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Identification of L2 and L3 subscribers

L3-subscribers

FastDPI 12 introduces support for identifying L2 subscribers by VLAN/Q-in-Q.

Previously, the way of subscriber identification was only his MAC-address, which could lead to problems if two different subscribers belonging to different VLANs, have the same MAC-address.

FastDPI 12 introduces a new fastdpi.conf setting: `bras_subs_id`, which is a type of L2 subscriber identification. It specifies a list, in order of preference, of what to consider to be the L2-subscriber ID.

Valid values in the list:

- `mac` - The subscriber's MAC address (srcMAC of the packet from the subscriber) is the subscriber's identifier. This type is applicable to any network, including VLAN and Q-in-Q (VLANs are not counted).
- `vlan+mac` - the subscriber identifier is the VLAN + subscriber's MAC. This type applies only to VLANs, but does not apply for Q-in-Q.
- `qinq` - the subscriber identifier is Q-in-Q. Applicable for Q-in-Q networks only.
- `qinq+mac` - subscriber identifier is Q-in-Q + subscriber's MAC. Applicable for Q-in-Q networks only.

The default value is `bras_subs_id=mac` (for compatibility with previous versions)

Setup example:

```
bras_subs_id=qinq+mac,vlan+mac,mac
```

is interpreted as follows:

- If the packet is Q-in-Q - then the identifier is Q-in-Q + subscriber's MAC,
- otherwise if the package is VLAN - then the identifier is VLAN + subscriber's MAC,
- otherwise the identifier is the subscriber's MAC.

Instead of a list you can set it to `auto`:

```
bras_subs_id=auto
```

which is equal to:

```
bras_subs_id=qinq+mac,vlan+mac,mac
```

We recommend to use the `auto` value for `bras_subs_id`.

If no identification type is defined for an incoming packet, then such subscriber is not terminated, all packets of the subscriber are dropped. This is possible for the following example:

```
bras_subs_id=qinq+mac
```

when the incoming packet from the subscriber is not Q-in-Q.

Radius Authorization

In the Radius L2 authorization request, the subscriber ID is passed in the VSA attribute `VasExperts-L2-SubsId` as a string:

```
ATTRIBUTE   VasExperts-L2-SubsId           14   string
```

The format of the string representation of the identifiers is as follows:

- `mac`: "[1]xx:xx:xx:xx:xx:xx", xx - subscriber's MAC address, e.g.: `[1]02:42:89:33:7b:3e` - subscriber MAC=02:42:89:33:7b:3e
- `vlan+mac`: "[2]N/xx:xx:xx:xx:xx:xx", N - VLAN number, e.g., `[2]56/02:42:89:33:7b:3e` - subscriber MAC=02:42:89:33:7b:3e в VLAN=56
- `qinq`: "[3]N.N", N - VLAN numbers, e.g.: `[3]56.234` - subscriber in Q-in-Q=56.234
- `qinq+mac`: "[4]N.N/xx:xx:xx:xx:xx:xx", e.g.: `[4]56.234/02:42:89:33:7b:3e` - subscriber MAC=02:42:89:33:7b:3e в Q-in-Q=56.234

If the subscriber's L2 identifier is unknown, then `VasExperts-L2-SubsId=[0]<n/a>`.

L2-subscribers