LABELED IPSEC

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History of Labeled IPsec

- Available as selector option in the SPD in Linux since 2.6.x
- Available in IKEv1 using libreswan in RHEL7, RHEL6 and with openswan in RHEL5
- use secctx-attr-type=32001 (or 10 for backwards compatibility)

- No method to negotiate security context using IKEv2

- There was a previous attempt to standardize this: draft-jml-ipsec-ikev2-security-label

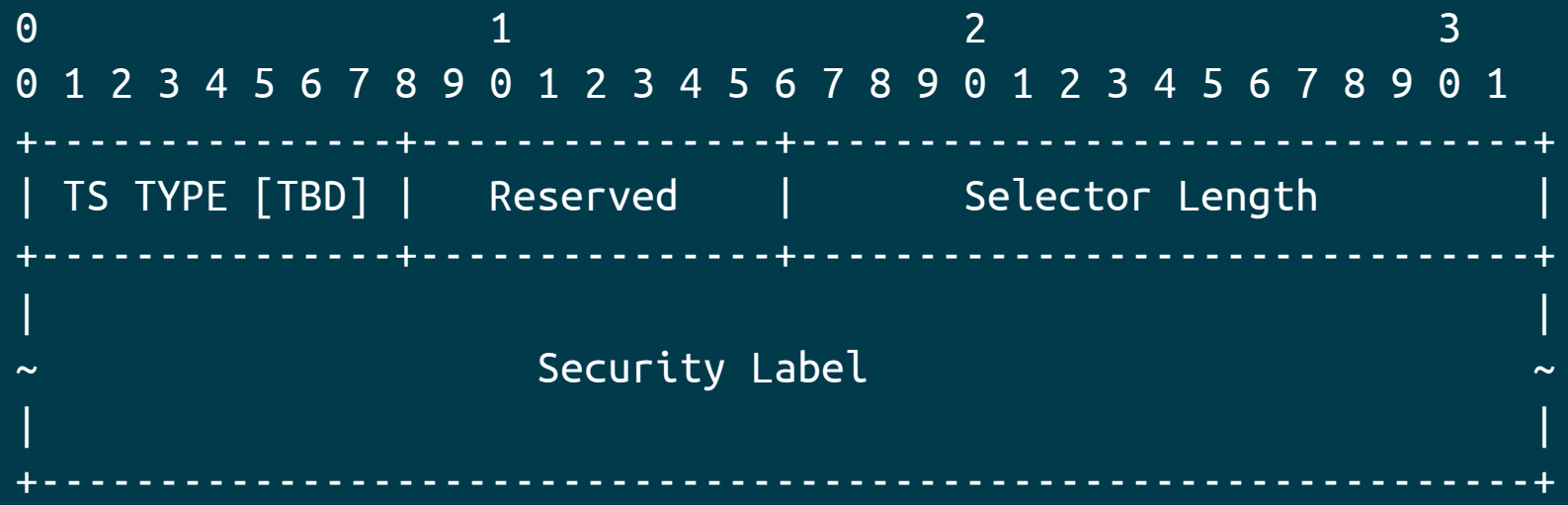
- First draft: https://tools.ietf.org/html/draft-sprasad-ipsecme-labeled-ipsec
- Second draft: https://tools.ietf.org/html/draft-ietf-ipsecme-labeled-ipsec

Example SPD Linux kernel

```
# ip xfrm pol
src 192.0.1.0/24 dst 192.0.2.0/24
        security context system_u:object_r:test_spd_t:s0
        dir out priority 4294964199 ptype main
        tmpl src 192.1.2.45 dst 192.1.2.23
                proto esp reqid 16389 mode tunnel
src 192.0.2.0/24 dst 192.0.1.0/24
        security context system_u:object_r:test_spd_t:s0
        dir fwd priority 4294964199 ptype main
        tmpl src 192.1.2.23 dst 192.1.2.45
                proto esp reqid 16389 mode tunnel
src 192.0.2.0/24 dst 192.0.1.0/24
        security context system_u:object_r:test_spd_t:s0
        dir in priority 4294964199 ptype main
        tmpl src 192.1.2.23 dst 192.1.2.45
                proto esp reqid 16389 mode tunnel
```

draft-sprasad-ipsecme-labeled-ipsec-00

Add a new IKEv2 traffic selector type:



- TS TYPE (one octet) - Specifies the type of Traffic Selector.
- Selector Length (2 octets, network byte order) - Specifies the length of Security Label including the header.
- Security Label - This field contains the opaque payload.

draft-ietf-ipsecme-labeled-ipsec-00

Add two new IKEv2 traffic selector types:

- TS_IPV4_ADDR_RANGE_SECLABEL
- TS_IPV6_ADDR_RANGE_SECLABEL

Is this really the best way?

We will need other selectors too.

- VXLANID / VNI
- Queue Pair (QP) for Infiniband

We don't want combinatory explosion of TS TYPES ?

what if in the future we need a TS to cover:

10.0.1.2 port 4789 to 10.0.1.3 port 4789 with VNI 13 using seclabel "foo" ?

Change TS negotiation?

- Initiator MUST send one or more TS_IPV4_ADDR_RANGE or TS_IPV6_ADDR_RANGE
- Initiator MAY additionally send other TS TYPEs (one or more of each TS TYPE)
- Responder MUST pick one TS_IPV4_ADDR_RANGE or TS_IPV6_ADDR_RANGE
- Responder MUST pick one of each other TS TYPE (which may or may not support narrowing). If unknown TS TYPE, it MUST return TS_UNAVAILABLE.
- Then SECLABEL can be its own TS TYPE as we had originally

CLAP

please