**3GPP TSG-CT3 Meeting #121e C3-222195**

**E-Meeting, 6th – 12th April 2022**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.512** | **CR** | **0925** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Correction for remote provisioning |
|  |  |
| ***Source to WG:*** | Huawei, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNPN |  | ***Date:*** | 2022-04-12 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | It is agreed that the PCF can provision PCC Rules to the SMF to restrict the traffic to/from the PVS when both Onboarding Indication is provided by SMF or when it is not provided but the subscription includes the list of allowed services containing both Provisioning Server information and DNS services. |
|  |  |
| ***Summary of change:*** | Add the support that the PCF generates the PCC rules based on the policy data from the UDR. |
|  |  |
| ***Consequences if not approved:*** | Not aligned with stage 2. The User Plane Remote Provisioning cannot be performed base don the policy data. |
|  |  |
| ***Clauses affected:*** | 3.2, 4.2.2.21 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR doesn’t impact the OpenAPI file. |
|  |  |
| ***This CR's revision history:*** |  |

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

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**5G QoS Flow:** The finest granularity for QoS forwarding treatment in the 5G System. All traffic mapped to the same 5G QoS Flow receive the same forwarding treatment (e.g. scheduling policy, queue management policy, rate shaping policy, RLC configuration, etc.). Providing different QoS forwarding treatment requires separate 5G QoS Flow.

**5G QoS Identifier:** A scalar that is used as a reference to a specific QoS forwarding behaviour (e.g. packet loss rate, packet delay budget) to be provided to a 5G QoS Flow. This may be implemented in the access network by the 5QI referencing node specific parameters that control the QoS forwarding treatment (e.g. scheduling weights, admission thresholds, queue management thresholds, link layer protocol configuration, etc.).

**Access Traffic Steering:** The procedure that selects an access network for a new data flow and transfers the traffic of this data flow over the selected access network. Access traffic steering is applicable between one 3GPP access and one non-3GPP access.

**Access Traffic Switching:** The procedure that moves all traffic of an ongoing data flow from one access network to another access network in a way that maintains the continuity of the data flow. Access traffic switching is applicable between one 3GPP access and one non-3GPP access.

**Access Traffic Splitting:** The procedure that splits the traffic of a data flow across multiple access networks. When traffic splitting is applied to a data flow, some traffic of the data flow is transferred via one access and some other traffic of the same data flow is transferred via another access. Access traffic splitting is applicable between one 3GPP access and one non-3GPP access.

**Application detection filter:** A logic used to detect packets generated by an application based on extended inspection of these packets, e.g., header and/or payload information, as well as dynamics of packet flows. The logic is entirely internal to a UPF, and is out of scope of this specification.

**Application identifier:** An identifier, referring to a specific application detection filter.

**Application service provider:** A business entity responsible for the application that is being / will be used by a UE, which may be either an AF operator or has an association with the AF operator.

**Binding:** The association between a service data flow and the QoS Flow transporting that service data flow.

**Binding mechanism:** The method for creating, modifying and deleting bindings.

**Charging control:** The process of associating packets, belonging to a service data flow, to a charging key and applying online charging or offline charging, as appropriate.

**Charging key:** information used by the CHF for rating purposes.

**Detected application traffic:** An aggregate set of packet flows that are generated by a given application and detected by an application detection filter.

**Dynamic PCC Rule:** a PCC rule, for which the definition is provided to the SMF by the PCF.

**Gating control:** The process of blocking or allowing packets, belonging to a service data flow / detected application's traffic, to pass through to the UPF.

**MA PDU Session:** A PDU Session that provides a PDU connectivity service, which can use one access network at a time, or simultaneously one 3GPP access network and one non-3GPP access network.

**Monitoring key:** information used by the SMF and PCF for usage monitoring control purposes as a reference to a given set of service data flows or application (s), that all share a common allowed usage on a per UE and DNN and S-NSSAI basis.

**Operating System (OS):** Collection of UE software that provides common services for applications.

**Operating System Identifier (OSId):** An identifier identifying the operating system.

**PCC decision:** A PCF decision for policy and charging control provided to the SMF (consisting of PCC rules and PDU Session related attributes), a PCF decision for access and mobility related control provided to the AMF, a PCF decision for UE access selection and PDU Session selection related policy provided to the UE or a PCF decision for background data transfer policy provided to the AF.

**PCC rule:** A set of information enabling the detection of a service data flow and providing parameters for policy control and/or charging control and/or other control or support information. The possible information is described in clause 6.3.1.

**PDU Session:** Association between the UE and a Data Network that provides a PDU connectivity service.

**Policy control:** The process whereby the PCF indicates to the SMF how to control the QoS Flow. Policy control includes QoS control and/or gating control.

**Policy Control Request trigger report:** a notification, possibly containing additional information, of an event which occurs that corresponds with a Policy Control Request trigger.

**Policy Control Request trigger:** defines a condition when the SMF shall interact again with the PCF.

**Predefined PCC Rule:** a PCC rule that has been provisioned directly into the SMF by the operator.

**Redirection:** Redirect the detected service traffic to an application server (e.g. redirect to a top-up / service provisioning page).

**Service data flow:** An aggregate set of packet flows carried through the UPF that matches a service data flow template.

**Service data flow filter:** A set of packet flow header parameter values/ranges used to identify one or more of the packet flows in the UPF. The possible service data flow filters are defined in clause 6.2.2.2.

**Service data flow filter identifier:** A scalar that is unique for a specific service data flow (SDF) filter within a PDU session.

**Service data flow template:** The set of service data flow filters in a PCC Rule or an application identifier in a PCC rule referring to an application detection filter in the SMF or in the UPF, required for defining a service data flow.

**Service identifier:** An identifier for a service. The service identifier provides the most detailed identification, specified for flow based charging, of a service data flow. A concrete instance of a service may be identified if additional AF information is available (further details to be found in clause 6.3.1).

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.501 [2], subclause 3.1 apply:

**Onboarding Standalone Non-Public Network**

\* \* \* \* Next Change \* \* \* \*

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

ADC Application Detection and Control

5G-RG 5G Residential Gateway

AF Application Function

AMF Access and Mobility Management Function

API Application Programming Interface

ATSSS Access Traffic Steering, Switching, Splitting

ATSSS-LL ATSSS Low-Layer

BBF Broadband Forum

CHEM Coverage and Handoff Enhancements using Multimedia error robustness feature

CHF Charging Function

DDD Downlink Data Delivery

DDN Downlink Data Notification

DN-AAA Data Network Authentication, Authorization and Accounting

DNN Data Network Name

DS-TT Device-side TSN translator

DTS Data Transport Service

EAS Edge Application Server

ePDG evolved Packet Data Gateway

FN-RG Fixed Network Residential Gateway

GEO Geosynchronous Orbit

GFBR Guaranteed Flow Bit Rate

GUAMI Globally Unique AMF Identifier

HFC Hybrid Fiber Coax

HTTP Hypertext Transfer Protocol

LEO Low Earth Orbit

MA Multi-Access

MEO Medium Earth Orbit

MPTCP Multi-Path TCP Protocol

NAS Non-Access-Stratum

NEF Network Exposure Function

NF Network Function

NID Network Identifier

NRF Network Repository Function

NWDAF Network Data Analytics Function

NW-TT Network-side TSN translator

ON-SNPN Onboarding Standalone Non-Public Network

PCC Policy and Charging Control

PCF Policy Control Function

PFD Packet Flow Description

PFDF Packet Flow Description Function

PMIC Port Management Information Container

PSA PDU Session Anchor

PSAP Public Safety Answering Point

QoS Quality of Service

RTT Round-Trip Time

SDF Service Data Flow

SMF Session Management Function

SNPN Stand-alone Non-Public Network

S-NSSAI Single Network Slice Selection Assistance Information

SUPL Secure User Plane for Location

TNAN Trusted Non-3GPP Access Network

TWAN Trusted WLAN Access Network

TSC Time Sensitive Communication

TSCAI Time Sensitive Communication Assistance Information

TSCTSF Time Sensitive Communication and Time Synchronization Function

TSN Time Sensitive Networking

TSN GM TSN Grand Master

UDM Unified Data Management

UDR Unified Data Repository

UE User Equipment

UL CL UpLink CLassifier

UMIC User plane node Management Information Container

URLLC Ultra Reliable Low Latency Communication

W-5GAN Wireline 5G Access Network

W-5GBAN Wireline BBF Access Network

W-5GCAN Wireline 5G Cable Access Network

W-AGF Wireline Access Gateway Function

\* \* \* \* Next Change \* \* \* \*

#### 4.2.2.21 User Plane Remote Provisioning of UE SNPN Credentials in Onboarding Network

User Plane Remote Provisioning of UE SNPN Credentials when in Onboarding Network is provided through a DNN and S-NSSAI used for onboarding.

When the "PvsSupport" feature is supported, the PCF may make authorization and policy decisions to restrict the use of the PDU Session established to the DNN and S-NSSAI used for onboarding, e.g., by restricting the traffic to/from Provisioning Server address(es) and DNS server address(es) only.

During the PDU session establishment procedure related to a PDU session for onboarding, the SMF shall include the indication that the PDU session is used for onboarding with the "onboardInd" attribute set to true and provide within "pvsInfo" attribute, if available, the information related to the Provisioning Server that provisions the UE with credentials and other data in case the Onboarding Network is an ON-SNPN or the SMF does not provide any indication that the PDU session is used for onboarding to the PCF in case the Onboarding Network is a PLMN or an SNPN.

If the "onboardInd" attribute set to true is received during the SM policy association establishment and the combination of the received DNN within "dnn" attribute and the S-NSSAI within "sliceInfo" attribute corresponds to a restricted PDU session used for UE onboarding the PCF shall omit the subscription data check with UDR. Instead, the PCF shall use the locally stored Onboarding Configuration Data to derive the PCC Rule(s) restricting the access to Provisioning Server and DNS server address(es).

If the "pvsInfo" attribute with the Provisioning Server(s) information is received in the request, the PCF shall use the received information to create the service data flow template of the Provisioning Server(s) in the derived PCC Rule(s). If the "pvsInfo" attribute is not received, the PCF shall construct this service data flow template(s) based on the local configuration stored as part of the Onboarding Configuration Data. In addition, the PCF may create service data flow templates for the DNS server address(es) stored as part of the Onboarding Configuration Data. The "pvsInfo" attribute provided by the SMF may include, for each provided Provsioning Server, the Provisioning Server IP address(es) and/or FQDN(s).

If the "onboardInd" attribute is not received or the "onboardInd" attribute is received but set to false, and Policy Data Subscription information retrieved from UDR for this SUPI, DNN, S-NSSAI combination includes the list of allowed services containing both Provisioning Server information and DNS services, the PCF shall construct the SDF template of the PCC Rule(s) based o the Provisioning Server information and DNS addresses(es) and allow traffic to/from these destinations.

NOTE: How the PCF resolves a Provisioning Server FQDN to an IP address or IP address range with other mechanism than local configuration in the Onboarding Configuration Data is not specified in this release of the specification

The PCF shall select the QoS information of the PCC rule(s) applicable to the User Plane Remote Provisioning service based on policies locally configured at the PCF as part of the Onboarding Configuration Data.

The PCF shall install the derived PCC Rule(s) in the response. The installed PCC Rule(s) shall take precedence over the locally stored PCC Rule(s) in the SMF.

When the SMF detects that the provisioning of PCC Rules failed, the PCC rule error handling procedures shall be performed.

\* \* \* \* End of change \* \* \* \*