

---

**Source:** AT&T, Inc  
**Title:** AT&T Views on CloT  
**Document for:** Decision  
**Agenda Item:** 14.1.1

---

## AT&T Views on CloT

### Background

M2M, IoT, and connected devices are a rapidly growing marketplace. The ability to utilize 3GPP technologies in an efficient manner to serve these and similar market segments is critical to the industry and to operators. This globally recognized market opportunity has a wide range of entry vectors, and differing market need drivers on a national, regional and global level. This drives the need for a rich portfolio of solutions that “box” the marketplace requirements and provide operator choice. As such Cellular IoT represents a new and significant opportunity to define forward looking 3GPP specifications so that operators and manufactures can support this market as it evolves and expands.

It is evident in the current 3GPP Cellular IoT work that has been undertaken in GERAN and RAN, that 3GPP is ready and willing to contribute practical and useful wireless solutions for IoT. It is also evident that in the CloT space, differing perspectives by operators on what is appropriate to support their individual corporate business plans for CloT cannot be ignored in the work in 3GPP. It is noted that the CloT work has become important to be incorporated into 3GPP Release 13 in order for specifications and equipment to be available to support the diversity of deployment timings and marketplaces.

In 3GPP, three solutions are being widely supported to move forward to permit operators to individually choose what works best for them in their networks. In essence, these three paths are:

1. **Enhanced Coverage GSM** - a solution for GSM focused operators
2. **NB-CIoT** – a Clean Slate stand-alone or “lightly integrated” solution with LTE
3. **LTE-NB** – a Clean Slate more “tightly integrated” solution for LTE focused operators

Additionally, there are 3 different modes of operation (spectrum utilization) to be considered that assist in meeting various deployment scenarios:

- A. ‘Stand-alone operation’ utilizing, for example, the bands currently being used by GERAN systems

- B. 'Guard band operation' utilizing the unused resource blocks at the edge of an LTE channel
- C. 'In-carrier operation' utilizing resource blocks within a normal LTE carrier

The ability, when operating in conjunction with already operational LTE spectrum, to have available both a 'guard band' and 'in-carrier' solution choice for a given technology is important. A duality in the operational spectrum utilization choice offers flexibility to accommodate specific spectrum situations that might be found when utilizing certain band segments in particular markets.

The marketplace for IOT as noted previously is large and wide-ranging enough for 3GPP to bring forward *on an equal basis* all these solutions and to do this as part of Release 13.

### **AT&T Perspective**

The AT&T position on Clean Slate LTE-NB and NB-CIoT and the appropriate way Forward on Clot in 3GPP RAN is:

*"AT&T is very interested in the LTE-NB solution proposal and how it might move forward in 3GPP particularly under the normative Work Item Phase in Release 13. We note other LTE operators have also expressed interest in this solution in 3GPP. Given the nature of the global marketplace, the differing needs of operators, and the rich history of LTE, a Clean Slate Clot solution more tightly integrated with the LTE ecosystem is necessary and critical and the time to finalize the specifications is now. Stand-alone (or lightly integrated) solutions such as the NB-CIoT are also apparently and similarly needed for their own marketplace reasons. To be clear: AT&T is not opposing that NB-CIoT be in the 3GPP Clean Slate solution space for Release 13 and as noted, we also expect the LTE-NB (LTE-Lite) solution be similarly incorporated in the Clean Slate normative work in Release 13, with both moving forward in a balanced manner with suitable work plans so that one solution is not prioritized over another and that parity exists so that both might complete under Release 13.*

*To round out the picture, with regard to the EC-GSM Clot solution work currently within the GERAN scope, it is apparently and similarly needed for its own marketplace reasons for the GSM focused community."*

We believe our viewpoint on a balanced way forward can be a catalyst for a compromise way forward in the normative Clean Slate Clot work item in 3GPP RAN Release 13 for both NB-CIoT and LTE-NB.

### **Proposal**

AT&T proposes that:

1. RAN Plenary #69 consider, develop, finalize, and agree the way forward for the Clot normative work in RAN in Release 13.
2. In 3GPP, the acceptance of a balanced way forward is the appropriate approach for RAN on developing the normative Clean Slate Clot Work Item in 3GPP RAN Release 13 for both NB-CIoT and LTE-NB.

3. Both the Clean Slate LTE-NB and the Clean Slate NB-CIoT solutions should move forward on an equal basis in 3GPP, preferably and optimally under a combined (unified) Clean Slate Work Item that encompasses both solutions. If separate Clean Slate Work Items are deemed to be appropriate for each of these solution paths, then these individual Work Items and their ensuing work schedules should be arranged so that one solution is not prioritized over another and that parity exists so that both might complete under Release 13.
4. Additionally, the EC-GSM solution should also move forward within GERAN as appropriate.

The way forward outlined in this proposal ensures that 3GPP provides specifications and solutions that are meaningful and relevant to the CiOT marketplace diversity, supports on an impartial basis the differing and real needs of the operators, recognizes the significant developmental efforts of the manufacturers and technology developers and, most importantly, firmly positions 3GPP in the further emerging IoT marketplace and sets the stage for 3GPP's entrance into 5G.