

3GPP RAN #75

Dubrovnik, Croatia, March 6-9, 2017

Agenda item: 9.1

RP-170178

Motivation for Study Item on Positioning support for NR

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General Motivation

- Positioning support in the NG-RAN will be essential or very useful to many user cases including:
 - Regulatory user cases (e.g. emergency calls)
 - Commercial location services (e.g. friend finder, asset tracking, navigation)
 - Network operation (e.g. MDT, cell assignment, load balancing)
- Performance requirements for some user cases may be difficult and challenging (e.g. indoor navigation, indoor emergency calls, IoT)
- A large number of RAN-external positioning methods are already known and several RAN-internal positioning methods are available for E-UTRAN which might be adapted for NR RAN
- Will these positioning methods be sufficient or will other new methods be needed for the more challenging user cases?
- A study can determine the sufficiency of the existing methods and evaluate the relative capability of any new methods

Objectives of the Study

- TR 38.913 contains a set of goals for support of positioning by NR, including
 - Support for a range of accuracy levels, latency levels and device categories
 - Reduced network complexity, reduced device cost, reduced device power consumption
 - Efficient signalling
 - Support for hybrid positioning methods
 - Scalability
 - High security and high availability
- It is very unlikely that any one position method will support all goals
- Therefore the relative capabilities of each position method will need to be evaluated in order to determine the subset of goals that each method can support and which set(s) of methods can support all goals
- The evaluation should also help network operators to decide which position methods to deploy and vendors to decide which position methods to implement
- It may also be possible to (partially) determine new methods through solutions to the limitations of existing methods

Architecture and Signalling Aspects

- In addition to evaluating positioning, the study can also define and evaluate different types of architectural and signalling support
- This can be useful in order to compare and evaluate
 - Different physical allocations of functions (e.g. in terms of NG RAN vs NG Core)
 - Alternative signaling protocols
 - Use of broadcast and multicast
 - Support of control plane and user plane solutions
 - Co-existence with location support for E-UTRAN
 - Positioning in NR standalone and mixed LTE-NR networks
- Architectural and signalling support will also need to align with evaluated position methods in terms of efficient and feasible operation
- There will also be a need for alignment with positioning support in the NG Core
- The results of this part of the study should enable network operators to select solutions that meet objectives in TR 38.913 such as reduced network complexity, low latency and efficient signalling

Conclusions

- A study should allow network operators and vendors to identify solutions best meeting the positioning objectives in TR 38.913
- A study can help enable the definition and evaluation of new solutions should existing solutions prove insufficient for all positioning objectives
- A study can explore network architecture and signaling alternatives best aligned with position methods and objectives in TR 38.913

Thank you

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