

Intelligent Network Function Placement for Network Slicing in 5G Networks: The Case for Network Slices Traffic Differences***Abstract***

Advancements in 5G technology have seen a rise in adapting network slicing (NS) to differentiate the services offered in different network segments due to differences in performance requirements and traffic characteristics. With the growing demand for network automation, several works have explored the concepts of intelligent network slicing but only focused on the individual domains in telecommunication networks, i.e., Radio Access Network (RAN), Transport Network (TN), and Core Networks (CN). This work, therefore, demonstrates an approach to end-to-end (E2E) dynamic and/or intelligent network slicing that meets the agreed Service Level Agreements (SLAs) and Quality of Service (QoS) requirements incorporating the RAN and CN. Using traffic differences as the basis for placing network functions (NFs), we demonstrate how real-time traffic characteristics learning can inform the user plane (UP) functions where to place and scale the NFs.