Towards Flexible SDN-based Management for Cloud-based Mobile Networks

New technologies and architectures arise in the telecommunications industry in order to cater to the ever growing demands in terms of resource utilization, manageability and user experience. C-RAN and SDN represent two such novel paradigms, both advocating for centralization of a set of resources or control capabilities respectively. The C-RAN architecture requires a significant amount of link capacity which may be a prohibitive factor in its adoption hence an obvious solution is to intelligently share the physical infrastructure among several virtual operators. In this context, a new challenge is to flexibly manage the sharing of the infrastructure. This paper argues that a centralized, SDN-based approach can bring the needed flexibility in the management of the C-RAN. More specifically, this paper proposes a policy-centric management framework, which uses the SDN architecture to enforce various rules for sharing the physical infrastructure. A testbed based on Floodlight and Mininet has been implemented to show the benefits of using this automatic management tool for sharing the mobile site capacity.