



Li-Ying Chen

# OAI

## OAI (r14) installation

- [https://hackmd.io/1Jlr1LwlRFuz7Z5X\\_rxG9A](https://hackmd.io/1Jlr1LwlRFuz7Z5X_rxG9A)

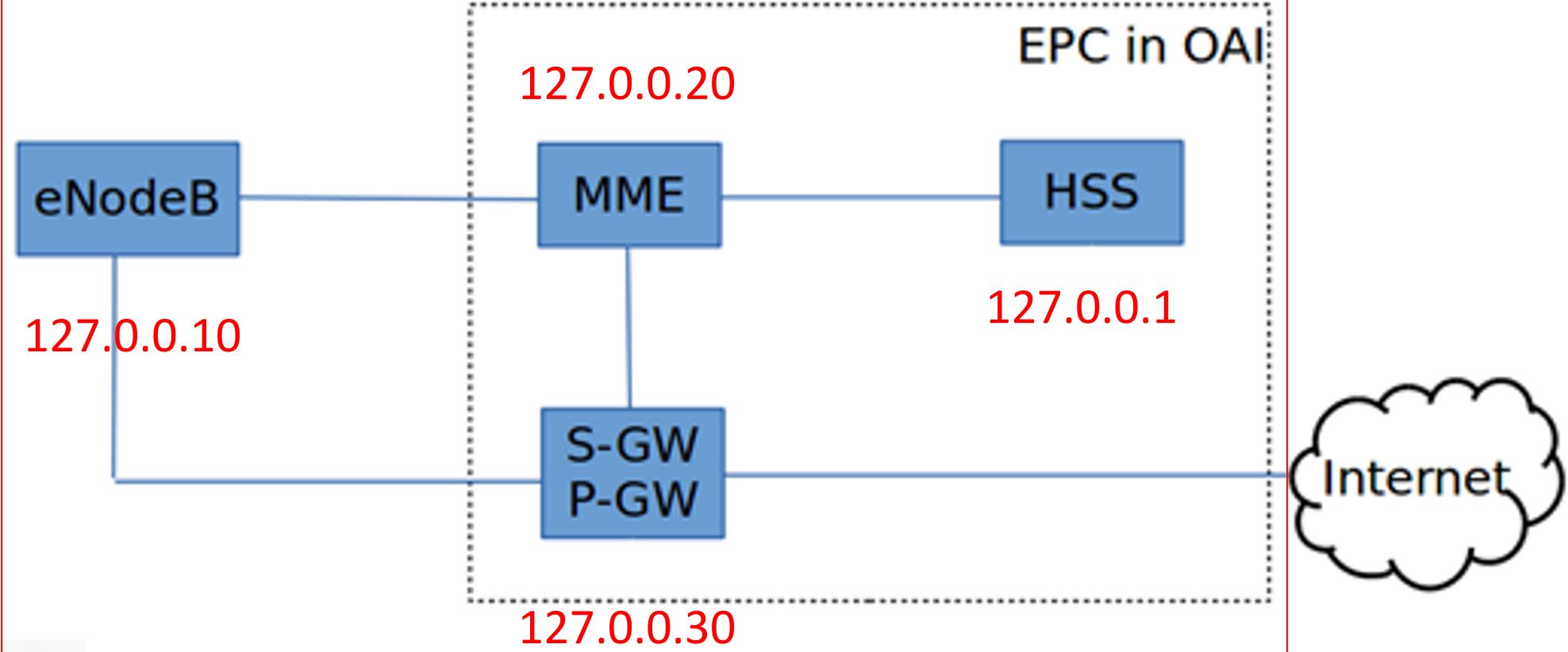
## OAI docker edition

- <https://hackmd.io/SoYgmw6nQgmKLIRRkeDeOw>
- [https://hackmd.io/WrqFv\\_q1RziHLGcIC9kDwQ](https://hackmd.io/WrqFv_q1RziHLGcIC9kDwQ)

4G (LTE) Wireless Network architecture is comprised of the following three main components:

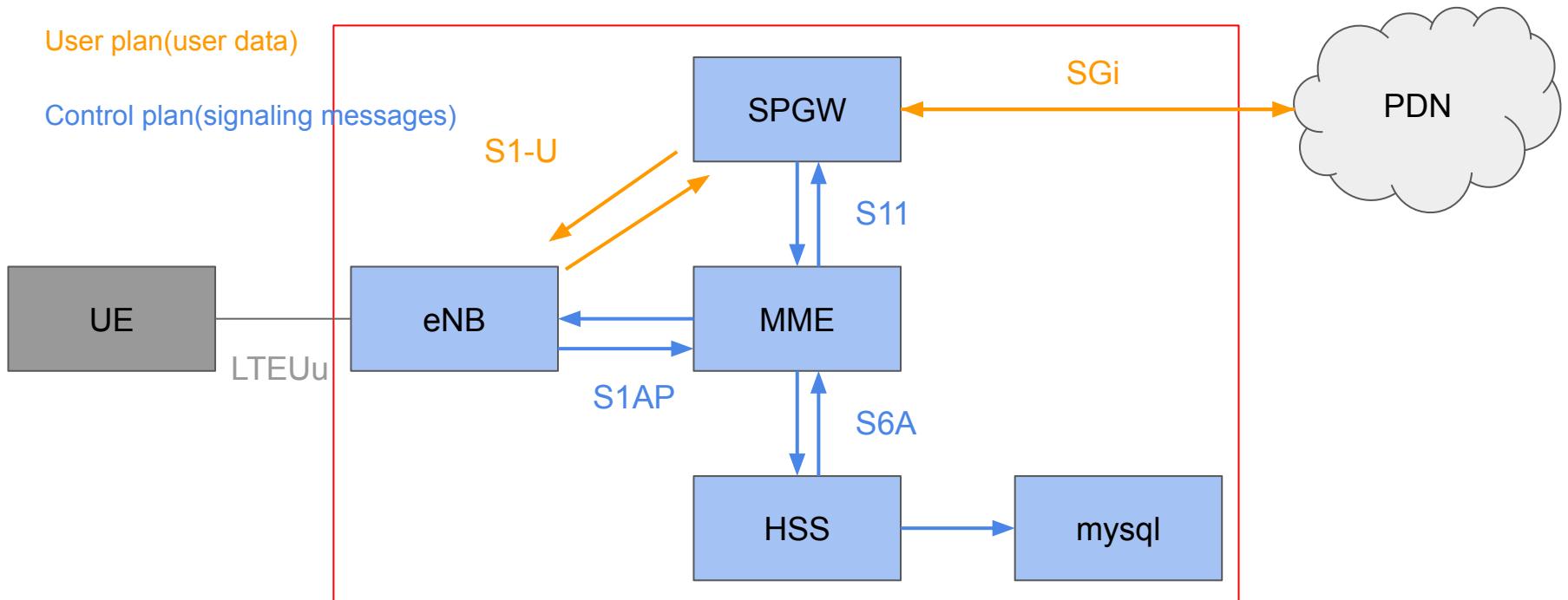
- UE (User Equipment) / Mobile
- E-UTRAN ( e-NodeB)
- EPC ( Evolved Packet Core)

***Loopback interface***



192.168.0.2

local host(PC):  
140.113.179.231

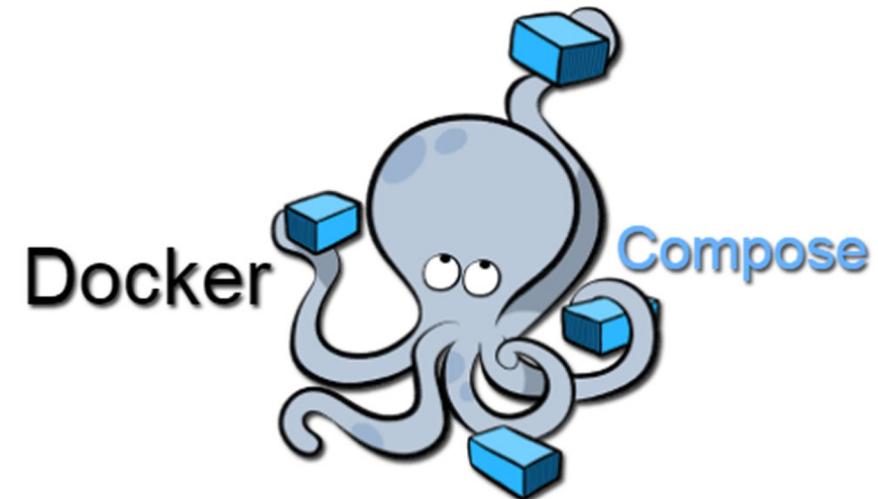


# Stage of work

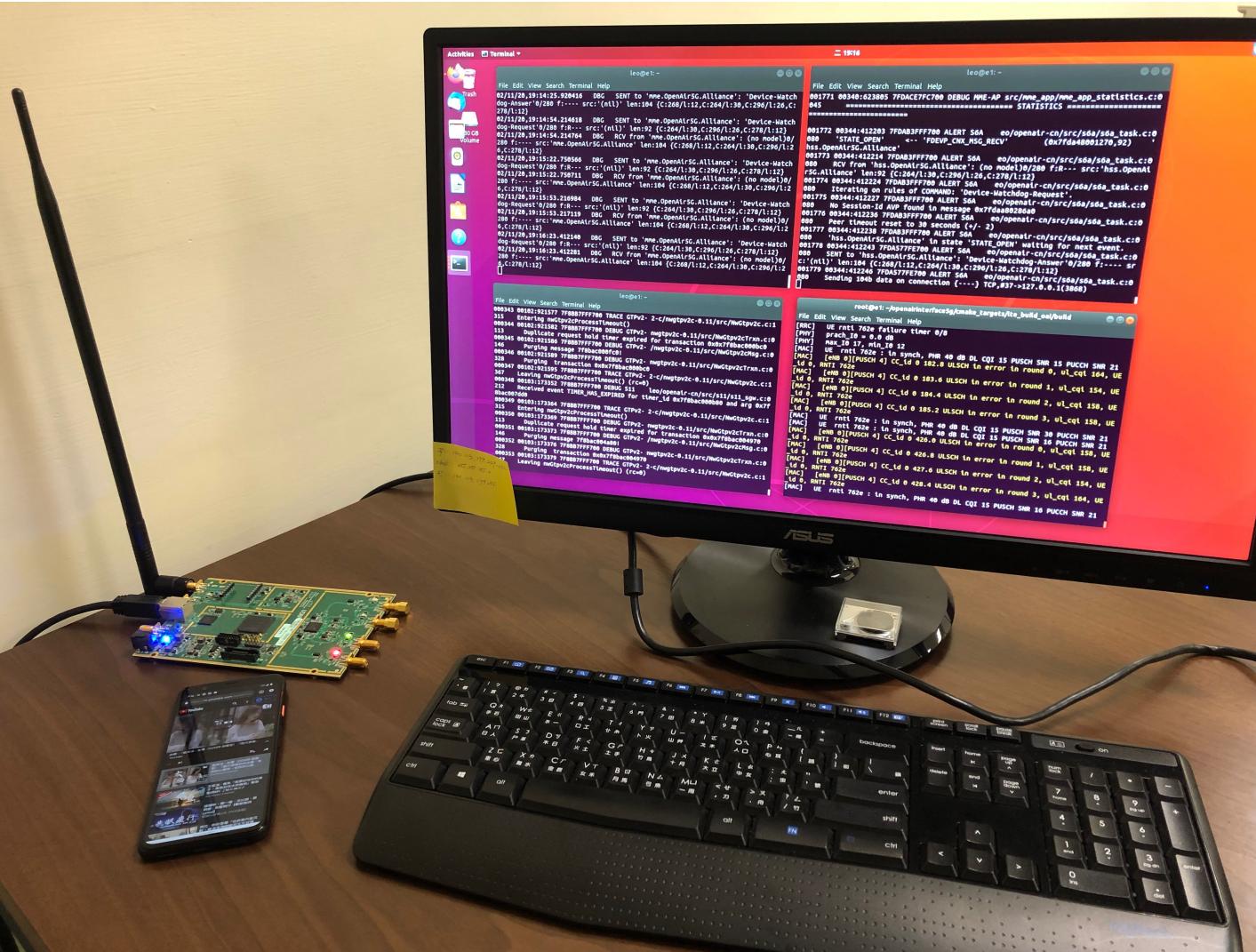
1. All in one at localhost(PC)...done!
2. Four component in different docker...done!
3. Docker with docker compose...done!
4. Using K8s to deploy...done!



**kubernetes**



# Experiment environment



## 關於手機

裝置名稱  
Pixel 4

電話號碼  
不明

緊急資訊  
擁有者的相關資訊和聯絡資料

法律資訊

法規標籤

安全性和法規手冊

SIM 卡狀態  
free5GC

型號與硬體  
型號：Pixel 4

IMEI  
352931103171567

Android 版本  
10

IP 位址  
192.168.0.2



<https://www.whatismyip.com.tw>

<https://fast.com/#>



English (US) ▾

# IP位址

140.113.179.232 TW



Your Internet speed is

4.3 Mbps



## Latency

Unloaded

56 ms

Loaded

124 ms

## Upload

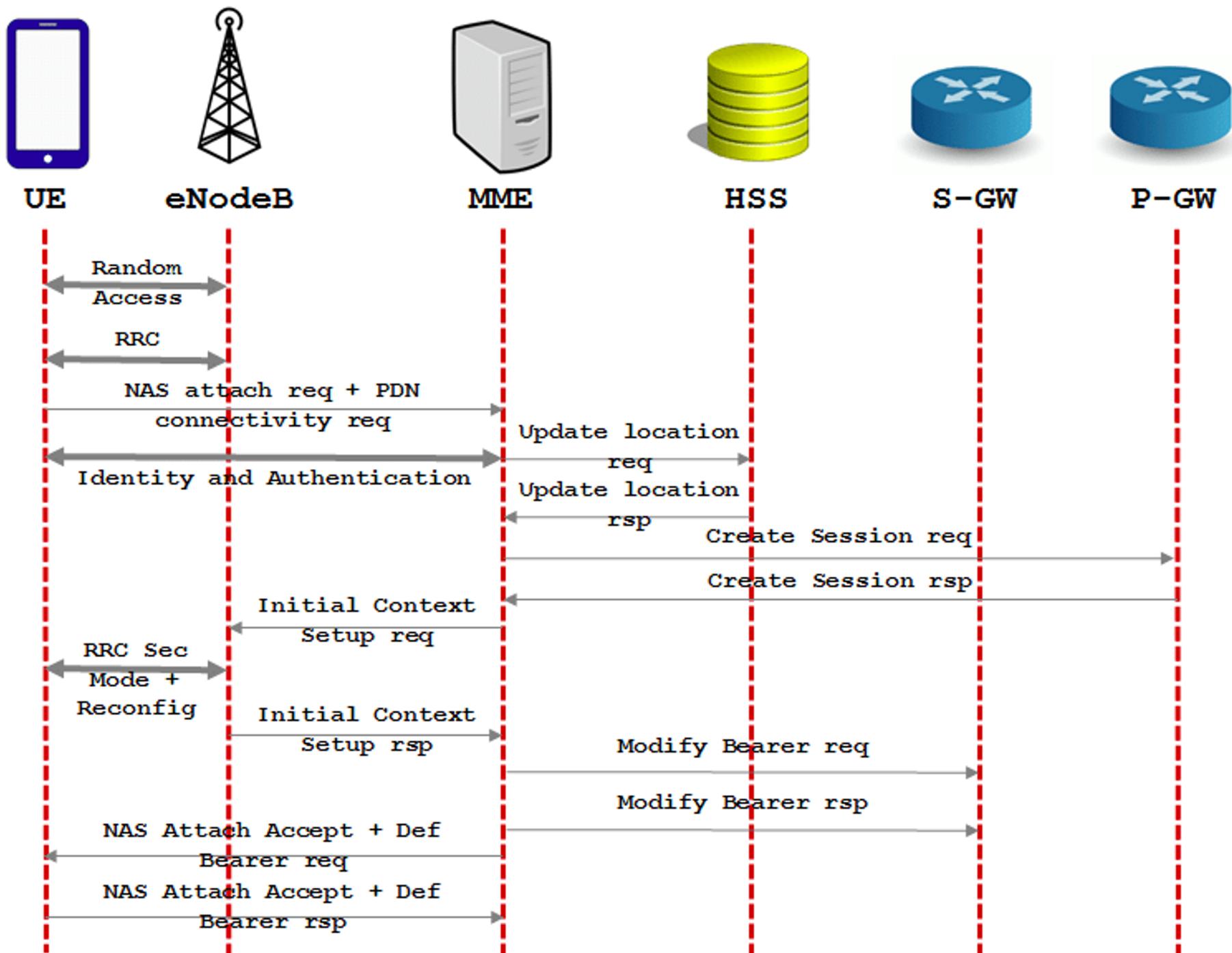
Speed

30 Mbps

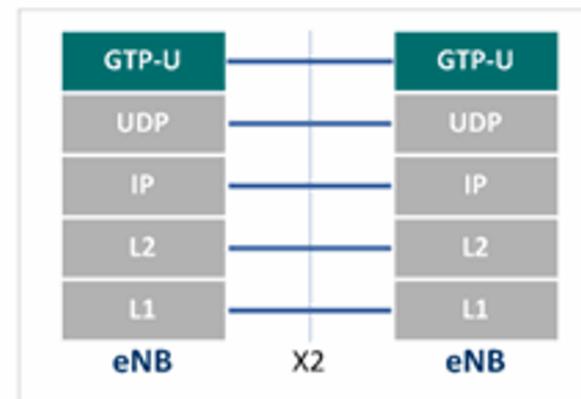
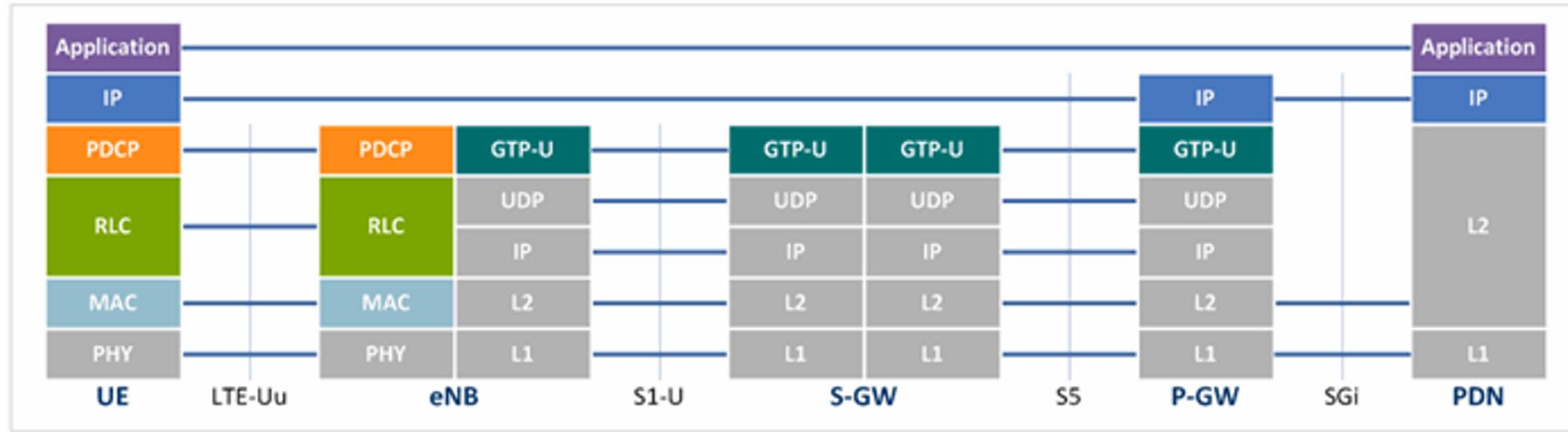
Client Hsinchu, TW 140.113.179.232  
Server(s) Tsuen Wan, HK | Tokyo, JP

Settings 4.6MB ↓ 20MB ↑

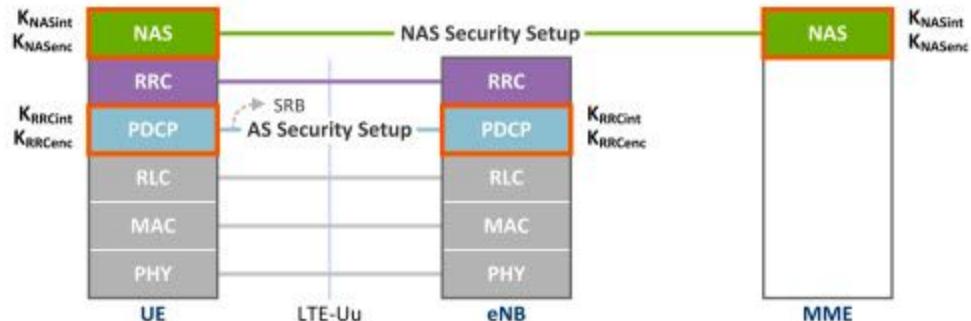




# LTE Protocol Stacks



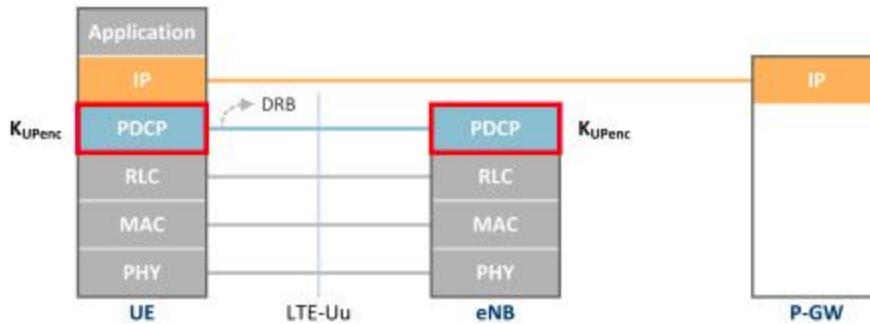
## Control Plane



NAS Security Setup  
for signaling (NAS signaling)

AS Security Setup  
for signaling (RRC signaling)  
and user IP packet

## User Plane



Perform ciphering/deciphering  
(encryption/decryption) and  
integrity protection/verification

Perform ciphering/deciphering  
(encryption/decryption)

