5G User Mobility Network

draft-herbert-ila-mobile-01.txt

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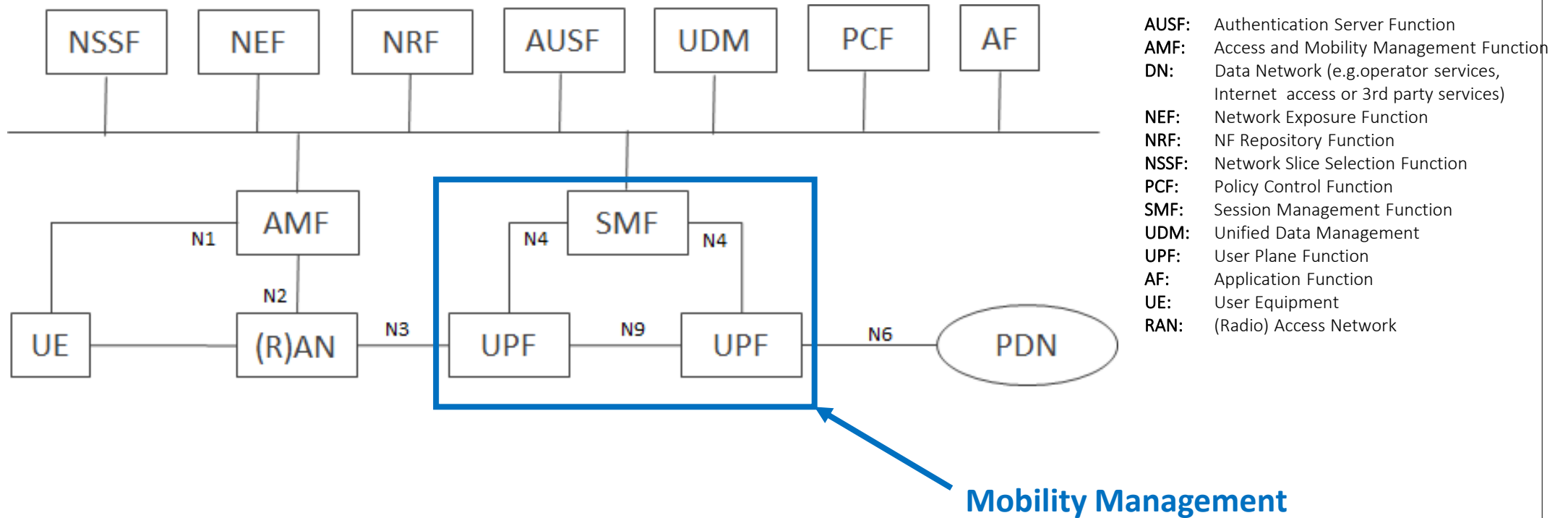
T. Herbert, K. Bogineni

Acknowledgements

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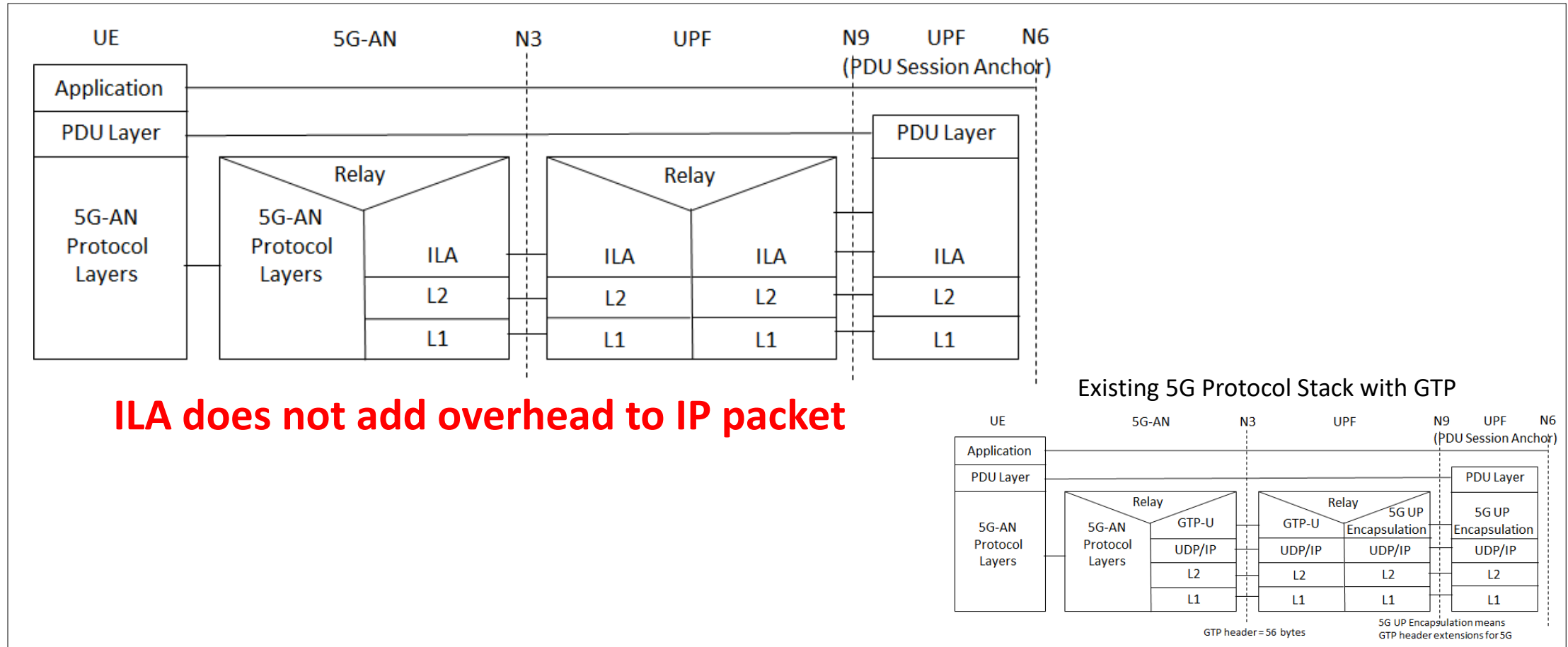
Overview

- User Mobility Use Case Description

- 5GC Protocol Stack with ILA

- Architecture Options for ILA in NGC

- ILA as a Network Slice

- Mobility Use Case combined with Data Center Use Case

- Anchor-less Mobility

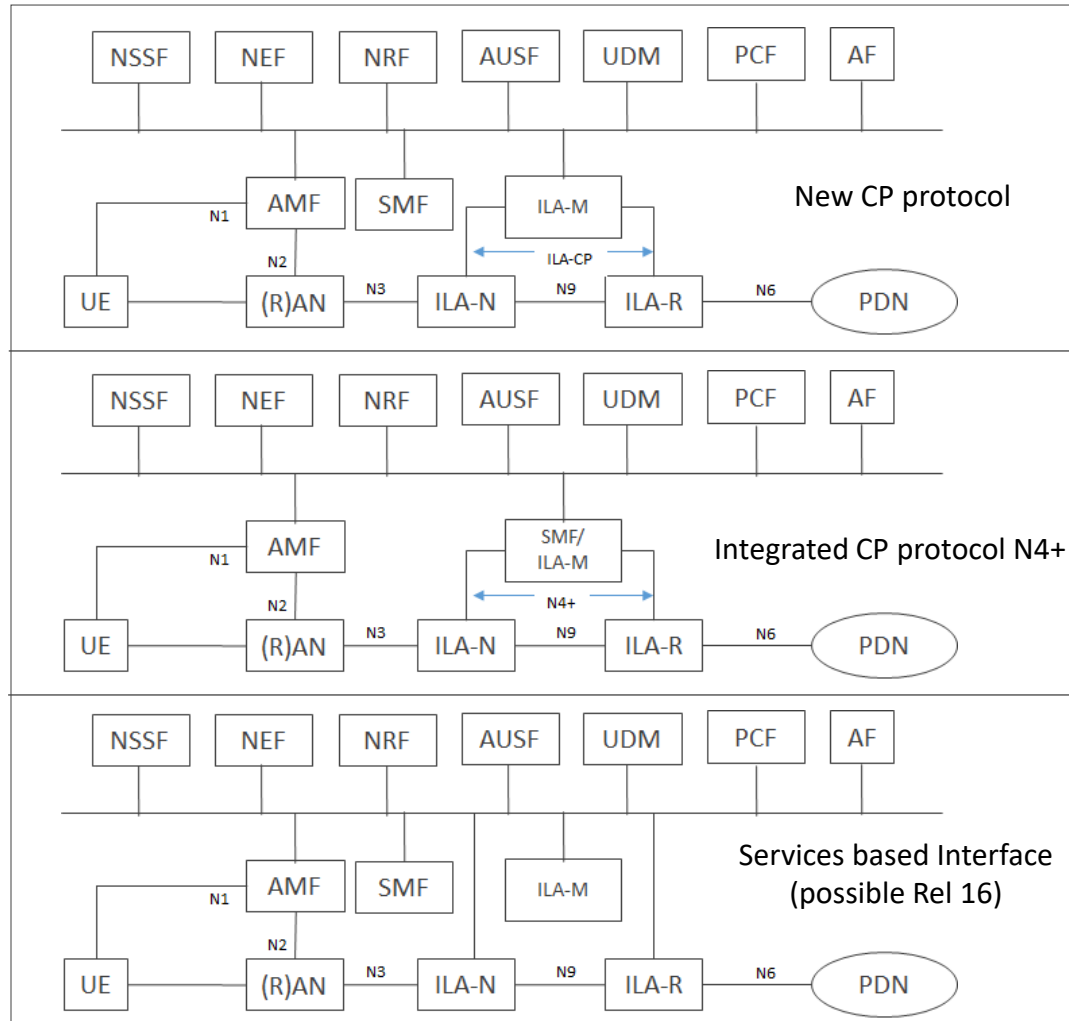- Other Considerations

- Recommendation

Use Case Description
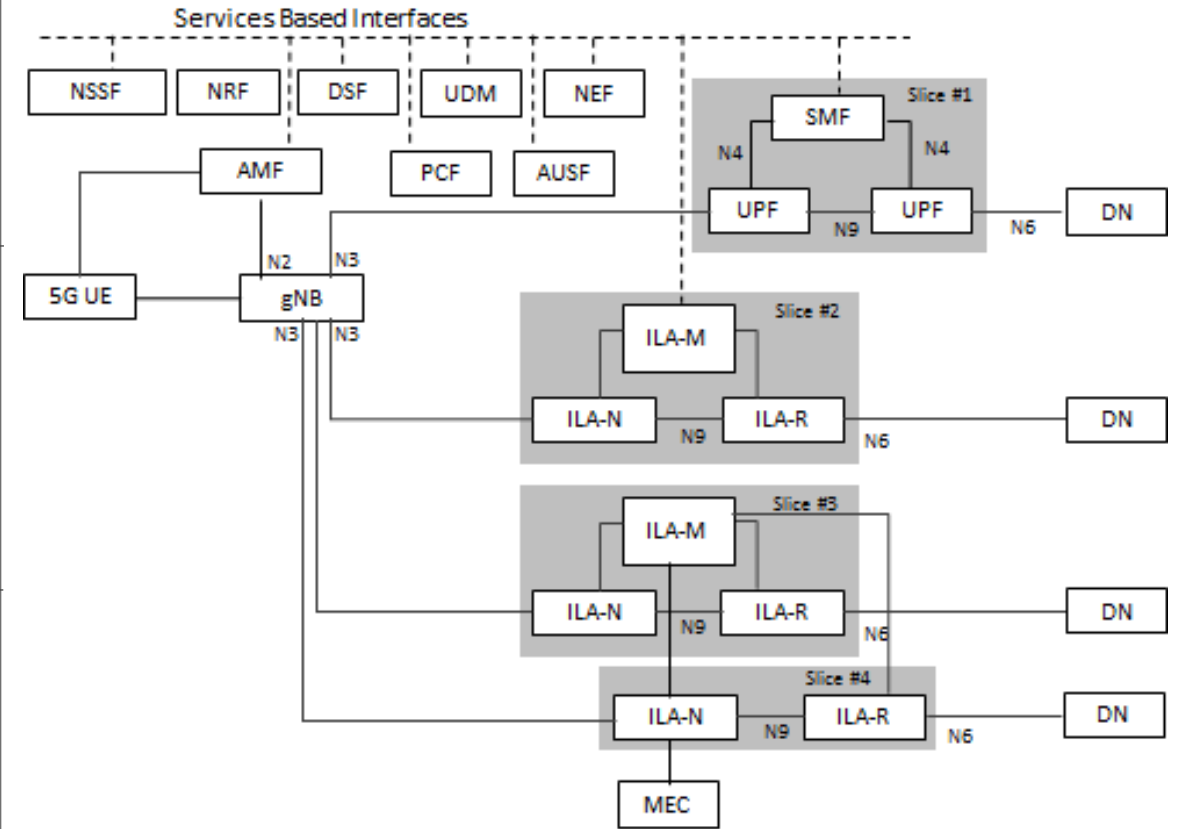

3GPP Release 15 NGC Architecture

AUSF:	Authentication Server Function
AMF:	Access and Mobility Management Function
DN:	Data Network (e.g.operator services, Internet access or 3rd party services)
NEF:	Network Exposure Function
NRF:	NF Repository Function
NSSF:	Network Slice Selection Function
PCF:	Policy Control Function
SMF:	Session Management Function
UDM:	Unified Data Management
UPF:	User Plane Function
AF:	Application Function
UE:	User Equipment
RAN:	(Radio) Access Network

Mobility Management

5G Protocol Stack with ILA

ILA does not add overhead to IP packet

Existing 5G Protocol Stack with GTP

Architecture Options for ILA in NGC

New CP protocol

Integrated CP protocol N4+

Services based Interface
(possible Rel 16)

ILA slice in NGC

Mobility Use case with DC Use case

Local access to the same DN
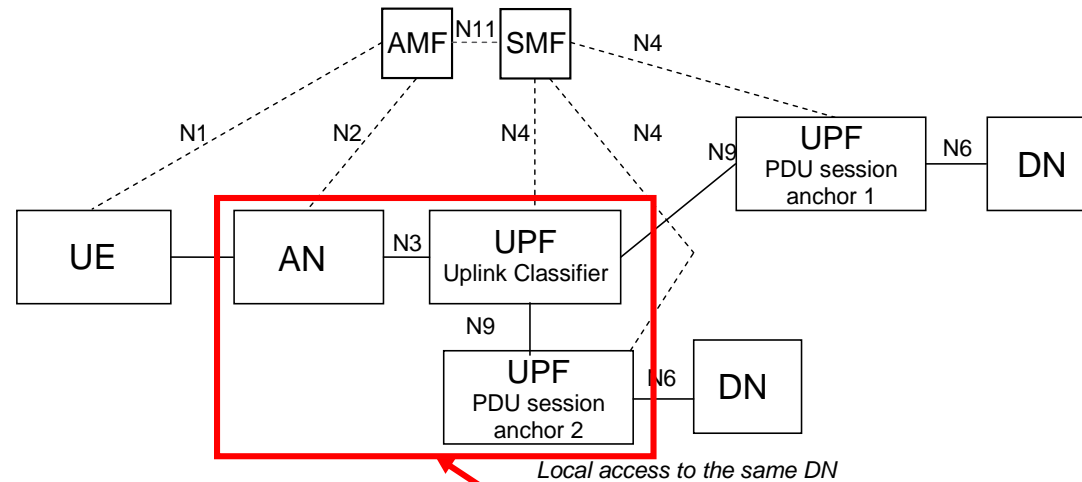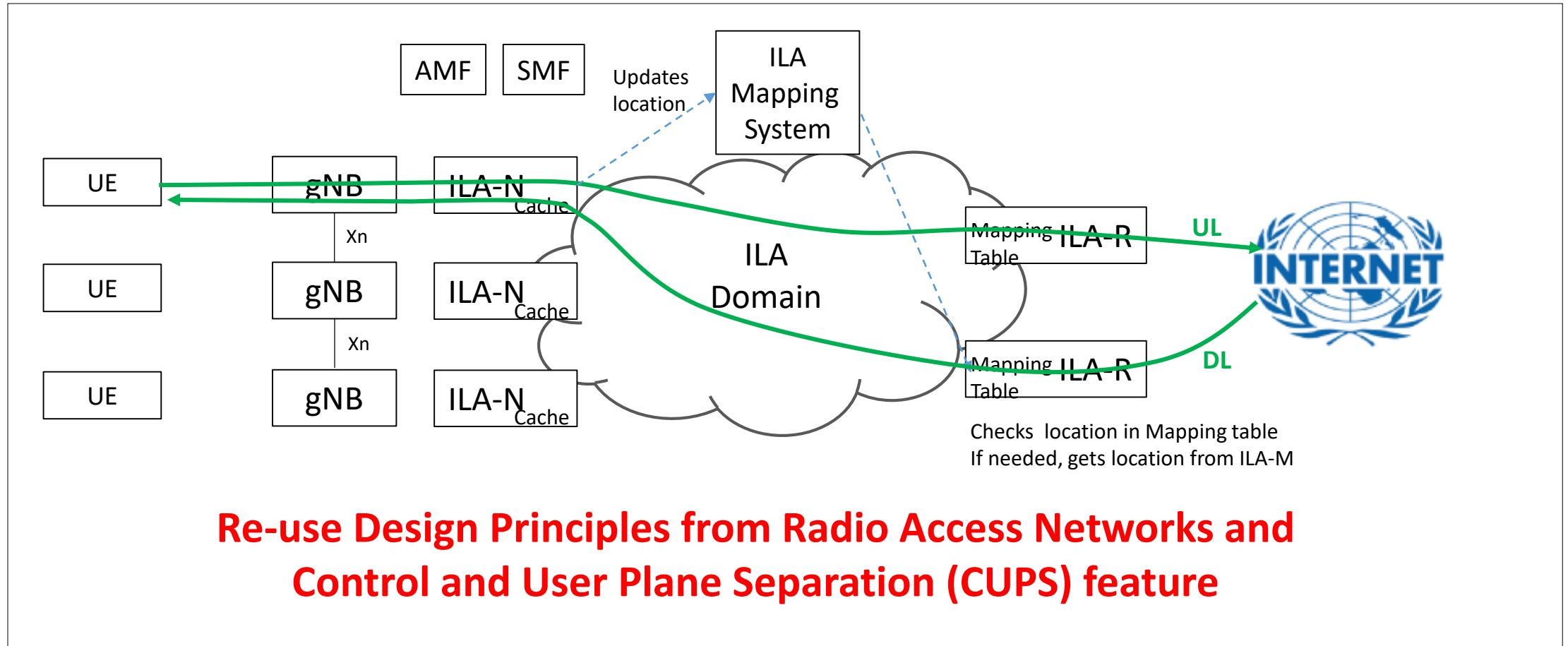
**Collocated in vRAN site for Low Latency Applications
N3 is between VNFs within same cloud platform**

Anchor-less Mobility

Re-use Design Principles from Radio Access Networks and Control and User Plane Separation (CUPS) feature

Other Considerations

- Roaming

  ILA architecture options presented before allow existing roaming principles to be re-used

- Security/Privacy

  Re-use of same principles as today's mobile operator network

- Scalability: mapping system, control plane signaling

  Network design aspects from 4G networks (MME-eNB, SGW-eNB, X2, etc) will be used to develop solutions using ILA

Recommendation

- Develop specifications in a phased approach
- Focus on Mobility Use Case initially