**SA WG2 Meeting #162 S2-2405812**

**15 - 19 April, 2024, Changsha, China revision of S2-2405274**

**Source: vivo, Charter Communications**

**Title: New Sol: Eliminate IPSec tunnel for user plane**

**Document for: Approval**

**Agenda Item: 19.13**

**Work Item / Release: FS\_MASSS / Rel-19**

*Abstract of the contribution: This paper proposes a new Solution for PDU Session establishment with non-3GPP access for eliminating IPSec tunnel for UP.*

# 1 Discussion

This paper proposes a new solution for KI#2.2 of the FS\_MASSS SID (SP-240467).

# 2 Proposal

It is proposed to include the following changes in TR 23.700-54 V0.2.0.

 **\* \* \* \* Start of Changes \* \* \* \***

6.0 Mapping of Solutions to Key Issues

**Table 6.0-1: Mapping of DualSteer Solutions to Key Issues**

|  |  |
| --- | --- |
|  | **Key Issues for DualSteer** |
| **Solution#** | **Key Issue #1.1** | **Key Issue #1.2** | **Key Issue #1.3** | **Key Issue #1.4** |
| **#X** |  |  |  |  |
|  |  |  |  |  |

**Table 6.0-2: Mapping of ATSSS\_Ph4 Solutions to Key Issues**

|  |  |
| --- | --- |
|  | **Key Issues for ATSSS\_Ph4** |
| **Solution#** | **Key Issue #2.1** | **Key Issue #2.2** |
| **#2.1** | X |  |
| **#2.2** |  | X |
| **#2.3** | X |  |
| **#2.4** | X |  |
| **#2.5** | X |  |
| **#2.6** |  | X |
| **#2.7** |  | X |
| **#2.8** |  | X |
| **#2.X** |  | X |

 **\* \* \* \* Second Change (all new text) \* \* \* \***

6.2.Y Solution #Y: Eliminate IPSec tunnel for UP

#### 6.2.Y.1 Description

This solution addresses the Key Issue#2.2 "Simplified ATSSS architecture over non-3GPP access" that related to eliminate IPSec tunnel encapsulation.

#### 6.2.Y.2 Procedures



**Figure 6.2.Y.2-1: PDU Session Establishment for UP w/o IPSec tunnel over non-3GPP access**

0. The SMF is aware of the Tunnel Capabilities of the N3IWF/TNGF for UP, e.g., based on operator configuration.

1. The UE sends a PDU Session Establishment Request (Tunnel Capabilities) message for ATSSS to AMF. This message shall be sent to N3IWF/TNGF via the IPsec SA for NAS signalling (established as specified in clause 4.12.2 of TS 23.502 [a]) and the N3IWF/TNGF shall transparently forward it to AMF in the 5GC. The Tunnel Capabilities indicate the tunnel type that the UE supports for UP, e.g., GRE, QUIC, etc.

2. The AMF invokes Nsmf\_PDUSession\_CreateSMContext Request service operation towards an SMF.

3. In case the UP security is not required for the PDU Session, the SMF selects the tunnel type according to the Tunnel Capabilities of the UE and the N3IWF/TNGF. If a tunnel type is supported by both the UE and the N3IWF/TNGF, the SMF indicates the tunnel type to the N3IWF/TNGF and the UE, i.e., invokes Namf\_Communication\_N1N2MessageTransfer Request (N2 Info ([tunnel type, tunnel ID]), N1 Info (PDU Session Establishment Accept ([tunnel type, tunnel ID]))) service operation towards the AMF.

4. The AMF sends N2 message ([tunnel type, tunnel ID], PDU Session Establishment Accept ([tunnel type, tunnel ID])) to the N3IWF/TNGF.

5. If tunnel type is received, the N3IWF/TNGF stops initiating Child SA creation procedure for the PDU Session as well as do not apply security for the UP of the PDU Session.

6. The N3IWF/TNGF forwards the PDU Session Establishment Accept ([tunnel type, tunnel ID]) towards the UE over the IPSec SA for NAS signalling. If tunnel type is received, the UE sends and receives data of the PDU Session without IPSec tunnel.

Editor's note: How the N3IWF/TNGF transfers data between the UE and the UPF is FFS.

Editor’s note: SA3 should confirm whether and how to support no encryption for non-IPSec tunnels for user plane data and any potential security related issues, if and when needed.

#### 6.2.Y.3 Impacts on services, entities and interfaces

Editor's note: This clause captures impacts on existing 3GPP services, entities and interfaces.

**SMF:**

- Indicates N3IWF/TNGF to use another tunnel technology to stop IPSec SA creation for UP of PDU Session.

- Indicates UE to use another tunnel technology to stop using IPSec tunnel for UP of PDU Session over non-3GPP access.

**N3IWF/TNGF:**

- Support to use another tunnel technology indicated by network to stop IPSec SA creation with the UE for UP of PDU Session.

**UE:**

- Support “Tunnel Type” capability and necessary tunnel information exchange with network

- Support to use another tunnel technology indicated by network to stop use IPSec tunnel for UP of PDU Session over non-3GPP access.

**\* \* \* \* End of Changes \* \* \* \***