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## **Resources Management in Software Defined Environment**

A Software Defined Environment (SDE) is expected to optimize the entire resources management in network computing infrastructure (compute, storage, and network resources). The SDE objective is to pave the way for a unified control plane that would allow operators to manage and to optimize the deployment and the execution of their network services. In this context, specific solutions have to be designed to support resources management, control, mobility and reliability to mention few of them. In order to achieve these objectives, there is a need to tackle different components in the network infrastructure:

1. Network Functions Virtualization (NFV), resulting in some network functions to be implemented in software as virtualized network functions (VNF) and enabling dynamic methods to construct and manage how these network functions are instantiated, connected, or chained, to achieve the overall network functionality or service. Examples of these functions can be quality of services, firewall, multicasting, caching, etc.
2. Programmable and Software-Defined Networking (SDN), abstracting and externalizing some control plane functionalities within the network functions to logically-centralized controllers running a collection of applications for local and/or end-to-end optimized network operation.
3. Unified Resource Management, enabling a coordinated management of the overall network resources across the entire domain.

The aim of this thesis is to study how Software Defined Environment as a new paradigm can enable optimized resources management. Through this thesis we aim to explore in-depth the impact of SDE on network performances (VNF, SDN, resources management), especially in the context of resources management for next generation networks and services.