Course Takeaways - SDN

1 - What makes SDN different from legacy computer networks ? What are the appealing opportunities that it paves the way for ? What are its main challenges ?

SDN is a method used to manage networks remotely, allowing faster flexibility when it comes to managing the routing protocols of a network. This management is done through an SDN controller that is linked to each router it controls.

Through its open interface, it is divided in two main parts: the Network Operating System, or interface sud, that communicate directly with the nodes of the system (Switch, routers…), and the interface North, APIs that can be added to implement management functionalities to the SDN Controller.

2 - What does NFV (Network Function Virtualization) stand for ? What are the opportunities that it paves the way for ?

The Network Function Virtualizer, or NFV, represents functions such as Routing, NAT or Firewall that are implemented on virtualized environment, virtual machines. It goes along with SDN, but for upper layers (transport, application…). It allows more flexibility when it comes to adding, managing or removing functionalities.

3 - Are SDN and/or NFV relevant for your semester project ? If not, choose one of the assignments below ?

Our project relies on only four devices communicating: a smart watch, a phone, a web server and a development board. It is here unnecessary to implement SDN or NFV.

Title : IoT Gateway Edge VNFs on uCPE (document)

a. What is the purpose of the technical solution of the demonstration?

The technical solution and demonstration aim to prove that edge computing for Virtual Networks Functions (or SDN in our case) showcases advantages over cloud computing. The demonstration allows the reader to have a reproducible and demonstrable solution.

b. Describe in a few lines the principles of the given solution.

The solution consists in hosting the VNFs and SDN functions on an uCPE, a network oriented local server. This solution allows the calculation to be closer to the developer, and presents many benefits such as reduced costs, security and privacy and rapidity of both installation and latency.

c. Who benefits from such a solution? (users? network operators? application service providers?)

This solution might benefits:

- The users, as the system might have a smaller latency and timeouts, meaning a better experience, but also rely more on privacy and security from the operators, with less intermediate actors.
- The operator, that will save money and time for the deployment