Directed Hypergraph based Channel Allocation for Ultra Dense Cloud D2D Communications with Asymmetric Interference

ABSTRACT

- In this paper, we investigate channel allocation for ultra-dense device-to-device communications.
- Different from both binary graph and undirected hypergraph interference model, an improved directed hypergraph is applied to simultane-ously represent cumulative and asymmetric interference aspects in the context of ultra-dense communications.
- We formulate the channel access problem in cloud D2D communication networks as a directed-hypergraph-based local altruistic game, which is proved to be an exact potential game.

EXISTING SYSTEM

- Accordingly, D2D communications can significantly improve the spectrum utilization efficiency from the perspective of spatial domain and alleviate wireless operator's traffic burden. In the near future, there will be numerous D2D pairs under the coverage of BS.
- The appropriate channel allocation is a key issue in the resource management for wireless networks.
- Many graph-based allocation schemes have been proposed for D2D communications.

PROPOSED SYSTEM

- Then, a multi-agent concurrent learning scheme in centralized-distributed fashion is proposed to search the optimal pure Nash equilibrium, which can also maximize the normalized network capacity.
- Then, we formulate the channel access problem in the cloud D2D networks as a local cooperation game to maximize the normalized network capacity.
- To fully utilize the cloud platform, we design a centralized-distributed learning algorithm to converge to the optimal PNE, which maximizes the defined normalized network capacity.

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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