



## Rel-19 topics of interest

Charter Communications

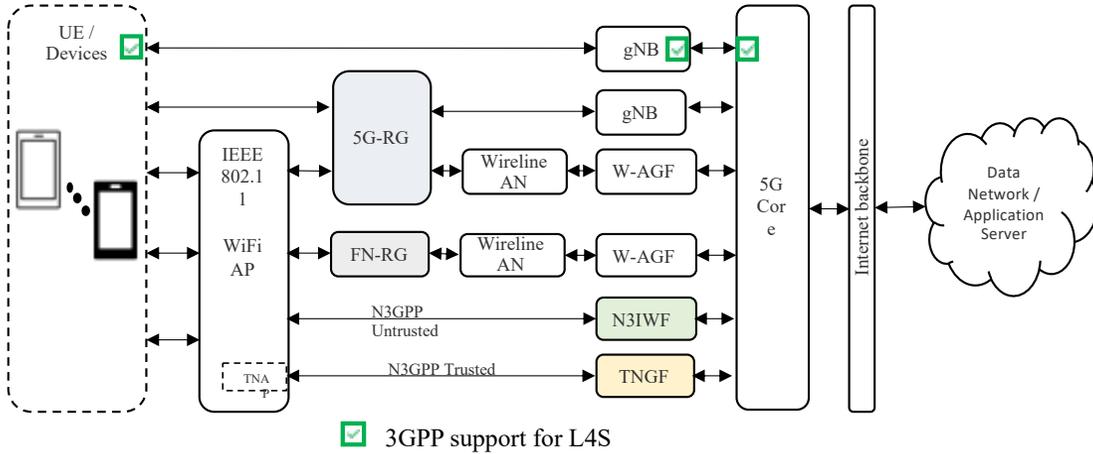
# 3GPP Rel-19 Topics of interest

| Item | Rel-19 Topic  | Potential Gaps   |
|------|---|--|
| #1   | Extension of support for L4S for non-3GPP access connected to 5GC | L4S support for non-3GPP access networks (untrusted, trusted, wireline) over 5GC.  |
| #2   | 5WWC enhancements on visibility of devices                        | Visibility of each device identity to 5GC, allocation of IP address to each device and facilitating differentiated QoS policy to individual device by 5GC.                                 |
| #3   | ATSSS enhancements  | <ul style="list-style-type: none"><li>• ATSSS between two 3GPP accesses (SA1 Rel-19 DualSteer WI).</li><li>• Architectural enhancements to separate MPTCP/MPQUIC Proxy from UPF.</li></ul> |

*This contribution contains some of Rel-19 topics of interest to Charter. An updated list will be provided to the SA Rel-19 workshop at TSG SA #100 meeting.*

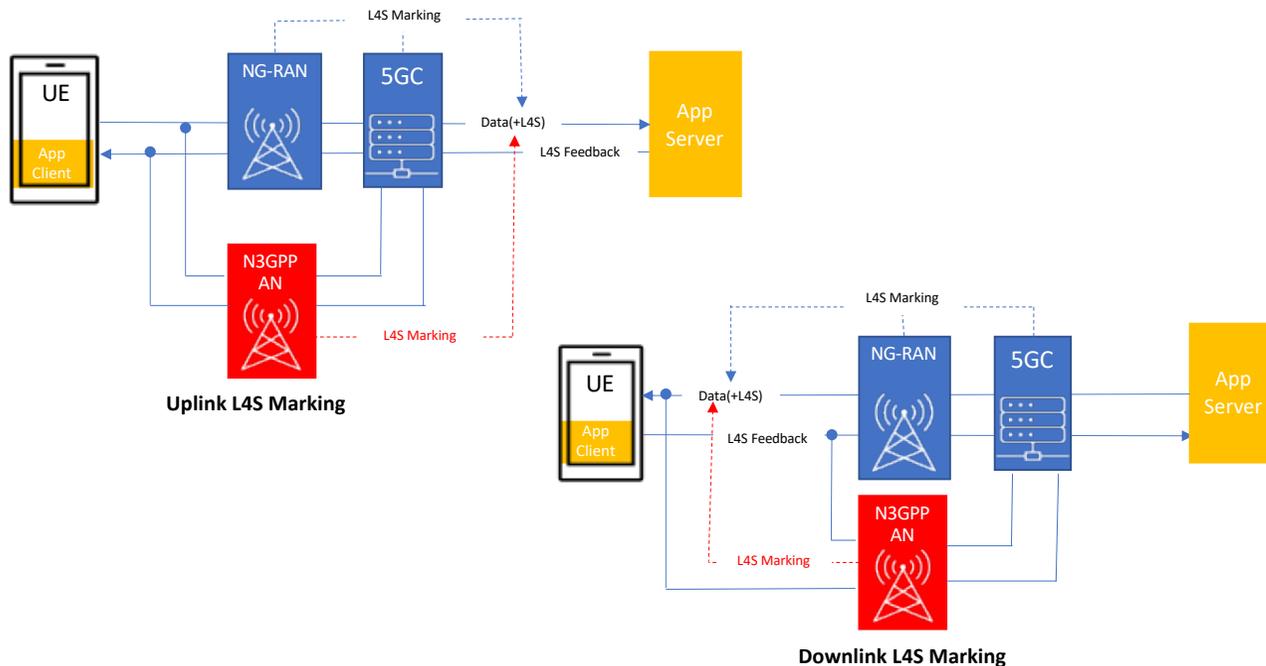
# Extension of support for L4S for non-3GPP access connected to 5GC

Landscape of L4S Support in 3GPP



Ensure overall QoE for delivering low latency media via converged 5GC can be applied for non-3GPP access deployments.

- Enhance 5GC to support non-3GPP access network reporting of congestion information, L4S marking, and support API based exposure information to AF
- Enhance ATSSS to make use of L4S services

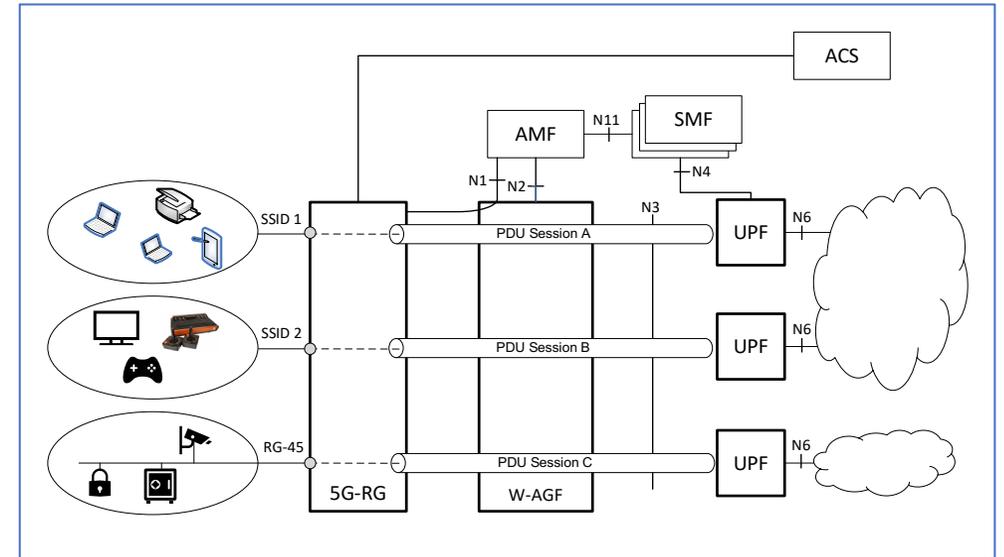


We would like to standardize in Rel-19, non-3GPP access network support for L4S over 5GC such as:

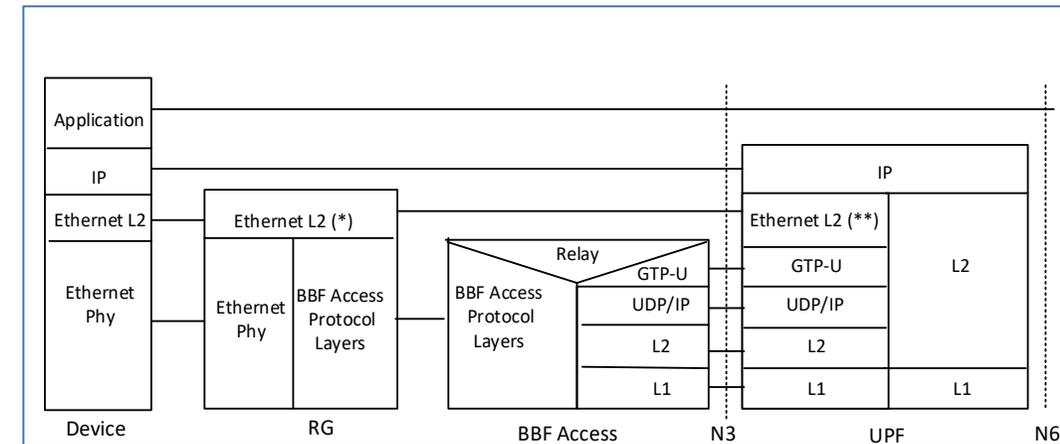
- Perform L4S marking as instructed by SMF/PCF
- Report congestion information to PSA UPF via GTP-U header
- Support API based exposure of network information towards AF

# 5WWC enhancements on visibility of devices

- Rel-18 has introduced a solution for *group of devices* (behind AP/RG) connecting to 5GC and providing differentiated services only for those group of devices. However, the solution is not sufficient for operators as it does not allow following capabilities and service offerings that already exist in their network.
  - Visibility and identification of *each device* (e.g., MAC address).
  - Allocation of IP address(es) to *each device*.
  - Subscriber/end-user and operator control of services and differentiated QoS policy (by customer and operator) to *each device*. Capabilities such as
    - Usage and service visibility: Subscriber to view, monitor usage across applications and devices real time.
    - User-controlled prioritization and Parental control: Subscriber to prioritize, control QoS or block individual device(s) or device(s) of an individual user or applications. Subscriber to control access based on time of day and/or content type.
- Having awareness of each device in 5GC will also allow operators to additional services such as
  - NaaS to third parties for sponsored connectivity (e.g., an 8K movie to a specific device from a streaming provider even though the subscriber's regular subscription does not allow it.)
- We would like to have above key capabilities standardized in Rel-19 in order to fully benefit from converged 5GC architecture.
  - Rel-18 TR 23-700-17 had Solution #8 ("combo Ethernet + IP" PDU type) that would facilitate the use cases above for RG (FN-RG, 5G-RG), but it could not make the TR conclusions.



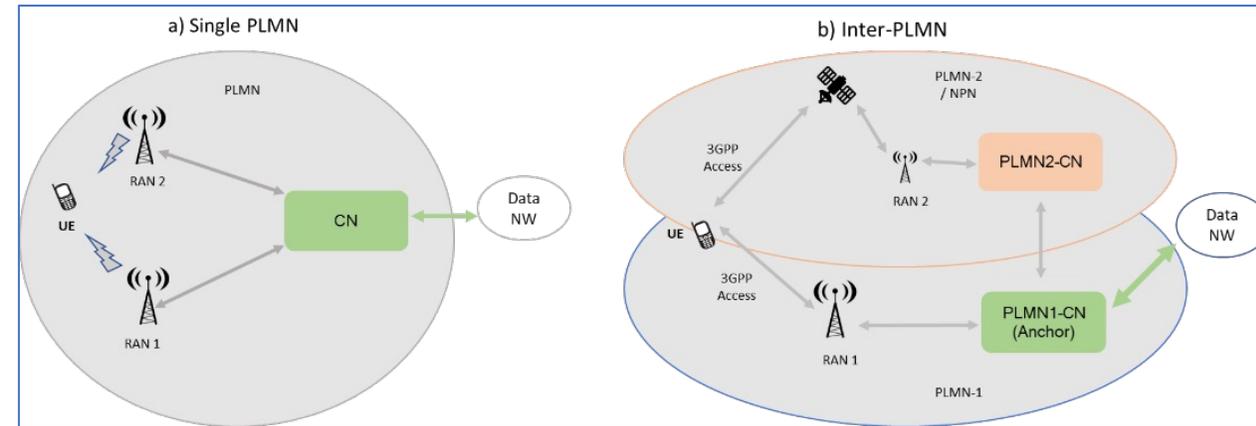
Solution concluded in Rel-18



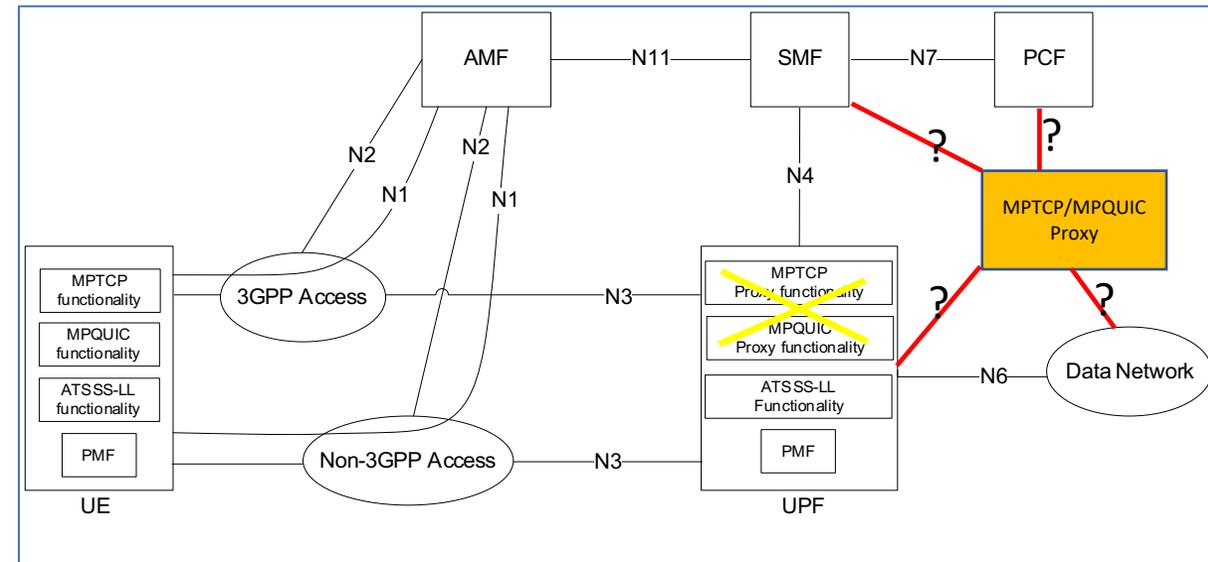
TR 23.700-17, Solution #8, Protocol stack for combo PDU session.

# ATSSS enhancements

- ATSSS between two 3GPP access paths as per SA1 Rel-19 DualSteer WI allowing mainly
  - Autonomous simultaneous data transmission over two types of access networks when UE supports dual radio.
  - Seamless user data aggregation, steering and splitting of the 3GPP legs from PLMN(s), SNPN&PLMN or SNPN(s) via single or multiple subscriptions, over one or two operators.
  - Provide improved low latency and high reliability across multiple types of access networks to meet user QoE, e.g., priority service, time-sensitive traffic, multi-link operation.
- Architectural enhancements to separate MPTCP/MPQUIC Proxy from UPF.
  - Current ATSSS architecture requires MPTCP/MPQUIC Proxy functions to reside in the UPF.
  - Having these proxy functions out of the UPF (e.g., a new NF or an external proxy node) will allow flexibility for operator deployments.
  - Architectural impact for CP signaling and UP data transfer needs to be studied.



TR 22.841, Figure 4.1, DualSteer examples of intra-PLMN and inter-PLMN scenarios



Thank you!