Implementing network slicing using P4 for the Tactile Internet

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***Abstract*—The main problem currently limiting the Tactile Internet from becoming a reality stems from its most ambitious requirement, the requirement of extremely low latency. In order to achieve correct differentiation and resource isolation of this type of traffic on all the forwarding nodes, network slicing is needed, i.e network resources that correspond to different latency requirements are allocated by the centralized controller for different applications. Each time a new low-latency application is created in the network, a network slice (a collection of resources that, appropriately combined, meet the service requirements) is created and the appropriate network functions deployed. This paper describes a novel data-plane forwarding differentiation technique implemented in P4 that can be integrated with centralized control programs to ensure that Quality of Service (QoS) for a slice is guaranteed and variable components of network delay, i.e. processing and queuing delay, minimized.**

***Index Terms*—Tactile Internet, QoS, SDN, P4, programmable networks**