Preserving Reliability of Heterogeneous Ultra-Dense Distributed Networks in Unlicensed Spectrum

ABSTRACT

- This article investigates the prominent dilemma between capacity and reliability in heterogeneous ultra-dense distributed networks, and advocates a new measure of effective capacity to quantify the maximum sustainable data rate of a link while preserving the quality of service of the link in such networks. Recent breakthroughs are brought forth in developing the theory of the effective capacity in heterogeneous ultra-dense distributed networks. Potential applications of the effective capacity are demonstrated on the admission control, power control, and resource allocation of such networks, with substantial gains revealed over existing technologies. This new measure is of particular interest to ultra-dense deployment of the emerging 5G wireless networks in the unlicensed spectrum, leveraging the capacity gain brought by the use of the unlicensed band and the stringent reliability sustained by 5G in future heterogeneous network environments.

EXISTING SYSTEM

- Recent breakthroughs are brought forth in developing the theory of the effective capacity in heterogeneous ultra-dense distributed networks. Potential applications of the effective capacity are demonstrated on the admission control, power control, and resource allocation of such networks, with substantial gains revealed over existing technologies.
- A key issue yet to be addressed for ultra-dense networks in the contention-based unlicensed spectrum is the trade-off between capacity and reliability, that is, quality-of-service (QoS). To date, very little consideration has been put on reliability in contention-based distributed networks, let alone heterogeneous ultra-dense deployment of such networks .

PROPOSED SYSTEM

- Future wireless networks are anticipated to be deployed in an ultra-dense fashion to boost network capacity. This is because the ultra dense deployment is able to compensate for the limited bandwidth by reusing the bandwidth geographically.
- The ultra dense deployment could be implemented in a centralized manner, such as cloud radio access network (C-RAN) [1], or a hybrid fashion with centralized management of traffic routing and distributed interference avoidance control , or more desirably in a completely distributed manner.

CONTINUE

- This new measure is of particular interest to ultra-dense deployment of the emerging 5G wireless networks in the unlicensed spectrum, leveraging the capacity gain brought by the use of the unlicensed band and the stringent reliability sustained by 5G in future heterogeneous network environments.

HARDWARE REQUIREMENTS

- Processor - Pentium –III
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Floppy Drive - 1.44 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

SOFTWARE REQUIREMENTS

- Operating System : Windows 8
- Front End : Java /DOTNET
- Database : Mysql/HEIDISQL

CONCLUSION

- This article discusses the key dilemma between capacity and reliability in heterogeneous, ultradense, distributed networks residing in the unlicensed spectrum. The new measure of effective capacity is advocated, which quantifes the maximum consistent data rate of a link without violating the reliability (or QoS) of the link.
- Particularly, we present the recent nontrivial development of the eff ectivecapacity in heterogeneous ultra-dense distributed networks, as well as its potential applications to the admission control, power control, and resource allocation of practical networks.

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