
Title: "Clarification on Addresses used for Tunnel Establishment"
Response to: Tdoc S2-042316 = S3-040459
Release: Rel 6
Work Item: Interworking WLAN

Source: SA3
To: SA2
Cc: -

Contact Person:

Name: Günther Horn, Siemens
Tel. Number: +49 89 63641494
E-mail Address: guenther.horn@siemens.com

1. Question by SA2:

SA2 asks whether SA3 sees any problems from a security point of view to establish a secure tunnel between the WLAN UE and the PDG, if the WLAN UE has obtained a local address with an IP version different from that of the tunnel endpoint at the PDG, e.g. by using mechanisms like IP-in-IP encapsulation.

2. Reply by SA3:

It is the understanding of SA3 that, for an IPsec tunnel, the outer IP addresses need to be of the same IP version at the two endpoints, and the inner IP addresses need to be of the same IP version at the two endpoints, but the outer and inner IP addresses may be of different IP versions.

It is assumed that the WLAN may assign either IPv4 or IPv6 addresses. If a UE obtains an IPv4 address from the WLAN then it has to set up the IPsec tunnel by means of IKEv2 using this IPv4 address as its own address, and using an IPv4 address of the PDG. The version of the inner IP addresses is determined by the IP address of the final destination of the IP packet, as seen from the PDG. E.g. if the UE wants to access an IMS server, which can be reached from the PDG using an IPv6 address, then the inner IP addresses would be the IPv6 addresses of the UE and the IMS server.

Likewise, if a UE obtains an IPv6 address from the WLAN then it has to set up the IPsec tunnel by means of IKEv2 using this IPv6 address, and using an IPv6 address of the PDG. Again, the inner IP addresses may be either IPv4 or IPv6.

If simultaneous access to hosts with IPv4 addresses (e.g. hosts in the Internet reached through the PDG) and to hosts with IPv6 addresses (e.g. IMS servers behind the PDG) is required, then two IPsec tunnels are needed.

A possible solution to address the above requirements is that the UE and the PDG support both, IPv4 and IPv6, and the W-APN DNS resolution procedure is able to return both, an IPv4 and an IPv6 address of the PDG, depending on the current UE configuration. This is compatible with standard DNS procedures in the understanding of SA3.

SA3 did not investigate further possible solutions, e.g. solutions involving general IPv4/6 interworking mechanisms, as they were seen as being outside the scope of SA3 work.

3. Date of Next TSG SA WG 3 Meetings:

TSG-SA3 Meeting #35 5-8 October 2004 Malta

TSG-SA3 Meeting #36 23-26 November 2004 Shenzhen, China