[SA1#99e, LS S1-222074] LS on Support for managing slice for trusted third-party owned application - Version 0.0.1

SA1

Title: LS on Support for managing slice for trusted third-party owned application

Response to:

Release: Rel-18

Work Item: FS_NSCALE

Source: 3GPP TSG SA WG6#49-e

To: SA2, SA1

Cc:

Contact person: Sapan Shah

sapan.shah@samsung.com

Send any reply LS to: 3GPP Liaisons Coordinator, mailto:3GPPLiaison@etsi.org

Attachments: None

1 Overall description

SA6 is currently studying the Network Slice Capability Exposure for Application Layer Enablement as part of a Release 18 Study Item (FS_NSCALE). As a part of the study, a key issue (refer to KI#10 in 3GPP TR 23.700-99) is agreed which focuses on required application level support for managing trusted third-party owned application(s). The key issues considers a case (clause 5.7.1 of 3GPP TR 22.835) where the third-party offers its consumers different contract qualities level (e.g. gold, silver and bronze), and needs to provide high priority to the higher level of contract qualities. A solution was also discussed in clause 6.9 of TR 23.700-99.

SA6 analysed that as per clause 4.2.11.2 of 3GPP TS 23.502, upon reaching maximum UEs slice quota, the 5GC may reject the registration request on the S-NSSAI from the higher quality level customer which may not be desirable by the trusted third party.

SA6 asks SA2:

Q:1: Does SA2 have an existing mechanism where an AF can manage its UEs with different qualities/priority level within a slice?

Q:2: If no mechanisms exist, would SA2 consider adding a mechanism to allow an AF to manage this behaviour upon reaching threshold on maximum slice quota?

SA6 asks SA1:

Q:3: Does SA1 have specific requirement on managing UEs with different qualities/priority level within a slice?

1.1 China Mobile's draft reply [S1-222189, S1-221291]

The 5G system shall allow the operator to create, modify, and delete a network slice.

The 5G system shall allow the operator to define and update the set of services and capabilities supported in a network slice.

The 5G system shall allow the operator to configure the information which associates a UE to a network slice.

The 5G system shall allow the operator to configure the information which associates a service to a network slice.

The 5G system shall allow the operator to assign a UE to a network slice, to move a UE from one network slice to another, and to remove a UE from a network slice based on subscription, UE capabilities, the access technology being used by the UE, operator's policies and services provided by the network slice.

The 5G system shall support a mechanism for the VPLMN, as authorized by the HPLMN, to assign a UE to a network slice with the needed services or to a default network slice.

The 5G system shall enable a UE to be simultaneously assigned to and access services from more than one network slice of one operator.

Traffic and services in one network slice shall have no impact on traffic and services in other network slices in the same network.

Creation, modification, and deletion of a network slice shall have no or minimal impact on traffic and services in other network slices in the same network.

The 5G system shall support scaling of a network slice, i.e. adaptation of its capacity.

The 5G system shall enable the network operator to define a minimum available capacity for a network slice. Scaling of other network slices on the same network shall have no impact on the availability of the minimum capacity for that network slice.

The 5G system shall enable the network operator to define a maximum capacity for a network slice.

The 5G system shall enable the network operator to define a priority order between different network slices in

case multiple network slices compete for resources on the same network.

The 5G system shall support means by which the operator can differentiate policy control, functionality and performance provided in different network slices.

The 5G system shall support a mechanism to provides different SLA with different UEs within a network slice.

Feedback Form 1: Comments/Questions regarding China Mobile's draft reply

1 – T-Mobile Austria GmbH

DT agrees with the answer, that there are no related requirements. However, different from China Mobile we don't see the need to add such requirements, either.

Let's review what SA6 really asks: They use the example of the maximum UEs slice quota: This is an attribute which is part of the NEST and characterizes the type of network slice. So the scenario would be that within one slice dependent on the UE actually different characteristics for the slice would be applied, making it several slices within one slice. This does not make sense from DT's point of view.

If gold customers should be able to use slices with different characteristics (e.g. have a higher maximum UE quota) they can be assigned to a dedicated slice.

2 – TNO

KPN is questioning the new text. What is SLA related to this? In 5G we have per flow:

5G QoS Flow Descriptions

5G Network can provide the UE, one or more **QoS flow** descriptions associated with a **PDU session** during the PDU **session establishment** or at the PDU **session modification**. Each QoS flow contains the following details:

- A 5G QoS Identifier (**5QI**)
- An Allocation and Retention Priority (**ARP**)
- In the case of a **GBR** QoS Flow
  - Guaranteed Flow Bit Rate (**GFBR**) for both uplink and downlink;
  - Maximum Flow Bit Rate (**MFBR**) for both uplink and downlink;
  - Maximum Packet Loss Rate for both uplink and downlink;
  - Delay Critical Resource Type;
  - Notification Control.
- In the case of **Non-GBR** QoS Flow

- Reflective QoS Attribute (RQA)
- Session-**AMBR**
- UE-**AMBR**

So I would assume that 5QI and ARP already define which flow (from which UE) is rejected first in case max per slice quota are reached. Adding an SLA to this does not make it clear to me. What kind of parameters would be included in the SLA?

1.2 Samsung's draft reply [S1-222027, S1-222028, S1-222029]

The 5G system shall support the creation and enforcement of prioritisation policy for users and traffic, during connection setup and when connected.

NOTE: Prioritisation, pre-emption, and precedence of critical traffic associated with certain priority services (e.g. MPS and Emergency) are subject to regional/national regulatory and operator policies.

The 5G system shall support optimised signalling for prioritised users and traffic where such signalling is prioritized over other signalling traffic.

Based on operator policy, the 5G system shall allow flexible means for authorized entities to create and enforce priority among the different service flows.

Based on operator policy, the 5G system shall allow flexible means for authorized entities to change the priority for a given service flow.

Based on operator policy, the 5G system shall support a real-time, dynamic, secure and efficient means for authorized entities (e.g. users, context aware network functionality) to modify the QoS and policy framework. Such modifications may have a variable duration.

Based on operator policy, the 5G system shall maintain a session when prioritization of that session changes in real time, provided that the new priority is above the threshold for maintaining the session.

Feedback Form 2: Comments/Questions regarding Samsung's draft reply

1 – T-Mobile Austria GmbH

In their discussion paper 028 Samsung refer to use case 5.7 in TR 22.835 and believe it describes such a scenario, which is then also covered in 22.261. However, the UC describes changing from on slice to another, based on application needs and the priorities of different slices for a UE. It is not about different priorities within one slice. The quoted requirements from 6.10.2 cover these aspects of re-assigning UEs to a slice.

Furthermore, the above cited requirements from 22.261 clause 6.8 are about policy control and not really related to slicing. Of course, within a slice, which is from a functionality perspective pretty much the same as a network, you can have different policies for a UE, different QoS, even applying different UAC. But this is not what the question from SA6 is asking.

SA6 uses the example of the maximum UEs slice quota: This is an attribute which is part of the NEST and characterizes the type of network slice. So the scenario would be that on within one slice dependent on the UE actually different characteristics for the slice would be applied, making it several slices within one slice. This is not at all covered by the cited requirements and from DT's point of view does not make sense, either.

Finally, the newly added requirement in 6.8 as per the CR in 029 does not address what was asked for.

Conclusion: DT do not agree with the assessment from Samsung. SA1 does not have related requirements. We do not see a reason to add such requirements.

1.3 DT's draft reply [S1-222251]

Feedback Form 3: Comments/Questions DT's draft reply

1.4 Preferred answer

Feedback Form 4: Which answer does your company prefer as a baseline for the LS reply?

2 Actions

To SA2 and SA1

ACTION: SA6 asks SA2 and SA1 to kindly consider above information and provide answers.

3 Dates of next TSG SA WG 6 meetings

SA6#49-bis-e 22nd June – 1st July 2022 e-meeting

SA6#50 22nd August – 31st August 2022 e-meeting

4 Documents related this discussion:

Table 4:

TO	S1-222074	S6-221484	LS on Support for managing slice for trusted third-party owned application
OUT	S1-222189	China Mobile	Reply LS on Support for managing slice for trusted third-party owned applicat
CR	S1-222191	China Mobile	22.261v18.6.1 CR Requirement on different SLA for different UEs within a sl
OUT	S1-222027	Samsung	[DRAFT] Reply LS on Support for managing slice for trusted third-party own
Cont	S1-222028	Samsung	Discussion on LS on Support for managing slice for trusted third-party owned
CR	S1-222029	Samsung	22.261v18.6.1 Support for managing slice for trusted third-party owned applic
Cont	S1-222251	Deutsche Telekom	Reply LS to S1-222074