**3GPP TSG-SA WG6 Meeting #69 S6-254362**

**Wuhan, China 13th – 17th October 2025 (revision of S6-254xxx)**

**Source: KPN N.V**

**Title: Update to Solution #19 Cross-PLMN/Domain AIMLE client discovery, selection, monitoring**

**Spec: 3GPP TR 23.700-83 1.0.0**

**Agenda item: 9.4**

**Document for: Approval**

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**1. Introduction**

This contribution completes the procedure for solution # 19 cross-PLMN/domain AIML client discovery, selection and monitoring.

**2. Reason for Change**

Solution # 19 introduced Cross-PLMN/Domain AIMLE client discovery, selection, and monitoring feature to TR 23.700-83. The highlevel procedure is also captured in clause 7.19.1.3. However as captured in the Editors Note, the procedure needs to be completed. This contribution completes the procedure inline with the highlevel procedure in clause 7.19.1.3.

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TR 23.700-83 V1.0.0.

\* \* \* First Change \* \* \* \*

## 7.19 Solution #19: Cross-PLMN/Domain AIMLE client discovery, selection, monitoring

### 7.19.1 Solution Description

#### 7.19.1.1 General

In 3GPP TS 23.482 [2], there is currently a capability to discover and select AIMLE clients. Key Issue #3 has identified that cross-domain and cross-PLMN scenarios are not covered in TS 23.482 [2] Release 19. This solution enhances AIMLE client discovery and selection to include cross-domain and cross-PLMN deployments. Figure 7.19.1.1-1 shows the deployment scenario where the AIMLE servers (AIMLE Server-1 and AIMLE Server-2) are in different domain or PLMN and the AIMLE servers in these different domains or PLMN have federation agreement to achieve discovery, selection and monitoring.



Figure 7.19.1.1-1: Use case for cross-domain/cross-PLMN federation

The following enhancements are proposed to enable cross-domain and cross-PLMN discovery, selection, and monitoring:

* Cross-domain and cross-PLMN deployments have AIMLE servers in different domains. When a discovery request fails to find sufficient AIMLE clients, the AIMLE server can discover AIMLE clients from another AIMLE server in another domain and select the desired clients.
* The AIMLE server, as described in clause 8.13 of 3GPP TS 23.482 [2], can monitor AIMLE clients in its own domain/PLMN. To monitor AIMLE clients in another domain/PLMN, the AIMLE server can subscribe to the AIMLE server in that other domain/PLMN to receive status updates about those AIMLE clients.
* Based on the status of AIMLE clients in the current domain/PLMN and notifications received from the other domain/PLMN, the AIMLE server can replace AIMLE clients in the other domain/PLMN with AIMLE clients in the current domain/PLMN when they become available, in order to minimize cost.
* During AIMLE client discovery and selection, the AIMLE server can include in its request to the other AIMLE server (in another domain/PLMN) specific AIMLE clients that have migrated, to enhance service continuity.

7.19.1.2 Procedure



Figure 7.19.1.2-1: Cross-domain/cross-PLMN AIMLE client discovery, selection and monitoring

1. A VAL server sends an AIMLE client selection subscription request to the AIMLE server as described in step 1 of clause 8.13.2.2 of 3GPP TS 23.482 [2]. The VAL server includes in its subscription an indication that federation with other AIMLE servers in another domain is permitted. It may also include criteria for federation such as number or ratio of AIMLE clients to be discovered from partner federation domain, to limit the number of AIMLE clients to a specified number in order to limit the cost incurred due to federation. It can also specify the waiting time in monitoring AIMLE clients in the current domain before discovering AIMLE clients in another domain, allowing the AIMLE clients to wait the specified duration before initiating discovery in the federated domain to further limit federation costs.
2. The AIMLE server sends the AIMLE client selection subscription response to the VAL server as described in step 3 of clause 8.13.2.2 of 3GPP TS 23.482 [2].
3. The AIMLE server monitors AIMLE clients determine whether they fulfil the selection criteria as per step 4 of clause 8.13.2.2 of 3GPP TS 23.482 [2].
4. The AIMLE Server obtains the identifiers of the AIMLE clients from the monitoring and selects the clients that fulfil the selection criteria and remove the AIMLE clients that do not fulfil the selection criteria as per step 5 of clause 8.13.2.2 of 3GPP TS 23.482 [2].
5. The AIMLE server determines that there are insufficient AIMLE clients in the current domain either because there were not enough AIMLE clients fulfilling the criteria or because previously qualifying AIMLE clients cease to fulfil the criteria.
6. The AIMLE server, when cross-domain/cross-PLMN federation is enabled, identifies an AIMLE server in another domain/PLMN to federate for AIMLE client selection. The AIMLE servers in different domains, based on federation agreement, can either be preconfigured in the AIMLE server or stored in a central ML repository where different domains/PLMNs makes information about AIMLE servers in their domain make available as shown in Figure 6.2.1-2 of clause 6.2.
7. The AIMLE server determines the discovery requirements based on the request in step 1 and missing AIMLE clients in step 5, send an AIMLE clients discovery request to the AIMLE server in the other domain, and receives the AIMLE clients that fulfill the provided AIMLE client discovery criteria from the AIMLE server in the other domain.
8. The AIMLE server establishes an AIMLE client selection subscription with the AIMLE server in the other domain. The AIMLE server sends AIMLE client selection subscription request, including in the selection criteria, the missing gap between the request in step 1 and the unavailable AIMLE clients from step 5, and it receives the subscription response from the AIMLE server in the other domain. The AIMLE Server in the current domain also delays selection of AIMLE clients in the other domain if an expected availability time of one or more AIMLE clients in the current domain is less than the waiting time provided in step 1.
9. The AIMLE server in the other domain monitors AIMLE clients fulfilling the criteria from step 8. The AIMLE server in the other domain interacts with the NEF and/or SEAL services (including SEALDD) within its own domain to establish monitoring as per step 4 of clause 8.13.2.2 of 3GPP TS 23.482 [2].

The AIMLE server in the other domain may determine the application QoS parameters (e.g. bandwidth, latency, jitter) for the AIML traffic session between the VAL server and the selected AIMLE client and configure the AIML traffic session(s) via SEALDD (Sdd\_RegularTransmission API) or NEF services (AfSessionWithQoS API) in accordance with step 5 of clause 8.13.2.2 of 3GPP TS 23.482 [2]. When the AIMLE clients no longer meet the criteria, the QoS adjustment is reversed as described in step 5 of clause 8.13.2.2 of 3GPP TS 23.482 [2].

1. The AIMLE server receives the notification from the AIMLE server in the other domain regarding selected and reselected AIMLE clients.
2. Monitoring of AIMLE clients continues in the AIMLE server in the current domain and the AIMLE server in the federating domain. During monitoring, the AIMLE clients from the other domain can be replaced by the AIMLE clients from the current domain when suitable AIMLE clients become available locally.
3. The AIMLE server notifies the consolidated AIMLE client selection status to the VAL server after selecting the required AIMLE clients, including those from the other domain. The AIMLE server, in its notification, includes the AIMLE clients selected from both the current domain and other domain.

### 7.19.2 Architecture Impacts

In order to enable AIMLE Servers in different domains to interact and discover each other, the architectural change, as showen in Figure 6.2.1-2 of clause 6.2, is required. AIMLE client discovery and selection are needed between AIMLE servers in different domains to discover and select AIMLE clients in another domain.

### 7.19.3 Corresponding APIs

Editor's Note: The corresponding APIs are FFS.

### 7.19.4 Solution Evaluation

Editor's Note: The evaluation of the solution is FFS.

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