# 5GC, EPC interworking without N26 Interface

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Oct 18, 2018 (http://5gblogs.com/2018/10/)

# **5GC, EPC interworking without N26 Interface**

By prasanna (http://5gblogs.com/author/prasanna/) in (http://5gblogs.com/5gc-epc-interworking-without-n26-interface/) 5G Core (http://5gblogs.com/category/5gcore/), 5G System (http://5gblogs.com/category/5gsystem/)

#### **Inter-working Concepts**

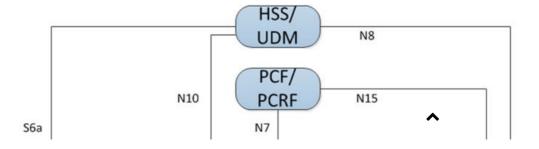
There can be single or dual registration mode UE supports to register with 5GC and EPC **Single Registration Mode:** 

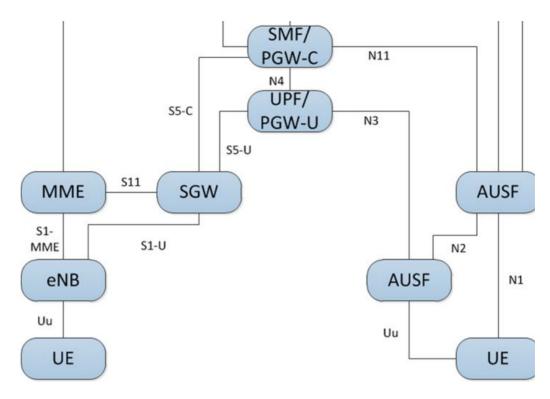
- In single registration mode there is only one active mobility state at any given time.
- UE can be either in 5GC NAS mode or EPC NAS mode.
- UE maps EPC-GUTI to 5G-GUTI during mobility between EPC and 5GC.
- UE keeps 5G context for re-use when moving from 5GC to EPC

#### **Dual Registration mode:**

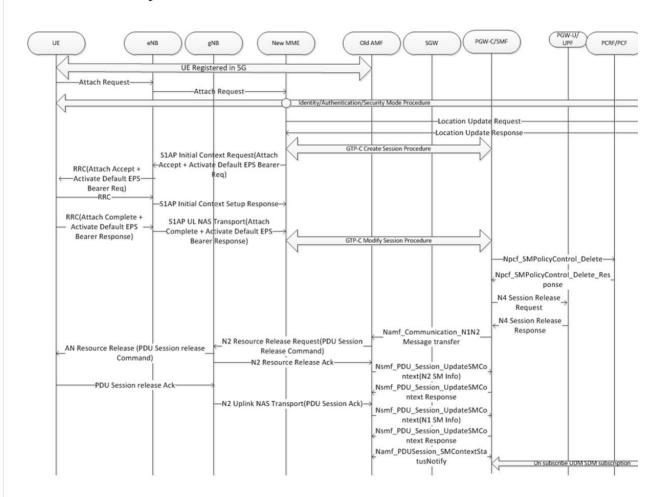
- In Dual registration mode UE keeps independent registration for 5GC and EPC.
- In this mode UE maintains 5G-GUTI and EPC-GUTI independently.
- UE can perform 5GC or EPC re-registration/TAU using corresponding GUTIs.

#### Inter-working architecture without N26 interface





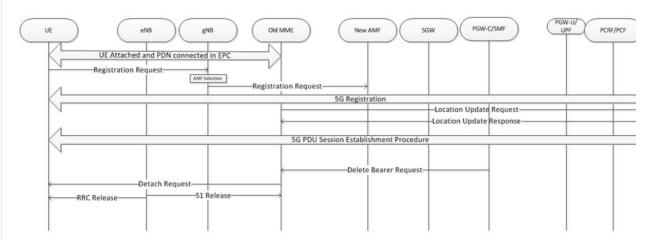
## 5G to EPS mobility without N26 interface flow



Message flow steps

- Initially UE is registered to 5GC and establishes the PDU session.
- In order to move to EPS system, UE triggers Attach request(to preserver IP address) to EPC.
- Alternatively UE sends a Tracking area Update which fails and then UE initiates an Attach procedur case there is no IP address preservation.
- Single Registered mode UEs provide a EPS-GUTI derived from 5GC-GUTI if available else uses IMSI.
- Dual Registered mode UEs provide 4G GUTI(if allocated earlier) with attach request.
- In PDN connectivity request, UE sends Request type as "Handover" to indicate that it is moving from EPS.
- If Request Type is Handover and previous node is 5G AMF then MME is configured to send a location request to HSS/UDM to tell them not to cancel Old AMF registration, as UE may move back to 5GS.
- After successful Attach and PDN connection PGW-C/SMF allocates same IP address as the 5GS.
- And PGW-C/SMF initiates UE De-Registration and PDU Session release from 5GS.

#### EPS to 5G mobility without N26 interface flow



#### Message flow Steps

- Initially UE is Attached to EPC and establishes the PDN Connection.
- In order to move to 5G system, UE triggers Registration and PDU session procedure in 5GS.
- In single registration mode, UE provides Registration Type as "mobility Registration update" and pr GUTI derived from 4G-GUTI.
- UE in Dual Registration mode Provides Registration type as "initial registration" along with a native or SUPI.
- UE will include, NSSAI from current serving PLMN.
- AMF supports interworking with EPC, so it treats this as initial registration and skips PDU session si synchronization with SMF.
- If UE is moving in step 1, then AMF updates UE location in HSS/UDM and tells them not to cancel the registration for the UE if any by setting ULR-Flags.

- During PDU session establishment with 5GS, UE indicates "Existing PDU session" as Request Type t the IP address.
- After Successful Registration and PDU session establishment, PGW-C triggers the PDN connection and detach of the UE from EPS.

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how the dedicated bearers are taken care during handover?

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Vikas Posted on9:27 am - Apr

Nice Article Prasanna.

(http://in.linkedin.cherarchitecture diagram, its AMF instead of AUSF towards the 5GC
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