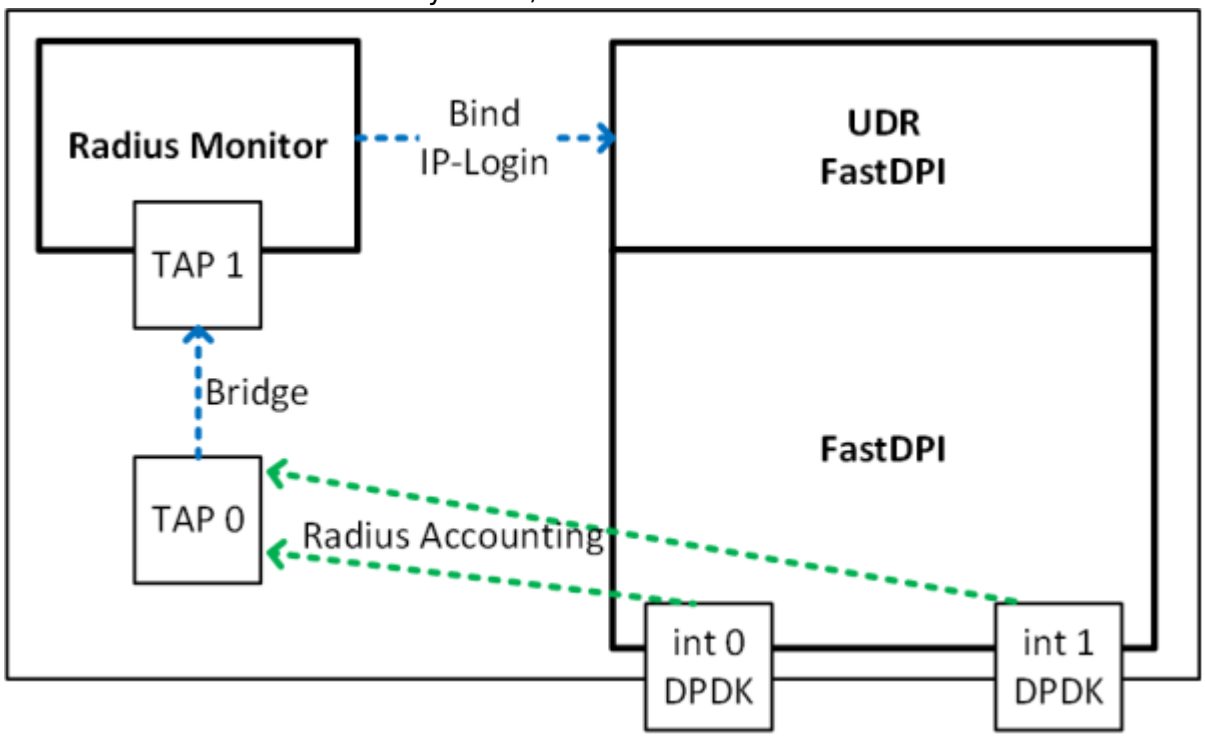
Содержание

Configuration

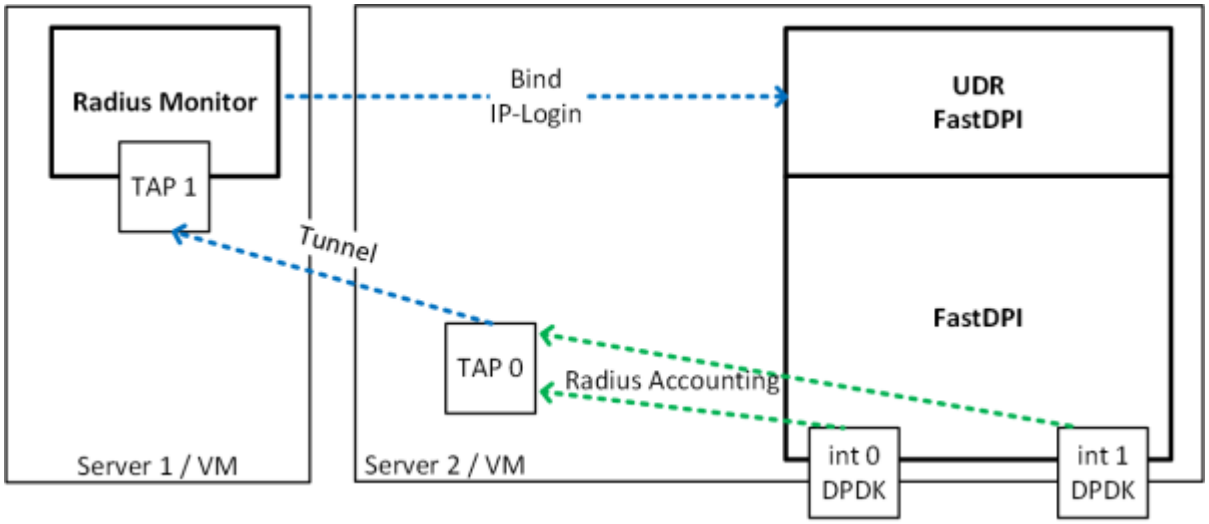
Radius Accounting needs to be put into the DPI device ports along with the network traffic. This can be done by mirroring the ports to which the Radius server is connected.

TAP Interfaces Setup

Radius Monitor can be launched on the same server as FastDPI or it can be placed on an external server. To allocate the necessary traffic, two virtual interfaces TAP0 and TAP1 are used.



Placing Radius monitor on the same server. Bridge is used.



Placing Radius monitor on an external server. Tunnel is used.

- TAP0 - is used for traffic steering

- TAP1 - listens to Radius Monitor
- A Bridge or Tunnel is created between TAP0 and TAP1 to transfer traffic.
- Mac learning is disabled on the TAP0 interface

Run the following commands from the console:

```
ip tuntap add tap0 mode tap
ip tuntap add tap1 mode tap

ip link set dev tap0 up
ip link set dev tap1 up

ip link add br0 type bridge

ip link set tap0 master br0
bridge link set dev tap0 learning off
ip link set tap1 master br0

ifconfig tap0 192.168.4.20 up
ifconfig tap1 192.168.4.21 up
ifconfig br0 up
```

Attention: TAP interfaces must be started after server restart!

Linux Interfaces Setup

The standard Linux interfaces are handled by libpcap.

Example:

```
in_dev=eno2
```

Traffic Steering Setup

Connect the traffic steering service to FastDPI:

```
fdpi_ctrl load profile --service 14 --profile.name radius  --profile.json '{
"typedev" : "tap","dev" : "tap0","udp" : [ 1813,1814,1815 ] }' --
outformat=json
fdpi_ctrl load --service 14 --profile.name radius --ip 10.16.252.11
fdpi_ctrl load --service 14 --profile.name radius --ip 10.16.252.12
```

here:

- 1813,1814,1815 - ports on which Radius Accounting is transmitted

- 10.16.252.11,10.16.252.12 - Radius servers' IP addresses, from which Radius Accounting is sent.

Radius Monitor Setup

Radius events monitor is configured by the file **/etc/dpi/fdpi_radius.conf.**

- `in_dev=tap1` — listening interface name
- `rad_acct_port=1813,1814,1815` — listening port number (or a list of ports separated by commas) with Radius Accounting packets
- `rad_save_pdu=0` — save bad PDUs in pcap format for analysis
- `rad_check_code_pdu=2:4` — analyze PDU with code 2 and 4
- `rad_check_acct_status_type=1:3` — analyze PDU with status 1 and 3
- `mem_preset=1` — initialize memory at start
- `fdpi_servers=127.0.0.1:29000,123.45.67.85:29000` — List of DPI servers, to send data to
- `ipfix_extra_gsm=1` — enable support for sending new attributes from Radius Accounting packets via IPFIX. Additional fields that are added when this option is enabled are listed in the template.

Stream processing setup (it is recommended to use the values from the example):

- `num_threads=1`
- `rx_bind_core=0`
- `services_bind_cores=0`
- `engine_bind_cores=0`
- `fifo_bind_cores=0`
- `snaplen=2000`
- `timeout_alarm=5`
- `dbg_log_mask=0x31`

Configuration of Radius Event Export:

- `ipfix_dev=eno8`
- `ipfix_tcp_collectors=172.32.0.239:1502`

After changing the configuration, restart the service:

```
systemctl restart fastradius
```

CIDR-based NAT Connection

Create named NAT profiles at FastDPI:

```
fdpi_ctrl load profile --service 11 --profile.name nat_profile_all --
profile.json '{ "nat_ip_pool" : "5.200.43.0/24,5.200.44/25",
```

```
"nat_tcp_max_sessions" : 2000, "nat_udp_max_sessions" : 2000 }'
```

In Radius monitor configuration file /etc/dpi/fdpi_radius.nat address ranges and their corresponding nat profile names are specified

```
example:
0.0.0.0/0               nat_profile_all
10.0.0.0/8             nat_profile_1
10.1.1.0/24           nat_profile_2
when there is a more specific profile for an address, then it is selected.
```

Parameter description at the link

IPv6 Support

The file /etc/dpi/fdpi_radius.conf specifies the configuration parameters

```
bind_ipv6_address=0 (by default - do not bind the address with the
subscriber), 1 - to bind (binding similar to the bind command in fdpi_ctrl).
The address is taken from the attribute radius Framed-IPv6-Address (168)
bind_ipv6_subnet=0 (by default - do not bind), 64 (bind only for /64
subnets), 1 - bind for any subsets. Subnet is taken from the Delegated-IPv6-
Prefix radius attribute (123)
```

The subscriber is identified by the radius attribute User-Name or Calling-Station-ID (depending on the login_replace setting)

The current version only supports fixed-length IPv6 subnets (default /64), so linking smaller subnets will result in an error.

Subscribers Identification in mobile networks

In the configuration file /etc/dpi/fdpi_radius.conf specify the parameter:

```
login_replace=1
```

in this case, the radius attribute Calling-Station-ID is used instead of User-Name to identify the subscriber if it is present in the radius of the packet.

Radius Monitor Additional Settings

```
# FastDPI RADIUS configuration parameters:
   # outgoing interface name, if the Monitor operates in traffic pass mode
#out_dev=dna1

   # enable emulation of the redundant Radius server
#rad_server_emulation=1

   # enable emulation of the network card
#rad_virtual_eth=172.17.69.10/D4:AE:52:C1:A7:29

   # secret value for generating responses in the server Radius emulation
mode
#rad_secret=mysecretkey

   # add region prefixes to subscriber names (LOGIN)
#rad_prefix_info=1

   # listening port number (or a list of ports separated by commas) with
Radius Authentication packets
#rad_auth_port=1645

   # allow multiple IPs on the same USER-NAME see command load --bind_multi,
warning: if the order of bind/unbind in the radius stream is not maintained
or there are packet losses (for example, a mirror), then artifacts are
possible
#bind_multi=true
```

Addition of subscriber names (LOGIN) with region prefixes

This is used when the Radius monitor and SSG serve several regions, and the user-name in different regions can overlap with other regions, so they can be separated into different login

1. Turn on the setting rad_prefix_info=1

2. Add
to the file /etc/dpi/prefixes.info

```
172.17.76.1 MSK-
172.17.76.2 MSK-
172.17.76.3 SPB-
172.17.76.4 SPB-
172.17.76.5SPB-
```

where:
the first field is the NAS-IP-Address from the Radius package
second field - what prefix will be added to login

See also: Administration