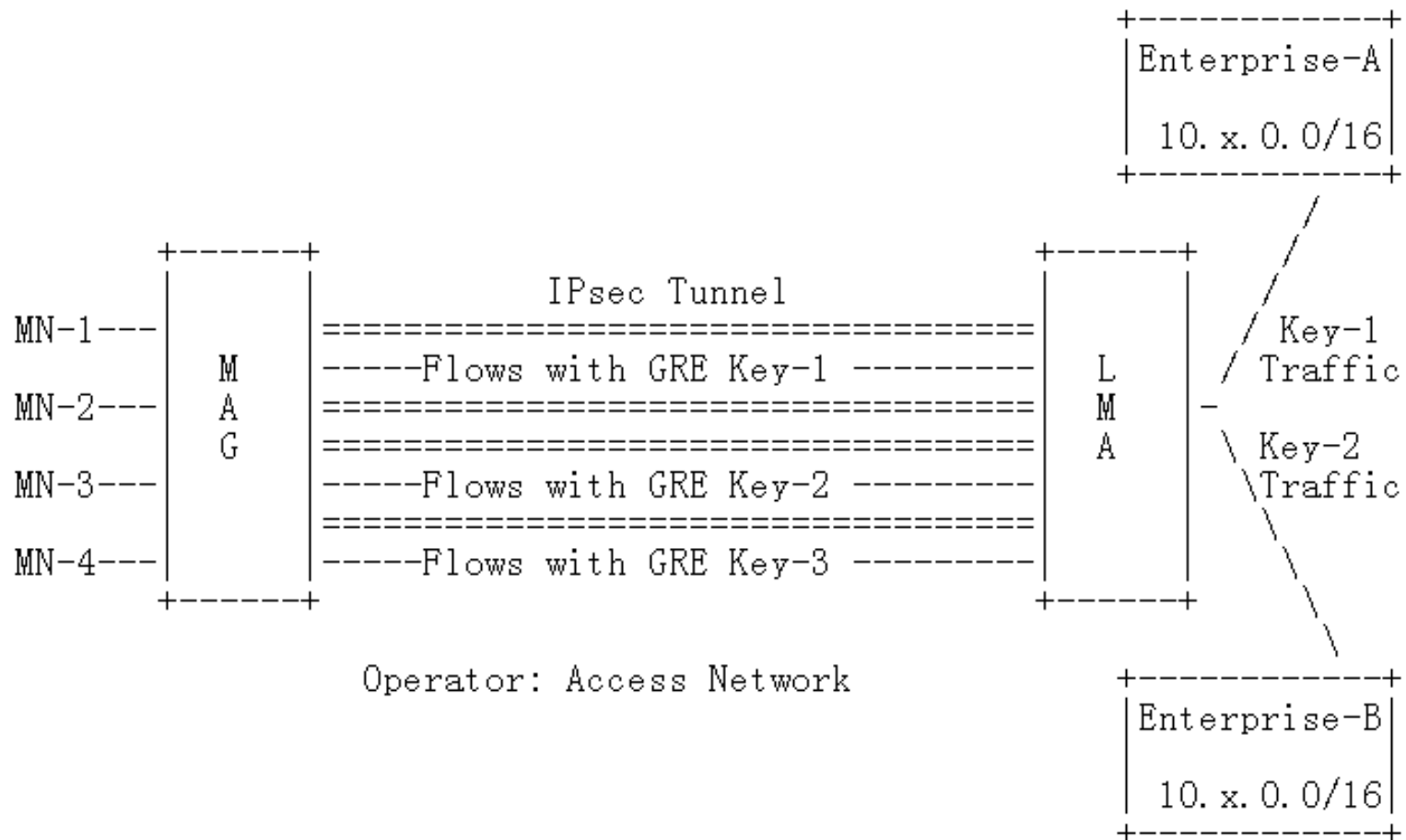# Using GRE key as IPsec traffic selector

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Requirements from operating experience

- Overlapped private address consideration

- Mobile standard like 3GPP has specify GRE key to differentiate the user in Mobile IP tunnel.

- Some enterprises need different security policy for each tunnel.

- Operator could provide such service to them based on GRE key as traffic selector for IPsec tunnel.

Network scenario for GRE key based IPsec Tunnel

```
                                                              +------------+
                                                              |Enterprise-A|
                                                              |            |
                                                              | 10.x.0.0/16|
                                                              +------------+
                                                                        /
          +------+                             +------+               /
          |      |        IPsec Tunnel         |      |             /   Key-1
MN-1---   |      |  ========================== |      |           /     Traffic
          |  M   |  -----Flows with GRE Key-1 ---------- |  L   |         /
MN-2---   |  A   |  ========================== |  M   |  -
          |  G   |  ========================== |  A   |
MN-3---   |      |  -----Flows with GRE Key-2 ----------  |      |    \   Key-2
          |      |  ========================== |      |      \Traffic
MN-4---   |      |  -----Flows with GRE Key-3 ----------  |      |
          +------+                             +------+            \
                                                                   \
      Operator: Access Network                                      \
                                                              +------------+
                                                              |Enterprise-B|
                                                              |            |
                                                              | 10.x.0.0/16|
                                                              +------------+
```

Work Item?

- Appreciate Pasi's help to make this proposal to charter

- o A standards-track extension to IKEv2 to support using the "Key" field of Generic Routing Encapsulation (GRE) packets, specified in RFC 2890, as a traffic selector (in similar fashion as TCP/UDP port number or ICMP type/code fields). This allows different GRE traffic flows to be mapped to different IPsec SAs. Any further extensions related to the use of IPsec with GRE are beyond the scope of this work item.