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Version 14.0 Shooting Stars

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4. [CLI] Added support for `subs_id` in commands: `dhcp show`, `dhcp reauth`, `dhcp6 show`, `dhcp6 reauth`, and `dhcp disconnect`. [Description](#)
5. [DPI] New protocols added: AGORA_STREAMS(49314), AZAR_CALL(49315), WECHAT_CALL(49316), TEAMS_CALL(49317). [List of protocols](#)
6. [DPI] Improved support for LINE_CALL, VYKE_CALL protocols. [List of protocols](#)
7. [DPI] Fixed smartdrop behavior
8. [DPI] Added validation for complex protocols. [List of protocols](#)
9. [DPDK] Increased the maximum number of dispatchers to 32. [Description](#)
10. [IPFIX/Netflow] Added the ability to change IPFIX/Netflow parameters without restarting fastDPI using the `ipfix_reserved` parameter. [Description](#)
11. [FastRadius] It is now possible to set both `bind_ipv6_address` and `bind_ipv6_subnet`. If the Framed-IPv6-Prefix has a /128 mask, it is not checked against the `bind_ipv6_subnet` restriction. [Description](#)
12. CLI command `dev info` now includes the name of the LAG that the port belongs to. [Description](#)
13. [PCRF][PPP][Framed-pool] Added: DHCP option `Client-Id` now includes `tunnel-IP` as part of the subscriber ID. For more details, see sections [IPv4 Pools Support](#) and [IPv6 pools support](#)
14. [IPFIX] Message aggregation added for IPFIX streams: FullFlow/DNS/META/NAT
15. [IPFIX] Added parameter `ipfix_mtu_limit` to restrict maximum message size for IPFIX UDP packets. Description: [ClickStream export Setup,](#) [Full NetFlow export format](#)
16. [IPFIX DNS] New elements added to IPFIX DNS: 224 (ipTotalLength) and 43823:3206 (DNS transaction id). [Description](#)
17. [VRRP] Fixed proper handling of the `vrrp_enable` option change
18. [BRAS][PPP] PPP session key is now compound: `l2subs_id` + `tunnel-IP`. For PPPoE sessions, tunnel IP = 0. CLI commands that use `subs_id` as a key (`subs prop show`, `l2tp show session`, `l2tp term`, etc.) may now return multiple entries with the same `l2subs_id`. [Description](#)
19. [DPI] Added cloud protocols with identifiers 55296..58367
20. [IPFIX] Fixed IPFIX exporter reinitialization bugs
21. [BRAS][subs_grooming] Fixed potential crash due to race condition during fastDPI shutdown
22. [CLI] Added commands to display mempool properties and statistics

    ```
    hal mempool props
    hal mempool stat
    ```

    DPDK must be built with statistics collection enabled to display mempool stats

23. [BRAS][DHCP] Fixed crash when parsing Framed-Pool Renew response if it contains no DHCP options
24. [PCRF][Acct] Fixed: Interim-Update sending is now disabled when `Acct-Interim-Interval = 0` is explicitly set in the RADIUS response. For more details, see sections [acct-interim-interval,](#) [PPPoE Radius Access-Request](#)
25. [VASE_CLI] Created a unified CLI for managing DPI, BRAS, DHCP (KEA), ROUTER (BIRD) with support for authorization and command logging via TACACS (VEOS 8.x required). [Description](#)

26. [SNMP] Created a module for monitoring system components via SNMP
27. [DPI] Added DOQ 49318 protocol (DNS-over-QUIC)
28. [Router] Announcing subscriber white addresses for 1:1 NAT individually and after authentication. [Description](#)
29. [PCRF] Added support for service 19 "DNS spoofing", profile required. [Description](#)
30. [DPDK] Added `dpdk_engine=6` (`mqrx-bridge`) — number of RSS dispatchers per bridge. [Description](#)
31. [DPDK] Removed dedicated mempools. The fastdpi.conf option `dpdk_emit_mempool_size` is deprecated and no longer used.
32. [VLAN-Rule] Moved vlan group data from UDR to SDR. Global rules for vlan drop/pass/hide/permit set by the previous CLI command `vlan group` were converted and moved from UDR to SDR, with removal from UDR. [Description](#)
33. Up to version 14, only one built-in database UDR (User Data Repository) is used, intended for permanent storage of data about services, policings, and other FastDPI settings.
    Starting from Version 14, UDR is split into UDR and SDR. The split occurs automatically during version update.
    SDR (System Data Repository) is intended for storing FastDPI settings not related to subscribers. It can be considered that SDR is an extension of fastdpi.conf. No special activation of SDR is required — the necessary .mdb files are created automatically when the corresponding mode is enabled in fastdpi.conf.
34. [VLAN] VLAN rules — added CLI commands. [Description](#)
35. [IPv6] Added direction detection in combined traffic (IN+OUT on one port) based on the local flag for IP addresses. Enabled via `combined_io_direction_mode` option
36. [BRAS] Fixed compatibility with the old format of service 18, where there were fewer protocols and both fields in the profile needed to be filled
37. [DPI] Lowered detection priority for `telegram_tls`
38. [DPI] Improved detection of WECHAT and WECHAT_CALL
39. [BRAS][Framed-Route] Fixed: possible crash when freeing memory
40. [BRAS] Refactored PCRF connectivity: in the new implementation, all connections are equal; an error on any triggers reconnection of all connections and a switch to another PCRF. Added CLI commands:
    1. `pcrf connect show` — show current status and accumulated statistics for PCRF connections.
    2. Force connection to the specified PCRF `pcrf connect switch [<pcrf_index>]`, where <pcrf_indxed> is the index of the connection line in the `auth_server` parameter. If <pcrf_indxed> is not specified — defaults to 0.
       [Description](#)
41. [IPFIX DNS] Added the ability to send DNS MX responses via IPFIX. Enabled by setting bit 3 (4) of the `ajb_save_dns` parameter. [Description](#)
42. [DPI] Added FakeTLS protocol (49319) with validation
43. [BRAS][DHCP] Changed: sliding window algorithm for rate limit
44. [BRAS] Fixed: time comparison error when loading ip_prop from UDR
45. [VLAN-Rule] Added support for 'any' instead of '*' when describing VLAN range. [Description](#)
46. [DPI][LOG] Messages about insufficient SSL parsers are written to the slave log not for every event, but at a frequency of 1/50000.
47. [DPI] Added protocols ZALO_CALL(49320) and VK_CALL(49321)
48. [DPI] Fixed blocking in hard mode for SSL
49. [Acct] Added attribute `VASExperts-Service-Type`. Radius acct start/interim/stop sends the authorization type in the `VASExperts-Service-Type` attribute. [Description](#)
50. [CLI] Added: `stat flow ip6` command to display IPv6 flow statistics. [Description](#)
51. [CLI] Added: `stat flow ip4` command to display IPv4 flow statistics. Analogous to the output

in `fastdpi_stat.log`. [Description](#)

52. [IPFIX] Fixed ExportTime formation error in IPFIX Fullflow
53. [CLI] Added `stat netflow` command. Displays general statistics for Netflow/IPFIX (same as in `fastdpi_stat.log` under the "Statistics on NFLW_export" section). [Description](#)
54. [DNS] Added support for substitution/blocking/dropping of DNS requests A, AAAA, MX, HTTPS. [Description](#)
55. [CLI] Added `stat firewall` command. [Description](#)
56. [DPI] Added BIGO_CDN protocol (49324)
57. [DPI] Added UDP support for BIGOTV
58. [PCRF][L2TP] Fixed: NAS attributes for L2TP during authorization
59. [BRAS][L2TP] Fixed: data race when closing sessions
60. [DPDK] Removed deprecated rx channels settings and related checks
61. [IPFIX] Added configurable sending of drop octets/packets counters when generating IPFIX fullflow. [Description](#)
62. [PCAP] Added capability to save traffic of a specified vlan using the `ajb_save_vlan` parameter. [Description](#)
63. [DPIUTILS] Updated checknat utility. [Description](#)
64. [DPIUTILS] Updated dns2dic utility with domain blocking support. [Description](#)
65. [BRAS][L2TP] Fixed: data race during tunnel creation
66. [Router] Fixed: interception and diversion of IPv6 packets to tap interfaces. Link-local addresses were not diverted to tap, even if explicitly specified in the `router.subnet6` settings.
67. [BRAS][L2TP] Fixed: length field in L2TP header for data packets. According to RFC, the len field in L2TP header is optional for data packets. Some L2TP client implementations do not understand data packets with the len field in the L2TP header. This fix adjusts FastDPI's behavior: if data packets from the subscriber arrive without the len field, then SSG will also send data packets without this field. If data packets from the subscriber contain the len field, SSG will include it as well.
68. [BRAS] Fixed: sending commands from the `pending_queue`. In some cases (e.g., during state transitions of the pcrf monitor `initial → connected`), sending commands from the `pending_queue` was not triggered, which caused commands to "hang" in the queue indefinitely (until reconnection due to a socket error).
69. Fixed a recently introduced error (affecting betas 4.6 and 4.7) in the session lifecycle that leads to resource exhaustion over time; an operational update from these versions (or rollback) is recommended.

Changes in version 14.1

DPI

1. [DPI][ajb_save_vlan] Fixed an error when the engine operates in read-only mode
2. [DPDK][tap_device] Fixed: setting the tx queue length using the `dpdk_tx_queue_size` option. Previously, the TAP device tx queue length was always set to 256, which caused VMware VMXNET3 Ethernet Controller to report: ETHDEV: Invalid value for nb_tx_desc(=256), should be: <= 4096, >= 512, and a product of 1
3. [LAG] Fixed: added load balancing for pass packets
4. [DPI][ip_node stg] Added bucket occupancy statistics. The new CLI command `stat storage ip4 detail` displays bucket fill statistics in IPv4 node storage
5. [DPI] Added validation for the MULTIPROXY_STRONG protocol
6. [DPI] Improved scalability on 128-core systems

7. [DPI][log] Improved the logging subsystem in cases of log file overflow
8. [DPI][tethering] Added tethering detection. The parameter `tethering_ttl_allowed = 128:64` [hot] defines the list of allowed TTL values for subscriber traffic that are not considered tethering. Values are separated by ':'. Up to 256 values (0–255) are supported. [Description](#)

BNG

1. [BNG][framed-route] Fixed: Framed-Route handling when the subscriber login changes. Previously, Framed-Route subnets remained bound to the old login, and all services and policing for these subnets were taken from the old login
2. [BNG] Added the `bras_disable_l3_auth` option — explicit prohibition of L3 auth in L2 BNG mode for all subscribers. For example, only DHCP authorization will work for subscribers with the AS local meta. Default value: `off` (L3 auth allowed) `bras_disable_l3_auth=off`. This option is meaningful only if `enable_auth=1`. The option is incompatible with `bras_dhcp_auth_mix=0`: if `bras_dhcp_auth_mix=0` is set, `bras_disable_l3_auth` is assumed to be `off` (L3 auth allowed), and a warning is logged to the alert log
3. [BNG] Added a new subscriber flag — prohibit L3 auth for a specific subscriber. This flag can only be set or cleared via CLI: a new parameter `disable_l3_auth=[1:0]` was added to the `subs prop set` command (1 — disable L3 auth, 0 — allow). By default, L3 auth is allowed
4. [BNG][srcIP spoofing] Added filtering by source AS flags on the subs→inet path before packet processing to block outbound operator-side DDOS with IP spoofing.
   Added a new fastdpi.conf option `ip_filter_source_as_flags` (hot) — subs traffic AS filtering. Bitmask of AS flags for source IP on the subs side.
   Only packets whose source IP AS contains at least one of the specified flags are allowed; otherwise, the packet is dropped. AS flag values (bitmask):
   - 0 - filtering disabled (default) — `ip_filter_source_as_flags=0x0`
   - 0x0100 - pass
   - 0x0200 - local
   - 0x0400 - peer
   - 0x0800 - term
   - 0x1000 - mark1
   - 0x2000 - mark2
   - 0x4000 - mark3
5. [BNG][PPP] Added database session utilization statistics to the `ppp show stat` command
6. [BNG][PCEF][Policing] Added configuration of global policing from parameters passed in the `VasExperts-Policing-Profile` attribute with the BR## prefix
7. [BNG][PCEF][Services] Added configuration of a personal (noname) user service profile from parameters passed in the `VasExperts-Service-Profile` attribute with the BP## prefix
8. [BNG][PCEF][rating-group] New options (cold, fastDPI restart required):
   - `rating_group_count` — number of rating groups, `0` — RG disabled. Default value: `0`
   - `rating_group_max_subs` — maximum number of subscribers with RG. Default value: (RG disabled)
   RG storage is initialized only if billing statistics are enabled. Memory calculation for RG statistics storage: counter size per RG = 32 bytes. Total required memory:

   ```
   32 * rating_group_count * rating_group_max_subs * num_thread
   ```

   Example: for 10k subscribers, 256 RGs, and 8 processing threads, 625M of memory is required:

```
rating_group_count = 256
rating_group_max_subs = 10000
num_thread = 8
memory_required = 32 * 256 * 10000 * 8 = 625M
```

9. [BNG][PCEF][rating-group][RADIUS Accounting] Output of RG statistics in RADIUS Accounting.
   RG statistics are sent in separate Interim-Update packets. Only non-zero RGs are transmitted.
   Due to the 4096-byte RADIUS packet size limit, RG data may be split into multiple Interim-Update packets.
   To distinguish Interim-Update packets containing RG data, a new VSA `VasExperts-Acct-Type` (id=28, vendor 43823, integer) is used with the following values:
   - 0 — standard Interim Update Accounting
   - 1 — RG data
     Each rating group and its counters are transmitted in a *single* VSA containing the following attributes:
   - `VasExperts-Acct-Rating-Group`
   - `VasExperts-Acct-Input-Octets-64`
   - `VasExperts-Acct-Output-Octets-64`
   - `VasExperts-Acct-Input-Packets-64`
   - `VasExperts-Acct-Output-Packets-64`
     Packet and byte counters are output according to the `acct_swap_dir` option (as in Accounting).
     RG transmission specifics:
   - RGs are optional and may be absent for a subscriber; in this case, no RG accounting is sent
   - if the RADIUS server does not acknowledge receipt of an RG packet, it is not retransmitted — fresh data will be sent in the next Interim-Update
   - if a subscriber has RG statistics, current RG data is sent in Interim-Update packets before Acct-Stop at session termination
10. [BNG][PCEF][rating-group][CLI] Added the `subs traffic stat` CLI command. For a specified subscriber, the command displays billing statistics and rating group statistics, if enabled
11. [BNG][PCEF][rating-group][RADIUS Accept] Added assignment of an RG service during authorization. RG statistics accumulation can be enabled only if service 9 (billing statistics) is enabled for the subscriber. RG is assigned at authorization by specifying a special service 9 profile named "RG":

```
VasExperts-Service-Profile :="9:RG"
```

If service 9 is disabled, RG accumulation is also disabled.
Examples:

```
# service 9 enabled, RG disabled. Standard RADIUS Accounting is sent.
VasExperts-Enable-Service :="9:on"
```

```
# service 9 enabled, RG enabled. RG data is sent in RADIUS Accounting.
VasExperts-Service-Profile :="9:RG"
```

```
# service 9 disabled, RG disabled. Neither standard RADIUS Accounting nor RG
is sent.
VasExperts-Enable-Service :="9:off"
```