

Quality of Experience in 5G Networks

Objective: demonstrate how virtualized 5G networks, relying on Network Slicing technology, will be able to ensure Quality of Service and User Experience in real time.

Description: Telefónica, in collaboration with Optare Solutions, the University of Vigo, Minsait and GCTIO, has developed two use cases based on a self-managed 5G network with the aim of showing the possibilities of 5G network slicing when applied to video streaming and the connected car.

Specifically, Telefónica has relied on a 100% virtualized network to deploy two services with very different needs. The first case is an Ultra High Definition video streaming service that requires high bandwidth and high reliability. For this, network slicing allows to guarantee the appropriate transmission speeds and network quality for the users of this video service. The second case is a remote driving service for a remote-controlled car where low latency and stability are essential requirements. In the same way, network slicing provides a virtualized network layer specifically for this type of service that ensures low and stable latencies in the connection.

In both use cases, machine learning techniques were used to constantly analyze the quality of service and user experience, in addition to having the ability to prevent a possible degradation of service and, if it occurs, to take the necessary actions in real time to restore the quality. This is possible by switching to higher quality of experience slices or increasing the virtual network resources associated with the service.

As pointed out by Mercedes Fernández, Innovation Manager at Telefónica España, "thanks to this project, we have made progress in defining future self-managed 5G networks whose objective is to ensure that customers always enjoy an optimal quality of experience when accessing 5G services. To achieve this, the network adapts dynamically, automatically and in real time (Zero Touch philosophy) to the different capacities demanded by the customer, linked to the concept of network slicing".

Telefónica has led the proof of concept of self-managed 5G networks while Optare has implemented the use cases and network quality functions; the University of Vigo has deployed, together with the Optare team, the virtualized network resources, and Minsait, an Indra company, with the University of Vigo, has worked on the configuration of the virtualization environment.

[Press release](#)



Downlink
Capacity



Low Latency



Network slicing



Universidade de Vigo

minsait

An Indra company

