Project n.1: Realizing Network Slicing

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ECE-595 Network Softwarization

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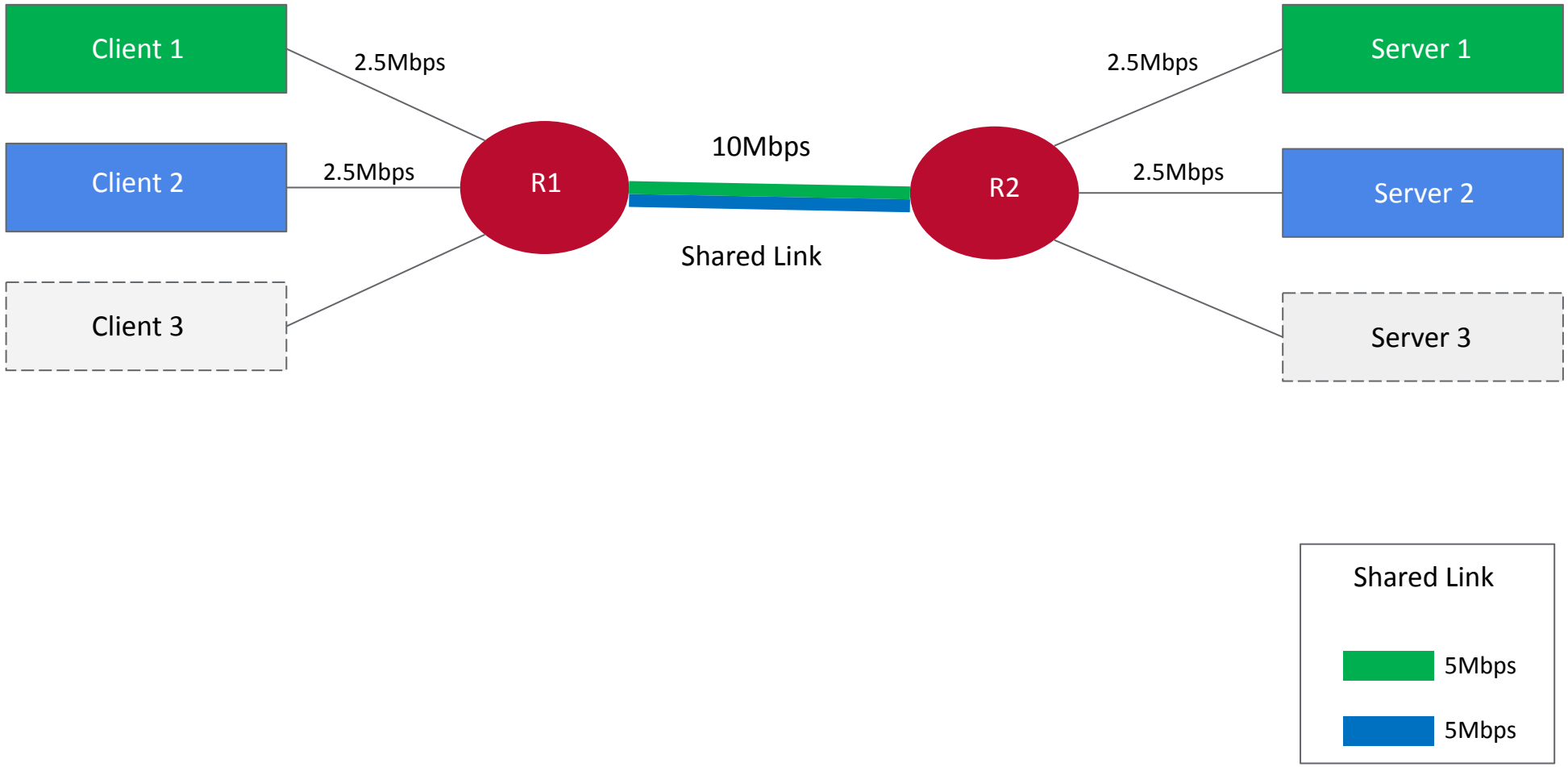
May 12, 2021

Overview

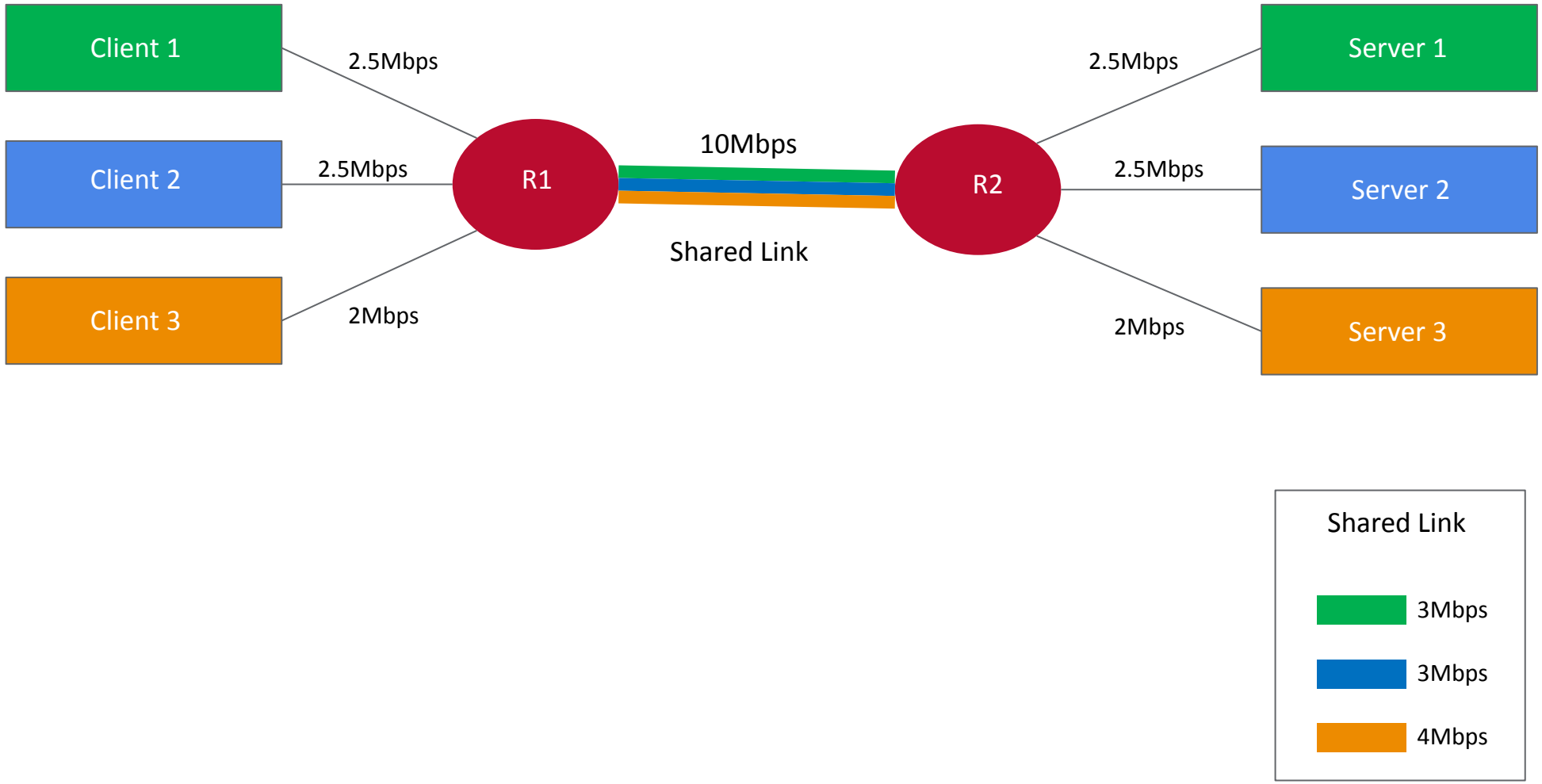
GOAL: to implement in Comnetsemu VM a network slicing strategy to adapt to emergency situations

DETAILS: In a *normal scenario*, 2 slices are available, equally sharing the total capacity but using only 50% of the respective capacity. In emergency scenarios, a new slice is built and then the other slices are reduced. Once emergency is gone, capacity is back to the original.

System Model: Normal Scenario



System Model: Emergency Scenario



Implementation

We used Topology slicing to implement the project

A topology with three slices was created

We added two switches and 6 hosts and connected them slice-wise

For the normal scenario, we disabled the third slice

We allocated 5Mbps capacity for the two active slices

The slices will carry 2.5Mbps of data (50% capacity)

Implementation (Contd.)

We also created another python file used by Ryu-manager to manage the slices, where we implemented the port mapping for the slices

For the emergency scenario, we adopted the same topology, activated the third slice and reallocated the bandwidth.

We gave the third slice a bandwidth of 4Mbps

The other two slices are allocated 3Mbps each

The emergency slice carries 2Mbps (50% capacity)

Demo

We now proceed to the DEMO

Thank you!

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