























Function `encap_oa` could probably be derived from the traffic selectors [rfc4306]. In the net link kernel Implementation `pluto` does the same as we do here but it uses `encap_oa` in the `pfkey` implementation. BUT as `/usr/src/linux/net/key/af_key.c` indicates that the kernel ignores it anyway. Does that mean that NAT-Traversal encapsulation doesn't work in transport mode? No. The reason the kernel ignores NAT-OA is that it recomputed (or, rather, just ignores) the checksum. If packets pass the IPsec checks it marks them "checksum ok" so OA isn't needed.

## 8. Conclusion

NAT is a mechanism which brought momentary abandon to the problem of shortage of IPv4 addresses. Unfortunately, it also brought some problems which we solved as described. Security is an essence part of this protocol and therefore implementation procedure is used for NAT detection. After detection of NAT box, there are appropriate actions as described. Support of NAT traversal in IKEv2 implementation solved one of the important demands for IKEv2 implementations and made this implementation more general and therefore, more appropriate to use in the IPsec. We have also shows the integration of IPsec with NAT. So for proper securing and fully functionality of NAT traversal, it should be IP Security Protected. It contains the details about patches applied and code changes done by me in Linux kernel, `mip6` Daemon and `strongSwan` in different releases of DSMIPv6 to implement IKEv2. The implementation of this release was to demonstrate, Movement of MN from HL to IPv4 network and Movement of MN from IPv6 to IPv4 network and vice versa.

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