

Fiche doctorat

Titre : Dynamic Network Slicing Allocation in Multi-Domain for Softwarized Infrastructure

Mots clefs : Network Slicing, Reconfiguration, Multi-Domain, 5G

Nom Prénom : Gomes Sousa, Rayner

Directeur de la thèse : Miguel Franklin de Castro

En collaboration : UFC ; Université de La Rochelle

Encadrant AllianSTIC : Dario VIEIRA

Description : Network slicing plays a crucial role in 5G envision since it allows deploy suitable virtual networks in order to fulfil the vertical-markets demands. A slice is a partition of network reserved for a tenant, and therefore the network slicing accounts for allocations and reservations of networks resources. Network slice is a virtual network embedding (VNE) problem, so it is an NP-hard. Recently, many works have been proposing different mechanisms, mostly adopting heuristics to perform to map the virtual element to physical ones, to carry out network slicing in a reasonable time. Despite a vasty of works which focus on optimisation problem, there are opportunities to solutions that tackle the reconfiguration of slices taking account multi-domains. Also, solutions for the fact that in 5G the network slices are offered as service (NSaS), therefore it could often face the challenge of insufficient resources as the number of users increases, thereby resulting into poor network performance. Efficient slice reconfiguration algorithms have to incorporate a form of Pareto optimality techniques, whereby network slice resources can be dynamically scaled up/down or in/out to optimally serve the total number of slice consumers without leaving any other active network slices with insufficient amount of resources, i.e., negatively impacting the performance of any active network slices.