**3GPP TSG-SA5 Meeting #136e *S5-212128rev1***

**e-meeting 1 – 10 March 2021**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **28.310** | **CR** | **0010** | **rev** | **-** | **Current version:** | **16.3.0** |  |
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| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Add use case and requirements for switching off UPFs deployed at the edge of the network during off-peak hours to achieve energy savings. |
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| ***Source to WG:*** | Orange, AT&T, Deutsche Telekom, Telefonica |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | EE5GPLUS |  | ***Date:*** | 17/02/2021 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | Use case and requirements for switching off UPFs deployed at the edge of the network during off-peak hours to achieve energy savings are missing. |
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| ***Summary of change:*** | Add a use case and requirements for switching off UPFs deployed at the edge of the network during off-peak hours to achieve energy savings. |
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| ***Consequences if not approved:*** | There would be no use case and requirements for switching off UPFs deployed at the edge of the network during off-peak hours to achieve energy savings. |
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| ***Clauses affected:*** |  |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** | 5.1.3.x (New) |
|  |  |
| ***This CR's revision history:*** |  |

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| **1st change** |

#### 5.1.3.x Switch off edge UPFs during off-peak traffic hours

To meet service demands, e.g. in terms of latency, the Network Operator (NOP) decided to deploy some UPFs at the edge of its core network, i.e. closer to low latency demanding service users than if they were deployed in its central core network.

During off-peak periods and depending on service users’ profile, observed behaviour and habits, the NOP may decide that some of these edge UPFs are no longer justifed. For example, at night, in some locations where no user paying for low latency services is connected, the remaining traffic (not demanding low latency) can be redirected from the edge UPFs to central core UPFs. The NOP may then decide to:

- redirect the remaining traffic to and from these edge UPFs to existing central core UPFs, and

- decommission these edge UPFs, or scale them in/down, or any other action enabling to achieve energy saving, depending on e.g. whether these UPFs are virtualized or not.

The decommissioning of edge UPFs can be done e.g. by administratively putting them out of service so that they can’t carry any more traffic, either with immediate effect or only when no more users are using these UPFs.

The NOP may decide at any time to come back to the initial situation.

Traceability: REQ-SOUPF-FUN-1, REQ-SOUPF-FUN-2.

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| **Next change** |

### 5.2.3 Requirements for energy saving

#### 5.2.3.x Requirements for switch off edge UPFs during off-peak hours

**REQ-SOUPF-FUN-1:** The management service producer responsible for energy saving should have the capability allowing its authorized consumer to collect the traffic load performance measurements of its edge UPFs.

**REQ-SOUPF-FUN-2:** The management service producer responsible for energy saving should have the capability allowing its authorized consumer to administratively prohibit selected edge UPFs from performing services for its users, either with immediate effect or only when no more users are using these UPFs.

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| **End of changes** |