



Esurfing 4G

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NOMA SDR on OAI

China Telecom Technology Innovation Center

Introduction of CTTIC

- CTTIC (China Telecom Technology Innovation Center)
 - Focus on the R&D of wireless technologies, which will benefit our future network deployment.
 - Include 3GPP standardization work, National projects, China Telecom's internal projects, etc.
- Simulation and verification platform in CTTIC
 - Build simulation and verification platform to evaluate the significance of technology to China Telecom
 - Include software platform (system & link level), and SDR platform

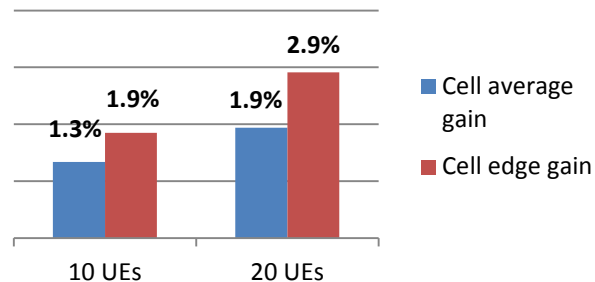
What we have done based on OAI

- By learning the multi-thread structure and coding skill in OAI, we can accelerate the efficiency of our simulation platform.
- With the practical channel and real-time processing, SDR platform can give us deeper and more accurate understanding of the new technologies.
 - NOMA SDR
 - eLWA SDR

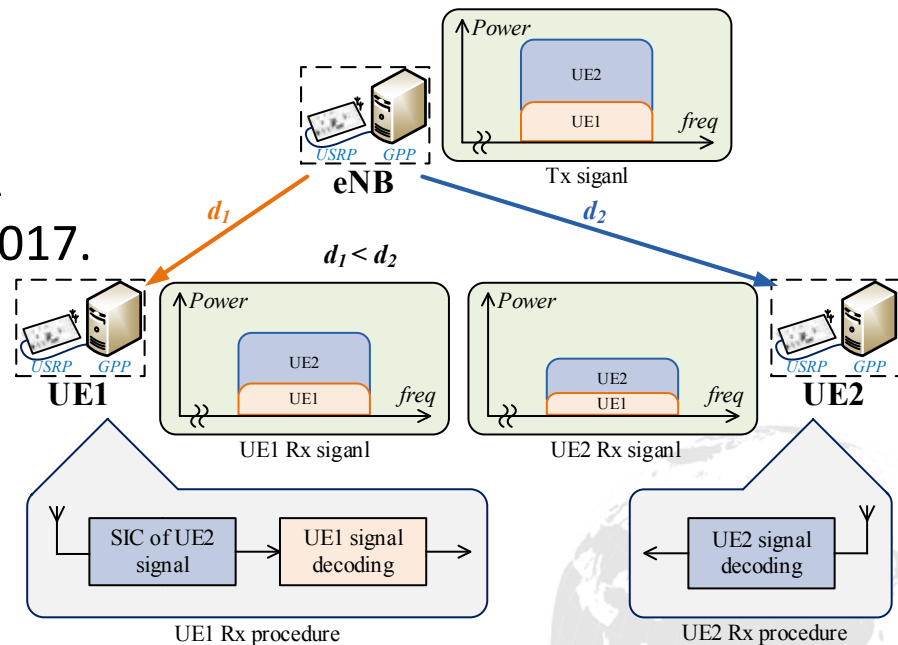


NOMA

- NOMA can increase system throughput and the number of connected users.
- LTE R14 MUST WI is based on NOMA.
- 5G NR will also introduce NOMA, and NR NOMA SI has been started from March 2017.



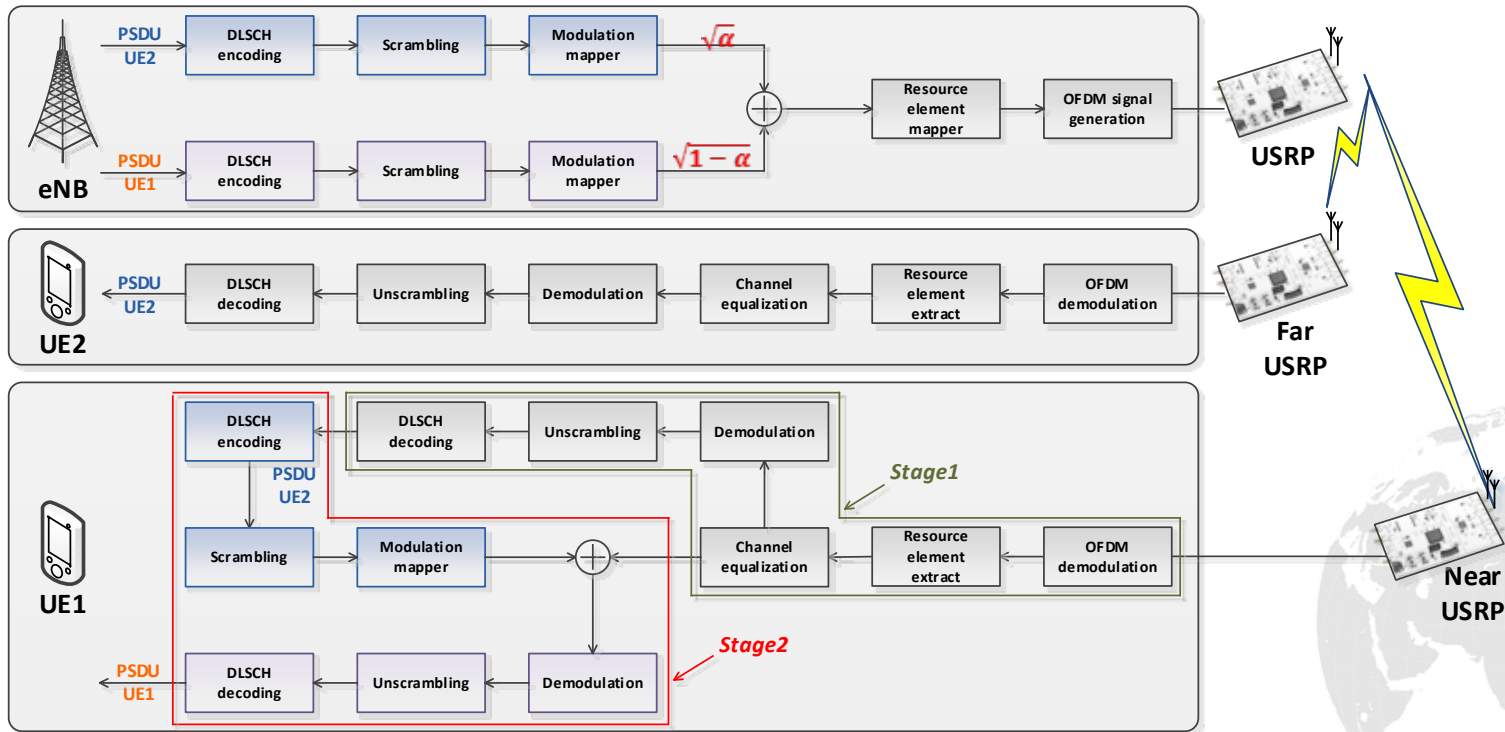
NOMA system level simulation



NOMA Tx and Rx procedure

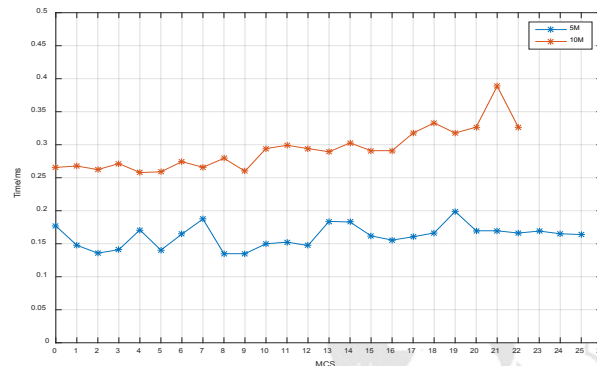
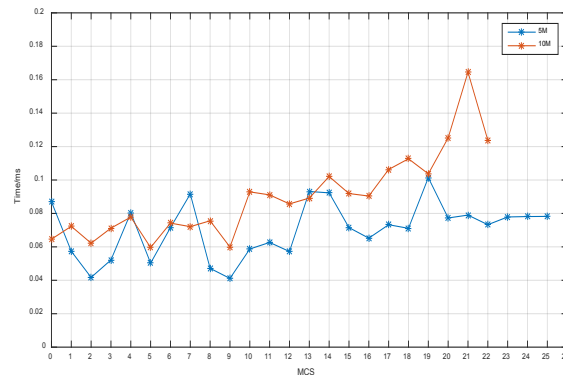
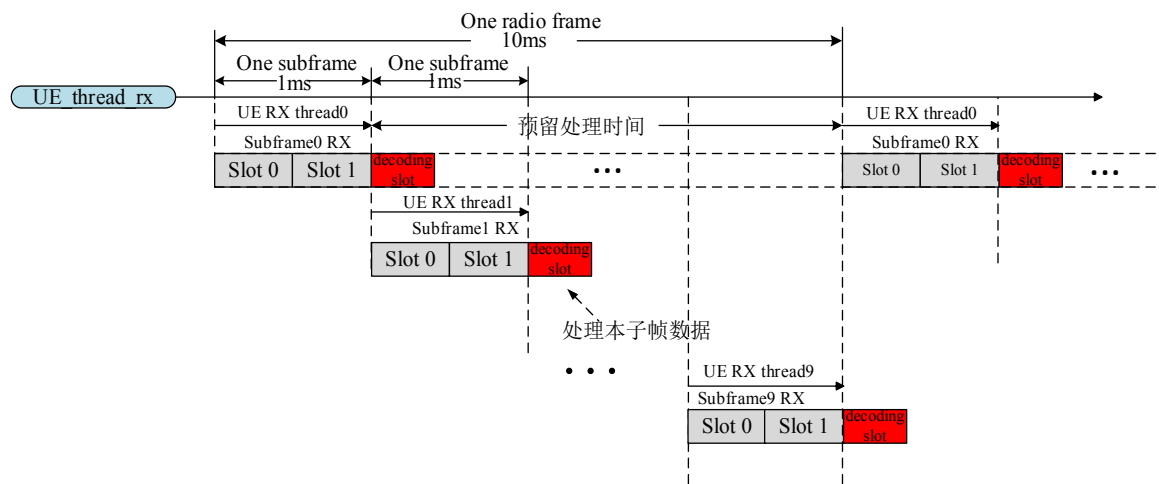
SIC Receiver

- SIC receiver is needed for near UE, which bring a challenge on processing delay.



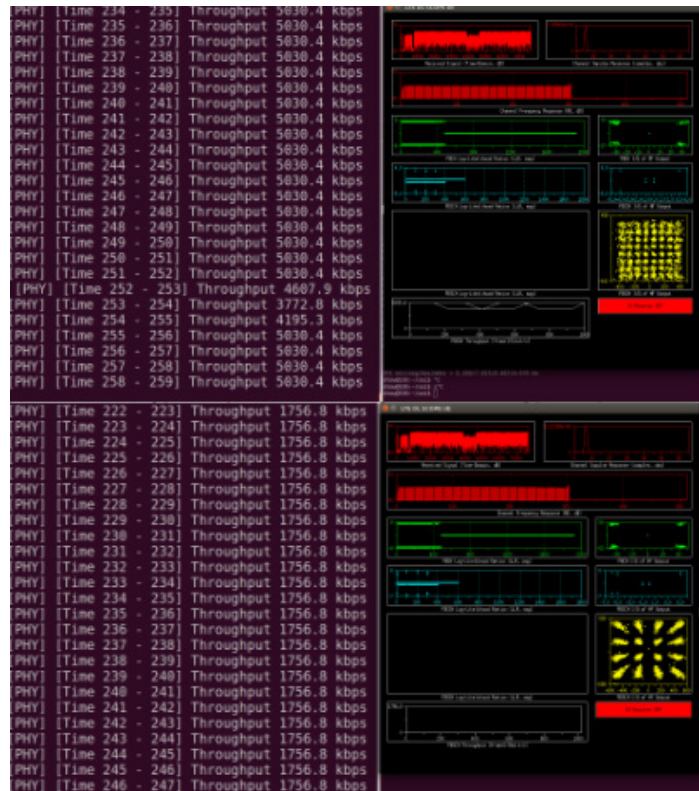
UE multi-thread

- So UE multiple-thread is introduced to control the processing delay.
- For high order MCS, inner decoding multi-thread is also needed.



Demo

- In our real-time SDR demo, NOMA shows a 40% gain over traditional orthogonal multiple access technology.



Plan

- To better evaluate new wireless technologies, based on our software simulation and OAI SDR platforms
 - eLWA demo
 - Further speed up software simulation
 - Implement LDPC, polar code and other 5G features into software platform/OAI



Thanks !



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