NVIDIA DOCA East-West Overlay Encryption Application

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This guide describes IPsec-based strongSwan solution on top of NVIDIA® BlueField® DPU.

> **Note**
>
> If your target application utilizes 100Gb/s or higher bandwidth, where a substantial part of the bandwidth is allocated for IPsec traffic, please refer to the *NVIDIA BlueField-2 DPUs Product Release Notes* to learn about a potential bandwidth limitation. To access the relevant product release notes, please contact your NVIDIA sales representative.

Introduction

IPsec is used to set up encrypted connections between different devices. It helps keep data sent over public networks secure. IPsec is often used to set up VPNs, and it works by encrypting IP packets as well as authenticating the packets' originator.

IPsec contains the following main modules:

- Key exchange – a key is a string of random bytes that can be used for encryption and decryption of messages. IPsec sets up keys with a key exchange between the connected devices, so that each device can decrypt the other device's messages.
- Authentication – IPsec provides authentication for each packet which ensures that they come from a trusted source.
- Encryption – IPsec encrypts the payloads within each packet and possibly, based on the transport mode, the packet's IP header.
- Decryption – at the other end of the communication, packets are decrypted by the IPsec supported node.

IPsec supports two types of headers:

- Authentication header (AH) – AH protocol ensures that packets are from a trusted source. AH does not provide any encryption.
- Encapsulating security protocol (ESP) – ESP encrypts the payload for each packet as well as the IP header depending on the transport mode. ESP adds its own header

and a trailer to each data packet.

IPsec support two types of transport mode:

- IPsec tunnel mode – used between two network nodes, each acting as tunnel initiator/terminator on a public network. In this mode, the original IP header and payload are both encrypted. Since the IP header is encrypted, an IP tunnel is added for network forwarding. At each end of the tunnel, the routers decrypt the IP headers to route the packets to their destinations.

- Transport mode – the payload of each packet is encrypted, but the original IP header is not. Intermediary network nodes are therefore able to view the destination of each packet and route the packet, unless a separate tunneling protocol is used.

strongSwan is an open-source IPsec-based VPN solution. For more information, refer to strongSwan documentation.

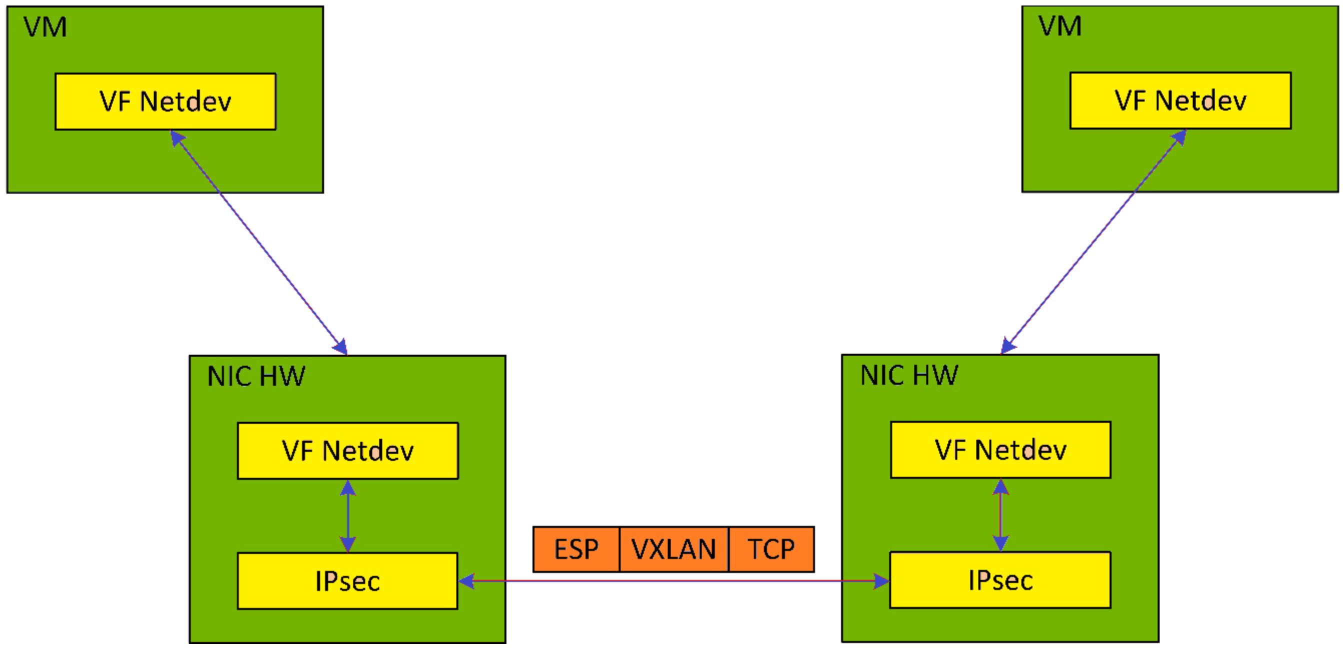
System Design

IPsec packet offload offloads both IPsec crypto (encrypt/decrypt) and IPsec encapsulation to the hardware.

The deployment model allows the IPsec offload to be transparent to the host with the benefits of securing legacy workloads (no dependency on host SW stack) and to zero CPU utilization on host.

IPsec packet offload configuration works with and is transparent to OVS offload. This means all packets from OVS offload are encrypted by IPsec rules.

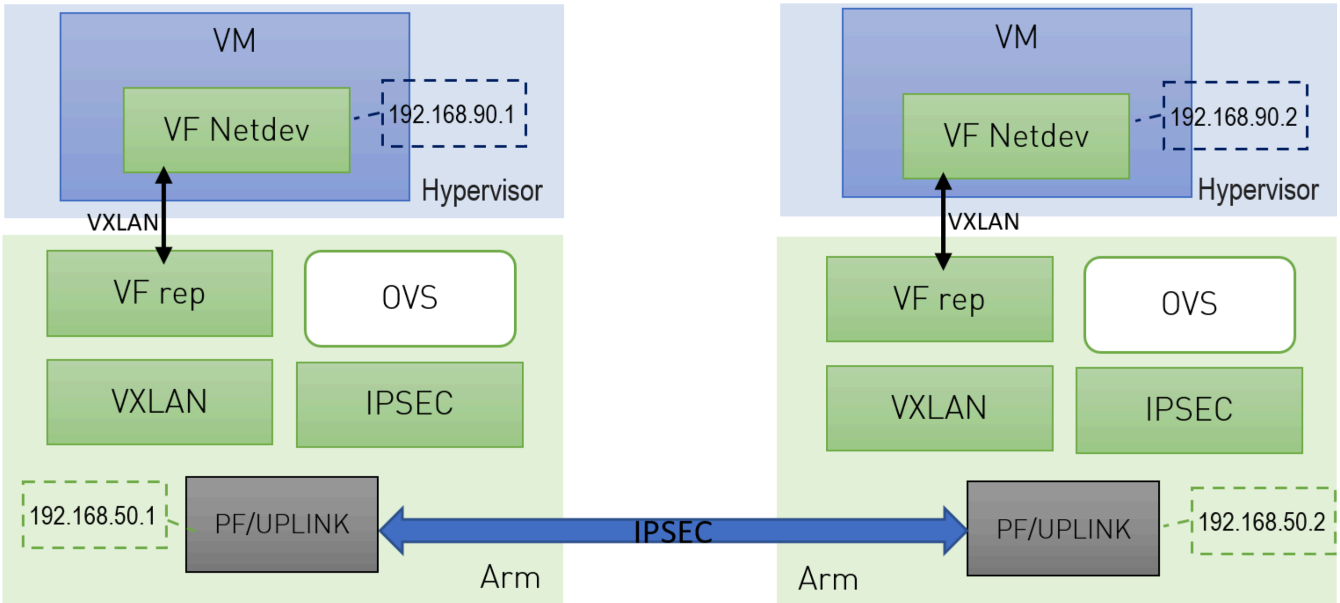
The following figure illustrates the interaction between IPsec packet offload and OVS VXLAN offload.



> **Note**
>
> IPsec packet offload is only supported on Ubuntu Bluefield kernel 5.15

> **Note**
>
> OVS offload and IPsec IPv6 do not work together.

Application Architecture



1. Configure strongSwan IPsec offload using `swanctl.conf` configuration file.
2. Traffic is sent from the host through BlueField.
3. Using OVS, the packets are encapsulated on ingress using tunnel protocols (VXLAN for example) to match IPsec configuration by strongSwan.
4. Set by strongSwan configuration file, traffic will be encrypted using the hardware offload.
5. Egress flow is decryption first, decapsulation of the tunnel header and forward to the relevant physical function.

DOCA Libraries

N/A

Configuration Flow

The following section provides information on manually configuring IPsec packet offload in general and on using OVS IPsec with strongSwan specifically.

> **Note**

There is a script, `east_west_overlay_encryption.sh`, which is elaborated on in section Running Application which performs the steps in this section automatically.

If you are working directly with the `ip xfrm` tool, use `/opt/mellanox/iproute2/sbin/ip` to benefit from IPsec packet offload support.

There are two parts in the configuration flow

1. Enabling IPsec packet offload mode.
2. Configuring the IPsec OVS bridge using one of three modes of authentication.

Note

An alternative for step two is configuring `swanctl.conf` files (configuration files for strongSwan) manually and using strongSwan directly instead of using IPsec OVS (which automatically generates `swanctl.conf` files) as explained in section "Configuring OVS IPsec Using strongSwan Manually".

Enabling IPsec Packet Offload

This section explicitly enables IPsec packet offload on the Arm cores before setting up offload-aware IPsec tunnels.

Note

If an OVS VXLAN tunnel configuration already exists, stop `openvswitch` service prior to performing the steps below and restart the service afterwards.

Explicitly enable IPsec full offload on the Arm cores.

1. Set `IPSEC_FULL_OFFLOAD="yes"` in `/etc/mellanox/mlnx-bf.conf` .

> **Note**
>
> If `IPSEC_FULL_OFFLOAD` does not appear in `/etc/mellanox/mlnx-bf.conf` then you are probably using an old version of the BlueField image. Check the way of enabling IPsec full offload in a previous DOCA versions in the NVIDIA DOCA Documentation Archives.

2. Restart IB driver (rebooting also works). Run:

```
/etc/init.d/openibd restart
```

> **Note**
>
> If `mlx-regex` is running:
>
> 1. Disable `mlx-regex` prior to running restarting the IB driver:
>
> ```
> systemctl stop mlx-regex
> ```
>
> 2. Restart IB driver according to the command above.
>
> 3. Re-enable `mlx-regex` after the restart has finished:

```
systemctl restart mlx-regex
```

Note

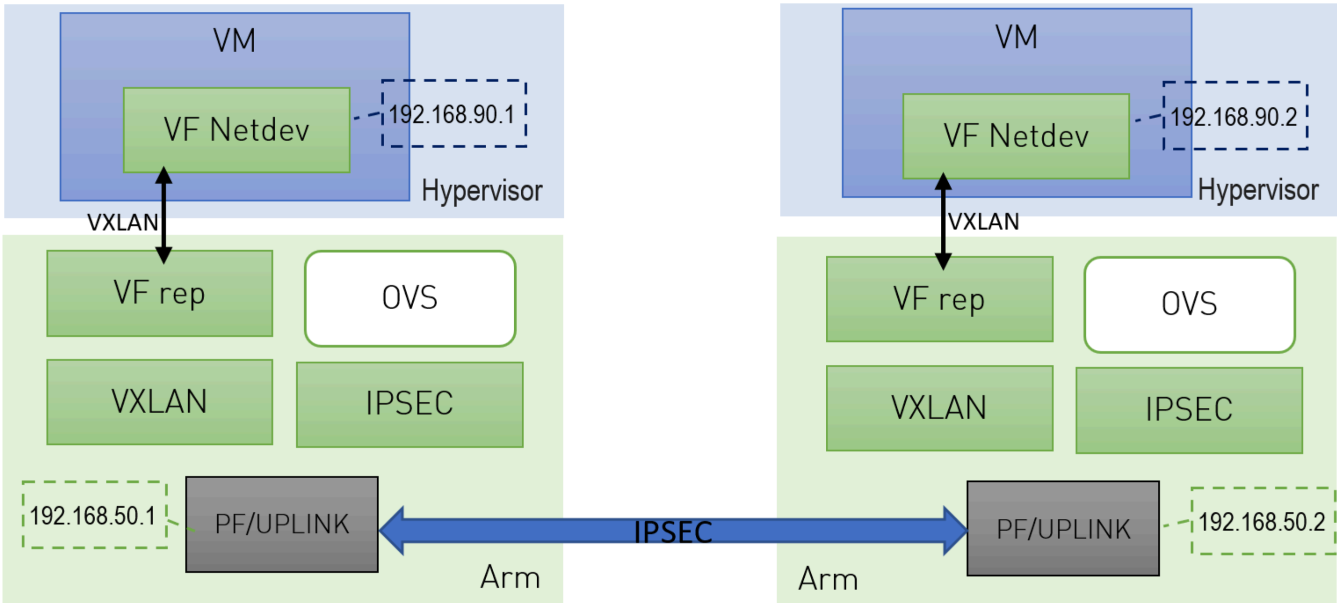
To revert IPsec full offload mode, redo the procedure from step 1, only difference is to set `IPSEC_FULL_OFFLOAD="no"` in `/etc/mellanox/mlnx-bf.conf`.

Configuring OVS IPsec

Note

Before proceeding with this section, make sure to follow the procedure in section "Enabling IPsec Packet Offload" for both DPUs.

This section configures OVS IPsec VXLAN tunnel which automatically generates the `swanctl.conf` files and runs strongSwan (the IPsec daemon). The following figure illustrates an example with two BlueField DPUs, Left and Right, operating with a secured VXLAN channel.



Two BlueField DPUs are required to build an OVS IPsec tunnel between the two hosts, Right and Left.

The OVS IPsec tunnel configures an unaware IPsec connection between the two hosts' InfiniBand devices. For the sake of this example, the host's InfiniBand network device is `HOST_PF`, and the DPU's host representor is `PF_REP` and the DPU's physical function `PF`.

This example sets up the following variables on both Arms:

```
# host_ip1=1.1.1.1
# host_ip2=1.1.1.2
# HOST_PF=ens7np0
# ip1=192.168.50.1
# ip2=192.168.50.2
# PF=p0
# PF_REP=pf0hpf
```

Note

The name of the `HOST_PF` could be different in your machine. You may verify this by running:

```
host# ibdev2netdev
mlx5_0 port 1 ==> ens7np0 (Down)
mlx5_1 port 1 ==> ens8np1 (Down)
```

This example uses the first InfiniBand's (`mlx5_0`) network device which is `ens7np0`.

1. Configure IP addresses for the `HOST_PF`s of both hosts (x86):

    1. On `host_1`:

    ```
    # ifconfig $HOST_PF $host_ip1/24 up
    ```

    2. On `host_2`:

    ```
    # ifconfig $HOST_PF $host_ip2/24 up
    ```

    Note

    Step 1 is the only command that is performed on the host, the rest of the commands are performed on the Arm (DPU) side.

2. Configure IP addresses for the PFs of both Arms:

    1. On `Arm_1`:

```
# ifconfig $PF $ip1/24 up
```

2. On `Arm_2`:

```
# ifconfig $PF $ip2/24 up
```

3. Start Open vSwitch. If your operating system is Ubuntu, run the following on both `Arm_1` and `Arm_2`:

```
# service openvswitch-switch start
```

If your operating system is CentOS, run the following on both `Arm_1` and `Arm_2`:

```
# service openvswitch restart
```

4. Start OVS IPsec service. Run on both `Arm_1` and `Arm_2`:

```
# systemctl start openvswitch-ipsec.service
```

5. Set up OVS bridges in both DPUs. Run on both `Arm_1` and `Arm_2`:

```
# ovs-vsctl add-br vxlan-br
# ovs-vsctl add-port ovs-br $PF_REP
# ovs-vsctl set Open_vSwitch . other_config:hw-offload=true
```

Note

Configuring `other_config:hw-offload=true` sets IPsec Packet offload. Setting it to `false` sets software IPsec.

Note

The MTU of the MTU of the tunnel interface (PF) should be at least 50 bytes larger than the MTU of the endpoints of the tunnels above (PF_REP) to account for the size of the VXLAN tunnel header. For example, if the MTU of PF_REP is 1500 then the MTU of PF should be at least 1550.

To configure the MTU of the PF:

```
# ifconfig $PF mtu $PF_MTU up
```

6. Set up IPsec tunnel on the OVS bridge. Three authentication methods are possible, choose your preferred authentication method and follow the steps relevant to it. Note that the last two authentication methods requires you to create certificates (self-signed certificates or certificate authority certificates).

Note

After the IPsec tunnel is set up using one of the three methods of authentication, strongSwan configuration is done automatically and the `swanctl.conf` files will be generated and strongSwan will run automatically.

Authentication Methods

The following subsections detail the possible authentication methods for setting up the IPsec tunnel on the OVS bridge.

Pre-shared Key

This method configures OVS IPsec using a pre-shared key. You must select a pre-shared key, for example:

```
psk=swordfish
```

1. Set up the VXLAN tunnel:
    1. On `Arm_1`, run:

    ```
    # ovs-vsctl add-port vxlan-br tun -- \
                set interface tun type=vxlan \
                              options:local_ip=$ip1 \
                              options:remote_ip=$ip2 \
                              options:key=100 \
                              options:dst_port=4789 \
                              options:psk=$psk
    ```

    2. On `Arm_2`, run:

    ```
    # ovs-vsctl add-port vxlan-br tun -- \
                set interface tun type=vxlan \
                              options:local_ip=$ip2 \
                              options:remote_ip=$ip1 \
                              options:key=100 \
                              options:dst_port=4789\
                              options:psk=$psk
    ```

Self-signed Certificate

This method configures OVS IPsec using self-signed certificates. You must generate self-signed certificates and keys. This example demonstrates how to generate self-signed certificates using `ovs-pki` but you may generate them in any other way while skipping step 1.

1. Generate self-signed certificates using `ovs-pki`:
    1. On `Arm_1`, run:

        ```
        # ovs-pki req -u host_1
        # ovs-pki self-sign host_1
        ```

        After running this code you should have `host_1-cert.pem` and `host_1-privkey.pem`.
    2. On `Arm_2`, run:

        ```
        # ovs-pki req -u host_2
        # ovs-pki self-sign host_2
        ```

        After running this code you should have `host_2-cert.pem` and `host_2-privkey.pem`.
2. Configure the certificates and private keys:
    1. Copy the certificate of `Arm_1` to `Arm_2`, and the certificate of `Arm_2` to `Arm_1`.
    2. On each machine, move both `host_1-privkey.pem` and `host_2-cert.pem` to `/etc/swanctl/x509/` if on Ubuntu, or `/etc/strongswan/swanctl/x509/` if on CentOS.

3. On each machine, move the local private key (`host_1-privkey.pem` on `Arm_1` and `host_2-privkey.pem` on `Arm_2`) to `/etc/swanctl/private` if on Ubuntu, or `/etc/strongswan/swanctl/private` if on CentOS.

3. Set up OVS `other_config` on both sides.

   1. On `A` `rm_1`:

```
# ovs-vsctl set Open_vSwitch .
other_config:certificate=/etc/swanctl/x509/host_1-
cert.pem \
  other_config:private_key=/etc/swanctl/private/host_1-
privkey.pem
```

   2. On `Arm_2`:

```
# ovs-vsctl set Open_vSwitch .
other_config:certificate=/etc/swanctl/x509/host_2-
cert.pem \
  other_config:private_key=/etc/swanctl/private/host_2-
privkey.pem
```

4. Set up the VXLAN tunnel:

   1. On `Arm_1`:

```
# ovs-vsctl add-port vxlan-br vxlanp0 -- set interface
vxlanp0 type=vxlan options:local_ip=$ip1 \
  options:remote_ip=$ip2 options:key=100
options:dst_port=4789 \
  options:remote_cert=/etc/swanctl/x509/host_2-cert.pem
```

```
# service openvswitch-switch restart
```

2. On `Arm_2`:

```
# ovs-vsctl add-port vxlan-br vxlanp0 -- set interface
vxlanp0 type=vxlan options:local_ip=$ip2 \
  options:remote_ip=$ip1 options:key=100
options:dst_port=4789 \
  options:remote_cert=/etc/swanctl/x509/host_1-cert.pem
# service openvswitch-switch restart
```

Note

In steps 3 and 4, if you are in CentOS you must change the path of the certificates to `/etc/strongswan/swanctl/x509/` and the path of the private keys to `/etc/strongswan/swanctl/private`.

CA-signed Certificate

This method configures OVS IPsec using certificate authority (CA)-signed certificates. You must generate CA-signed certificates and keys. The example demonstrates how to generate CA-signed certificates using `ovs-pki` but you may generate them in any other way while skipping step 1.

1. Generate CA-signed certificates using `ovs-pki`. For this method, all the certificates and the requests must be in the same directory during the certificate generating and signing. This example refers to this directory as `certsworkspace`.

    1. On `Arm_1`, run:

```
# ovs-pki init --force
# cp /var/lib/openvswitch/pki/controllerca/cacert.pem
<path_to>/certsworkspace
# cd <path_to>/certsworkspace
# ovs-pki req -u host_1
# ovs-pki sign host1 switch
```

After running this code, you should have `host_1-cert.pem`, `host_1-privkey.pem`, and `cacert.pm` in the `certsworkspace` folder.

2. On `Arm_2`, run:

```
# ovs-pki init --force
# cp /var/lib/openvswitch/pki/controllerca/cacert.pem
<path_to>/certsworkspace
# cd <path_to>/certsworkspace
# ovs-pki req -u host_2
# ovs-pki sign host_2 switch
```

After running this code, you should have `host_2-cert.pem`, `host_2-privkey.pem`, and `cacert.pm` in the `certsworkspace` folder.

2. Configure the certificates and private keys:

   1. Copy the certificate of `Arm_1` to `Arm_2` and the certificate of `Arm_2` to `Arm_1`.

   2. On each machine, move both `host_1-privkey.pem` and `host_2-cert.pem` to `/etc/swanctl/x509/` if on Ubuntu, or `/etc/strongswan/swanctl/x509/` if on CentOS.

   3. On each machine, move the local private key (`host_1-privkey.pem` if on `Arm_1` and `host_2-privkey.pem` if on `Arm_2`) to

`/etc/swanctl/private` if on Ubuntu, or `/etc/strongswan/swanctl/private` if on CentOS.

4. On each machine, copy `cacert.pem` to the `x509ca` directory under `/etc/swanctl/x509ca/` if on Ubuntu, or `/etc/strongswan/swanctl/x509ca/` if on CentOS.

3. Set up OVS `other_config` on both sides.

   1. On `Arm_1`:

```
# ovs-vsctl set Open_vSwitch . \

other_config:certificate=/etc/strongswan/swanctl/x509/host
\

other_config:private_key=/etc/strongswan/swanctl/private/h
privkey.pem \

other_config:ca_cert=/etc/strongswan/swanctl/x509ca/cacert
```

   2. On `Arm_2`:

```
# ovs-vsctl set Open_vSwitch . \

other_config:certificate=/etc/strongswan/swanctl/x509/host
\

other_config:private_key=/etc/strongswan/swanctl/private/h
privkey.pem \

other_config:ca_cert=/etc/strongswan/swanctl/x509ca/cacert
```

4. Set up the tunnel:

   1. On `Arm_1`:

```
# ovs-vsctl add-port vxlan-br vxlanp0 -- set interface
vxlanp0 type=vxlan options:local_ip=$ip1 \
options:remote_ip=$ip2 options:key=100
options:dst_port=4789 \ options:remote_name=host_2
# service openvswitch-switch restart
```

   2. On `Arm_2`:

```
# ovs-vsctl add-port vxlan-br vxlanp0 -- set interface
vxlanp0 type=vxlan options:local_ip=$ip2 \
options:remote_ip=$ip1 options:key=100
options:dst_port=4789 \ options:remote_name=host_1
# service openvswitch-switch restart
```

Note

In steps 3 and 4, if you are in CenOS you must change the path of the certificates to `/etc/strongswan/swanctl/x509/`, the path of the CA certificate to `/etc/strongswan/swanctl/x509ca/`, and the path of the private keys to `/etc/strongswan/swanctl/private/`.

Ensuring IPsec is Configured

Using `/opt/mellanox/iproute2/sbin/ip xfrm state show`, you should be able to see 4 IPsec states for the IPsec connection you configured with the keyword `in mode packet` meaning which means that you are in IPsec packet HW offload mode.

For example, after configuring IPsec using pre-shared key method, you would get something similar to the following on `Arm_1`:

```
# /opt/mellanox/iproute2/sbin/ip xfrm state show

src 192.168.50.1 dst 192.168.50.2
        proto esp spi 0xcc8bf8ad reqid 1 mode transport
        replay-window 0 flag esn
        aead rfc4106(gcm(aes))
0x9f45cc4577e70c4e077bcc0c1473a782143e7ad199f58566519639d03b593b8996383f11 128
        anti-replay esn context:
         seq-hi 0x0, seq 0x0, oseq-hi 0x0, oseq 0x0
         replay_window 1, bitmap-length 1
         00000000
        crypto offload parameters: dev p0 dir out mode packet
        sel src 192.168.50.1/32 dst 192.168.50.2/32 proto udp sport 4789
src 192.168.50.2 dst 192.168.50.1
        proto esp spi 0xce8bf4b6 reqid 1 mode transport
        replay-window 0 flag esn
        aead rfc4106(gcm(aes))
0xf2d0e335d9a64ef6e385a630a32b0e43bb52f581290cd34bbb8f7592d54f11657ed0258e 128
        anti-replay esn context:
         seq-hi 0x0, seq 0x0, oseq-hi 0x0, oseq 0x0
         replay_window 32, bitmap-length 1
         00000000
        crypto offload parameters: dev p0 dir in mode packet
        sel src 192.168.50.2/32 dst 192.168.50.1/32 proto udp dport 4789
src 192.168.50.1 dst 192.168.50.2
        proto esp spi 0xcb600a84 reqid 2 mode transport
        replay-window 0 flag esn
```

```
        aead rfc4106(gcm(aes))
0x7fb26035299bcc9b973abea5d581acfbcf87cbf0bd053b745c4d95c62311f934010973f6 128
        anti-replay esn context:
         seq-hi 0x0, seq 0x0, oseq-hi 0x0, oseq 0x0
         replay_window 1, bitmap-length 1
         00000000
        crypto offload parameters: dev p0 dir out mode packet
        sel src 192.168.50.1/32 dst 192.168.50.2/32 proto udp dport 4789
src 192.168.50.2 dst 192.168.50.1
        proto esp spi 0xc137d5a0 reqid 2 mode transport
        replay-window 0 flag esn
        aead rfc4106(gcm(aes))
0x28e3d12ad4e24aa9d9de9459de8ef8bb4379e8e12faac0054c5b629b6aa50fdeda8e4574 128
        anti-replay esn context:
         seq-hi 0x0, seq 0x0, oseq-hi 0x0, oseq 0x0
         replay_window 32, bitmap-length 1
         00000000
        crypto offload parameters: dev p0 dir in mode packet
        sel src 192.168.50.2/32 dst 192.168.50.1/32 proto udp sport 4789
```

After insuring that the IPsec connection is configured, you can send encrypted traffic between `host_1` and `host_2` using the `HOST_PF` s IP addresses.

Configuring OVS IPsec Using strongSwan Manually

This section configures an OVS VXLAN tunnel which then uses `swanctl.conf` files and runs strongSwan (the IPsec daemon) manually.

> **Note**
>
> Before proceeding with this section, make sure to follow the procedure in section "Enabling IPsec Packet Offload" for both DPUs.

1. Build a VXLAN tunnel over OVS and connect the PF representor to the same OVS bridge.

    1. On `Arm_1`:

    ```
    # ovs-vsctl add-br vxlan-br
    # ovs-vsctl add-port vxlan-br PF_REP
    # ovs-vsctl add-port vxlan-br vxlan11 -- set interface
    vxlan11 type=vxlan options:local_ip=$ip1 \
             options:remote_ip=$ip2 options:key=100
    options:dst_port=4789 \
    # ovs-vsctl set Open_vSwitch . other_config:hw-
    offload=true
    ```

    2. On `Arm_2`:

    ```
    # ovs-vsctl add-br vxlan-br
    # ovs-vsctl add-port vxlan-br PF_REP
    # ovs-vsctl add-port vxlan-br vxlan11 -- set interface
    vxlan11 type=vxlan options:local_ip=$ip2 \
             options:remote_ip=$ip1 options:key=100
    options:dst_port=4789 \
    # ovs-vsctl set Open_vSwitch . other_config:hw-
    offload=true
    ```

2. If your operating system is Ubuntu, run on both `Arm_1` and `Arm_2`:

    ```
    service openvswitch-switch start
    ```

    If your operating system is CentOS, run:

```
service openvswitch restart
```

3. Enable TC offloading for the PF. Run on both `Arm_1` and `Arm_2`:

```
# ethtool -K $PF hw-tc-offload on
```

4. Disable host PF as the port owner from Arm. Run on both `Arm_1` and `Arm_2`:

```
# mlxprivhost -d /dev/mst/mt${pciconf} --disable_port_owner r
```

Note

To get `${pciconf}`, run the following on the DPU:

```
# ls --color=never /dev/mst/ | grep --
color=never '^m.*f0$' | cut -c 3-
```

For example:

```
# mlxprivhost -d /dev/mst/mt41686_pciconf0 --
disable_port_owner r
```

5. Configure the `swanctl.conf` files for each machine. See section swanctl.conf Files.

> **Note**
>
> Each machine should have exactly one . `swanctl.conf` file in `/etc/swanctl/conf.d/`.

6. Load the `swanctl.conf` files and initialize strongSwan. Run:
    1. On the `Arm_2`, run:

    ```
    systemctl restart strongswan.service
    swanctl --load-all
    ```

    2. On the `Arm_1`, run:

    ```
    systemctl restart strongswan.service
    swanctl --load-all
    swanctl -i --child bf
    ```

Now the IPsec connection should be established.

swanctl.conf Files

strongSwan configures IPSec packet HW offload using a new value added to its configuration file `swanctl.conf`. The file should be placed under `sysconfdir` which by default can be found at `/etc/swanctl/swanctl.conf`.

The terms Left (BFL) and Right (BFR), in reference to the illustration under Application Architecture, are used to identify the two nodes (or machines) that communicate.

> **Note**
>
> Either side (BFL or BFR) can fulfill either role (initiator or receiver).

In this example, 192.168.50.1 is used for the left PF uplink and 192.168.50.2 for the right PF uplink.

```
connections {
   BFL-BFR {
      local_addrs  = 192.168.50.1
      remote_addrs = 192.168.50.2

      local {
        auth = psk
        id = host1
      }
      remote {
        auth = psk
        id = host2
      }
                children {
         bf-out {
            local_ts = 192.168.50.1/24 [udp]
            remote_ts = 192.168.50.2/24 [udp/4789]
            esp_proposals = aes128gcm128-x25519-esn
            mode = transport
            policies_fwd_out = yes
            hw_offload = packet
         }
         bf-in {
            local_ts = 192.168.50.1/24 [udp/4789]
            remote_ts = 192.168.50.2/24 [udp]
            esp_proposals = aes128gcm128-x25519-esn
```

```
                mode = transport
                policies_fwd_out = yes
                hw_offload = packet
             }
          }
          version = 2
          mobike = no
          reauth_time = 0
          proposals = aes128-sha256-x25519
       }
    }

    secrets {
       ike-BF {
          id-host1 = host1
          id-host2 = host2
          secret = 0sv+NkxY9LLZvwj4qCC2o/gGrWDF2d21jL
       }
    }
```

The BFB installation will place two example `swanctl.conf` files for BFL and BFR (`BFL.swanctl.conf` and `BFR.swanctl.conf` respectively) in the strongSwan `conf.d` directory. Each node should have only one `swanctl.conf` file in its strongSwan `conf.d` directory.

Note that:

- "`hw_offload = packet"` is responsible for configuring IPsec packet offload
- Packet offload support has been added to the existing `hw_offload` field and preserves backward compatibility.

  For your reference:

Value	Description
no	Do not configure HW offload.
crypto	Configure crypto HW offload if supported by the kernel and hardware, fail if not supported.
yes	Same as crypto (considered legacy).
packet	Configure packet HW offload if supported by the kernel and hardware, fail if not supported.
auto	Configure packet HW offload if supported by the kernel and hardware, do not fail (perform fallback to crypto or no as necessary).

- Whenever the value of `hw_offload` is changed, strongSwan configuration must be reloaded.
- Switching to crypto HW offload requires setting up `devlink/ipsec_mode` to `none` beforehand.
- Switching to packet HW offload requires setting up
- `[udp/4789]` is crucial for instructing strongSwan to IPSec only VXLAN communication.
- Packet HW offload can only be done on what is streamed over VXLAN.

Mind the following limitations:

Fields	Limitation
reauth_time	Ignored if set
rekey_time	Do not use. Ignored if set.
rekey_bytes	Do not use. Not supported and will fail if it is set.
rekey_packets	Use for rekeying

References

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- `/opt/mellanox/doca/applications/east_west_overlay_encryption/`
- `/opt/mellanox/doca/applications/east_west_overlay_encryption/`