5G NR: Radio Access Networks

THE 5G SYSTEM

The 5G System

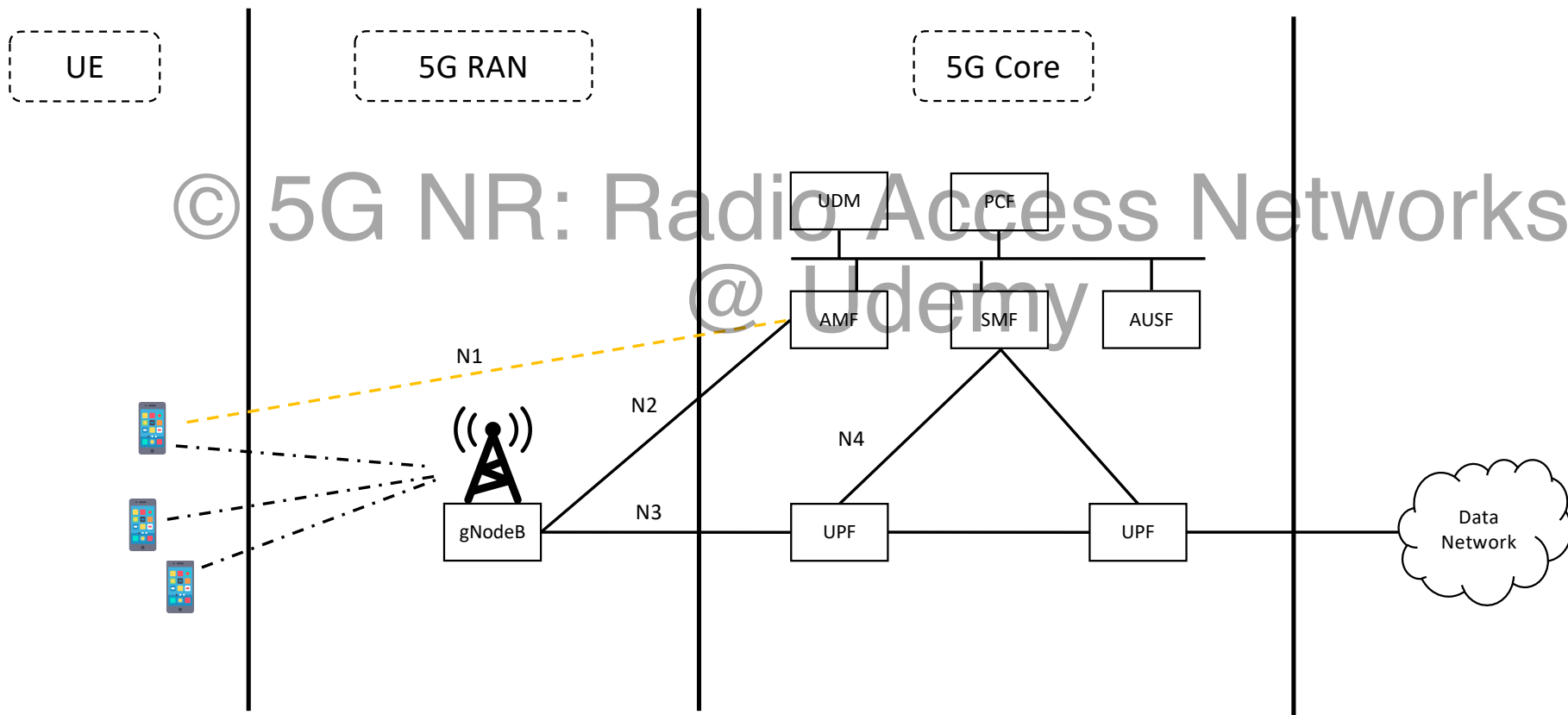Hello World!

UE
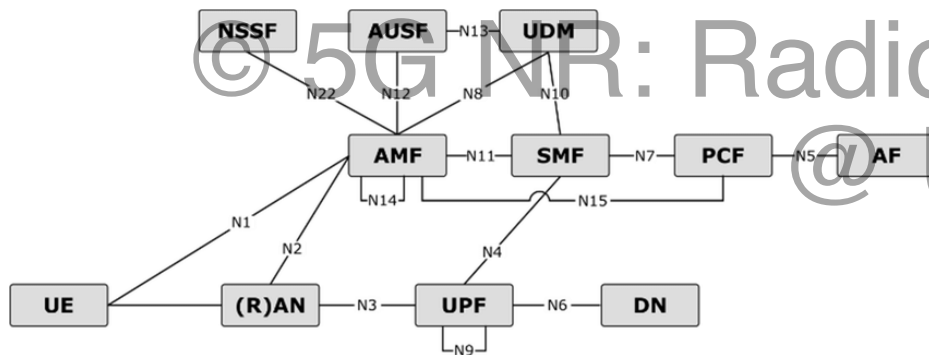
AS

Google

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The 5G System

UE

5G RAN

5G Core

UDM

PCF

AMF

SMF

AUSF

N1

N2

N4
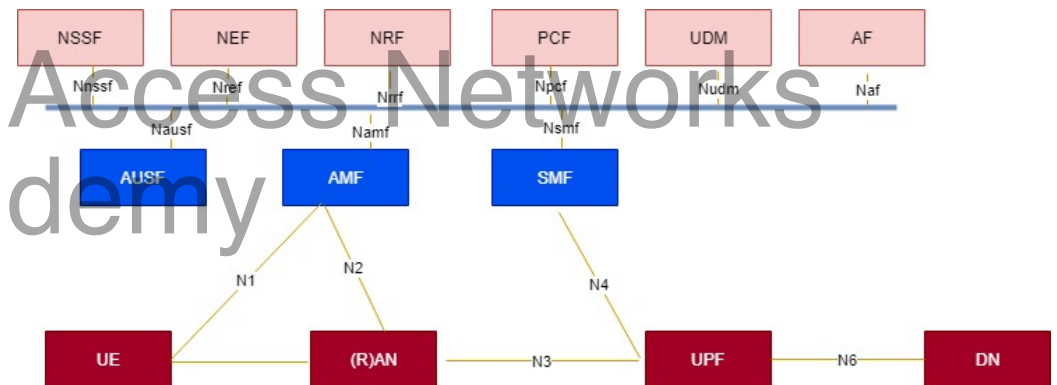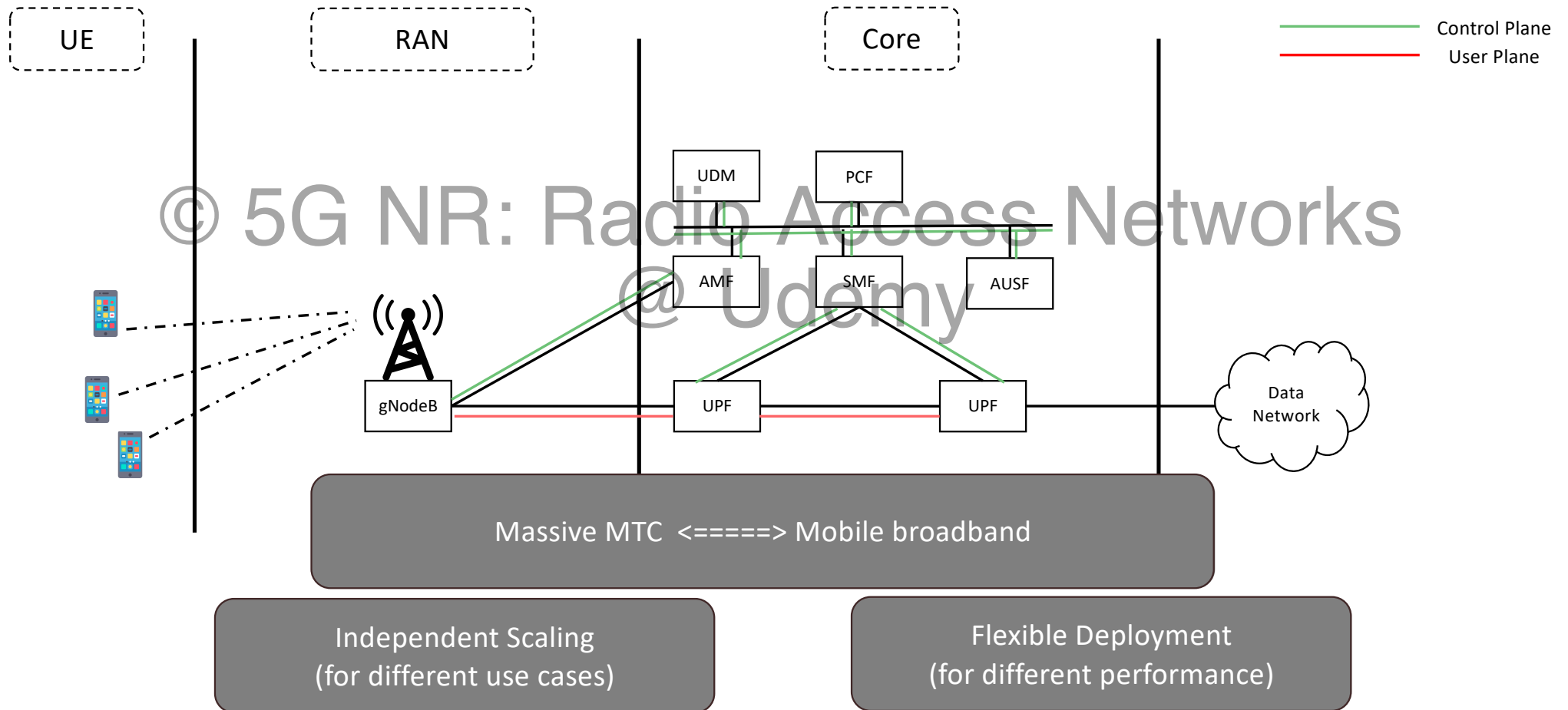
gNodeB

N3

UPF

UPF

Data Network

The 5G System

Reference Point Representation

Service Based Representation

Control and user plane separation

UE RAN Core

Control Plane
User Plane

UDM PCF
AMF SMF AUSF
gNodeB UPF UPF Data Network

Massive MTC <=====> Mobile broadband

Independent Scaling
(for different use cases)

Flexible Deployment
(for different performance)

KEY NETWORK FUNCTIONS

gNodeB

UE

5G RAN

5G Core

UDM

PCF

AMF

SMF

AUSF

N1

N2

N4

N3

gNodeB/
Ng-eNB

UPF

UPF

Data
Network

Wireless Connectivity

User Plane Function

UE

5G RAN

5G Core

UDM

PCF

AMF

SMF

AUSF

N1

N2

N4

N3

gNodeB/
Ng-eNB

UPF

UPF

Data
Network
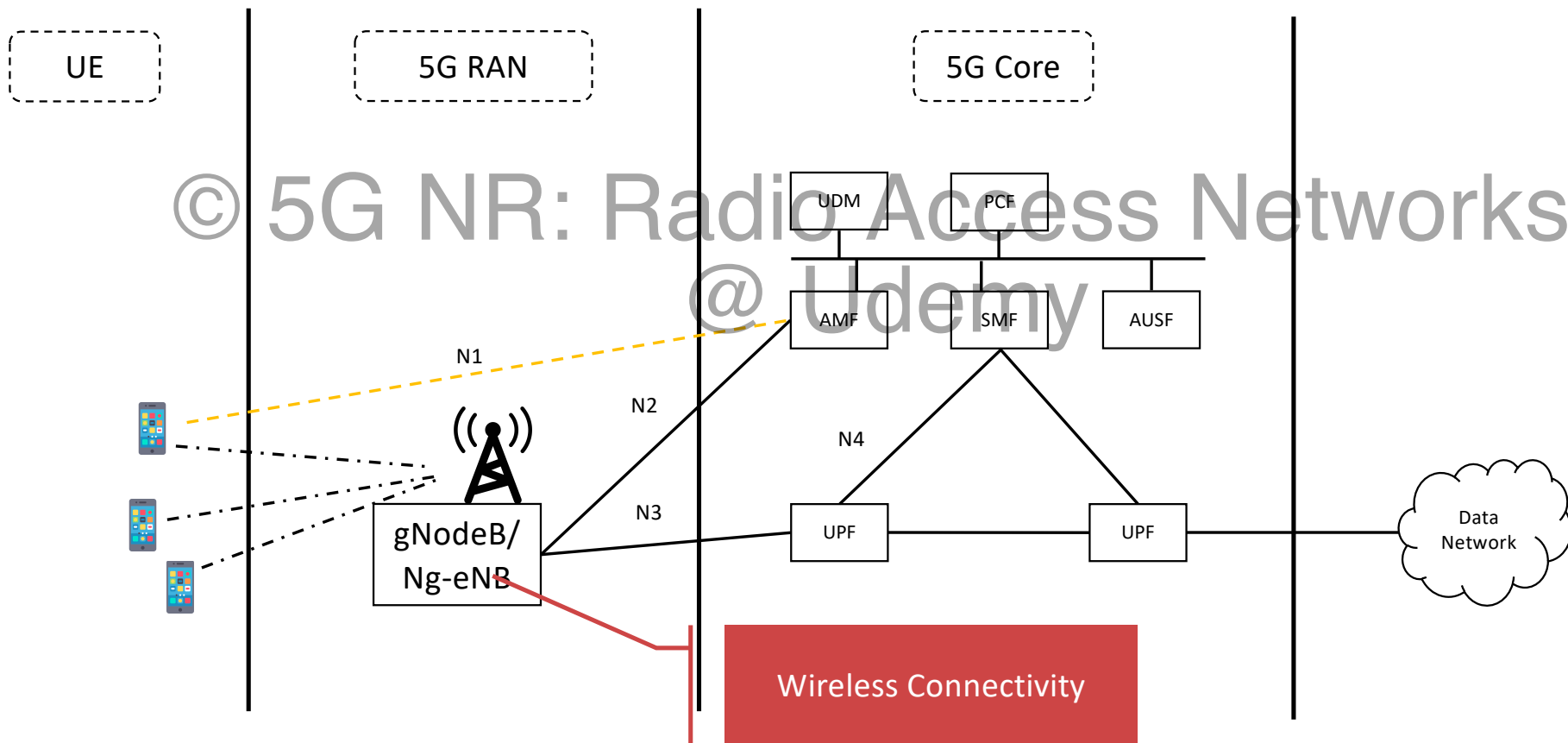
Mobility Anchor,
Policy enforcement,
Lawful interception
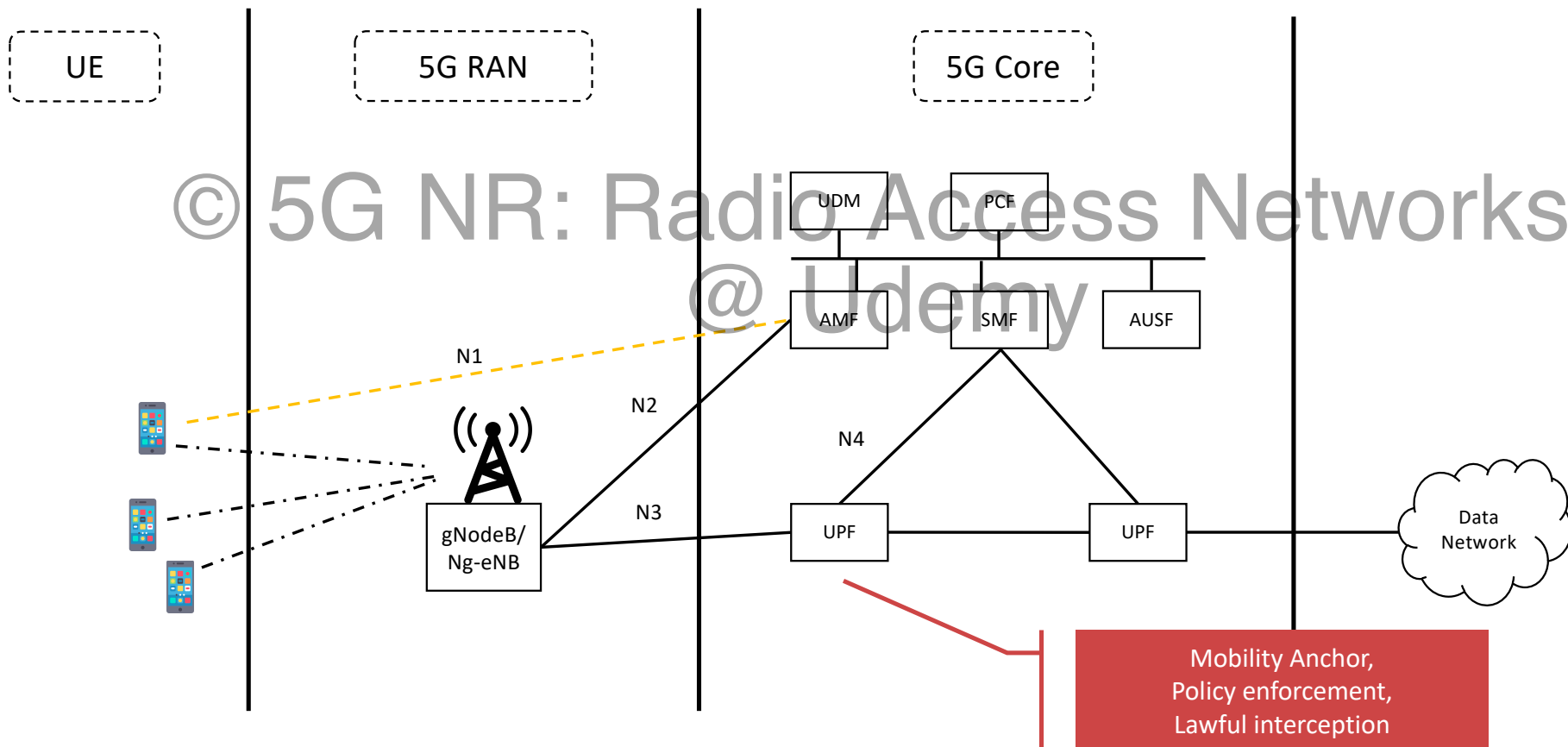
Session Management Function

UE

5G RAN

5G Core

Session Management

UDM   PCF

AMF   SMF   AUSF

N1

N2

N4

gNodeB

N3   UPF   UPF
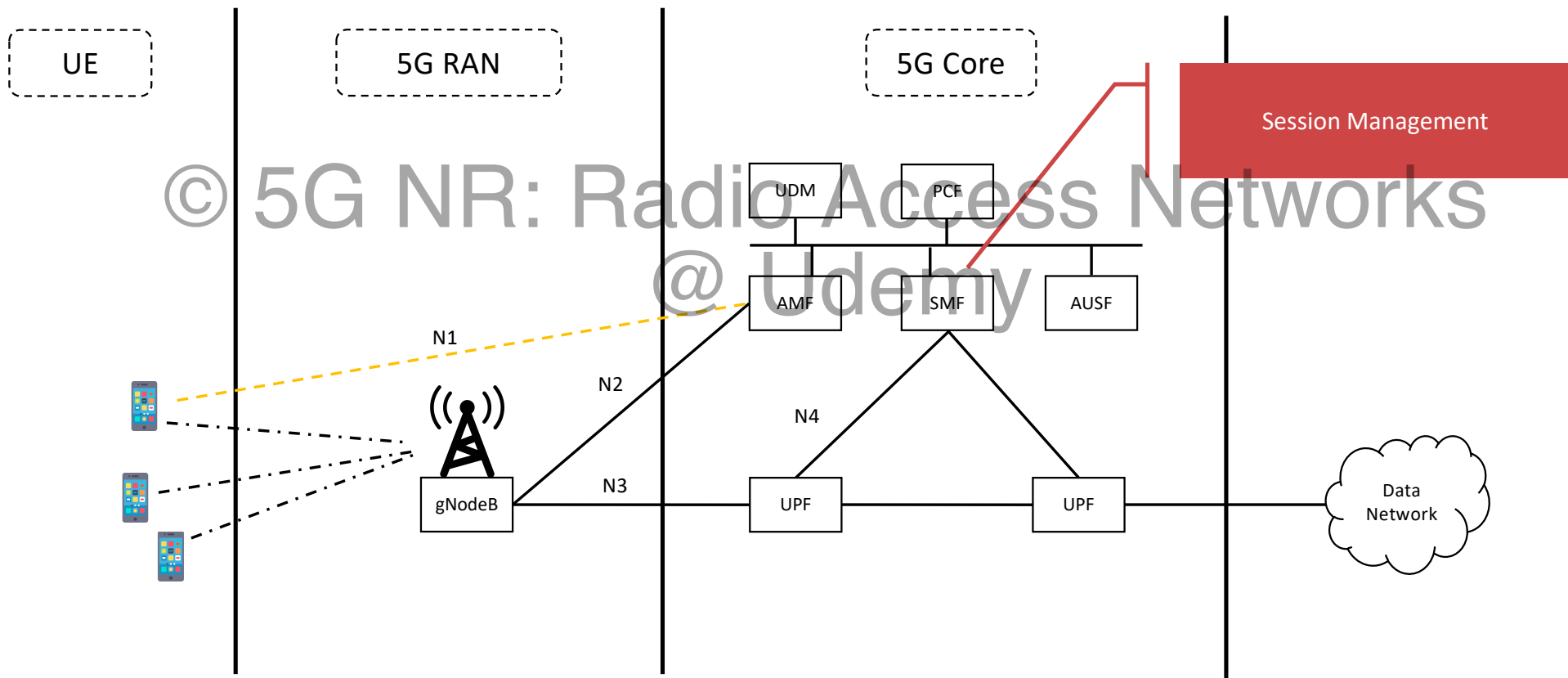
Data Network

Access and Mobility Function

UE

5G RAN

5G Core

Mobility Management, Registration
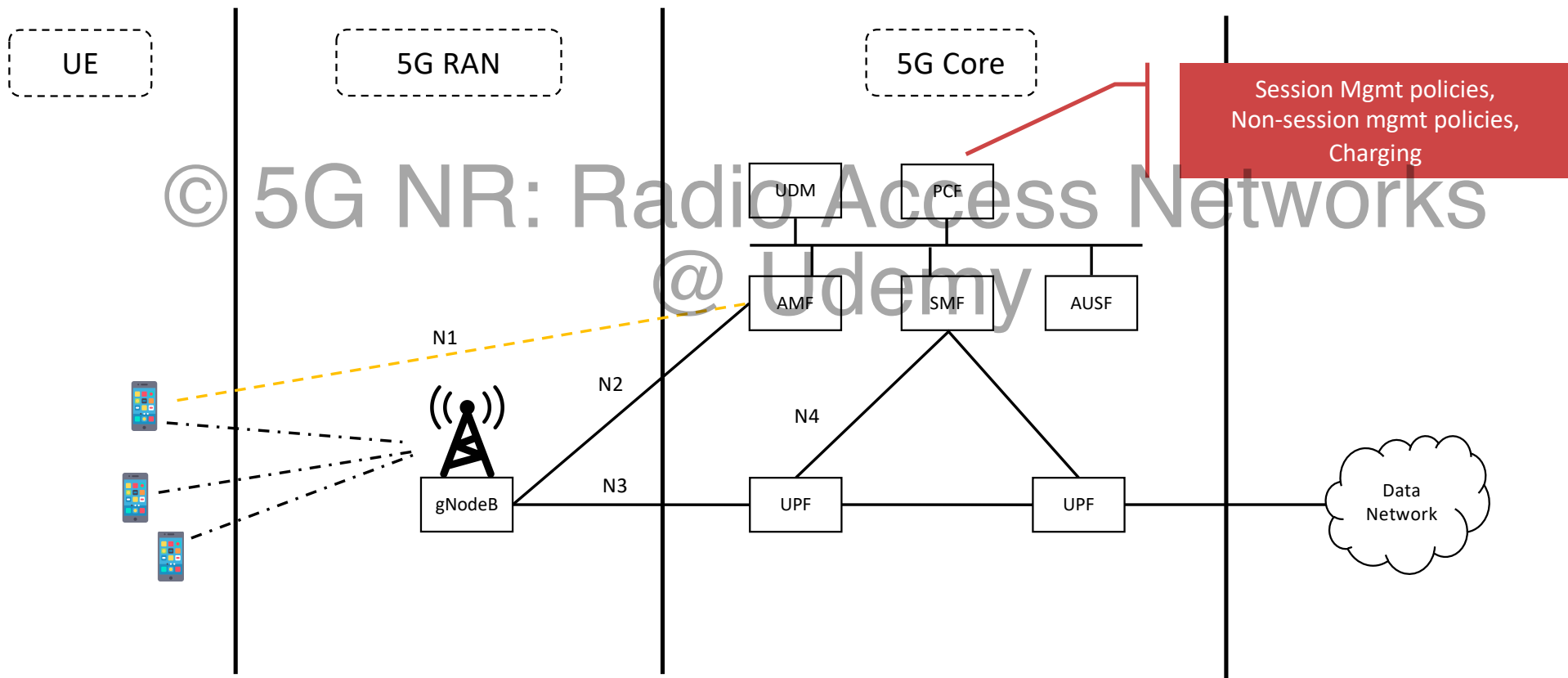
UDM

PCF

AMF

SMF

AUSF

gNodeB

UPF

UPF

Data Network

N1

N2

N3

N4
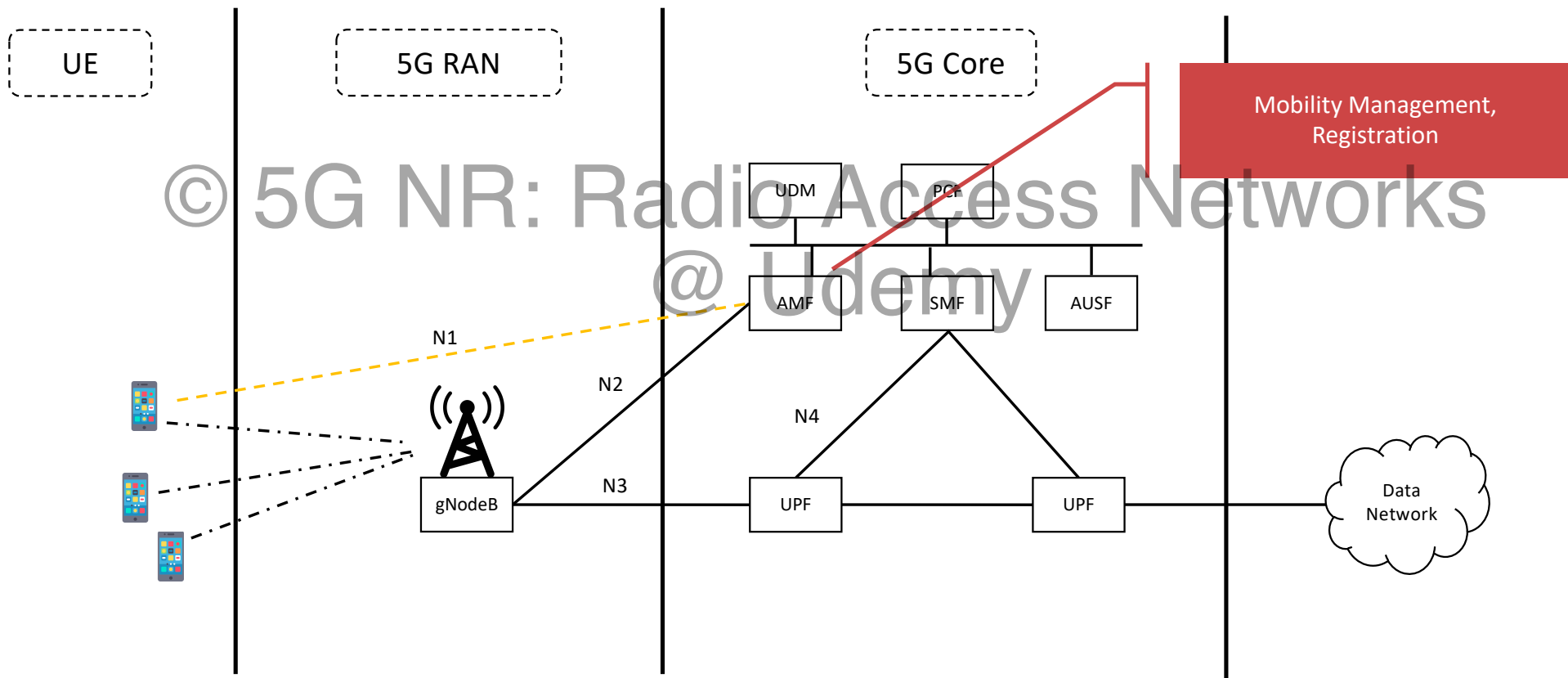
Authentication Server Function
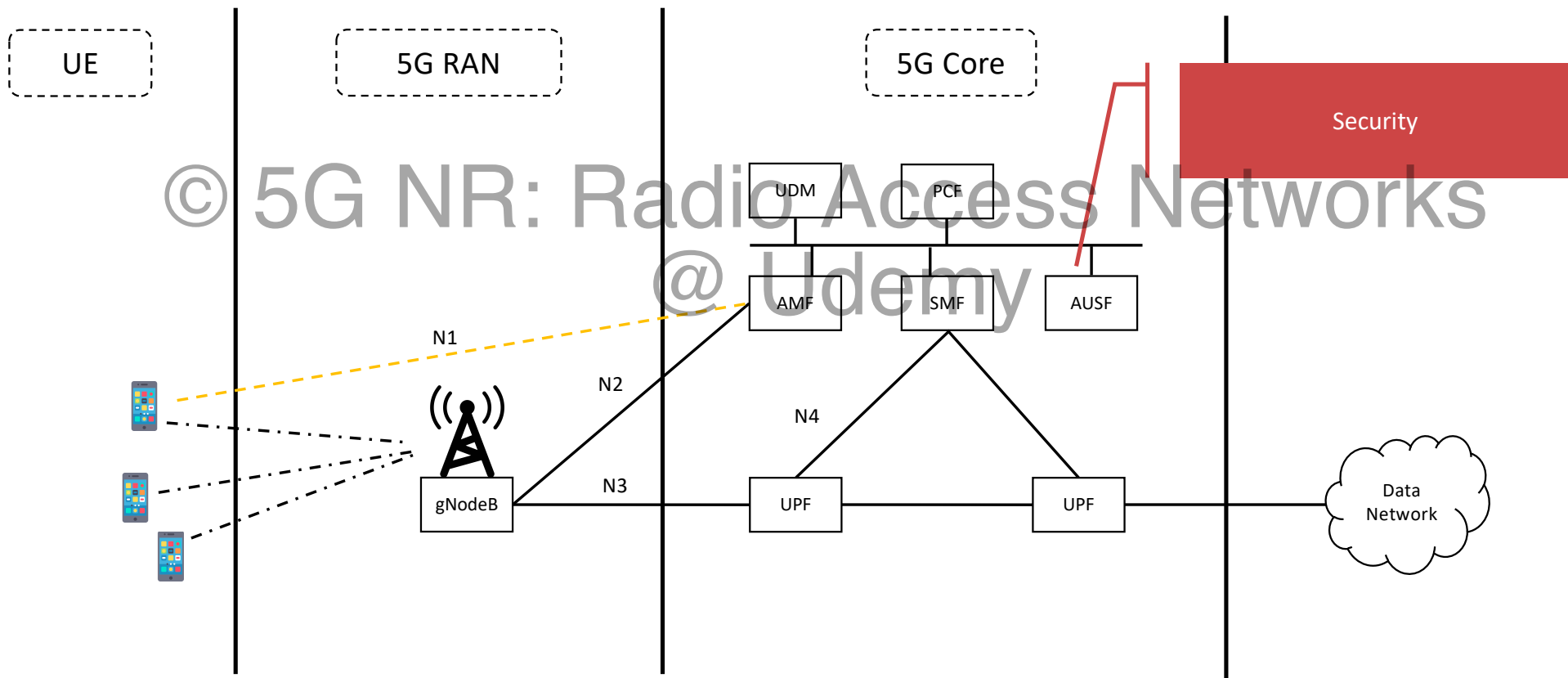
Unified Data Management and Unified Data Repository
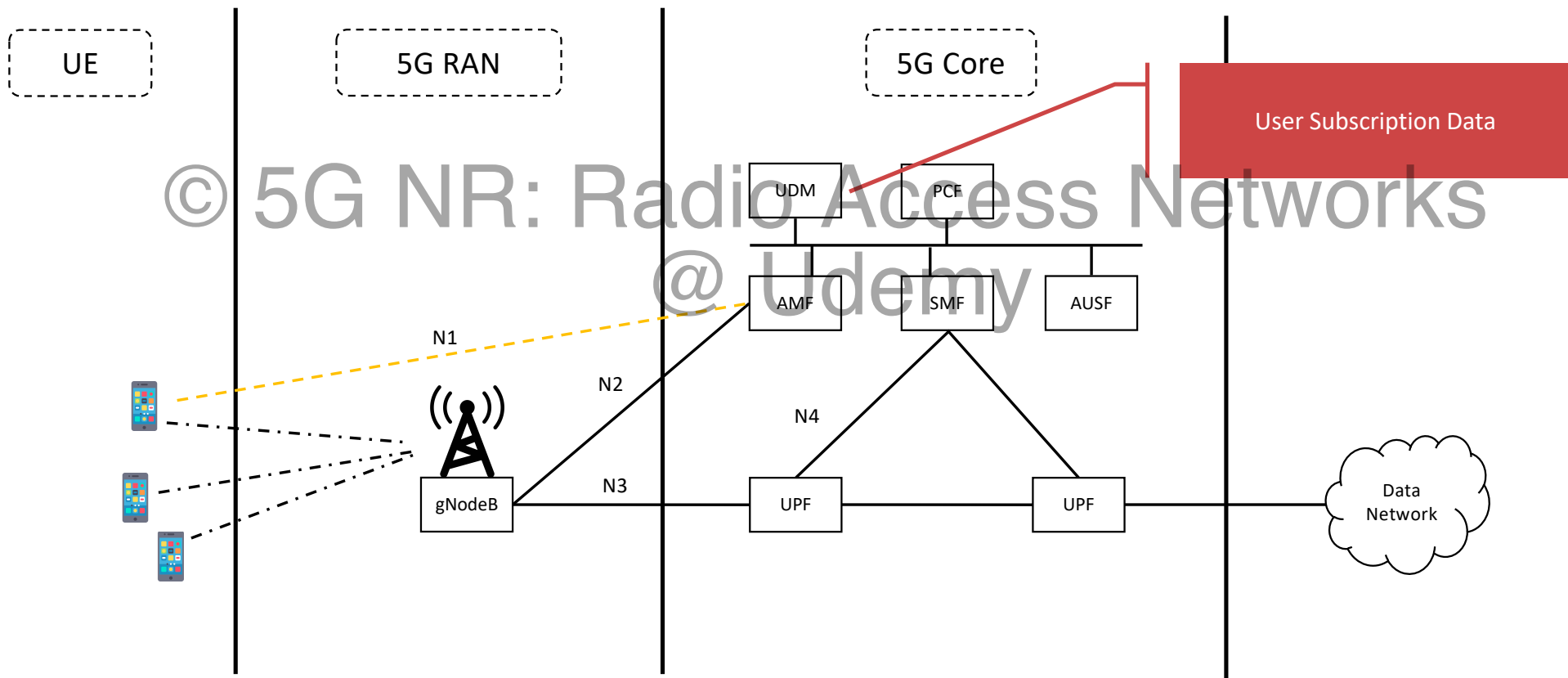
Policy Control Function

UE

5G RAN

5G Core

Session Mgmt policies,
Non-session mgmt policies,
Charging

UDM

PCF

AMF

SMF

AUSF

N1

N2

N4

gNodeB

N3

UPF

UPF

Data
Network

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The 5G System

UE

5G RAN

5G Core

UDM

PCF

AMF

SMF

AUSF

N1

N2

N4

gNodeB

N3

UPF

UPF

Data Network

THANK YOU