3GPP TSG RAN Meeting #69
Phoenix, US, Sep. 14 - 16, 2015

RP-151355

Document for: Discussion
Agenda Item: 14.1

View on Rel-14 UMTS

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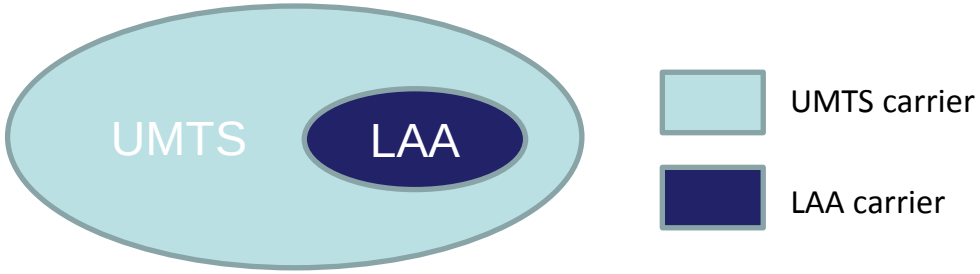
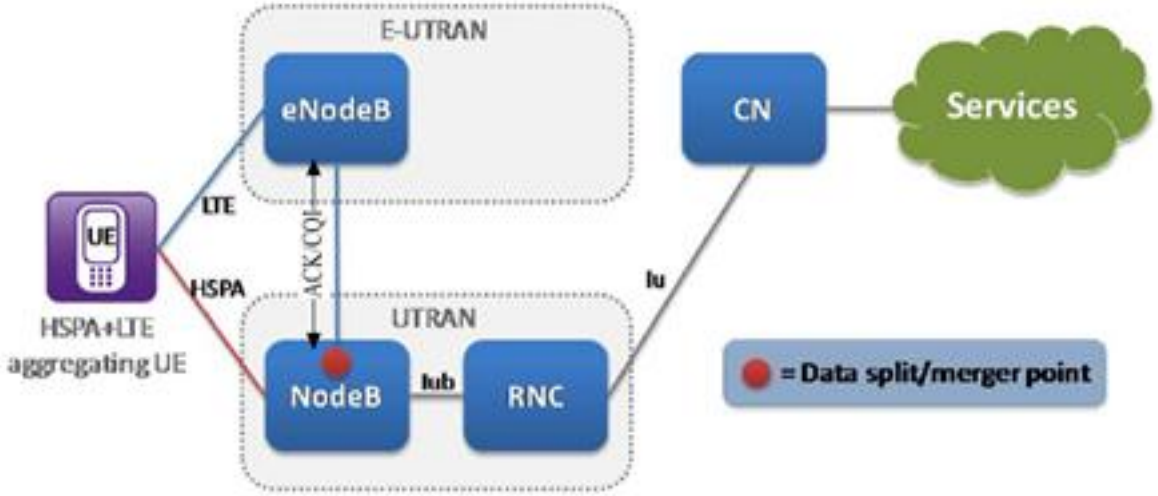
Background

- With more and more spectrum refarmed to LTE, many UMTS networks will use only 5 MHz and will be deployed in different bands, providing basic coverage and voice service. These UMTS networks will require enhancements in the following aspects:
  - Inter-RAT tight interworking, e.g. between UMTS and LTE/LAA
  - Further enhancements on carrier aggregation, e.g. inter-site carrier aggregation due to different band/carrier from sites of different coverage
  - CS voice enhancements, since UMTS is still the most reliable means for voice service
  - Further coverage and capacity improvements, since spectrum refarmed to LTE would put high coverage and capacity constraints on the remaining UMTS network
  - Support diverse services effectively (e.g. CS voice, small data (M2M like))

Inter-RAT tight interworking

- Background
  - As LTE networks are widely deployed, UMTS needs to be interworking with LTE for long term co-existence
  - For Unlicensed LTE, operators, especially those who don't have enough licensed LTE spectrum, may choose UMTS as the anchor RAT
- Scenario/Architecture
  - Typical scenario: CS in UMTS and PS in LAA
  - DL: UMTS + LAA
  - DL Feedback: HSPA+LTE joint feedback





Further enhancements on carrier aggregation

- Background
  - With UMTS spectrum being refarmed to LTE, many UMTS networks will use only 5 MHz and will be deployed in different bands, which would raise new requirements for carrier aggregation
- Scenario
  - Inter-site carrier aggregation between different site (non-collated) due to different band coverage
  - Simultaneous 2 ms & 10 ms transmission over two carriers due to different band coverage

Further enhancements on Coverage & Capacity

- Background
  - Higher coverage and capacity constraints are expected on the remaining UMTS network due to most of UMTS spectrum being refarmed to LTE
- Scenario
  - To support more connections, e.g. in FACH state, to ensure that UMTS subscribers would not foresee a sharp drop though UMTS spectrum was refarmed
  - To support more efficient load balancing among different carriers in idle mode
  - To support DL 256QAM for small cell/indoor scenario

More Efficient Service Provision

- Background
  - With most UMTS spectrum refarmed to LTE, operators have to consider how to take advantage of the remaining UMTS network efficiently for different services.
- Scenario
  - CS service enhancements, since UMTS network may still be the most reliable means for voice service.
  - Further congestion control mechanisms for Data Communication under connected state, this is similar like R13 ACDC, but for connected state, since PCH/FACH will play more and more role in future UMTS network, especially new data service over the remaining UMTS network.

Thank You!