

# Smarter technology for all

**3GPP TSG RAN Meeting #102**  
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**RP-233645**

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Document for: Discussion

## **F1 interface impacts to support AI for RAN in Rel19**

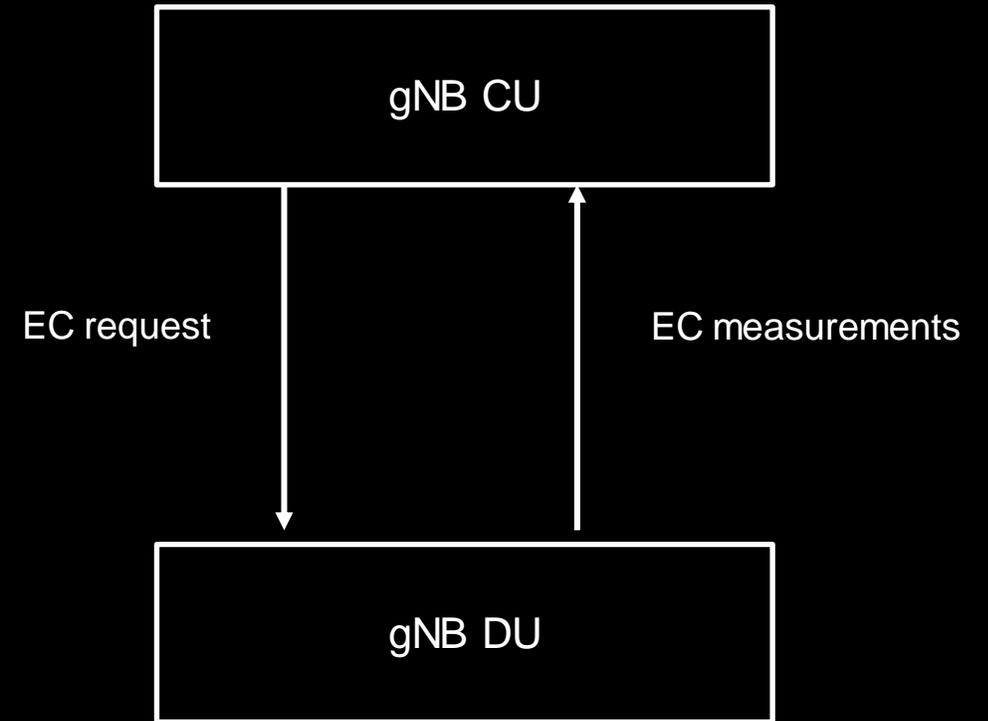
The Lenovo logo is positioned vertically on the right side of the slide. It consists of the word "Lenovo" in a white, sans-serif font, set against a vertical rectangular background that transitions from red at the top to orange at the bottom.

# Motivation

- Rel18 AI for RAN does not specify any enhancement to support CU-DU split architecture due to limited time. On the other hand, it was agreed that the AI/ML training/inference, if any, is at CU in split architecture.
- Therefore, in Rel19, enhancements over F1 interface should be discussed/specified to support AI for RAN in CU-DU split architecture.

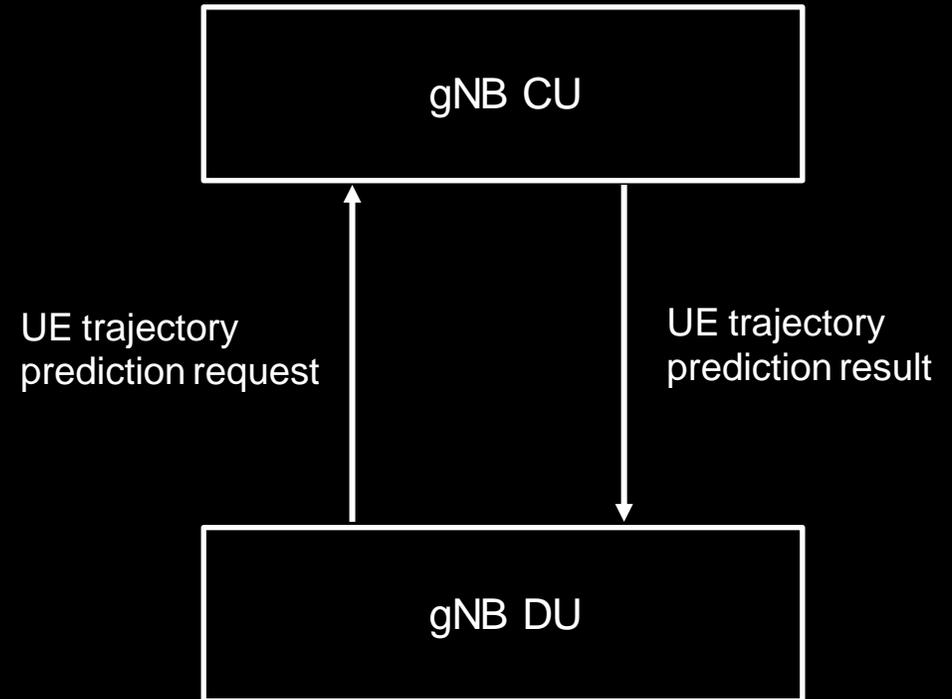
# Possible F1 interface impacts (1/3)

- In Rel18 AI for RAN, to support AI based Network Energy Saving, Energy Cost (EC) can be exchanged between two NG-RAN nodes upon request.
- For gNB CU to collect measured EC from gNB DU, mechanisms are needed (e.g., introducing new procedure, or based on legacy procedure) for gNB CU to request and obtain measured EC from gNB DU.



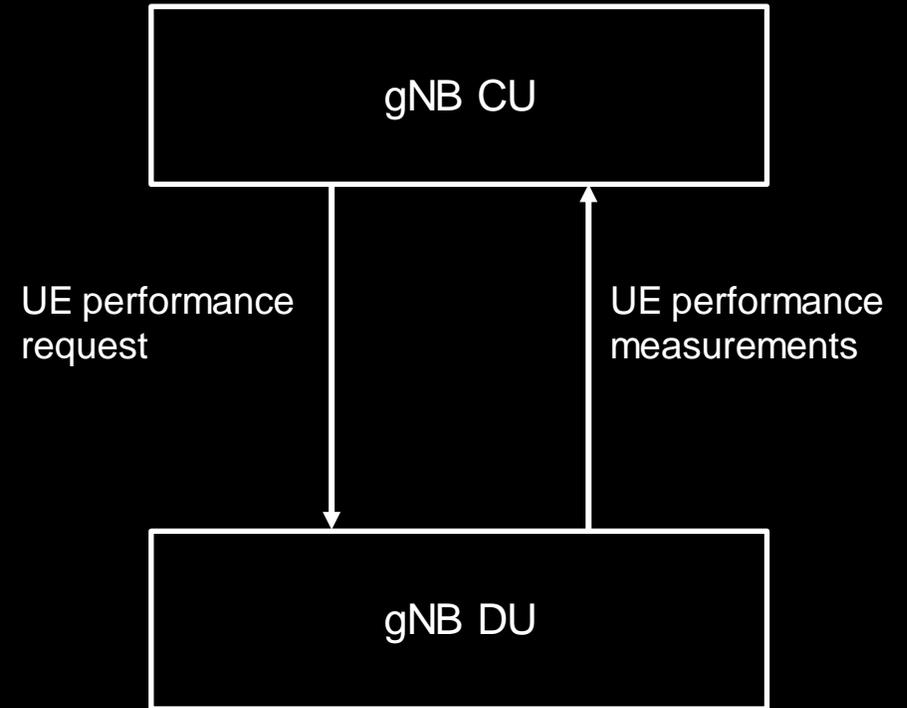
# Possible F1 interface impacts (2/3)

- In Rel18 AI for RAN, to support AI based Mobility Enhancement, NG-RAN node is capable of UE trajectory prediction at cell level.
- In Rel18 NR\_Mob\_enh2-Core, L1/L2 Triggered Mobility (LTM) is supported, wherein DU may make inter-cell handover decision by itself based on L1 measurements, and the LTM command is sent via MAC CE.
- For gNB DU to make optimized LTM decision, mechanisms are needed (e.g., introducing new procedure, or based on legacy procedure) for gNB DU to request and obtain predicted UE trajectory information from gNB CU



# Possible F1 interface impacts (3/3)

- In Rel18 AI for RAN, to support AI based Load Balancing, source gNB can request the target gNB to provide measured UE performance feedback (i.e., throughput, packet delay and packet loss) after handover.
- Some UE performance feedback related measurements are conducted by gNB DU (e.g., UL/DL throughput, DL packet loss)
- For gNB CU to collect UE performance feedback related measurements from gNB DU, mechanisms are needed (e.g., introducing new procedure, or based on legacy procedure) for gNB CU to request and obtain measured UE performance from gNB DU.



# Proposal

- In Rel19, RAN3 discusses/specifies enhancements over F1 interface to support at least the following use cases:
  - Network Energy Saving: CU collects Energy Cost (EC) from DU for energy saving decision
  - Mobility Enhancement: DU obtains UE trajectory prediction from CU for LTM decision
  - Load Balancing: CU collects UE performance measurements from DU

**thanks.**

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technology  
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