Evaluación del impacto del Noisy Neighbour en Redes Móviles virtualizadas

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ABSTRACT

The enhancement of virtualization in new generation cellular networks involves the arising of new paradigms in network management. Network Slicing is known as one of the key enablers for the wide range of different high QoS demanding services that are expected to be supported by 5G. The correct sharing of the underlying resources implies a complex architecture that makes virtualization difficult to be full controllable. The Noisy Neighbour is identified as an entity that uses most of the underlying resources, while other virtual units are suffering a lack of them. This work presents an emulated 5G Noisy Neighbour scenario, in which the impact of this entity is evaluated through the Virtual Network Functions of the 5G Core, in order to assess the degradation that KPIs suffer when a Noisy Neighbour appears. The present work also evaluates the effectiveness of a Machine Learning Noisy Neighbour identification model, based on the metrics gathered from the proposed framework, and proposes the application of Artificial Intelligence for predicting network performance, based on network inputs and CPU resources used by the Virtual Network Functions, and a prediction model to forecast the amount of CPU resources that may be demanded by the network in each moment. This approach intends to enhance the resources awareness in a virtualized cellular network, what is posed as crucial for efficiently managing the Noisy Neighbour problem.