

**Source:** TSG SA WG3  
**Title:** Request to Study IP Version Selection for Security Nodes  
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The SA3 is working on the Network Domain Security architecture in its technical specification TS 33.200. The proposed architecture handles the signalling security for both SS7- and IP-based protocols. The architecture includes the use of MAPsec to protect MAP signalling traffic at application layer, and IPsec to protect other, IP signalling communications. IPsec Security Associations are negotiated using IKE (Internet Key Exchange) protocol. MAPsec uses a variation of IKE to negotiate SAs.

The architecture introduces IP-level security functionality for a number of nodes:

- Key Administration Centers (KACs). These communicate with peer operator KACs and with NEs in the local network, using IP-based protocols.
- Security Gateways (SEGs). These communicate with peer operator SEGs and with local network NEs, using IP-based protocols.
- MAP Network Elements (NEs). These communicate with the KAC using IP-based protocols.
- IP Network Elements. These use secure IP-based signalling with other NEs and the SEG.

Therefore, two completely new nodes are introduced to the architecture, and existing NEs are enhanced to support secure protocols. New interfaces include both inter-operator and intra-operator interfaces. The SA3 observes that a decision has to be made regarding which IP version the new nodes and interfaces use, and kindly asks SA2 to recommend which version to use.

From a functional or security point of view, there is no difference on whether IPv4 or IPv6 is used. However, from an interoperability point of view it is essential that nodes from different vendors will use the same version (or versions). For instance, will the inter-operator SEGs be connected over an IPv6 or an IPv4 network, and will the tunnels they create use IPv6 or IPv4 IPsec?

SA3 also observes that there may be different selection of IP versions with regards to different types of nodes, and their interfaces. For instance, it is quite well possible that a SEG uses IPv4 towards the local NEs and then encapsulates this traffic to a IPsec-IPv6 tunnel towards the SEG of another operator.