

LTE Basic Call Flows

By Justin MA

Created: June 2014

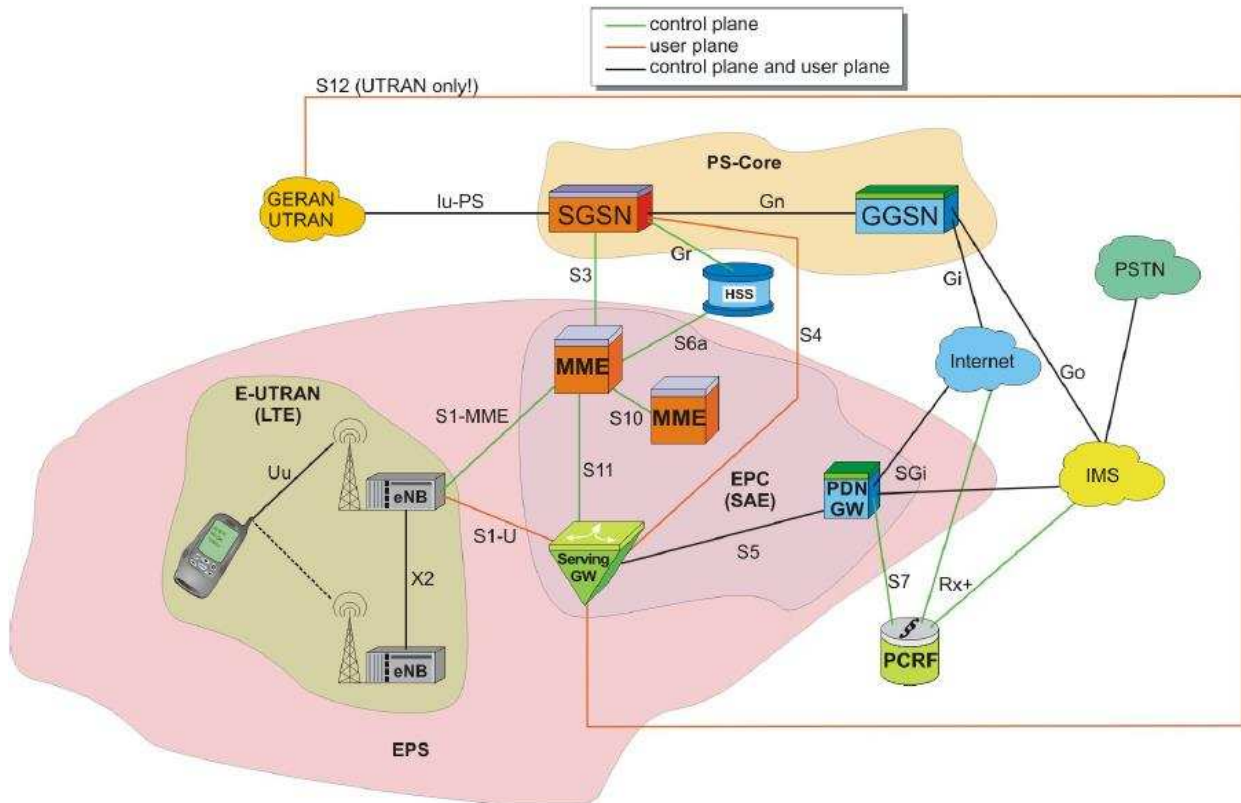
Updated: 2014_1230

Date and Version	Author	Change Note
2014_0630; v1.0	Justin MA	Basic call flows
2014_1230; v1.1	Justin MA	LTE Attach Procedure in EPS and IMS

Topics:

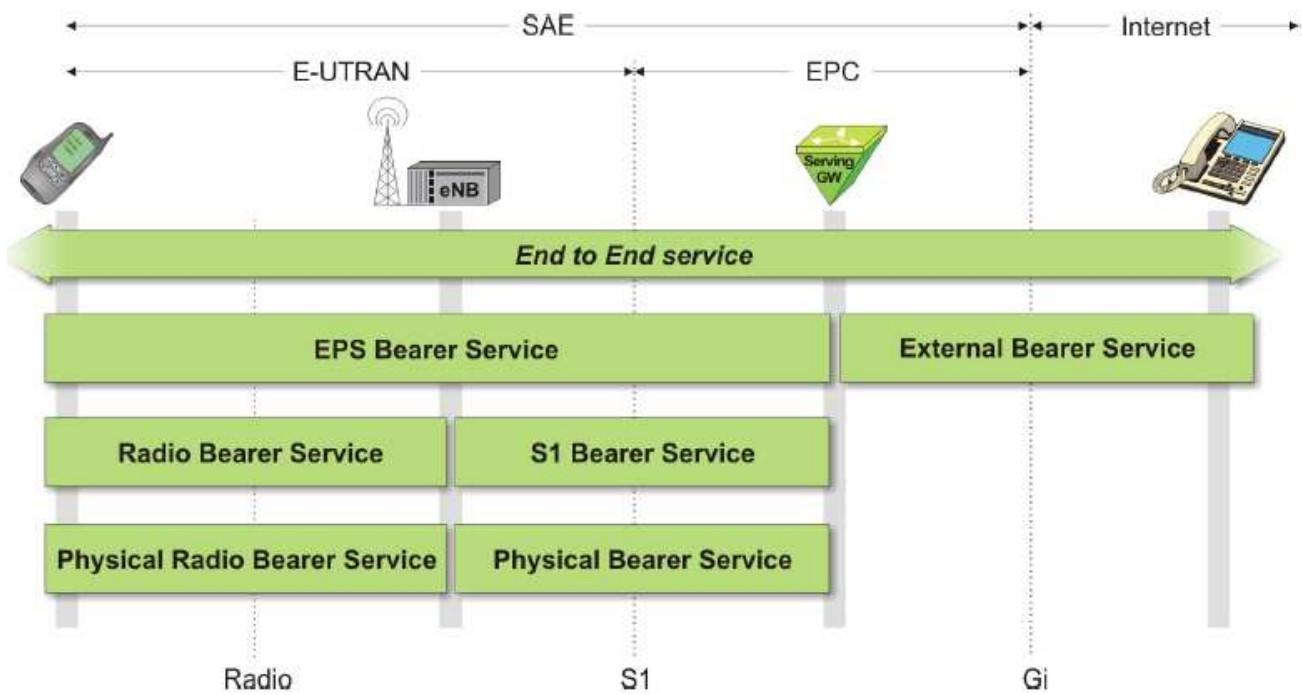
- LTE and SAE networks
- Bearer Architecture
- LTE Attach Callflow in eUu
- LTE Attach Procedure in EPS and IMS
- Summary of Initial Attach Procedures
- Initial Call Setup
- Procedure for IMSI Acquisition
- Procedure for Authentication
- Procedure for NAS Security Setup
- Procedure for Location Update
- Procedure for EPS Session Establishment
- Procedure for EPS entity before Initial Attach
- Procedure for EPS entity after Initial Attach
- UE Initiated Service Request
- Network Initiated Idle to Active Transition
- Active to Idle Transition
- MME Initiated Detach
- UE Initiated Detach

LTE and SAE networks



Ref:
INACON GmbH

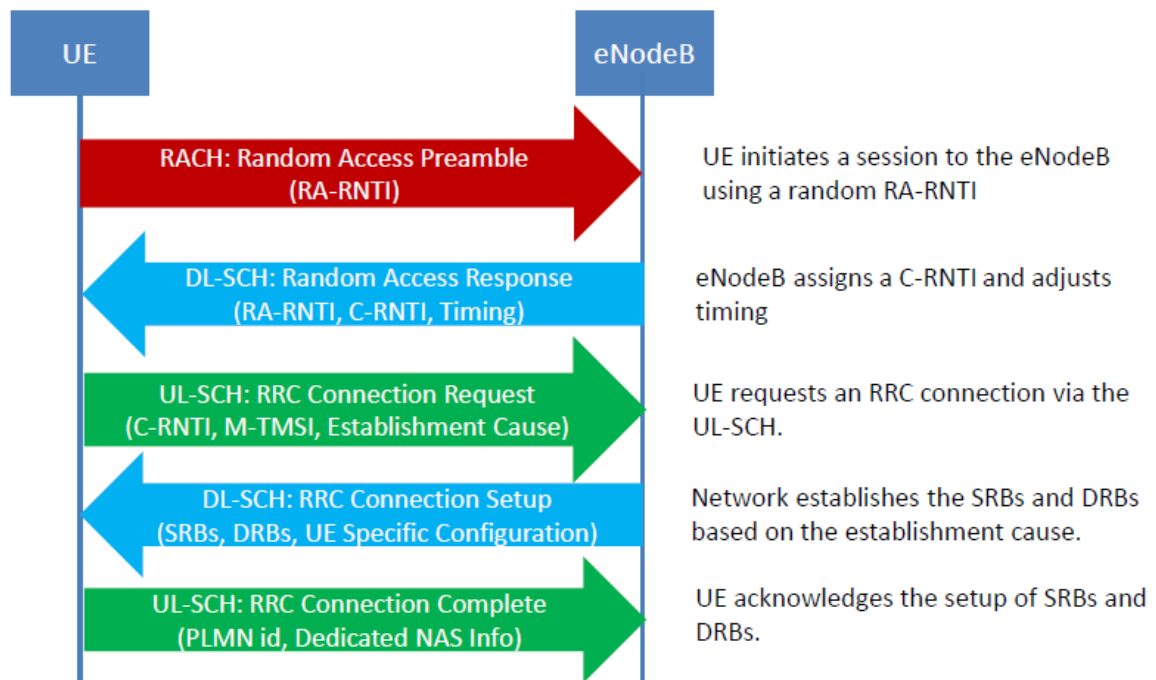
Bearer Architecture



Ref:

INACON GmbH

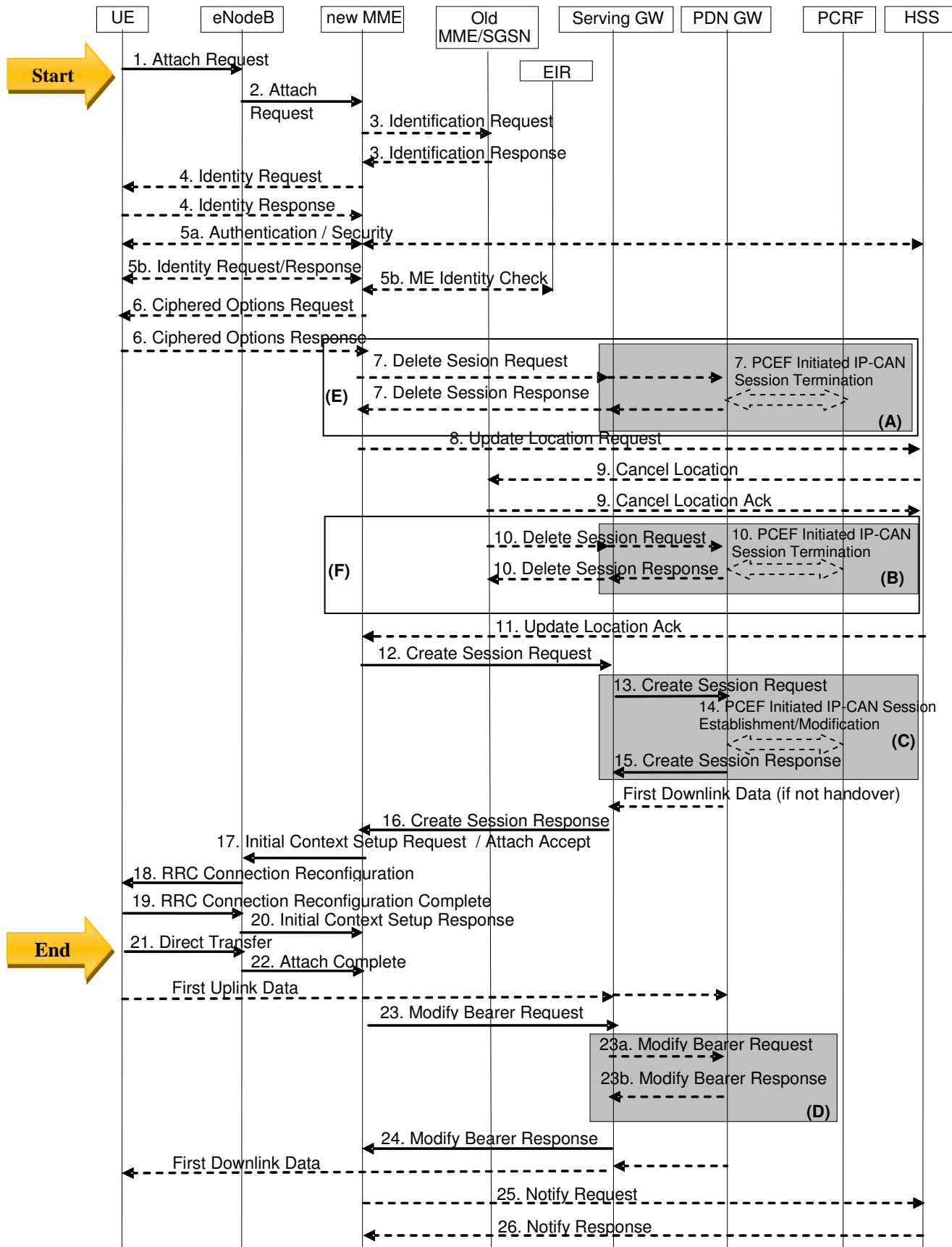
LTE Attach Callflow in eUu



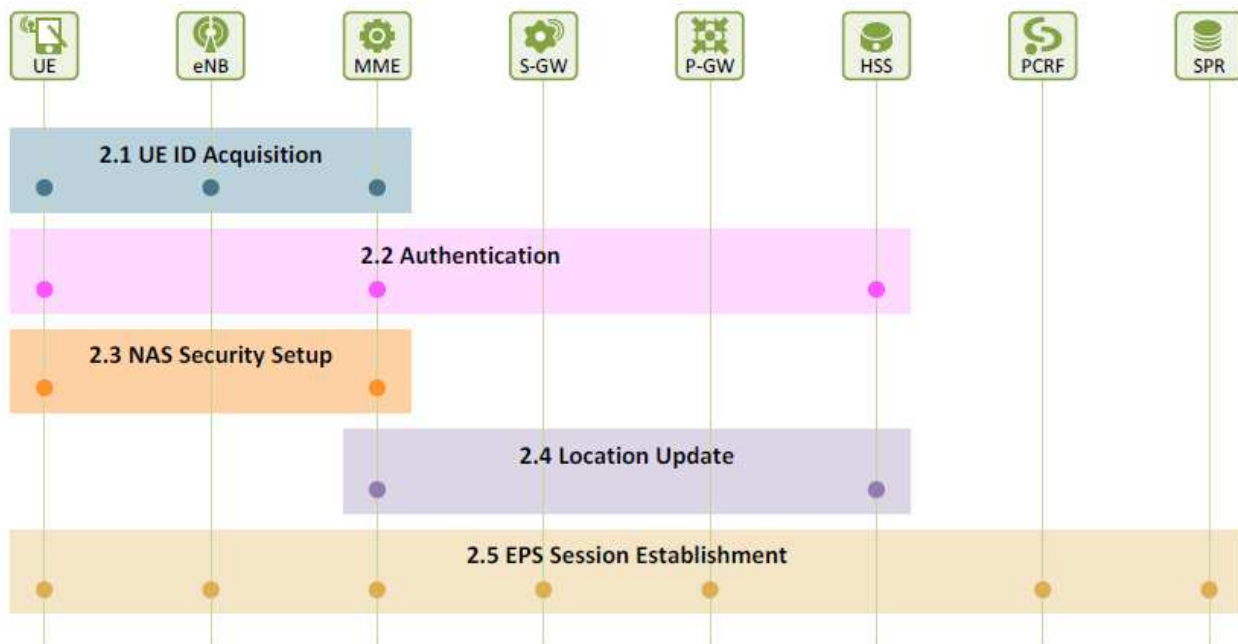
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EventHelix.com

LTE Attach Procedure in EPS and IMS



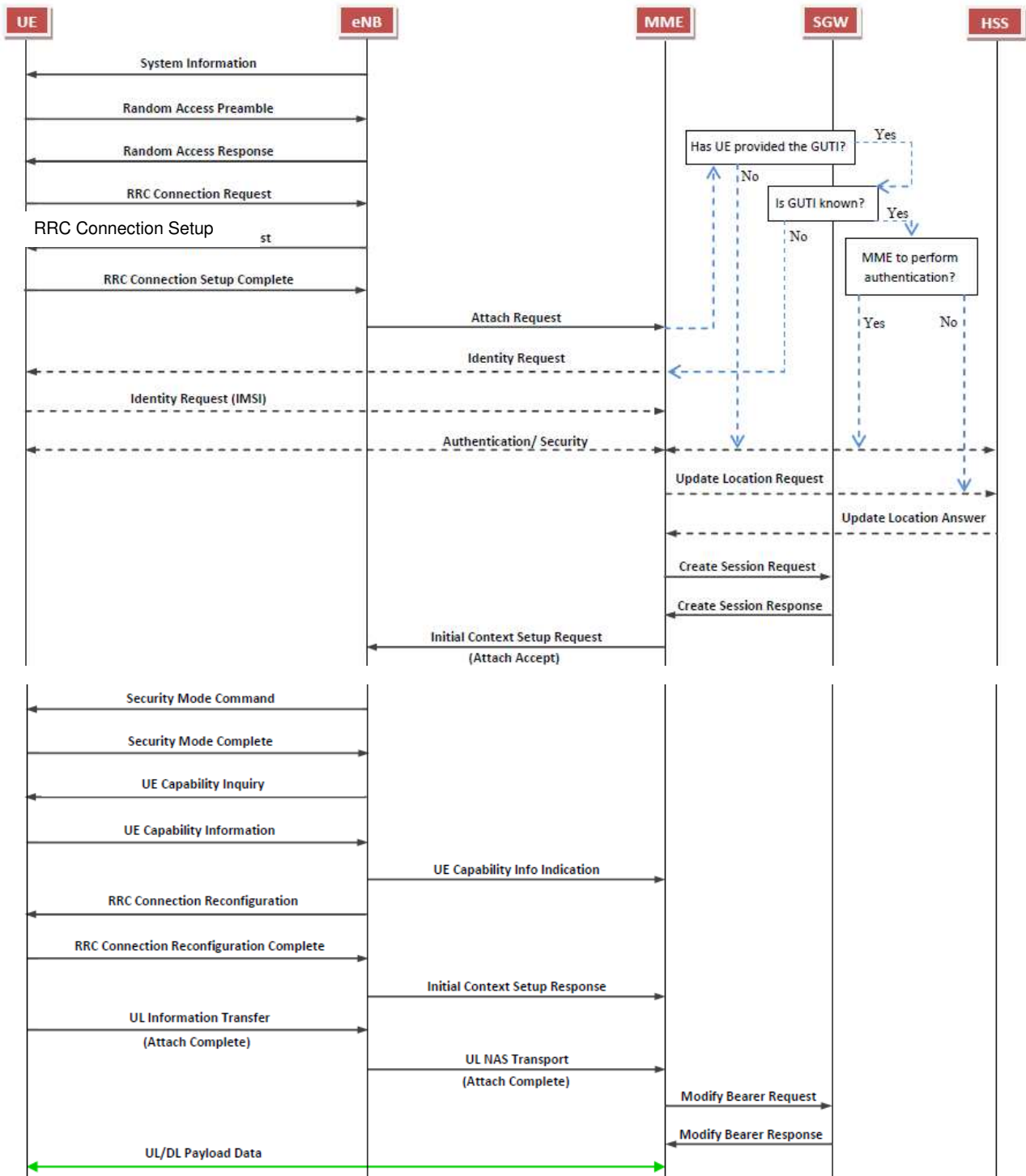
Summary of Initial Attach Procedures



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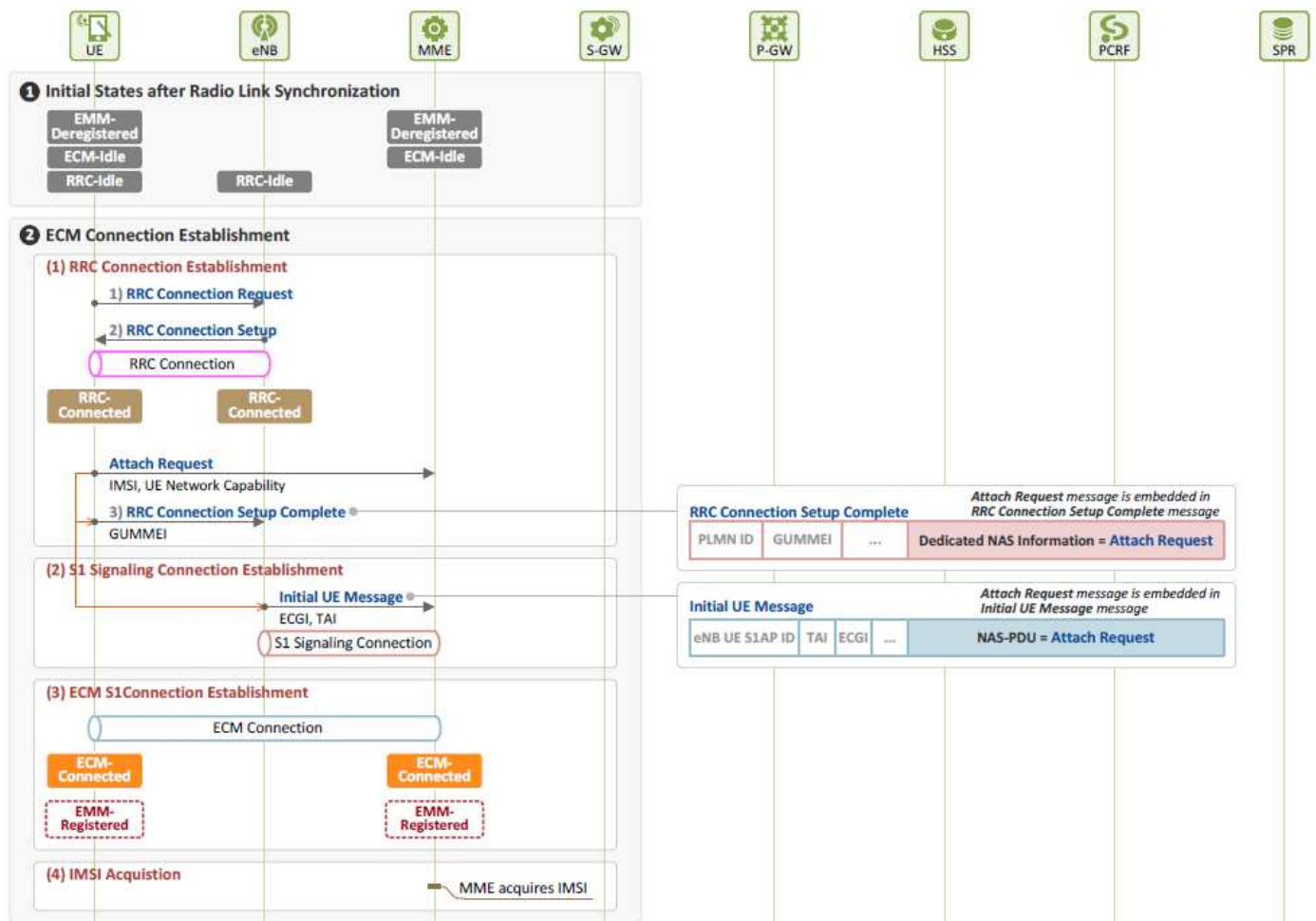
www.netmanias.com

Initial Call Setup



Ref: Ericsson

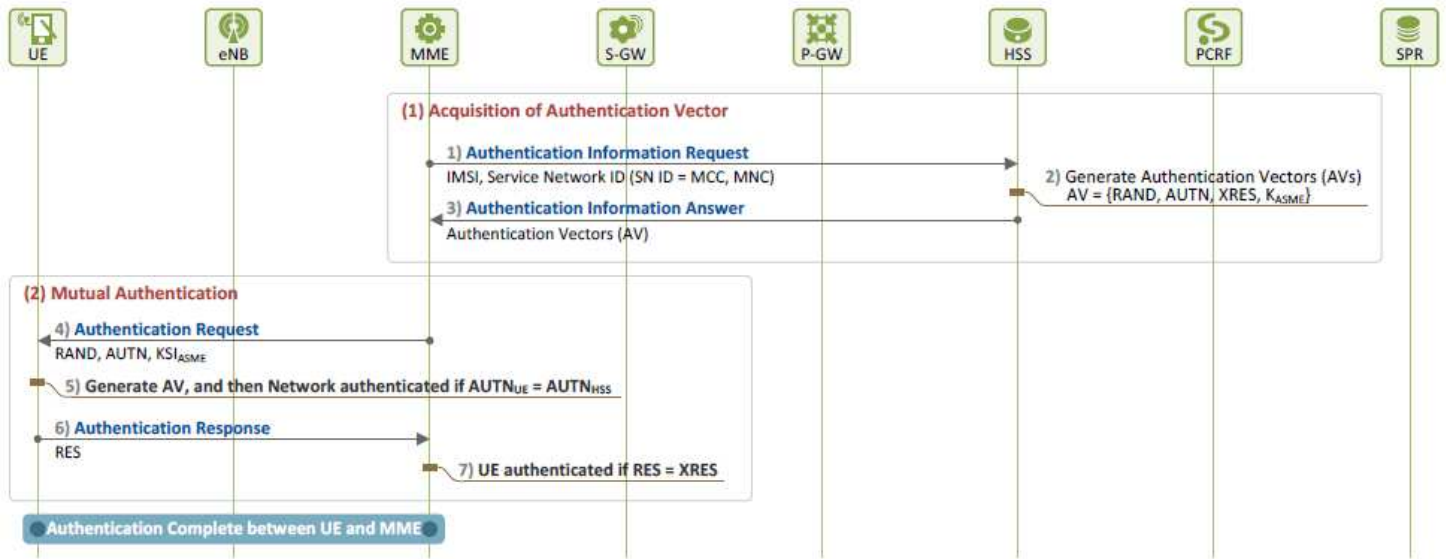
Procedure for IMSI Acquisition



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www.netmanias.com

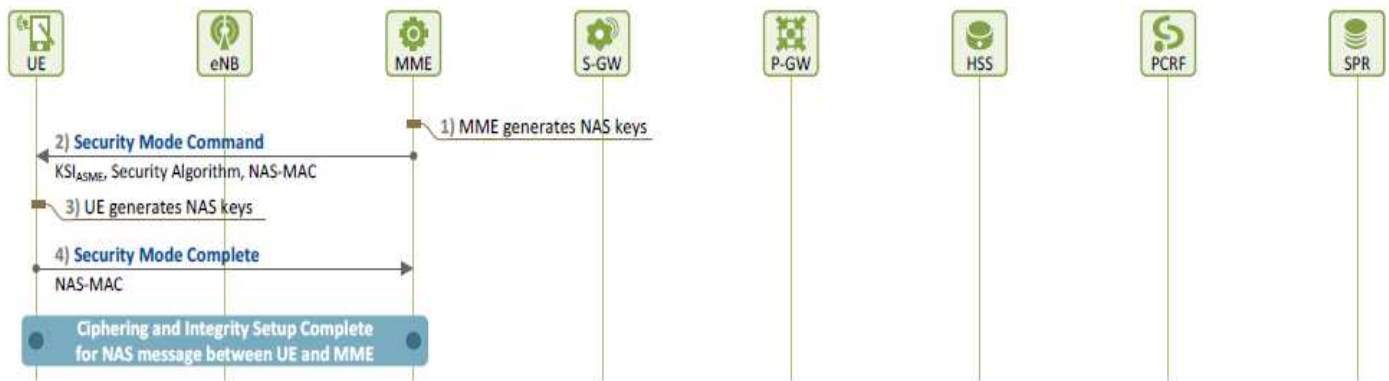
Procedure for Authentication



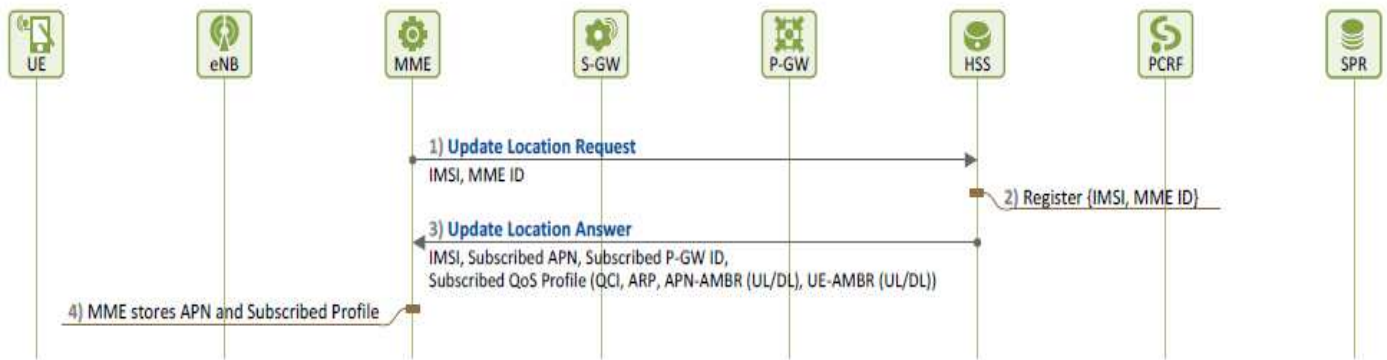
Ref:

www.netmanias.com

Procedure for NAS Security Setup



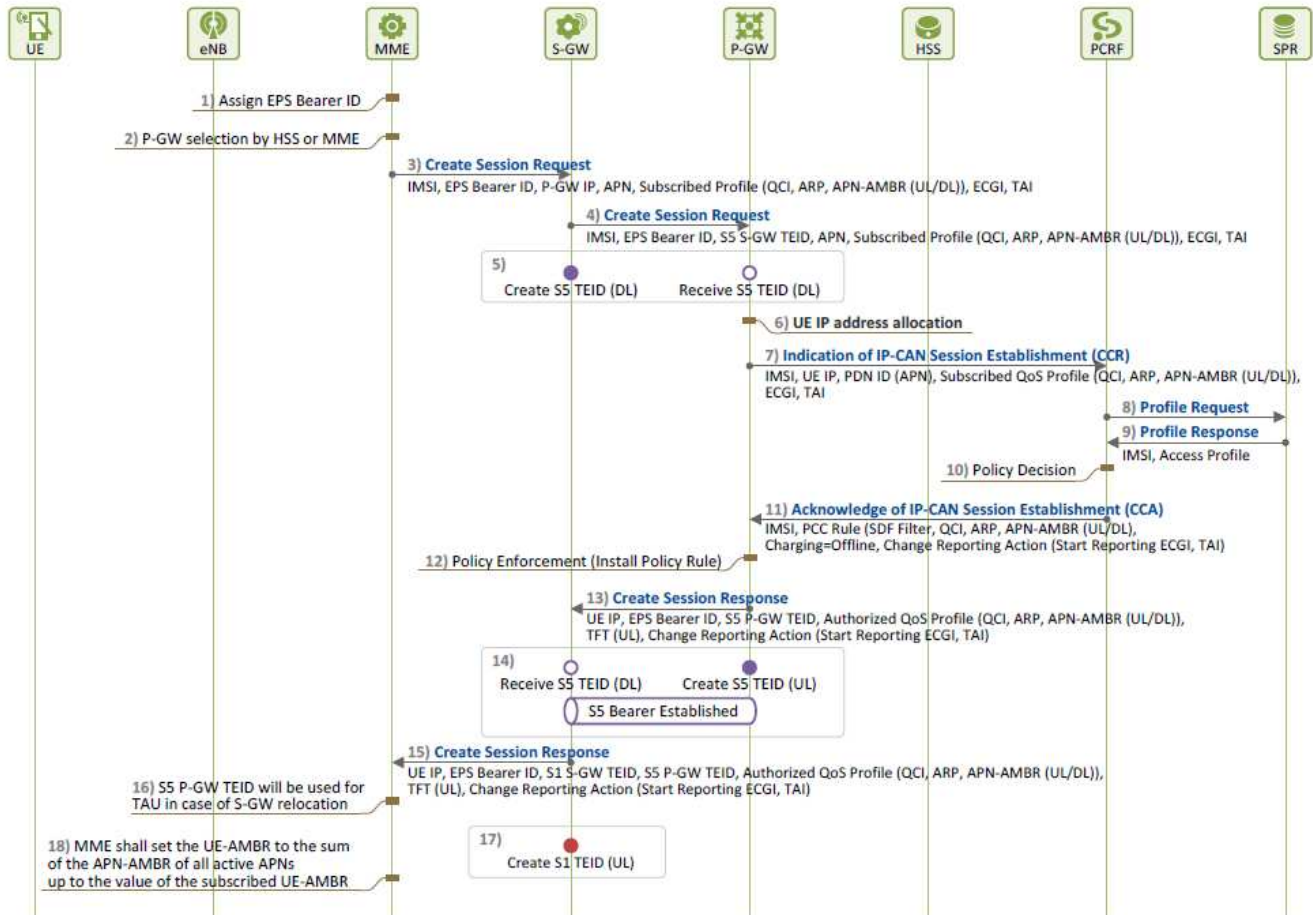
Procedure for Location Update



Ref:

www.netmanias.com

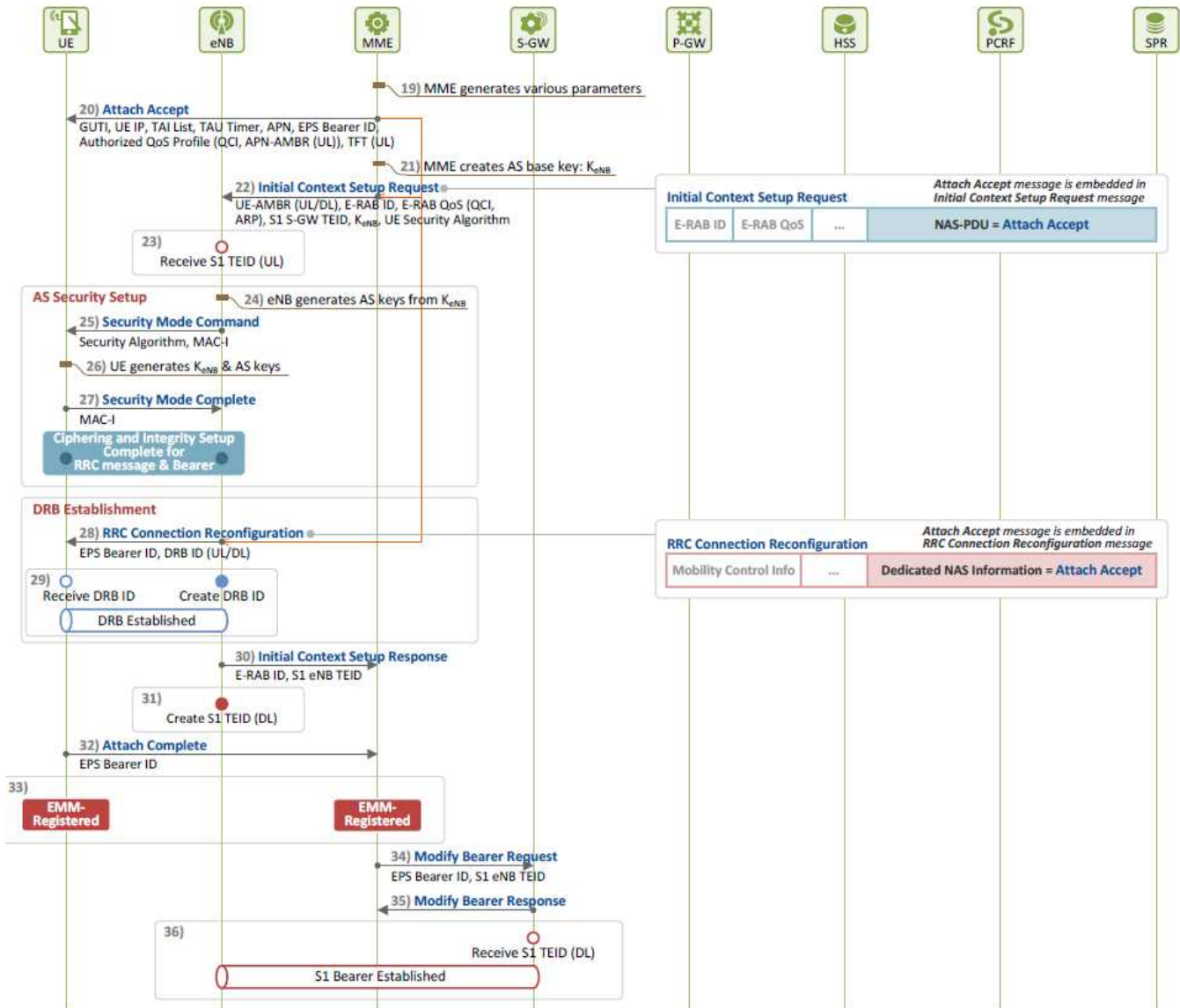
Procedure for EPS Session Establishment (1)



Ref:

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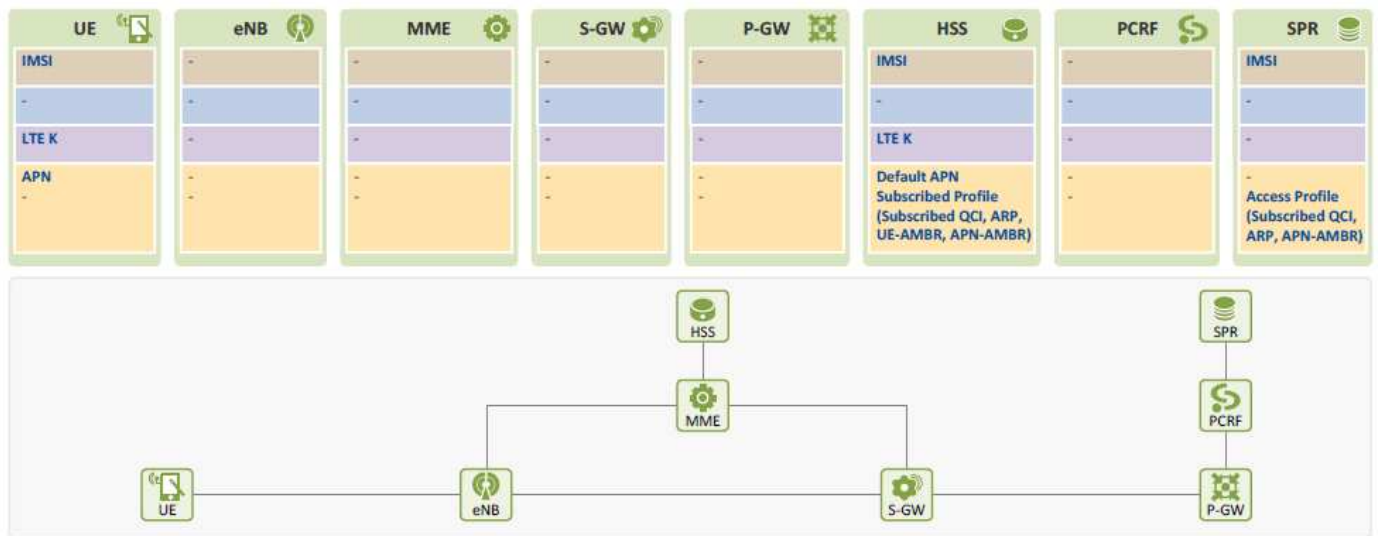
Procedure for EPS Session Establishment (2)



Ref:

www.netmanias.com

Information in EPS entity before Initial Attach

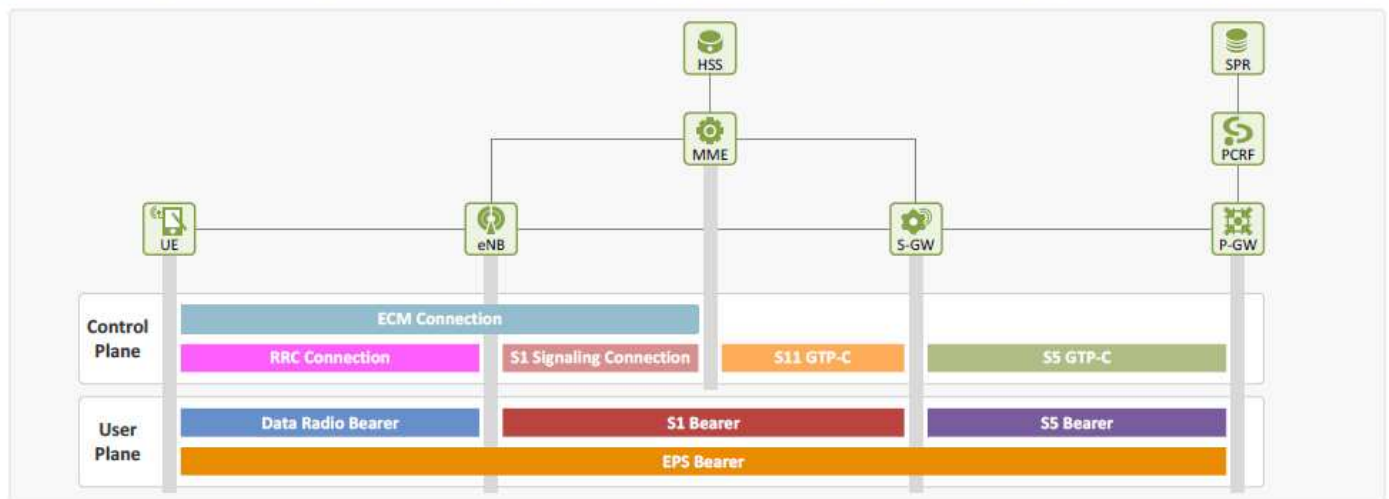


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www.netmanias.com

Information in EPS entity after Initial Attach

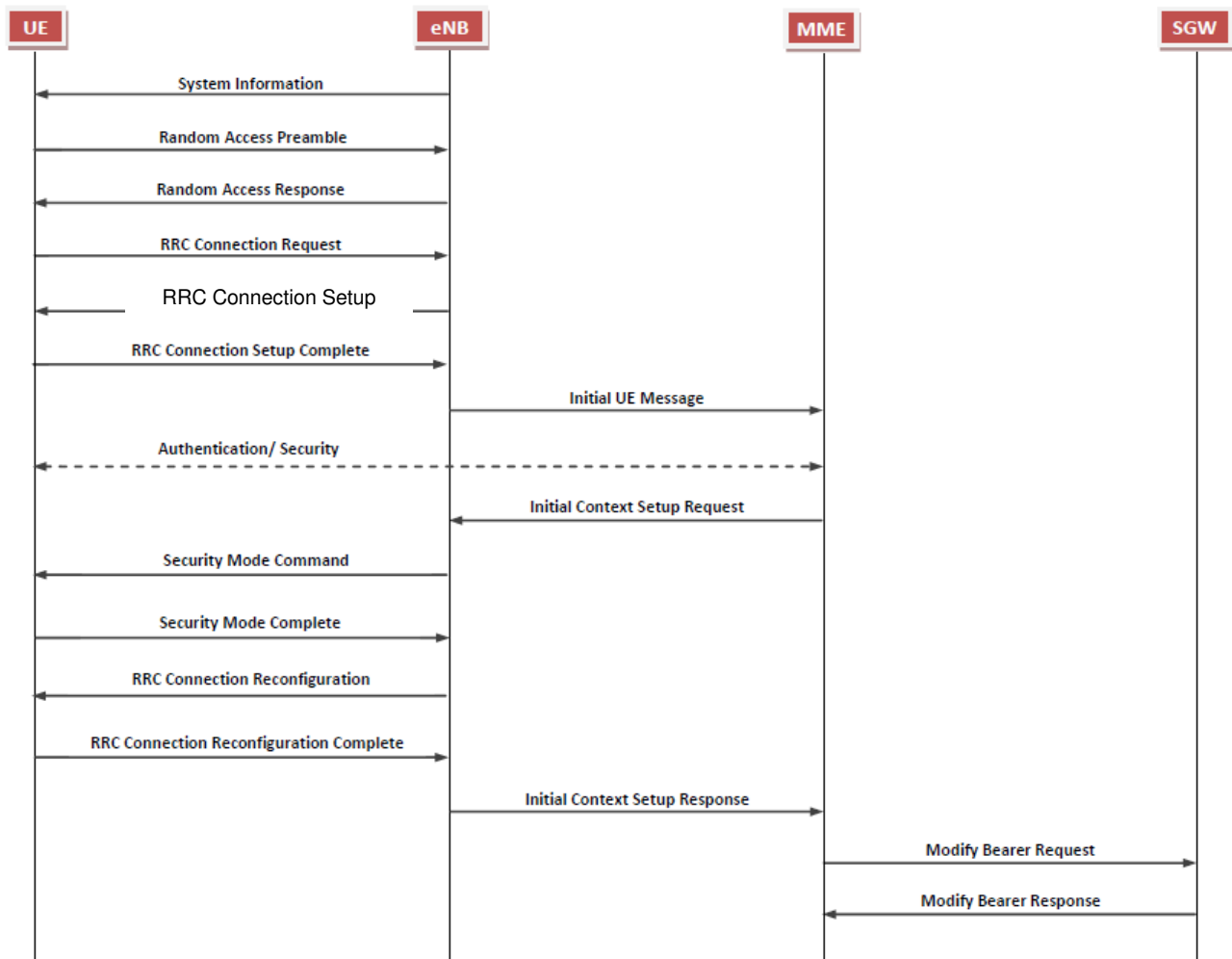
UE	eNB	MME	S-GW	P-GW	HSS	PCRF	SPR
IMSI GUTI UE IP address C-RNTI -	- C-RNTI eNB S1AP UE ID MME S1AP UE ID	IMSI GUTI UE IP addr eNB S1AP UE ID MME S1AP UE ID	IMSI - - - -	IMSI - UP IP address - -	IMSI - - - -	IMSI - UE IP address - -	IMSI - -
ECGI TAI TAI List -	ECGI TAI - -	ECGI TAI TAI List -	ECGI TAI - -	ECGI TAI - -	- - MME ID -	ECGI TAI - -	- - -
LTE K NAS Security Info AS Security Info	- AS Security Info	- NAS Security Info -	- -	- -	LTE K -	- -	- -
APN APN in Use EPS Bearer ID DRB ID -	- EPS Bearer ID DRB ID E-RAB ID S1 TEID (UL/DL) -	Default APN APN in Use EPS Bearer ID -	- APN in Use EPS Bearer ID -	- APN in Use EPS Bearer ID -	Default APN -	- APN in Use -	- -
QCI -	QCI ARP UE-AMBR (UL/DL) -	E-RAB ID S1 TEID (UL/DL) S5 TEID (UL/DL) QCI ARP UE-AMBR (UL/DL) APN-AMBR (UL/DL) -	S1 TEID (UL/DL) S5 TEID (UL/DL) QCI ARP -	S5 TEID (UL/DL) QCI* ARP* -	- -	QCI* ARP* -	- -
APN-AMBR (UL) TFT (UL) -	- -	Subscribed Profile (Subscribed QCI, ARP, UE-AMBR, APN-AMBR)	- -	APN-AMBR (UL/DL)* TFT (UL/DL)* * PCC Rule	- Subscribed Profile (Subscribed QCI, ARP, UE-AMBR, APN-AMBR)	APN-AMBR (UL/DL)* SDF Filter* * PCC Rule	- Access Profile (Subscribed QCI, ARP, APN-AMBR)



Ref:

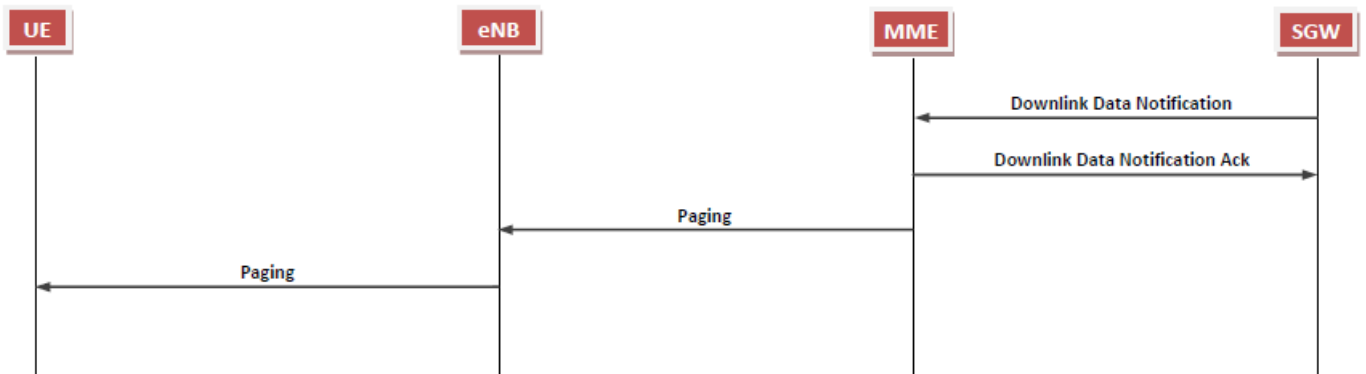
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UE Initiated Service Request

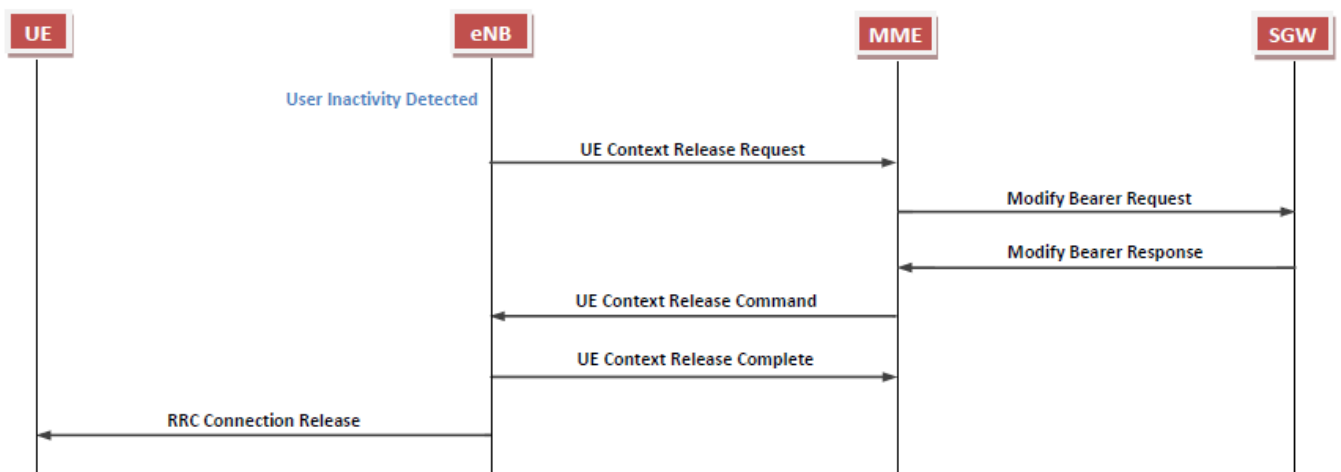


Ref: Ericsson

Network Initiated Idle to Active Transition

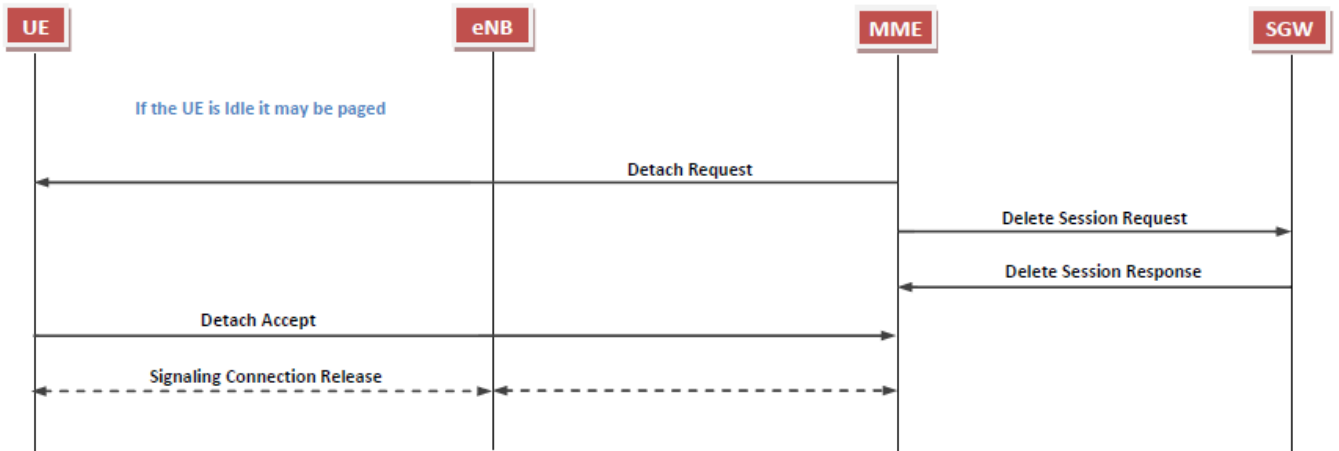


Active to Idle Transition

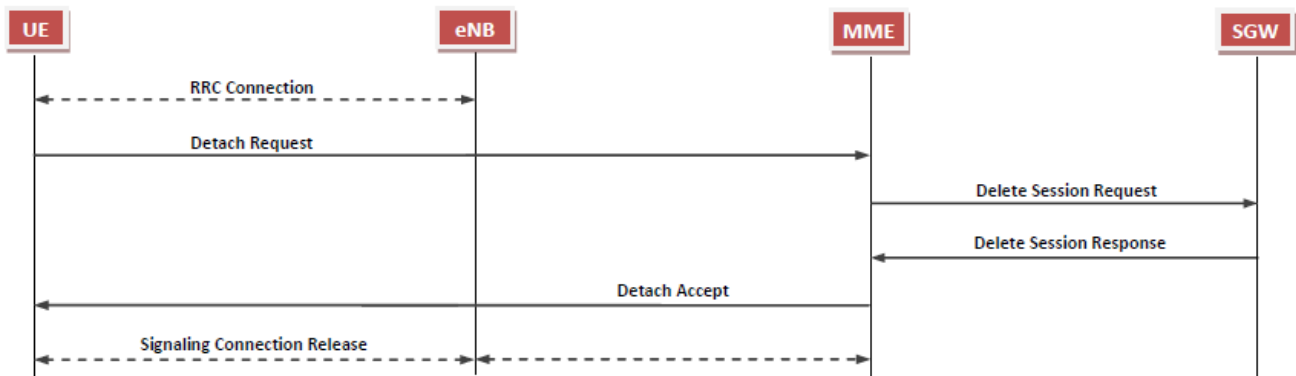


Ref: Ericsson

MME Initiated Detach



UE Initiated Detach



Ref: Ericsson