test.txt|as2dscp /etc/dpi/asnum.dscp
```

- 2. [DPI] Prioritize SNI detection in custom signatures for autonomous systems marked as mark1. Description
- 3. [DPI] Prioritize more specific custom SNI signatures. Example: for host a.b.c.d, if the signatures \*.d, \*.c.d and \*.b.c.d are present, the protocol defined by the signature
  - \*.b.c.d works only for signatures with \*. Description
- 4. [DPI] Support for hard locks (despite hostname/SNI) set in an additional field in the address blacklist, example: 1.1.1.1 443 hard.
- 5. Improved detection of YOUTUBE, SIGNAL
- 6. Added the DPITUNNEL protocol, which includes traffic anomalies commonly used for DPI traversal
- 7. Updating dpiutils

#### Changes in version 13.0 BETA3

- 1. [DPI] New protocols VK CDN VIDEO, META CHAT
- 2. [DPI] FACEBOOK\_VIDEO, META\_CALLS protocol signatures improvement
- 3. Updating dpiutils

#### Changes in version 13.0 BETA4

- 1. [DPI] Fixed protocol name VK CDN VIDEO
- 2. [DPI] Fixed: SNI decoding in QUIC IETF and possibility of crusting in exceptional cases
- 3. [DPI] Fixed: clearing search structures when deleting CUSTOM protocols
- 4. [utils] Added ability to add comments (#) and blank lines in input files for lst2dscp, lst2tbf

### Changes in version 13.0 BETA5

- 1. [DPI] Added protocols QUIC\_UNKNOWN QUIC without SNI and QUIC\_UNKNOWN\_MARKED QUIC without SNI and AS labeled MARK2. Description
- 2. [DPI] Fixed: stun characterization for TCP
- 3. [DPI] Modified: if the stun packet viewing limit is reached set this protocol with AS in mind
- 4. [DPlutils] Updated utilities to support new protocols
- 5. [Router] Mempool allocation for emit packets: we do not allow full exhaustion of the pool, there should be at least 256 free elements in the pool
- 6. [Router] The error of route deletion errno=3 (No record found) has been moved to TRACE to avoid clogging the log
- 7. Added L2 traffic balancer mode. This enhancement allows to use SCAT as a traffic balancer based on IP addresses owned by AS and defined as local in asnum.dscp. DPI functionality does not work in this mode. The maglev algorithm with fixed hash table size is used for traffic balancing: the output interface definition according to the following algorithm:
  - 1 if src and dst ip are both local, hash is calculated based on these two addresses:
  - 2 If only src ip local, then hash is calculated based on src ip;
  - 3 If only dst ip local, hash is calculated based on dst ip;
  - 4 hash is calculated based on src and dst ip.

Based on the calculated hash value, the output interface is determined by determining the index of the hash table cell containing the interface index from the array of output interfaces. The value from the array of output interfaces is substituted into the current context and pcs accept is returned.

The following settings are required for correct operation:

- Definition of an autonomous system with IP addresses that are used by subscribers.
   Description
- Marking a given autonomous system as local. Description
- Define input and output interfaces in the configuration file. Input interfaces are defined in the in\_dev parameter, and output interfaces in out\_dev. Interfaces do not form pairs and constructions of the following kind are allowed:

```
in_dev=05-00.0:05-00.1:05-00.2:05-00.3:0b-00.0:0b-00.1:0b-00.2:0b-
00.3
out_dev=08-00.0:08-00.1:08-00.2:08-00.3
```

Or

```
in_dev=05-00.0
out_dev=out_dev=08-00.0:08-00.1:08-00.2:08-00.3
```

Enable SORM balancing mode: enable\_l2\_lb=true

```
Input parameters:
```

```
enable_l2_lb=false|true - enable traffic balancer for SORM lb_hash_out_dev_type = 0|1 - by which value to initialize hash table: 0 — use the internal index of the output interface
```

1 — use the interface name from [in|out]\_dev

The following types can be used as dpdk engine: 0 (default), 1, and 2.

#### Changes in version 13.0 BETA6

- 1. [DPI] Improvements in QUIC\_UNKNOWN, QUIC\_UNKNOWN\_MARKED, SIGNAL, DpiTunnel protocols
- 2. [DPI] SNI/HOST embedded protocol definitions are cloud-based, SNI/IP prioritization is supported
- 3. [Router] Fixed the order of router components termination
- 4. [LAG] Increase max number of ports in LAG
- 5. [SDS] The storage tag value is set based on directional priority or protocol priority
- 6. [CLI] The subs prop show active command has been added. The command outputs a dump of L2 properties of all active (non-expired) subscribers.
- 7. [CLI] Fixed: Prohibit calling CLI commands while stopped
- 8. [Router] Fixed: system error when clearing route tables. Cleaning of route tables (deleting all entries added by SCAT) is done at stop and start of fastDPI. During cleaning process EBUSY error may occur, which is fatal for netlink socket, socket should be closed.

#### Changes in version 13.0 BETA7

1. [DPI] Changed: SNI comparison is case-insensitive

#### **Update instructions**

You can check the current installed version with the command below

```
yum info fastdpi
```

If you have CentOS 6.x or CentOS 8.x installed, then switch the repository once with the command:

```
sed -i -e '/^mirrorlist=http:\/\//d' -e 's/^#
*baseurl=http:\/\/mirror.centos.org/baseurl=http:\/\/vault .centos.org/'
/etc/yum.repos.d/CentOS-*.repo
```

and then update as usual.

To install the test version, you should issue the following command:

```
yum --enablerepo vasexperts-beta update fastdpi
```

Downgrade to 12.3:

```
yum downgrade fastdpi-12.3 fastpcrf-12.3
```



After an update or version change, a restart of the service is required.