Politecnico di Torino

Protocolli e Architetture di Routing

Capture and analysis of RIP packets

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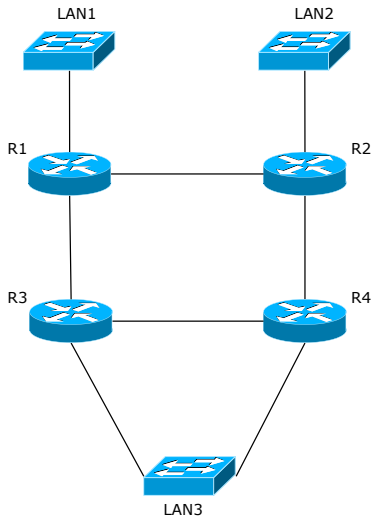
Introduction

Given the router network pictured below, configure the devices with IPv4 addressing rules using the **192.168.4.0/22** address block.

Configure the network to use the RIP protocol (version 2), then verify that routes are correctly propagated and that all the destinations can be reached (e.g., using PING sessions).

Note: *disable routes auto-summary feature, to avoid the announcement of non-existent /24 networks.*



Lab questions

1. Provide an image of the **addressing plan** used in the network, including the addresses of all the router interfaces and IP networks.

2. Capture the traffic on the link between R1 and R2 an put in *shutdown* the interface of R3 faced towards R1 (otherwise, turn off the interface of R4 towards R2). **Succinctly** list the **relevant** fields of each RIP packet generated after the simulated failure.

3. List the RIP messages that would have been sent in the previous case, if RIP had been configured **without split-horizon**.
   For brevity, you can disable split-horizon only on the interfaces you are capturing from.

Theory questions

4. Describe the main fields of a RIP packet *(captured in a steady-state network, without failures)* and their meaning.

5. Describe the packets generated by RIP on a given link to signal a route change, pointing out which information is included in each packet and its relationship with the failure *(consider the default RIP configuration, where split-horizon is **enabled**).*

6. Briefly explain the protocol behavioural differences in RIP between the configurations with Split Horizon enabled and disabled.