Abstract

One of the main concerns of the next fifth mobile radio generation (5G) is increasing the network radio capacity while reducing system power consumption. Cloud-Radio Access Network (CRAN) coupled with Heterogeneous Networks (HetNets), called H-CRAN, reveals a promising paradigm to solve this problem. By having one centralized Base Band Unit (BBU) pool, the transmit powers at the different Radio Remote Headers (RRHs) are indeed better controlled while meeting users’ quality of service. More precisely, a coordinated power control at the H-CRAN’s BBU pool helps activating the appropriate RRHs in the macrocell given the fact that coverage and radio capacity are ensured with the HetNet. In this paper, a practical solution to efficiently monitor the transmit power at the RRHs in an H-CRAN is proposed. Only the most requested RRHs and which ensure minimum total power consumption in the system are activated. Different scenarios are studied and simulation results showed that the total transmit power can be reduced by at least 58%.

Index Terms

Computer Science  Networks
Keywords

CRAN, H-CRAN, RRH, Power control, Energy Efficiency