Motivation for RAN2 Rel-14 WI Proposal on Multi-profile UE capability for LTE

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Limitations & issues related to current UE capability handling

- The current standard assumes UE E-UTRA capabilities are static and do not change while the UE is attached to the network.
  - A note from TS23.401

> NOTE 5:   In this release of the specifications, "UE radio capability update" is only supported for changes of GERAN radio capabilities in ECM-IDLE. Any change in the UE's E-UTRAN capabilities requires the UE to detach and then re-attach to the system.

- 3GPP is introducing more and more advanced features, addressing different cases; however, **the likelihood that all of the features are activated at the same time is low**

- As per current capability handling, the UE has to be designed to cover the "worst case", i.e. all features activated simultaneously, no matter how likely that is

- Example: a UE may support 5DL CA and Interference Cancellation; however it is unlikely one needs 5 DL carriers and IC on all 5 carriers at the same time; yet the UE must be designed to cover this case

- <u>Conclusion</u>: implementation becomes unnecessarily costly and feature availability / time to market are affected
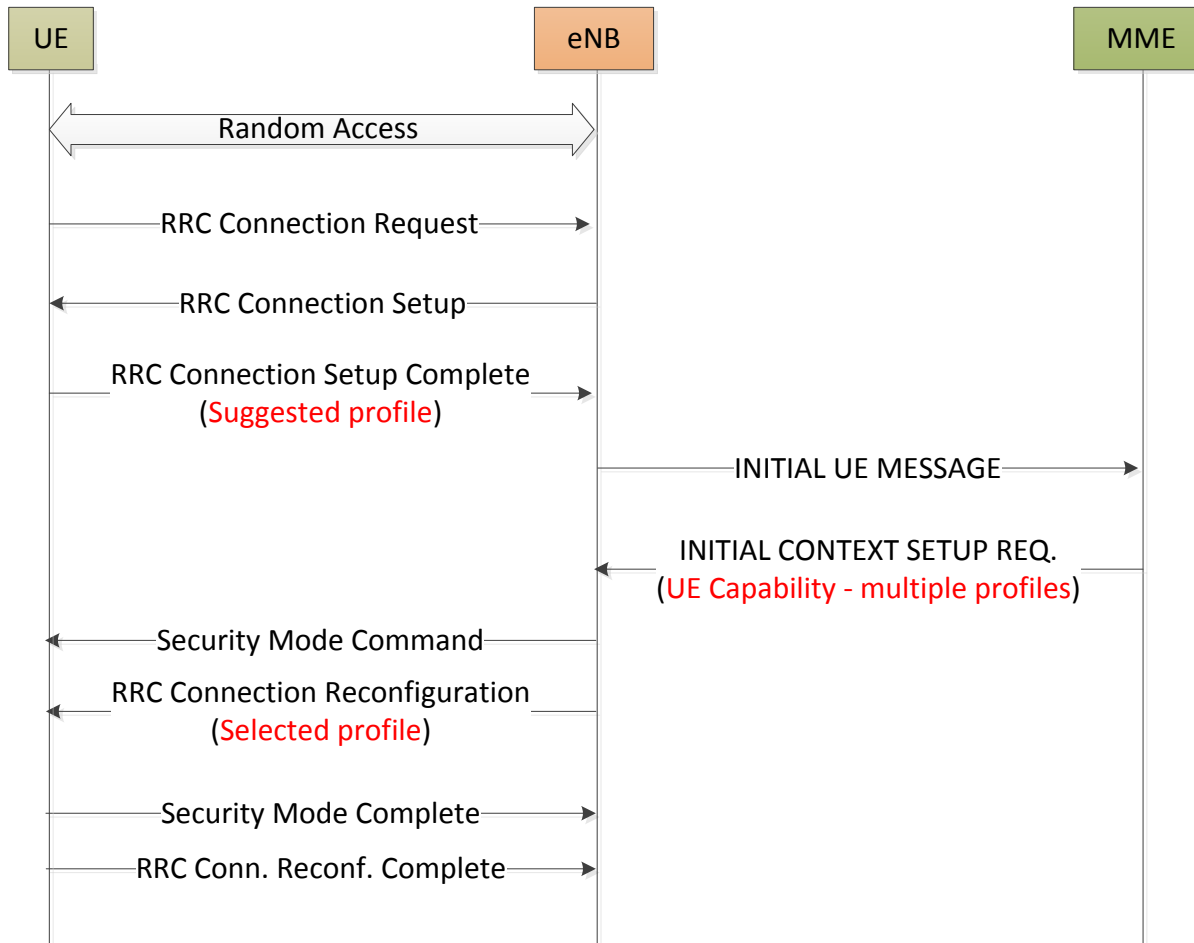
Proposal for Release-13

Adopt a solution that allows the eNB and the UE to select appropriate feature set: "profile"

- For eNB: based on features supported by the eNB, radio condition, load situation...
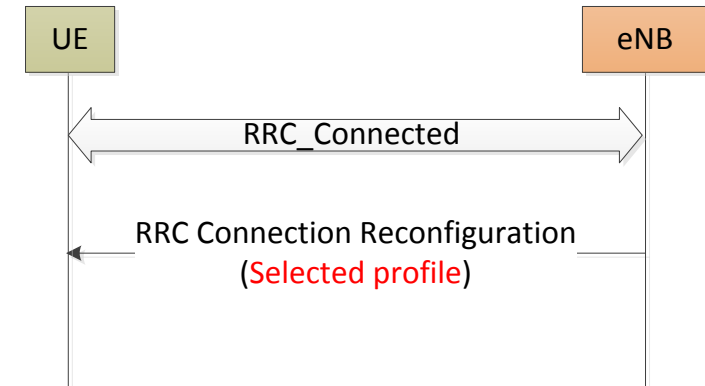- For UE: based on resource demand from different tasks within the UE

Proposed solution:

- Change the UE E-UTRA capability signaling to contain multiple UE E-UTRA capability sets
  - As if the UE can have multiple "profiles", e.g
    - Profile 1 : Cat 9 + feICIC
    - Profile 2 : Cat 11 + eICIC
    - Profile 3 : DL Cat 16
- Add RRC signaling by the eNB to select a profile
- Add RRC signaling by the UE to suggest a profile
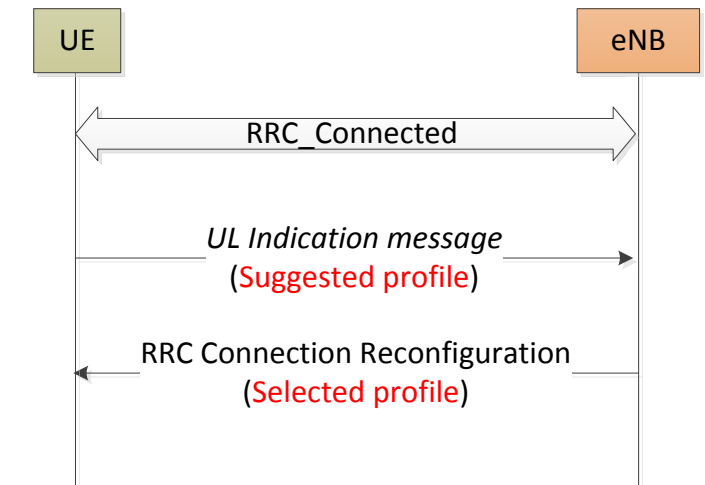- RAN2 should identify features that can be included in a profile

Signaling flows

RRC connection establishment

eNB initiated

UE initiated

Next steps

Work Item proposal in RP-160269

Thank you

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