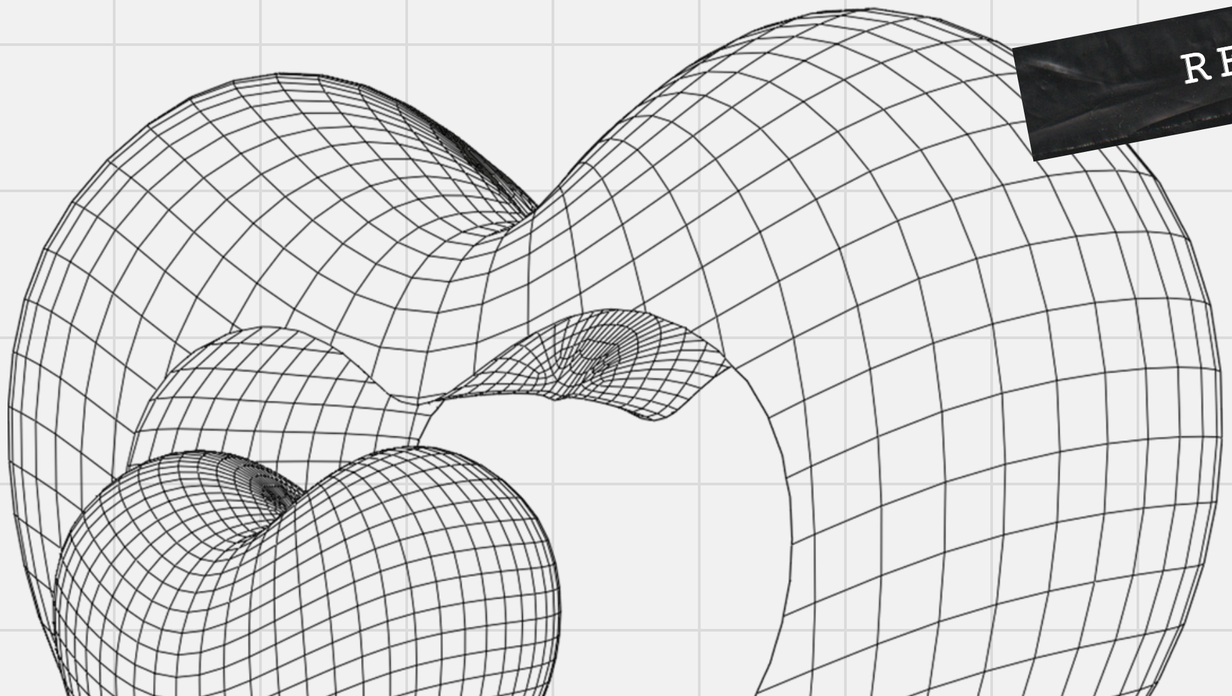
U.PORTO

FACULDADE DE CIÊNCIAS
UNIVERSIDADE DO PORTO

TAR | SUMMER 2024

MULTICAST

REPORT



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MULTICAST

Refers to the ability of a communications network to accept a single message from an application and deliver copies of that message to many recipients in different locations

PIM SPARSE MODE

We do not forward multicast traffic on any interface until a downstream router requests us to forward it

PIM DENSE MODE

We forward multicast traffic on all interfaces until a downstream router requests us to stop forwarding

PIM SPARSE-DENSE MODE

It allows us to flood the auto RP multicast group 224.0.1.40, but it also floods all multicast traffic for which we don't have an RP

STEP 1

Configure IP for each interface

STEP 2

Configure OSPF netwrok

STEP 3

Enable multicast routing

STEP 4

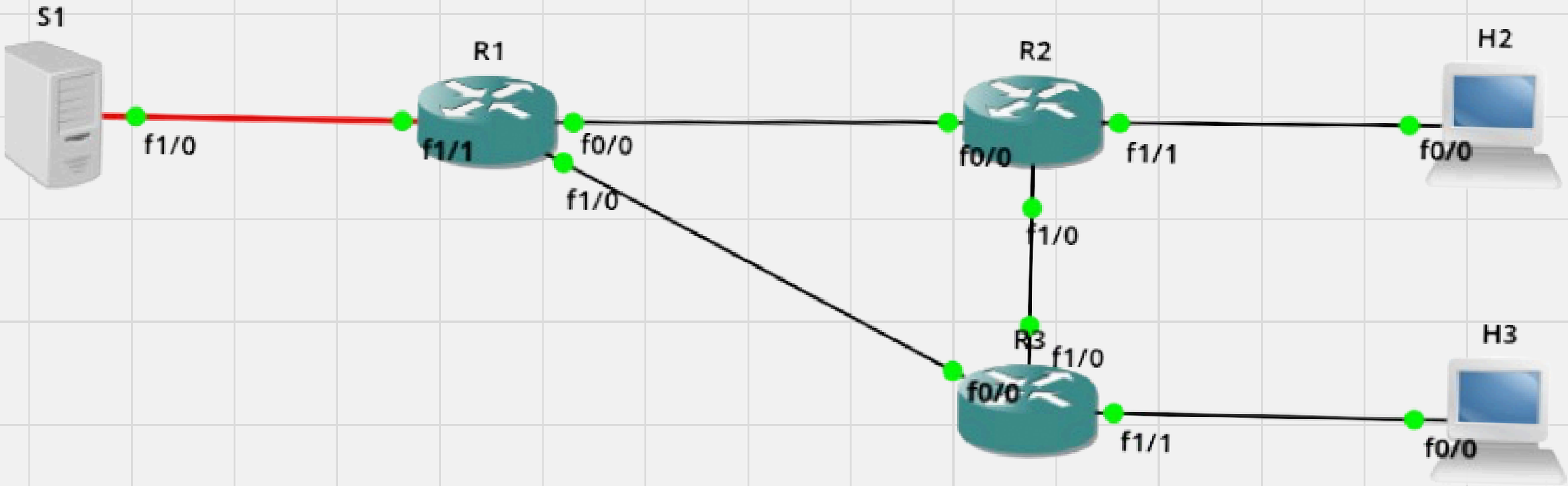
Enable PIM mode and check the neighbors

FIRST STEPS

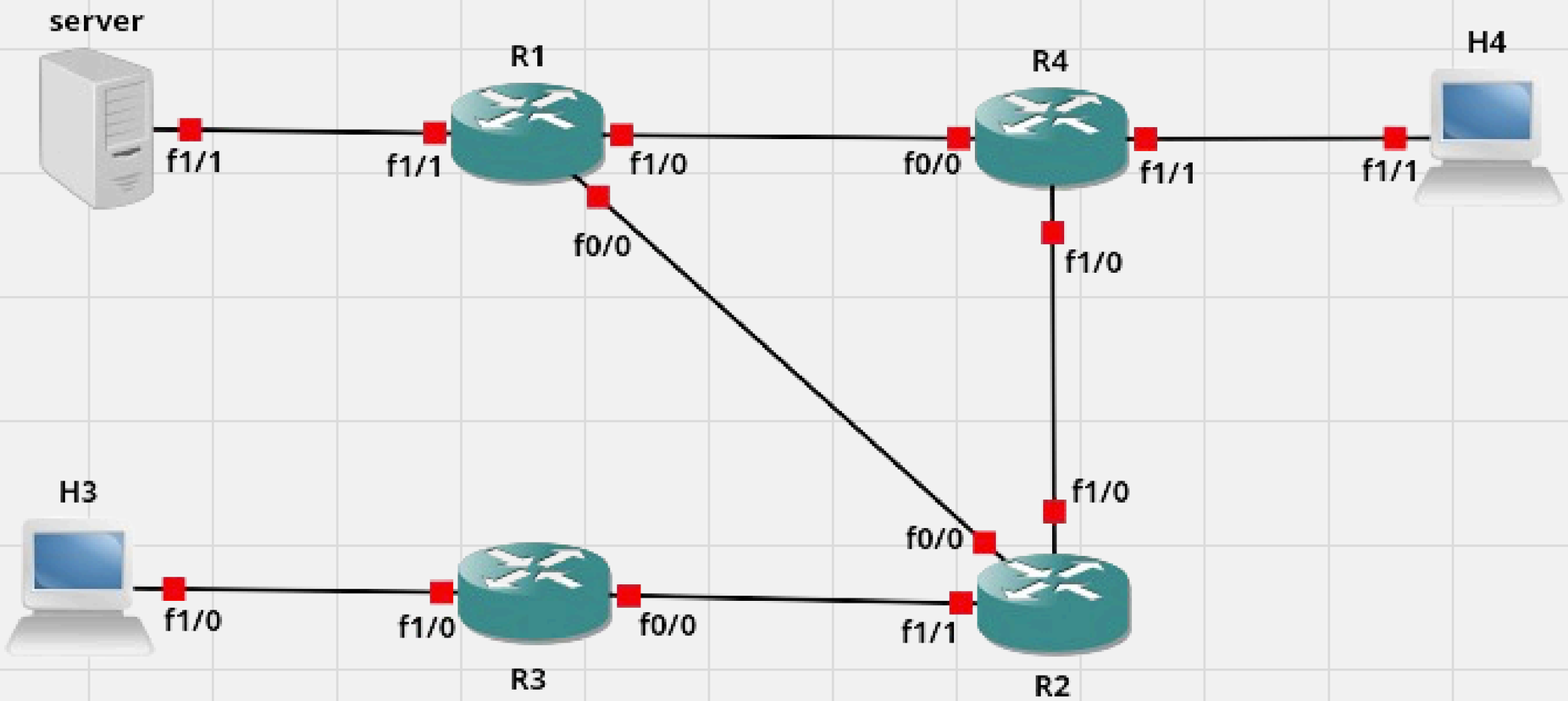
For each PIM mode the first steps are always the same

DEMONSTRATION

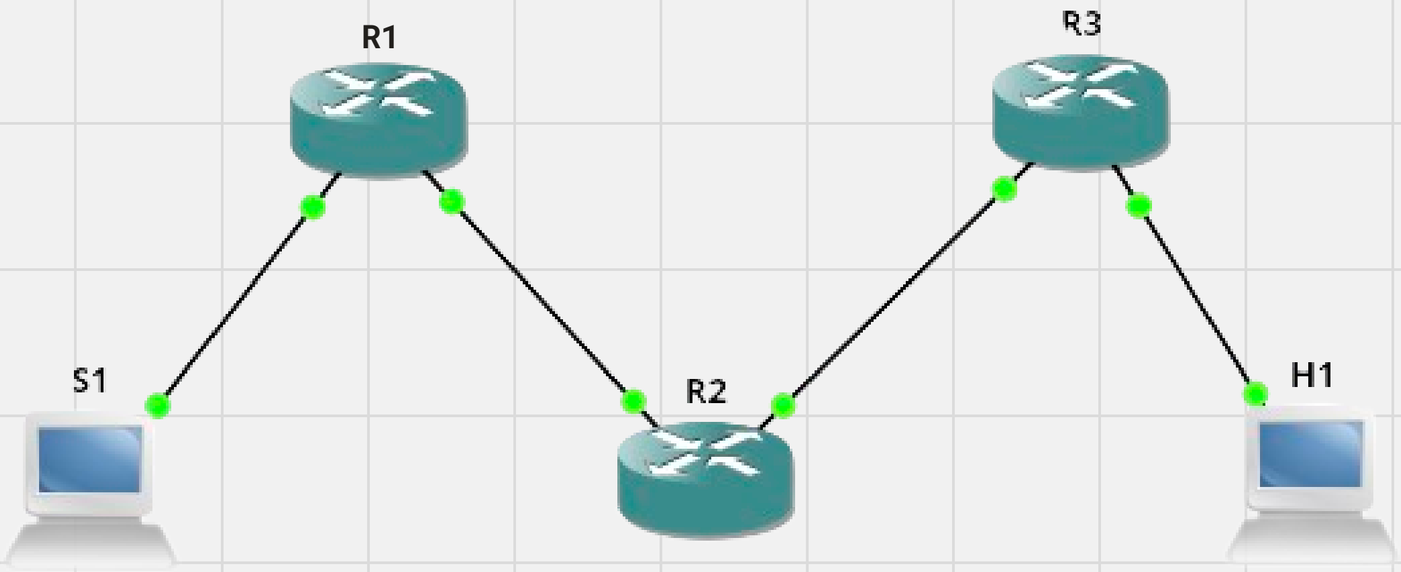
PIM DENSE MODE NETWORK TOPOLOGY



PIM SPARSE MODE NETWORK TOPOLOGY



PIM SPARSE-DENSE MODE NETWORK TOPOLOGY



CONCLUSION

- **PIM-DM** is optimal for smaller networks with high receiver density due to its proactive traffic forwarding method.
- **PIM-SM** is best for large sparse networks that need to optimize the use of resources.
- **PIM Sparse-Dense Mode** is particularly useful in environments with mixed or dynamic multicast receiver distributions, where resilience and adaptability are critical.
- While PIM-DM excels in simplicity and rapid deployment, it can suffer from inefficient bandwidth utilization. On the other hand, PIM-SM, despite its complex setup and slower start, significantly improves stability and efficient bandwidth usage, drawbacks that are pronounced in PIM-DM.

THANK YOU