System and Method for User-Specific Quality of Service Scheduling in Wireless Systems

Researchers at the University of South Florida have developed a novel method to improve the spectral utilization in wireless systems.

In today’s wireless networks, the spectral allocation of network resources is independent of the Quality of Service (QoS) requirements of the specific application and/or of the users' specific perceived QoS, or at most relies on a set of pre-defined fixed priorities. Indeed, from the user’s perspective, the QoS required by different applications can be quite variable. Similarly, for a given application type, different users may require different levels of QoS. Hence, there is a need in the art for a system and method that utilizes the user specific QoS requirements and a scheduler to differentiate the users and to make better use of the wireless spectral resources, thereby maximizing spectrum utilization while maintaining user satisfaction.

Researchers at USF have created a novel user-specific QoS scheduling which can improve the number of supportable users. This is achieved by incorporating user-specific QoS requirements, while maintaining an acceptable Mean Opinion Score (MOS) level. User-specific QoS scheduling can also achieve significant MOS improvement by allocating resources more efficiently. Furthermore, when targeted to maximize spectrum utilization and combined with voice codes matched to the auditory characteristics of users, higher system capacity at comparable MOS levels can be achieved. This method improves the quality, capacity, and performance of the wireless systems.

ADVANTAGES:

- Better spectral utilization
- Improves system capacity by increasing number of supportable users
- Improves user experiences

Maximizes Spectrum Utilization

Simulation Results With LTE Modules for Two Cases of 54 VoIP Users With and Without 12 Video Users

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