**3GPP TSG-SA3 6G Workshop**

**Conference Calls, 6 - 7 August 2025**

**Source: Johns Hopkins Applied Physics Laboratory**

**Title: New Work Task on DNS Security for 6G Core Network**

**Document for: Discussion**

Title: Study on DNS Security for 6G Core Networks

Potential target Release: Rel-20

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | X | X |  | X |
| Don't know |  |  |  |  |  |

# 2 Justification

As the 6G core network architecture evolves, the core network security specifications should also evolve to cover security aspects of DNS. Historically, SA3 specifications have minimally addressed DNS security within the Core Network. However, the overall security of a Core Network system depends on security of the DNS.

A Domain Name System (DNS) provides essential operational functions for the Core Network. A DNS is vulnerable to attacks and requires controls to protect against forged or manipulated DNS data. Also, DNS vulnerability is exacerbated by inter-domain operational scenarios, whereby mutual trust across operational domains is not established.

SA3 are responsible for security specifications for 3GPP systems, so it’s important for SA3 to study this topic to ensure that DNS protocols and profiles are sufficiently specified for inter-vendor and inter-domain operation.

# 3 Objectives

The objectives of this study are to identify key issues, propose solutions, and recommend specifications required for DNS security in 6G Core Networks. The scope includes DNS protocols and profiles for 6G Core NFs.

The work tasks for this study are:

* WT1: Identify the threats and operational challenges for intra-domain and inter-domain DNS used by 6G Core NFs.
  + Study methods and protocols that support decentralized trust establishment and management to secure DNS.
* WT2: Identify solutions to mitigate the threats identified in WT1.
* WT3: Recommend specifications that are required to support solutions identified in WT2.

# 4 Aspects that involve other WGs

None.