

Motivations for eProSe R18

2021/5/10

Work already in 5G_ProSe in Rel-17

- ProSe Direct Discovery;
- ProSe Direct Communication including unicast, broadcast and group communication;
- One Hop UE-to-Network Relay;
 - PC5 is based on NR technology and Relay UE is also connected to the 5GS via NG-RAN.
- PC5 or Uu Path Selection policy provisioning;
 - How a UE selects a communication path between PC5 reference point and Uu reference point before it establishes connection with another UE or the network.

Motivations for eProSe in Rel-18 (1/4)

- R17 study phase (in both RAN and SA) has been concluded the feasibility of U2U relay (L2, L3)
- But U2U with RAN impact has been excluded in RAN from normative phase due to the limited capacity
- U2U Relay is mainly motivated for public safety use case, and it needs to be supported in R18 as recommended during SA#91-e meeting.

	SA2		RAN2	
	L2	L3	L2	L3
Discovery	Model A, Model B		Studied	
(re-)selection	Studied (Sol#8, Sol#50)		Studied	
Protocol Stack	Studied (Sol#9)	Studied (Sol#10, Sol#32, Sol#49)	Studied	<i>Up to SA2</i>
QoS	Studied (Sol#31, Concluded)	Studied (Sol#31)	<i>No AS impact</i>	<i>Up to SA2</i>
Security	<i>Up to RAN2 and SA3</i>	Up to SA3	<i>Studied</i>	<i>Up to SA2</i>
Service Continuity	<i>N.A.</i>	<i>N.A.</i>	<i>N.A.</i>	<i>N.A.</i>
CP	Studied (Sol#9)	Studied (Sol#8, Concluded)	Dependent on PC5-S design by SA2	<i>Up to SA2</i>

Motivations for eProSe in Rel-18 (2/4)

- In Rel-17, the L2 U2N relay supports only intra-gNB mobility;
- Inter-gNB mobility support is required.

Motivations for eProSe in Rel-18 (3/4)

- some aspects (e.g. Relay MBMS traffic, the non-3GPP based PC5) which already have been supported in the ProSe in EPS are not supported by the Rel-17 5G_ProSe.
- Some stage 1 requirement
 - In clause 6.9.1 of TS 22.261, There can be one or more relay UE(s) (more than one hop) between the network and the remote UE.
 - In clause 6.3.24 of TS 22.261, The 5G system shall support use of a relay UE that supports multiple access types (e.g. 5G RAT, WLAN access, fixed broadband access).
 - In clause 6.9.2.1 of TS 22.261, The connection between a remote UE and a relay UE shall be able to use 3GPP RAT or non-3GPP RAT and use licensed or unlicensed band.
 - In clause 6.2.3 of TS 22.261, it is stated, "The 5G system shall support service continuity for a remote UE, when the remote UE changes from one relay UE to another and both relay UEs use 3GPP access to the 5G core network."

Motivations for eProSe in Rel-18 (4/4)

KI#6: Support Direct Communication path switching between PC5 and Uu which was de-prioritized from Rel-17

- How to enable network-controlled/network-assisted Direct Communication path switching between 5GC Uu path and PC5 path.
- What functional entities and triggers are responsible for Direct Communication path switching and their impact on the corresponding interfaces.
- How service continuity could be preserved during Direct Communication path switching, i.e. Uu to PC5 or PC5 to Uu.
- What are the possible impacts of Direct Communication path switching on QoS handling for ProSe Communication over PC5 path vs. over 5GC Uu path?

Summary - Proposed Objectives for eProSe in Rel-18

- MBS service support for UE-to-Network Relay;
- UE-to-UE relay including one hop and multiple hops;
- Mobility enhancement for U2N relay to cover inter-gNB mobility;
- Multiple Paths for U2N relay and U2U relay.
- Multiple hops for the U2N relay;
- Path Switching support;
- Non-3GPP access PC5 support including Direct Discovery, Direct Communication, relay connected to Non-3GPP access;
- Low power IoT support for UE-to-Network relaying;

TUs required for eProSe in Rel-18

Objectives	TUs for Study	TUs for Normative work
MBS service support for UE-to-Network Relay	1	0.5
UE-to-UE relay	One Hop: 0.5; Multiple Hops: 1	One Hop: 0.5; Multiple Hops: 0.5
Mobility enhancement for U2N relay	0.5	0.5
Multiple Paths for U2N relay and U2U relay	1.5	0.5
Multiple hops for the U2N relay	1	0.5
Path Switching support	2	1
Non-3GPP access PC5 support including Direct Discovery, Direct Communication, relay connected to Non-3GPP access;	2	1
Low power IoT support for UE-to-Network relaying;	2	1
Total	11.5	6

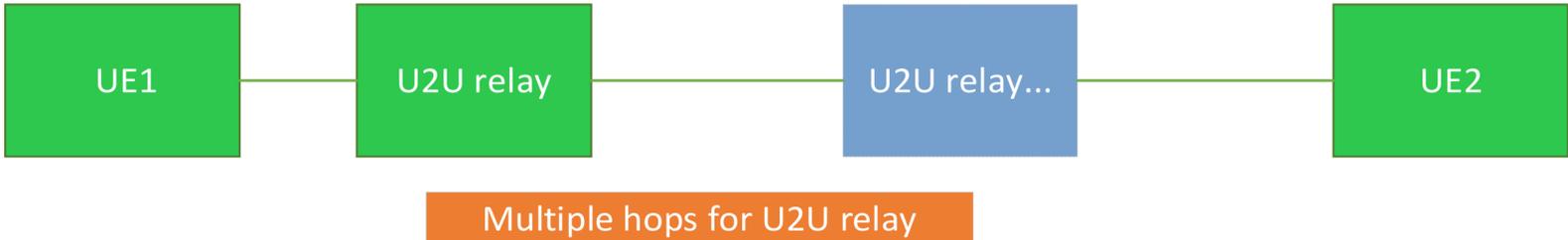
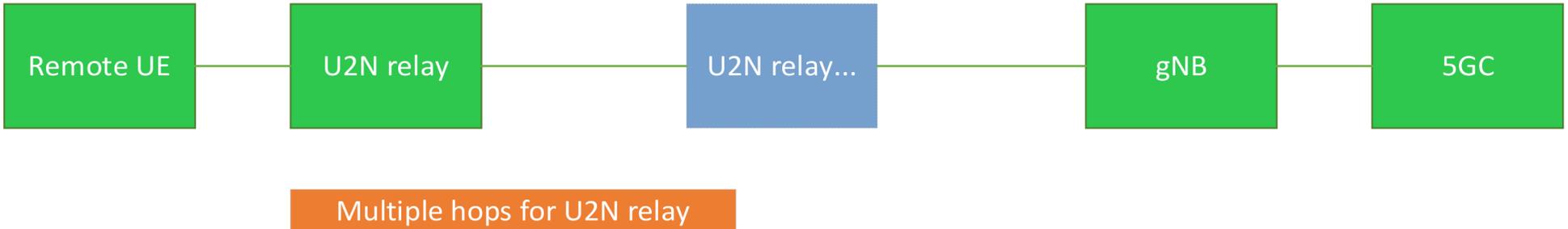
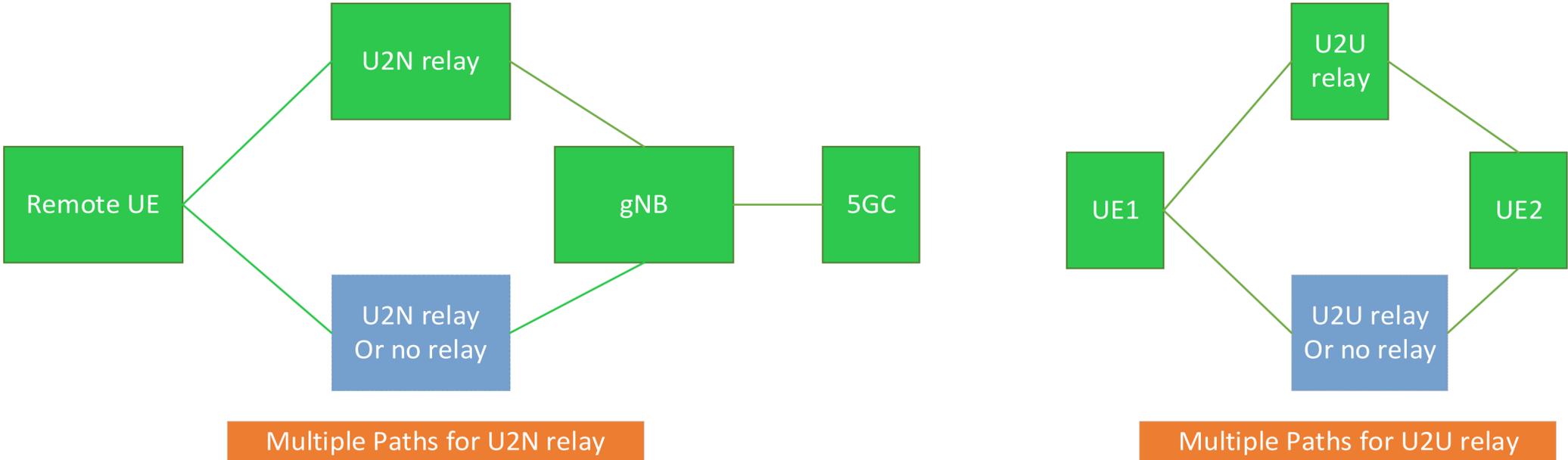
Annex

MBS Service support for U2N relay



Annex

Multiple paths or multiple hops for U2N relay and U2U relay



Thank you

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