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Spreading the Traffic Load in Emergency Ad-Hoc Networks deployed by Drone Mounted Base Stations

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Today's wireless networks are very reliable but in emergency scenarios they can quickly become saturated. One way to provide a temporary solution is to mount femtocell base stations on drones. In this study, we investigate if the number of required drones can be reduced by equipping public transport and emergency services vehicles with a femtocell base station. To this end, a network planning tool for the drones has been developed while accounting for the coverage already provided by the base stations installed in public transport and emergency services vehicles. The tool has been applied on a realistic disaster scenario in the city center of Ghent, Belgium. Our results show that the amount of traffic of the drone mounted base stations can be reduced. As using emergency services and public transport vehicles enables to reconnect 5% of all users. This limited influence is due to the less optimal location of the vehicles. Still 3205 drones are required to cover all users.

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