

# Virtual-Router Redundancy

Consider the scenario of figure 1. Network A is composed of a set of clients and a SDN-enabled switch (SS), which is managed by an SDN controller. Network B is composed of a set of servers and a legacy switch (LS). The two network are connected by means of two routers.

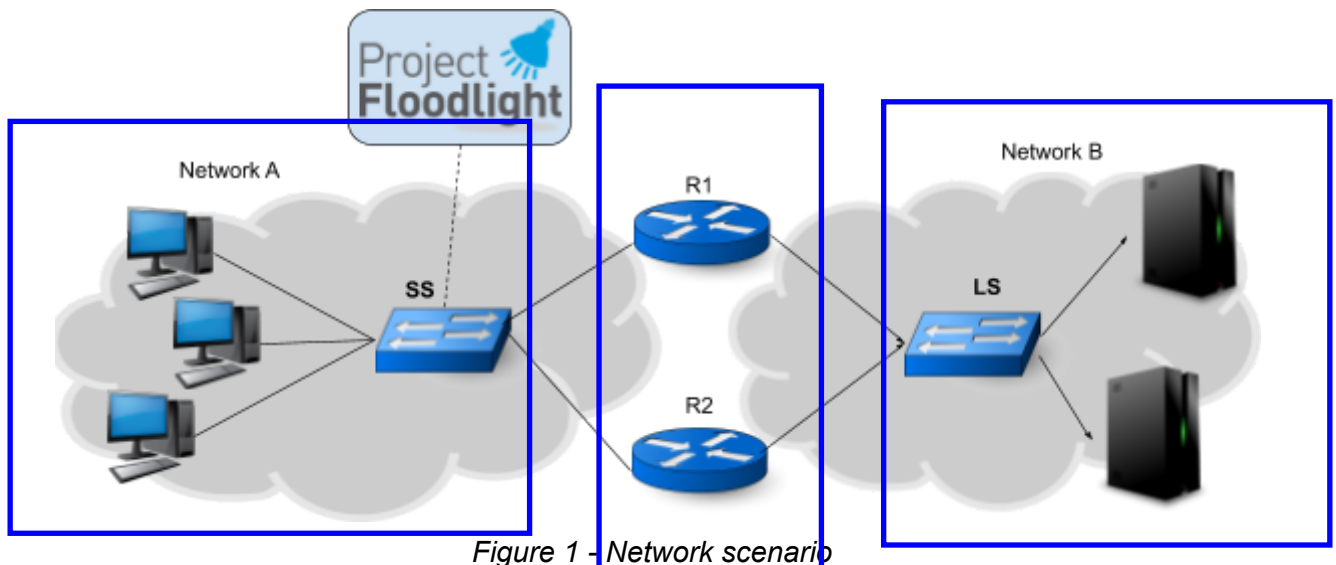


Figure 1 - Network scenario

**Goal:** define and implement a *centralized* mechanism to let clients in Network A communicate with servers in Network B through one gateway (either R1 or R2) that can be changed dynamically (e.g. due to failures). More specifically, at any time only one router (either R1 or R2) must operate as the gateway for all clients, while the other is available as a backup. Therefore, no load balancing between routers must be implemented. Moreover, clients must be unaware of which router is acting as a gateway at all times.

The Virtual Router Redundancy Protocol (VRRP) specified in [1] provides a *distributed* solution to the above problem. Use it as an *inspiration* and define and implement a *centralized* solution using the SDN capabilities.

**NOTE:** It is **not** requested to implement the whole protocol defined in [1].

[1] Nadas, S., Ed., "Virtual Router Redundancy Protocol (VRRP) Version 3 for IPv4 and IPv6", RFC 5798, March 2010, <<https://www.rfc-editor.org/info/rfc5798>>.