Universidad de Extremadura

Centro Universitario de Mérida

Grado en Ingeniería Telemática en Telecomunicación

Trabajo Fin de Grado

Desarrollo de un simulador de redes basadas en software para redes 5G

Cristian Cruz Carrasco

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Abstract

Departing from the need to research and develop new enabling technologies for next-generation networks, this project aims to develop a discrete event simulator of one of the most important enabling technologies for 5G networks, Software Defined Networking (SDN). SDN provides the programmability of the services provided by these networks, allowing us to run and manage traffic flows dynamically in order to obtain maximum performance benefits, an essential feature for this type of networks. To achieve the objective proposed in this Final Degree Project, the technology and the different existing simulation and emulation tools will be studied, dividing the software development in several modules so as to facilitate its implementation. As a resul, a significant difference has been observed in terms of the delay obtained after executing simulations using both implemented operating modes (proactive and reactive), a decisive factor for the correct operation of those applications and services that are affected by this parameter of Quality of Service, QoS. In conclusion, the development of this project provides an alternative SDN simulation solution to the existing ones for the research area, with further possibility for future work. Furthermore, this project has resulted in an informative alternative, providing us with a tool that facilitates the understanding of software-defined networks.

Keywords **-** 5G, SDN, Simulation.