redhat.

LABELED IPSEC

IPsec, IETF 101
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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
- Squatted on IANA “IPSEC Security Association Attributes” with value 10
- Value 10 was assigned to ECN Tunnel
- Moved to private use number 32001
- use secctx-attr-type=32001 (or 10 for backwards compatibility)

- No method to negotiate security context using IKEv2

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
```

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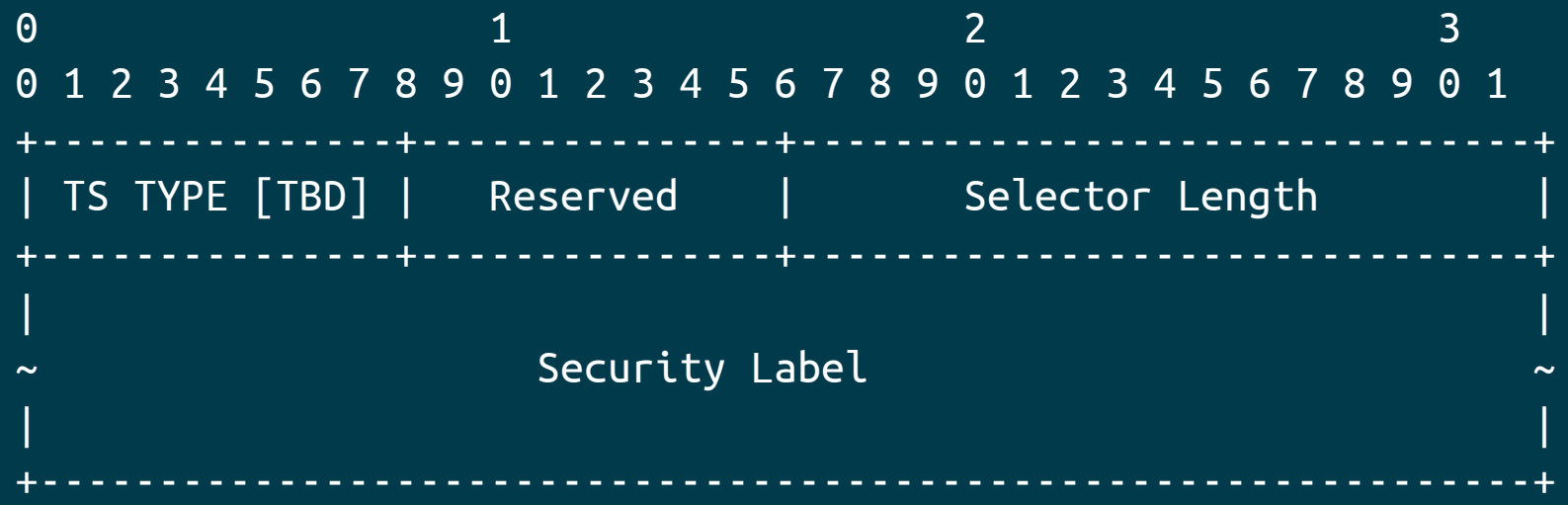
Add a new IKEv2 traffic selector type:



- 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.

Open issues

- Should we allow sub-types for Label kind?
- MUST label be identical for inbound/outbound?
- Should we allow a NULL label (length=0) ?
  - What would that mean?
- Should we allow label narrowing if the IKE daemon understands the label blob ?
  - narrow “system_u” to “system_u:object_r:bin_t:s0” ?