Chapter 18
Optimized Throughput-Based Broadcasting for Next Generation Wireless Networks

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ABSTRACT

Remote areas benefit from lower costs for transporting enormous amounts of data between a source node and multiple networking devices. Noise and constraints necessitated a 64 kb/s broadcaster. Bit defect rates, abnormalities, and frequent retransmission prevented data movement.This could greatly minimize channel usage. The maximum transmission unit distance was 64B. Data packet size limits exacerbated issues. Massive data traffic, connection imprecision, and changing topology affect network structure, making data dissemination from source nodes to all devices difficult.This book chapter suggests using an advanced throughput optimal broadcast in point-to-multipoint wireless networks to improve wire-less link precision by using the Mayfly optimization method, a recent swarm intelligence soft computing technique, to improve geometrical configuration of interfering terminals and forecasted per-flow throughput

DOI: 10.4018/979-8-3693-1335-0.ch018

INTRODUCTION

According to one definition of the term "broadcast challenge," this refers to the task of effectively dispersing the packet transmission from origin nodes to the various other nodes depicted in figure 1. Broadcast media is a term that refers to the wireless infrastructure that is extensively utilized in a number of applications. These applications include the dissemination of information, battle communication, catastrophe risk management, network function estimation, and effective data propagation, particularly in wireless mobile networks.

Because of the fundamental nature of its structure, the issue of broadcasting over wireless connections has been subjected to an extensive amount of scrutiny and investigation in a variety of published publications. As a direct consequence of this, various algorithms for improving performance measurements have been proposed. Broadcasting that uses little energy, broadcasting that is optimal throughout, broadcasting that has low latency, and broadcasting that places restrictions on retransmissions are only a few examples. In addition to the aforementioned attributes, the point-to-point aspect of the wireless channel has been an important distinguishing feature (Pandey, D.,et al.,2021).The benefit of wireless broadcast would be useful across the board for network-wide broadcast application sectors, with the aim of effectively dispersing packets across all of the devices that are part of the system. In addition, synchronous transmitting units on wireless networks have had their availability severely restricted to non-interfering schedules because of interference from other nodes (Pandey, B. K.,et al.,2022).

This research describes the effective packet propagation difficulties in wireless networks that have point-to-multipoint wireless broadcast stations, as well as dynamic policy to assist in the expansion of broadcast network potential and the Mayfly optimization method, a recent swarm intelligence soft computing technique, to improve the geometrical configuration of an activated non-interfering linkage. Other topics covered include dynamic policy to aid in the expansion of broadcast network potential, as well as dynamic policy to aid in the expansion of broadcast network potential.

RELATED WORK

According to (Sinha, A., Tassiulas, L., & Modiano, E. (2019)), the difficulty of establishing concentrated point-to-point connections in wireless networks should have been investigated. This resulted in the development of a variety of broadcasting strategies. As the authors studied the rigorous framework, which presupposes that judgements are made either by a centralized unit or by an individual, the full challenge of designing the broadcast policy must have been considered. People were able to obtain a randomized packet system with the help of the aforementioned things, which requires information to be shared between neighbouring nodes. The methodology would be perfect for meeting strict time constraints like deadlines. The entirety of the study focused on investigating both combined optimal scheduling as well as the issues of propagation in wireless networks that had connections.

A technique for resolving flow problems with links that makes use of a recently created virtualization component as part of the solution (Ahmad, A. Y. B.,et al., 2023). This is said to be the very first known approach in wireless networks to have broadcast utility, and it has been recognized as such. A system model that includes attempting to verify a finite-horizon toughness disadvantage variation and extracting an optimal policy for quite a comfy wireless network variant will be investigated, as will the fundamental problem of throughput-optimized broadcasting via wireless connections. This policy was