Abstract

In this paper it is proposed to modify the existing base stations (such as eNodeBs) by adding a new base band board in the 5G base station (5G eNodeB) to serve as a cache and storage unit in order to avoid the 5G core network (5G CN) to send to users under the same 5G eNodeB the same multimedia contents like high definition video multiple times. A copy of the contents will be saved in the new base band board so that if one user needs it, after sending the request to the 5G CN, the 5G CN will negotiate with the 5G eNodeB to check if the requested contents are available at its level. If that is the case, the 5G CN will authorize the 5G eNodeB to send multimedia contents directly to the user without downloading it again from the internet. In this process, the load on the S1 interface and the link between the 5G CN and the internet will be reduced, thus optimizing available resources in both 5G CN and IP transmission. This solution will increase user quality experience and drastically reduce latency in the network.
Design Considerations for 5G Base Stations to Reduce 5G Core Network and S1 Interface Load

10. 3900 Series Base Station Product Documentation Product Version: V100R009C00 Date: 5/30/2015, Huawei Technologies, Hedhexlite, page 900/23608.
11. Ekram Hossain and Monowar Hasan, 5G Cellular: Key Enabling Technologies and Research Challenges, Department of Electrical and Computer Engineering, University of Manitoba, Canada page 4.

Index Terms
Computer Science  Wireless

Keywords
5G network, eNodeB, Core network, S1 interface, distributed storage unit.