MikroTik User Meeting in Dubai
United Arab Emirates, August 28, 2012

A redundant router for $79,90

[and without using any special offer...]

by Lorenzo Busatti

About me

Lorenzo Busatti

Grifonline S.r.l., Grosseto – ITALY

ISP for more 15 years, WISP for more 6 years

MikroTik Certified Trainer / Consultant

- For: MTCNA, MTCWE, MTCRE, MTCTCE, MTCUME, MTCINE
- Specialization: Wireless, Routing

The task

In every company or office can be useful to reduce failures for the internet gateway, or main router, commonly caused by:

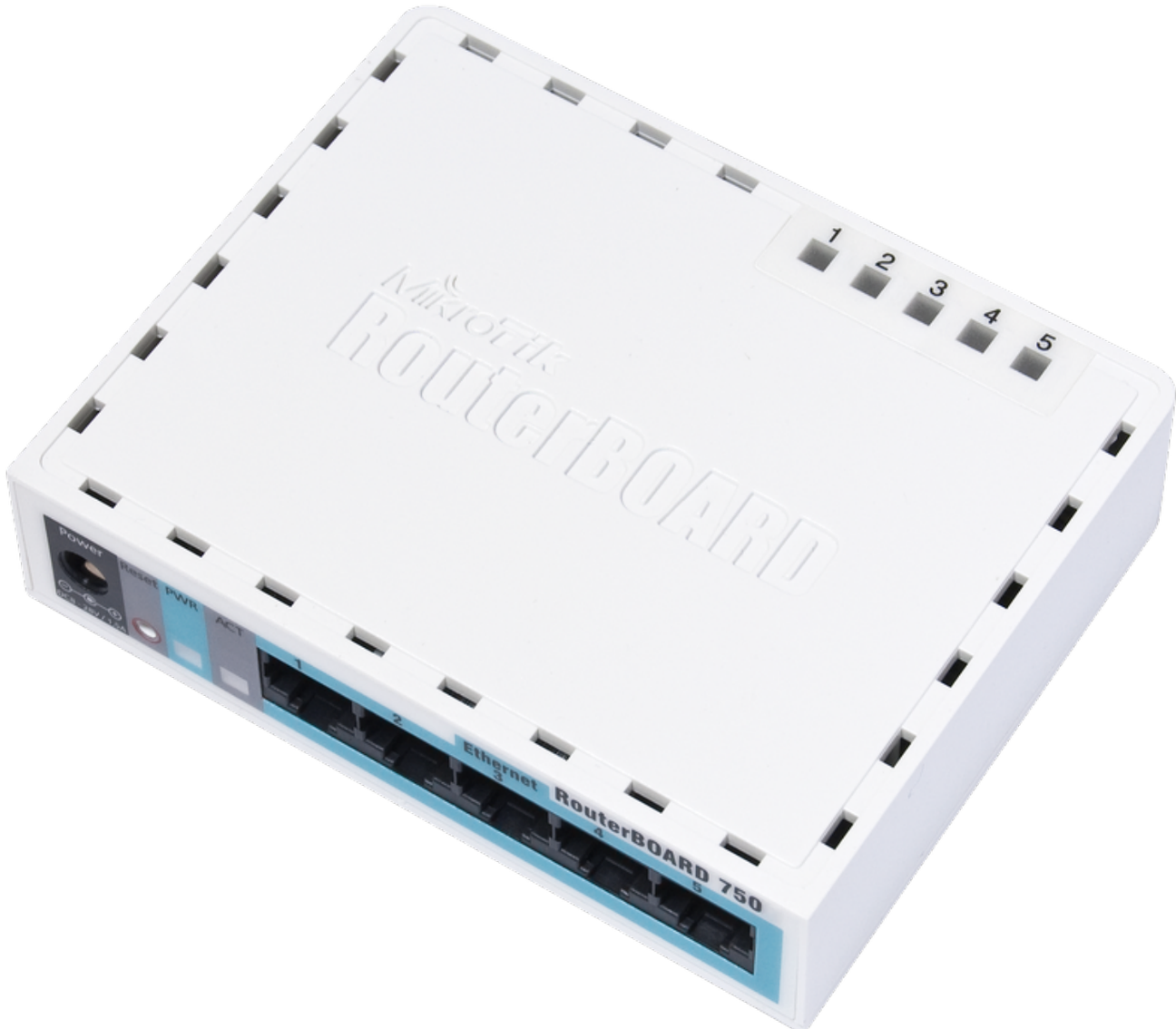
- Router mainteinance;
- Router hardware failure;
- ISP failure;
- Etc.

The task

You can use at least two ISP;

You can buy an expensive redundant router, with power supply failover, and different optionals available …. or

The RB750



- 5x 10/100 ports
- RouterOS level 4
- MPLS capable
- 445 Mbps Throughput*

$ 39,95

* w/firewall, w/conntrack,in routing, 1518 bytes frames

Two RB750

As ONE Virtual Router

Using V.R.R.P.

2x RB750 = $ 79,90

From the MikroTik Wiki:

V.R.R.P.

[vi: a:/ar a:/ar pi:]

Acronym

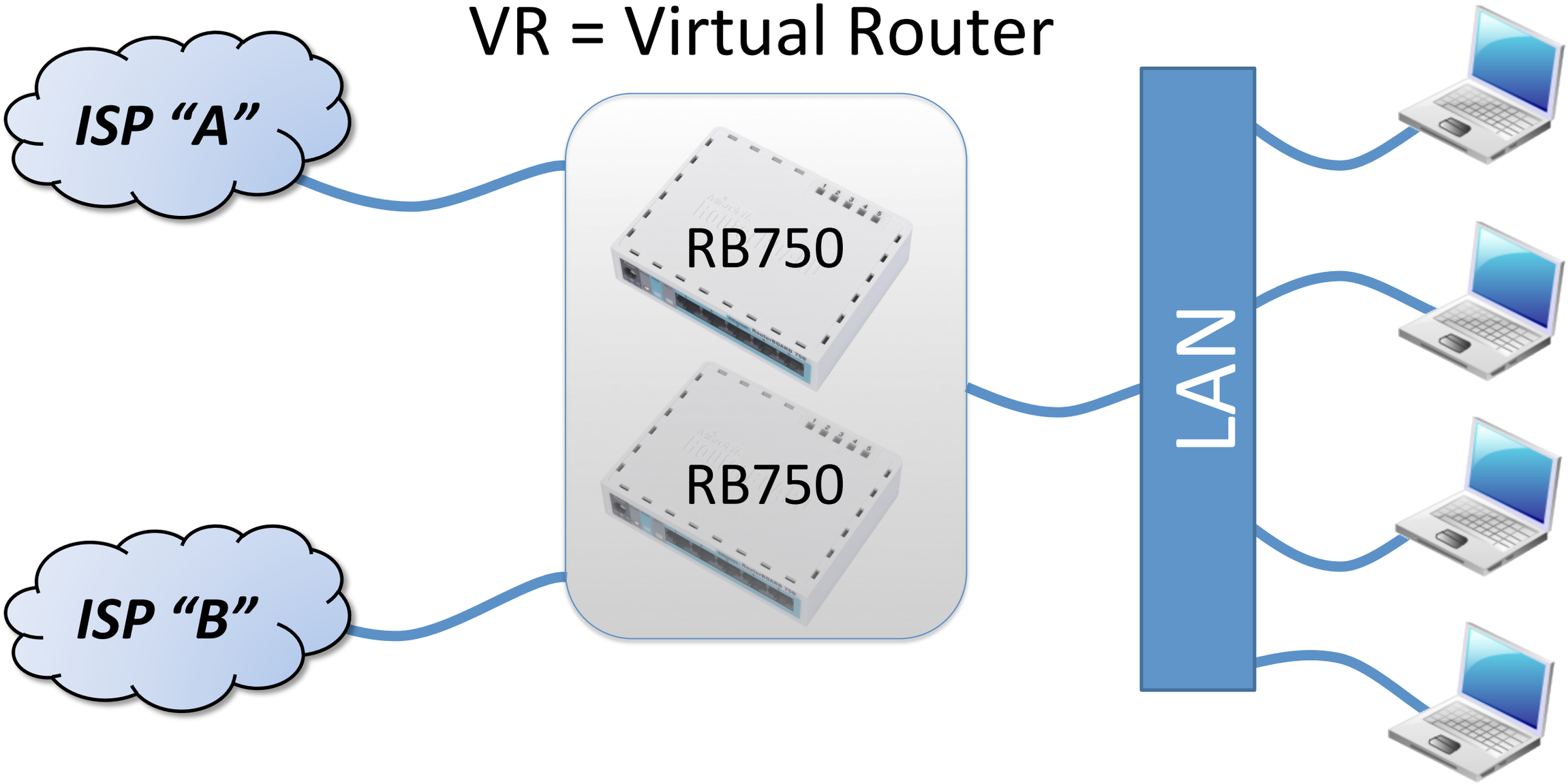
Virtual Router Redundancy Protocol (VRRP) provides a solution by combining number of routers into logical group called Virtual Router (VR).

[VRRPv2 RFC 3768 and VRRPv3 RFC 5798]

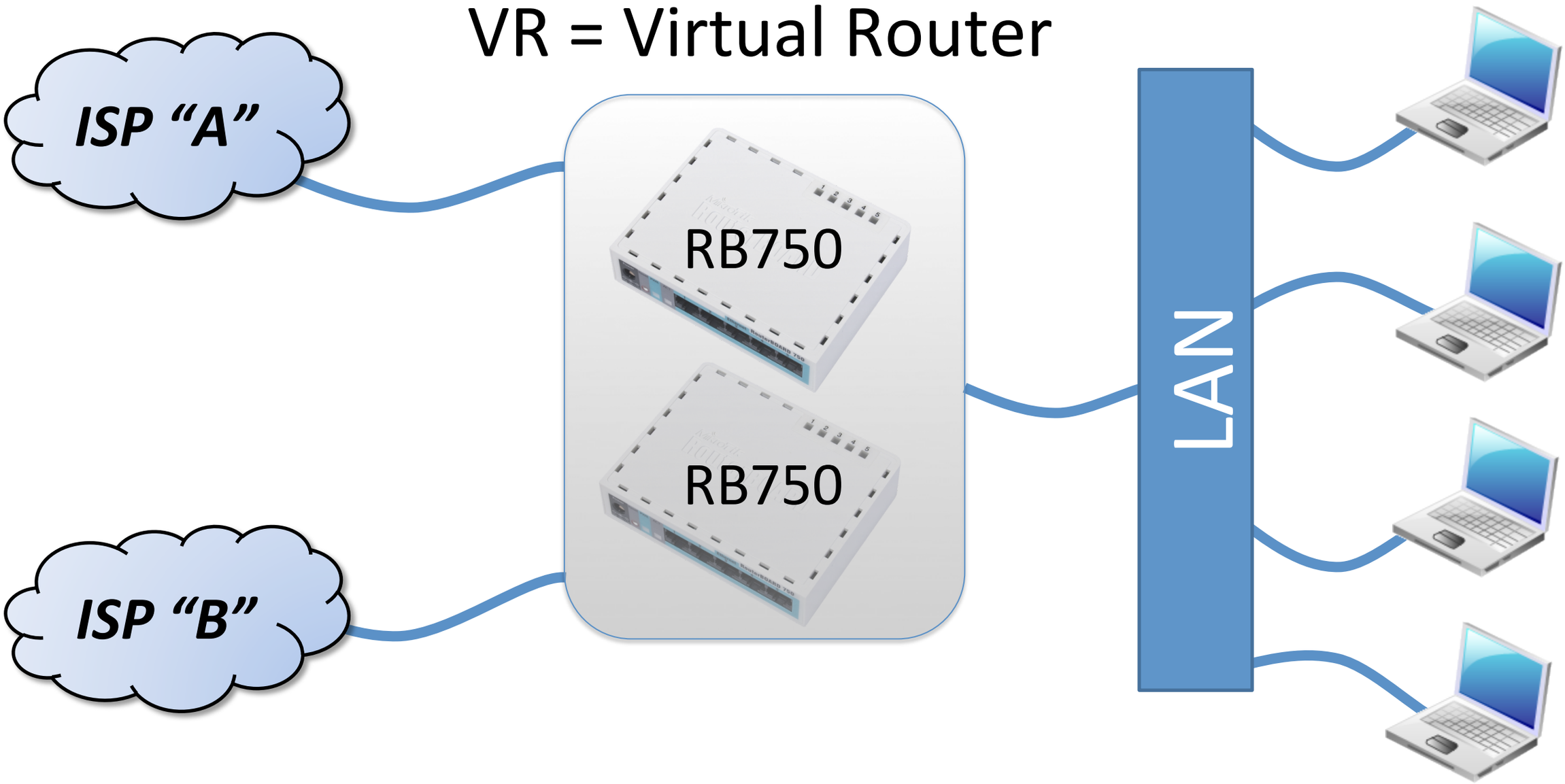
http://wiki.mikrotik.com/wiki/VRRP

The VR

VR = Virtual Router

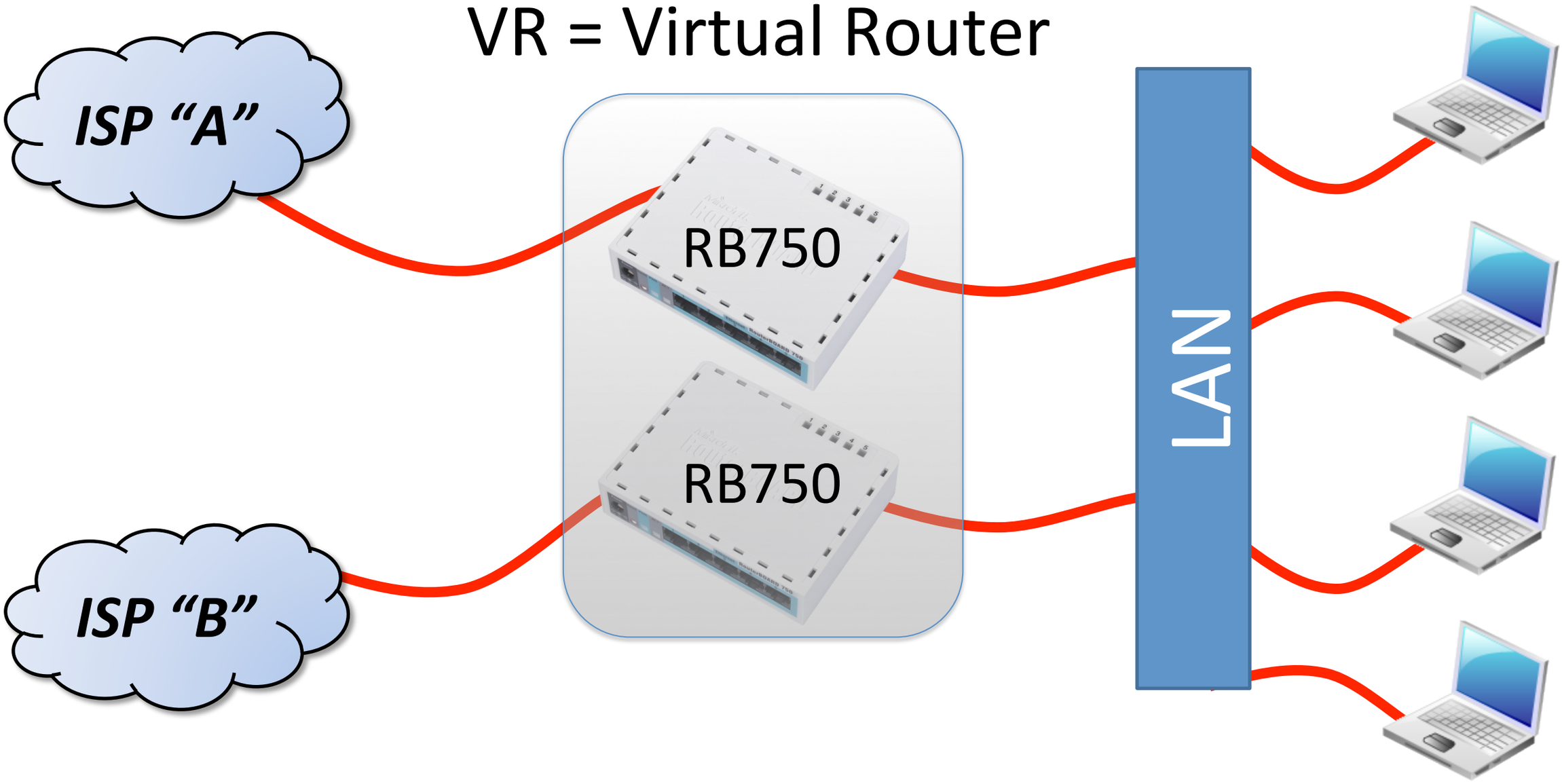


Logical Vs Physical

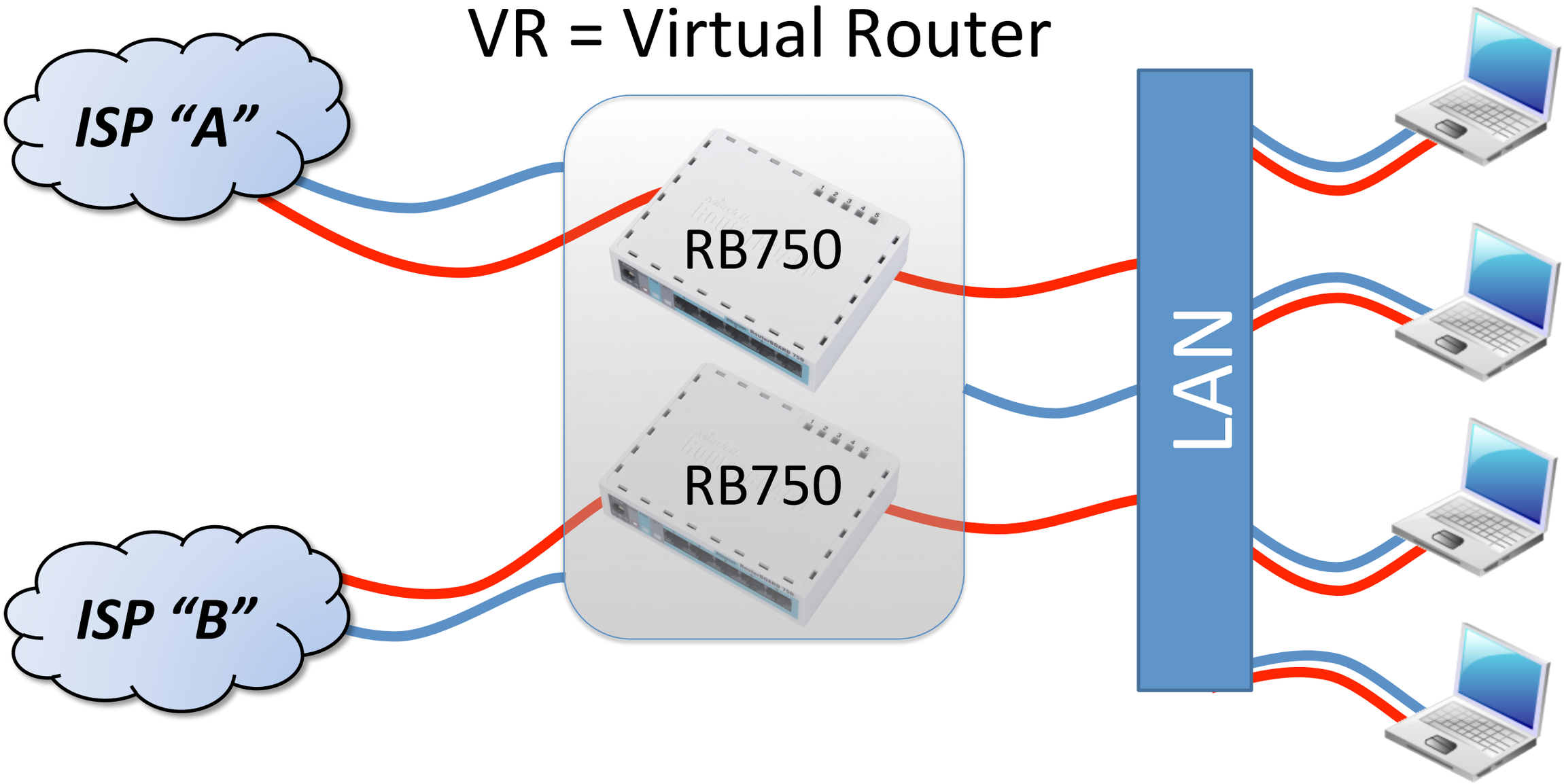


Logical Vs Physical

VR = Virtual Router



Logical Vs Physical



About V.R.R.P.

The purpose of the VRRP is to communicate to all VRRP routers.

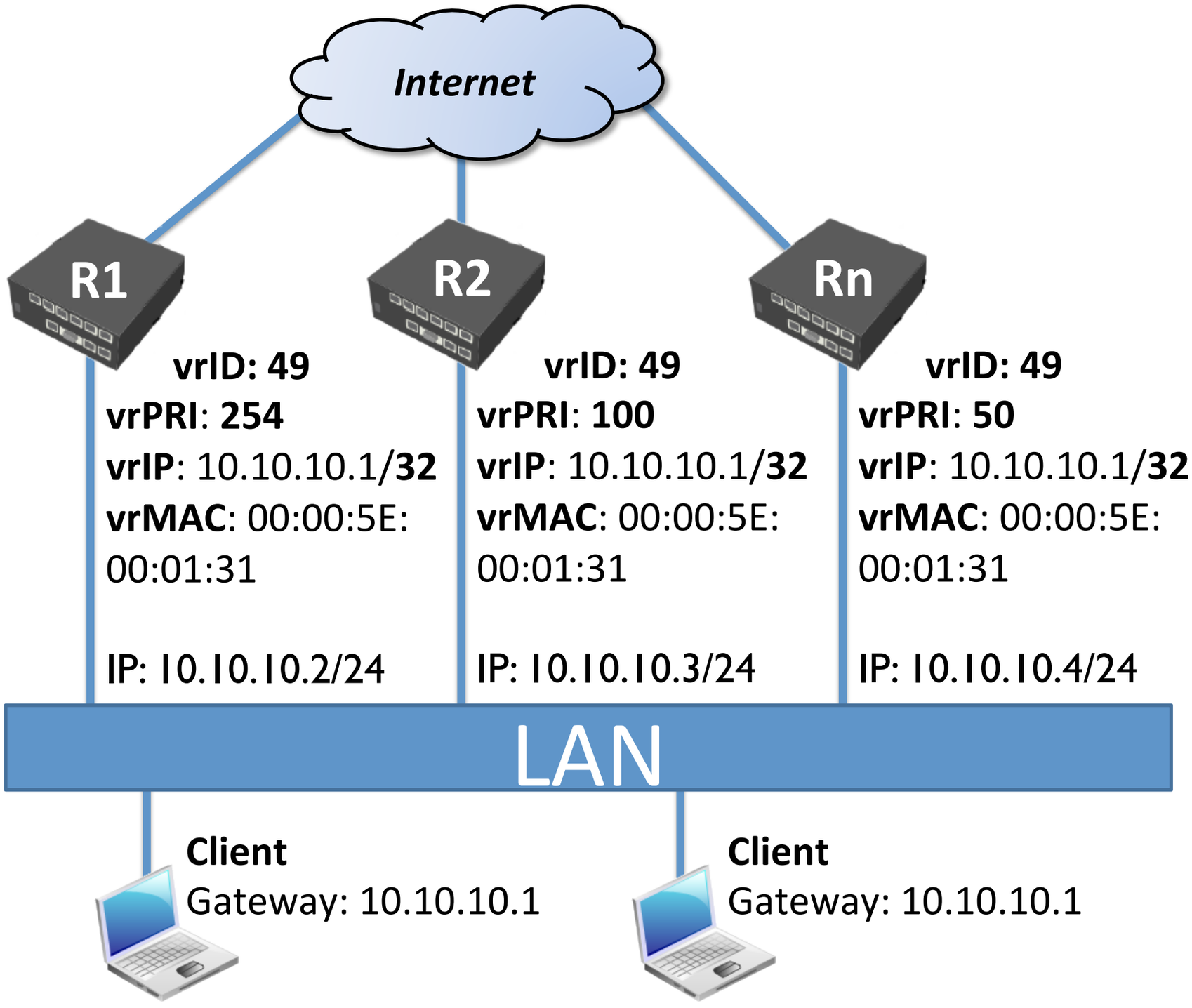
They are associated with the Virtual Router ID and support router redundancy through a prioritized election process among them.

About V.R.R.P.

VRRP allows to detect unreachable router within 3 seconds without additional traffic overhead.

Static multiple routes or dynamic protocols like OSPD are not needed.

VR MAC Address

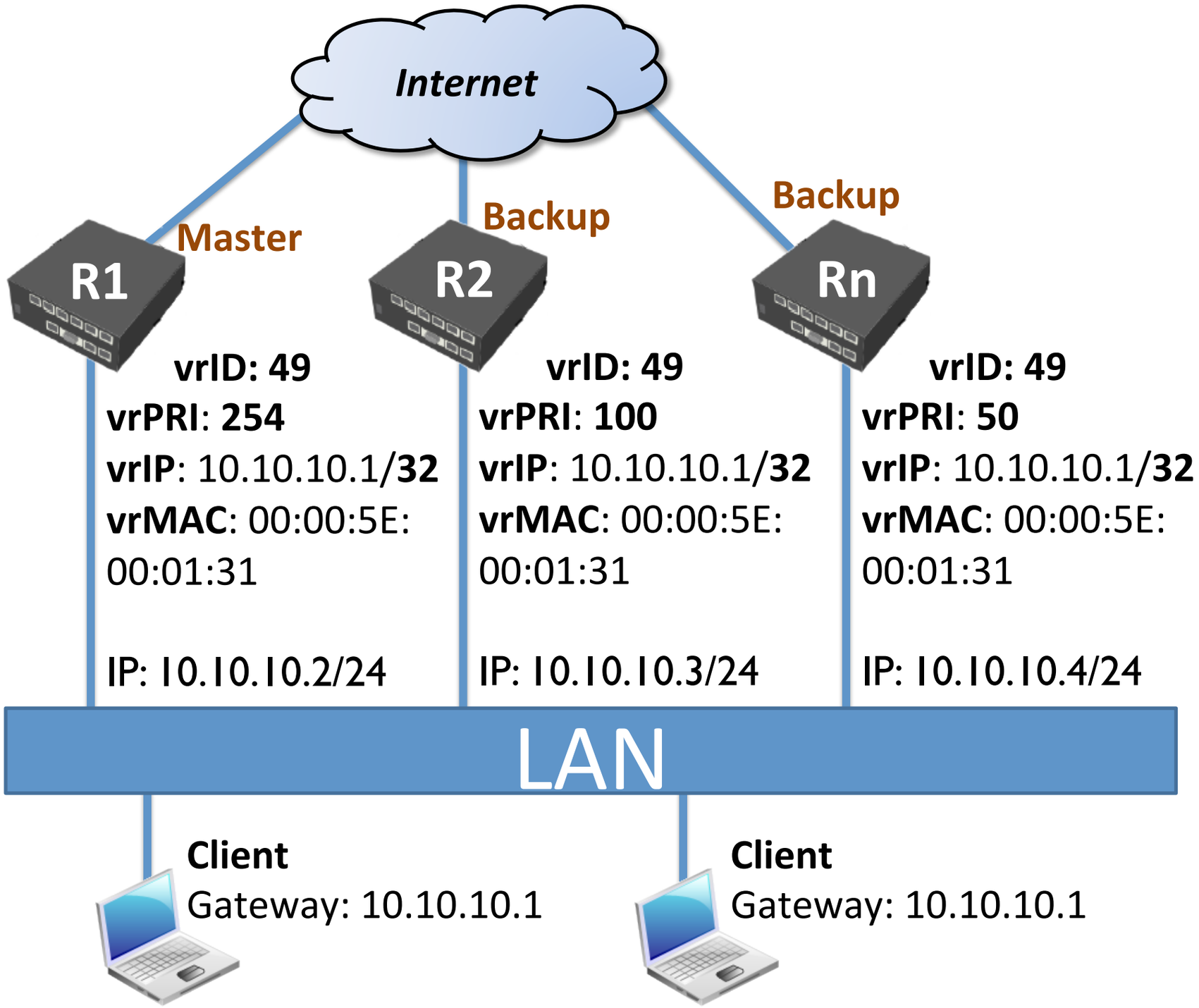


Virtual Router is defined by VRID and mapped set of IPv4 or IPv6 addresses.

Each VR node has a single assigned MAC address.

This MAC address is used as a source for all periodic messages sent by Master.

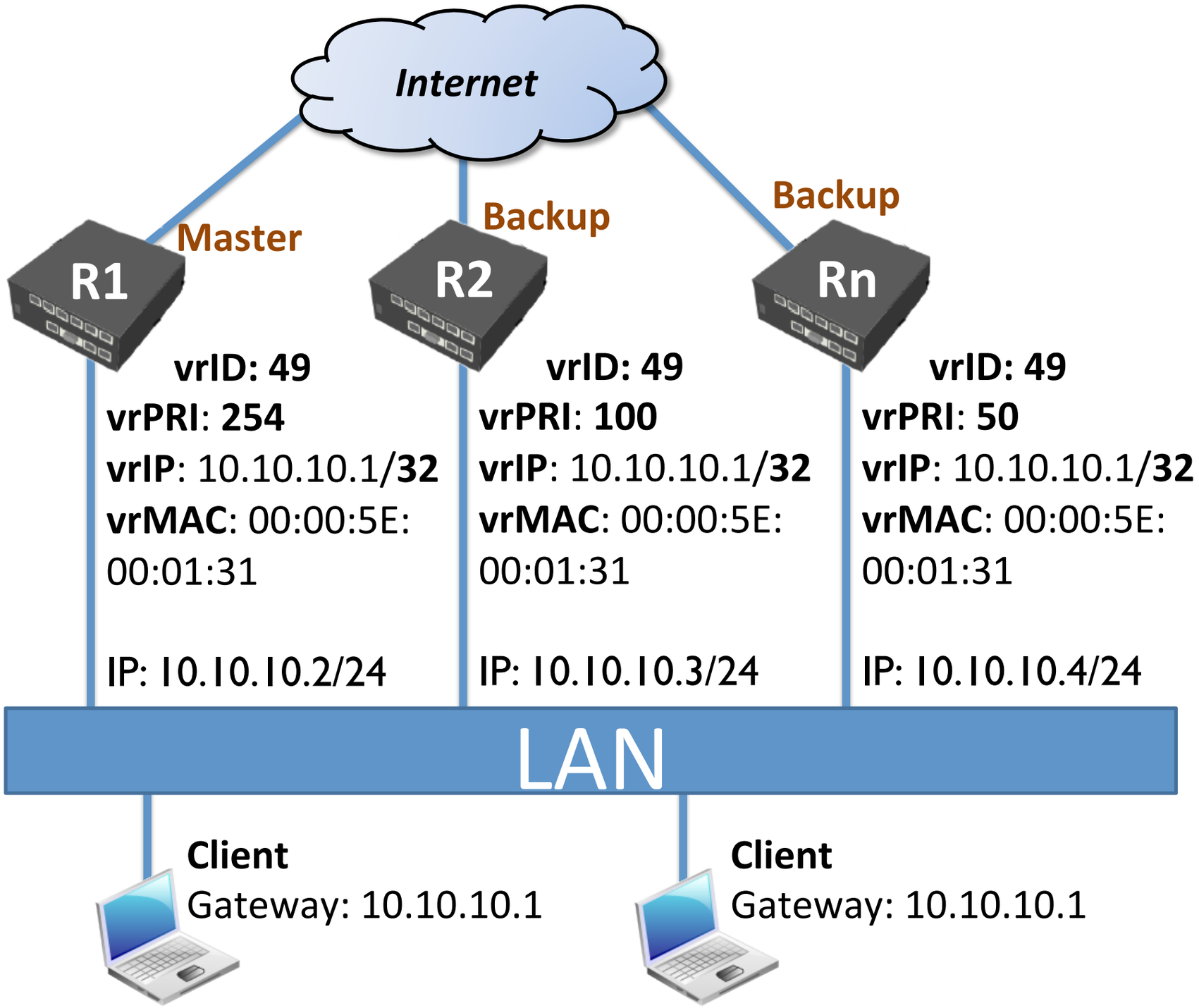
Selection of the Master



The selection of the Master router is controlled by priority value.

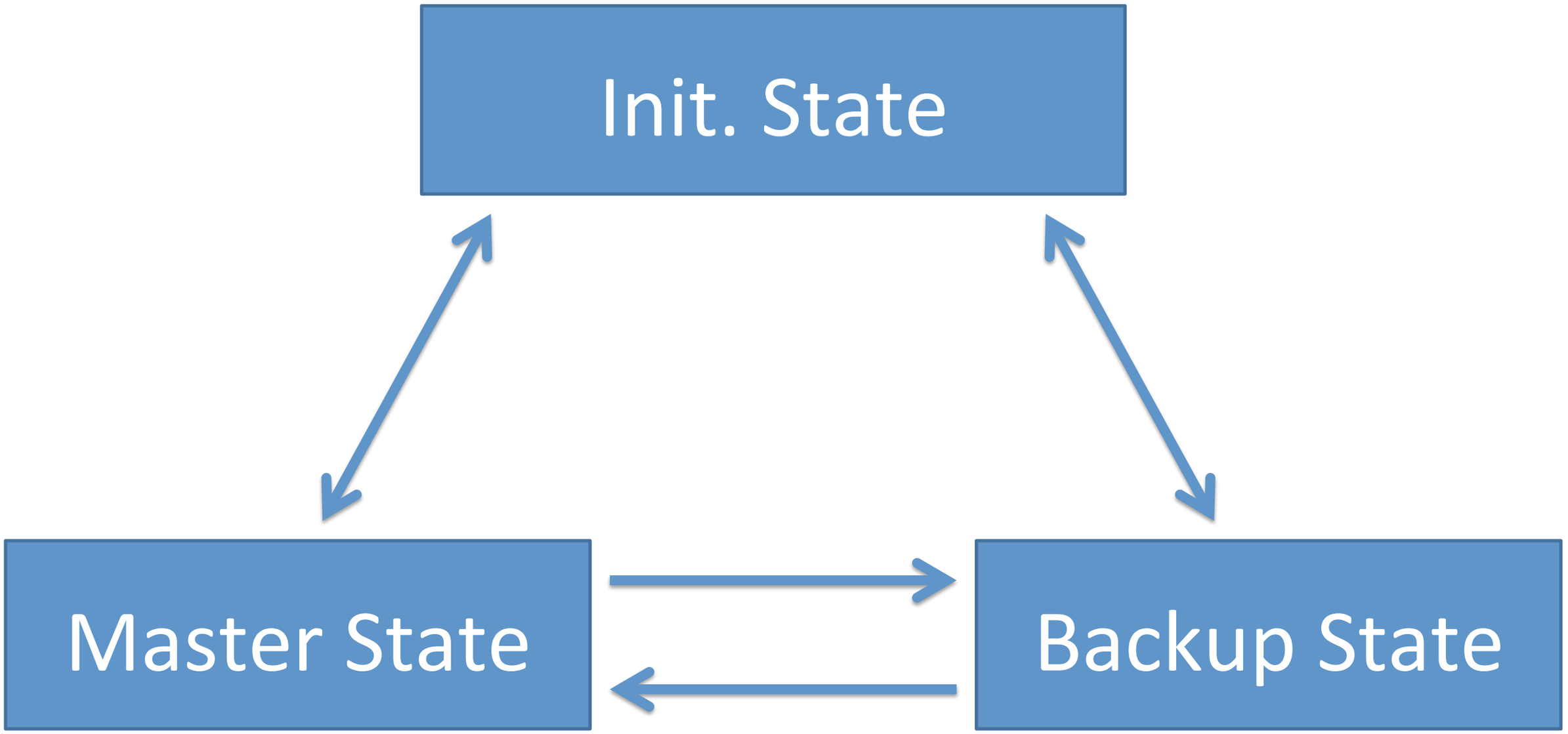
Higher number means higher priority.

Selection of the Master

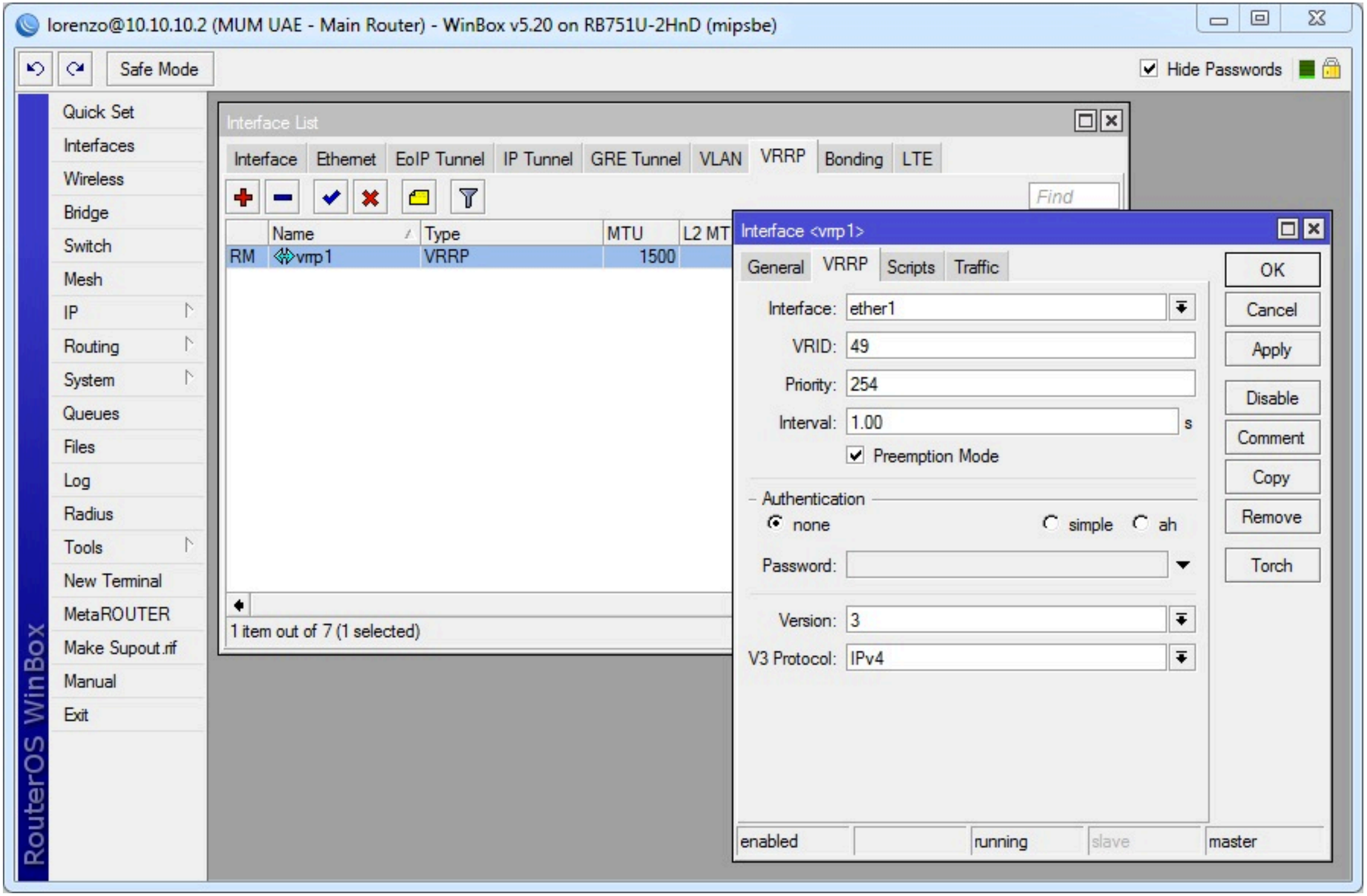


Only Master router is sending periodic Advertisement messages to minimize the traffic.

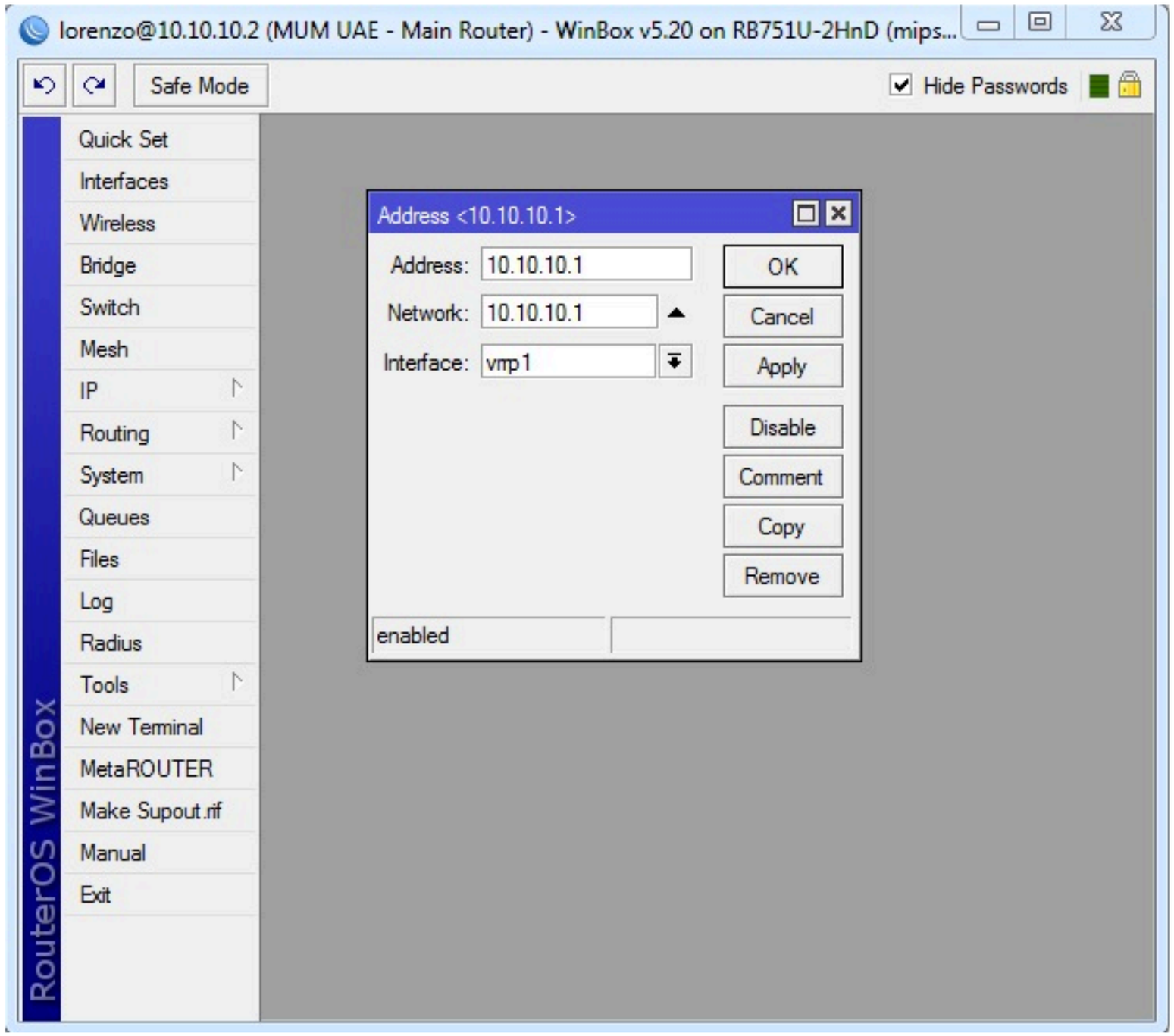
VRRP States



VRRP Settings

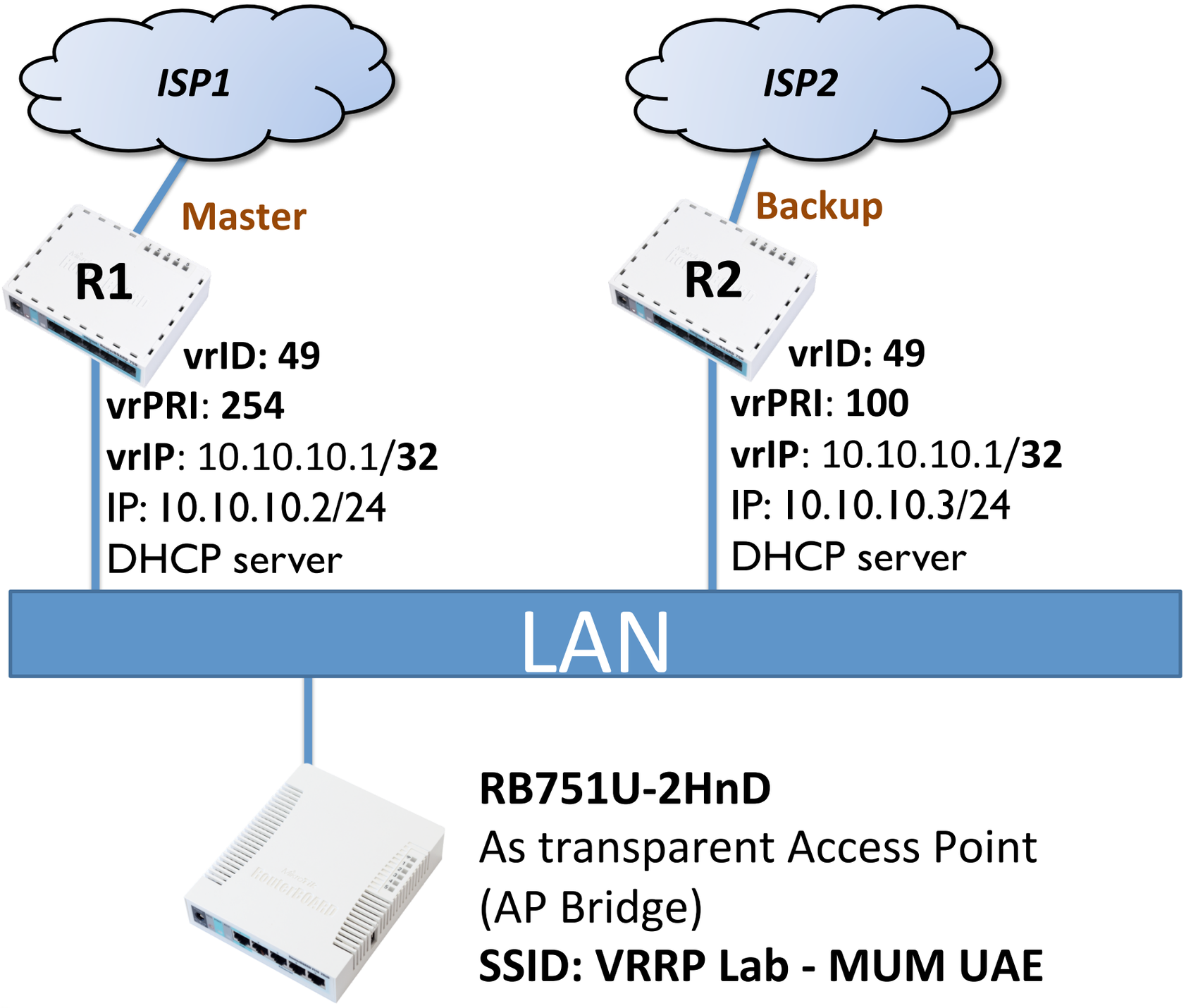


VRRP Settings



VRRP Live Demo

The VRRP Live Lab Setup



RB751U-2HnD
As transparent Access Point
(AP Bridge)
SSID: VRRP Lab - MUM UAE

LAB

VRRP Live Demo

You can partecipate at this Live Lab:

Connect now with your device at the SSID
VRRP Lab - MUM UAE

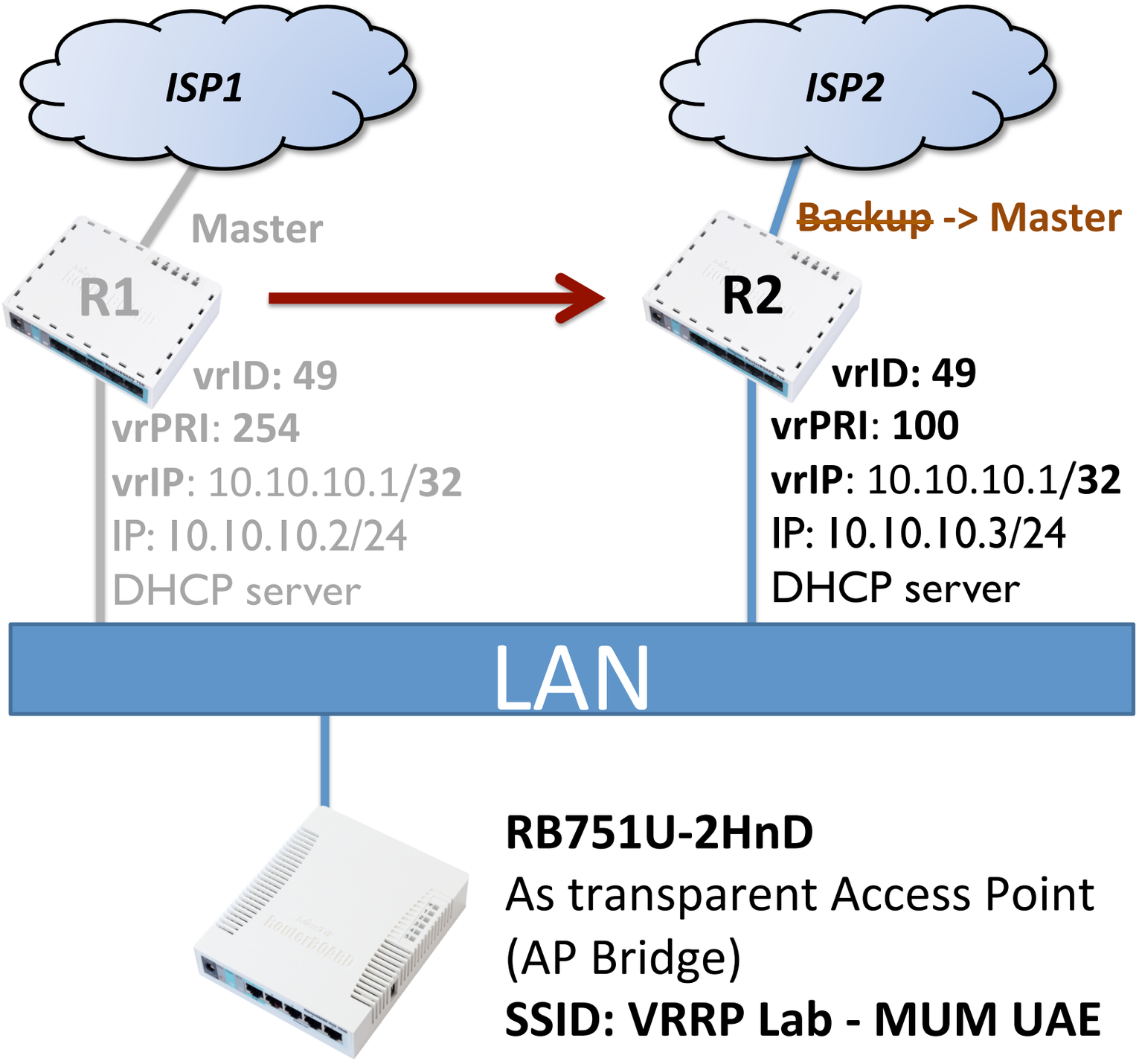
Then browse a website or ping a public host





The VRRP Live Lab Setup

LAB



Now I'll turn off the R1, the actual Master.

R2 will be the new Master.

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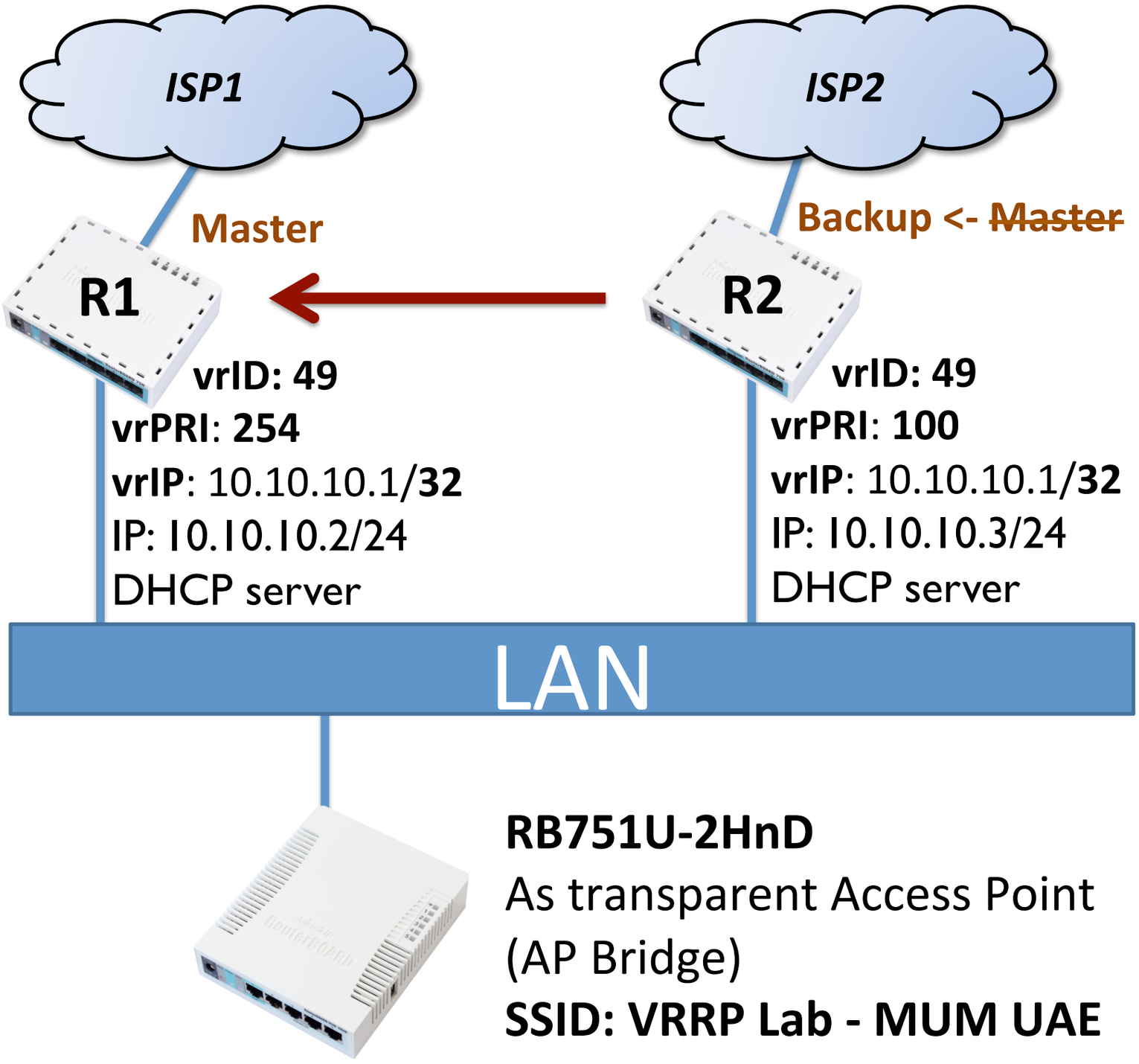
The VRRP Live Lab Setup

LAB



Now I'll turn on the R1. He will be the Master again.

RB751U-2HnD
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SSID: VRRP Lab - MUM UAE

Preemption

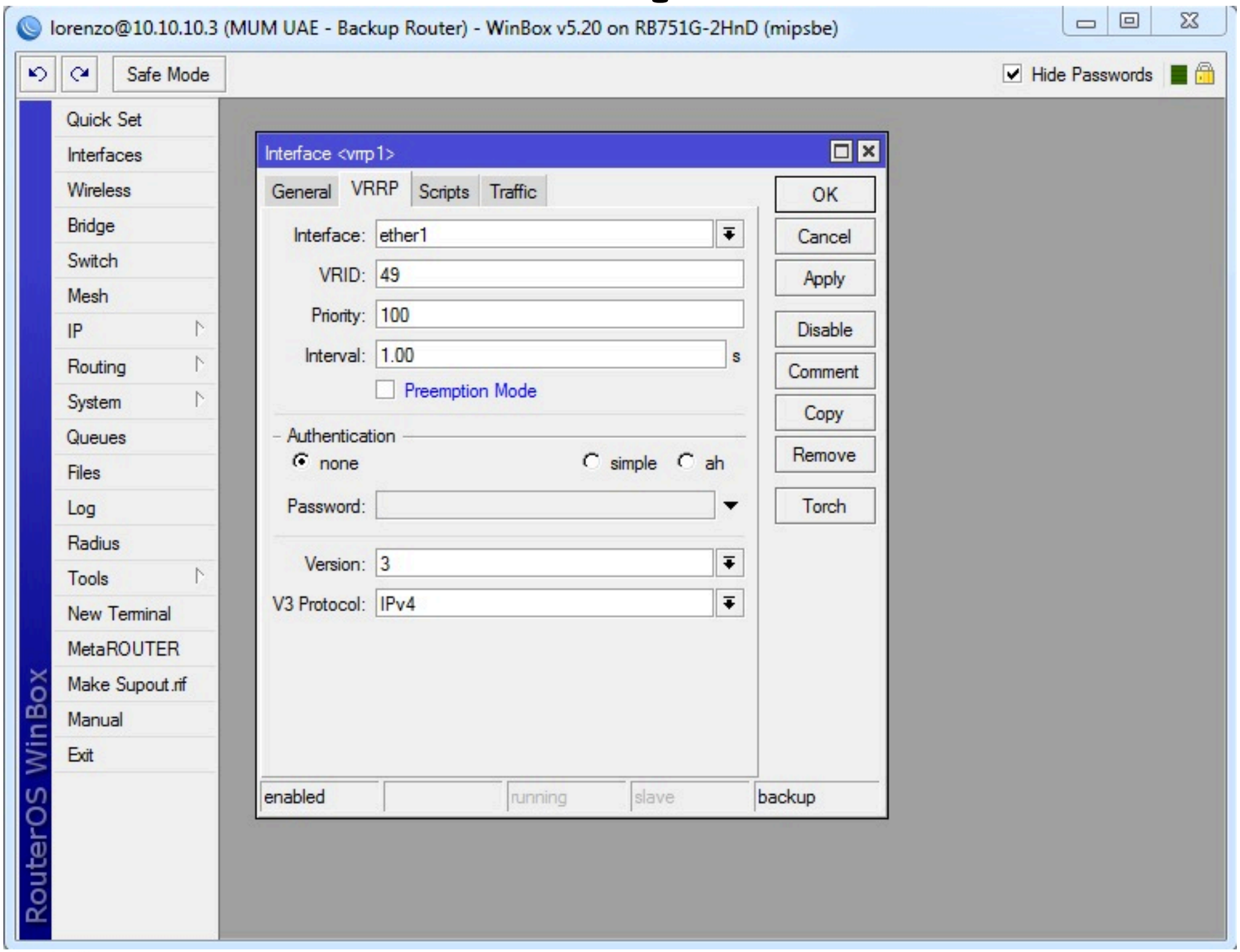
LAB

Whether master node always has the priority.

When set to 'no' backup node will not be elected to be a master until the current master fails, even if the backup node has higher priority than the current master.

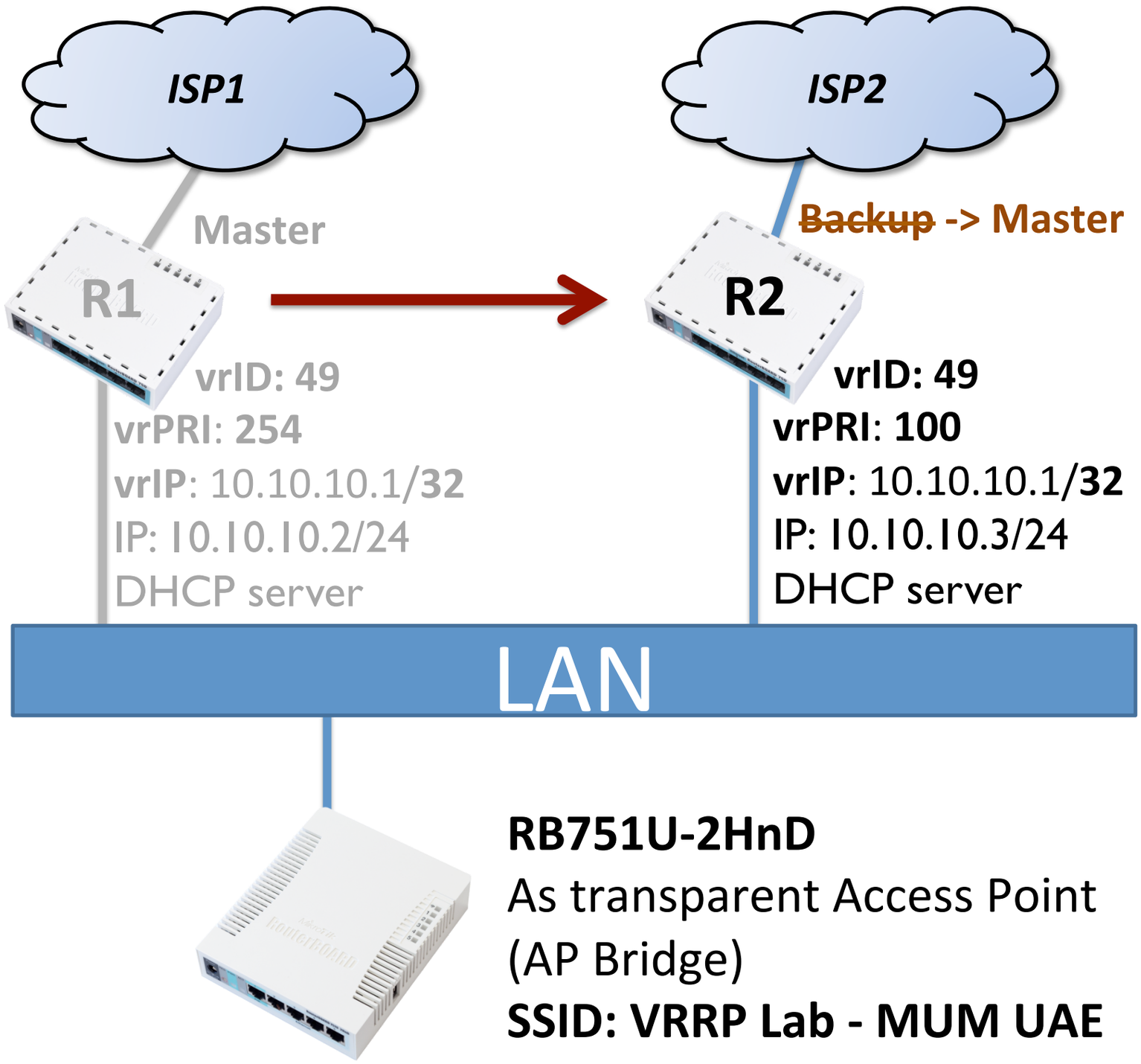
Preemption

LAB



The Preemption Live Lab

LAB



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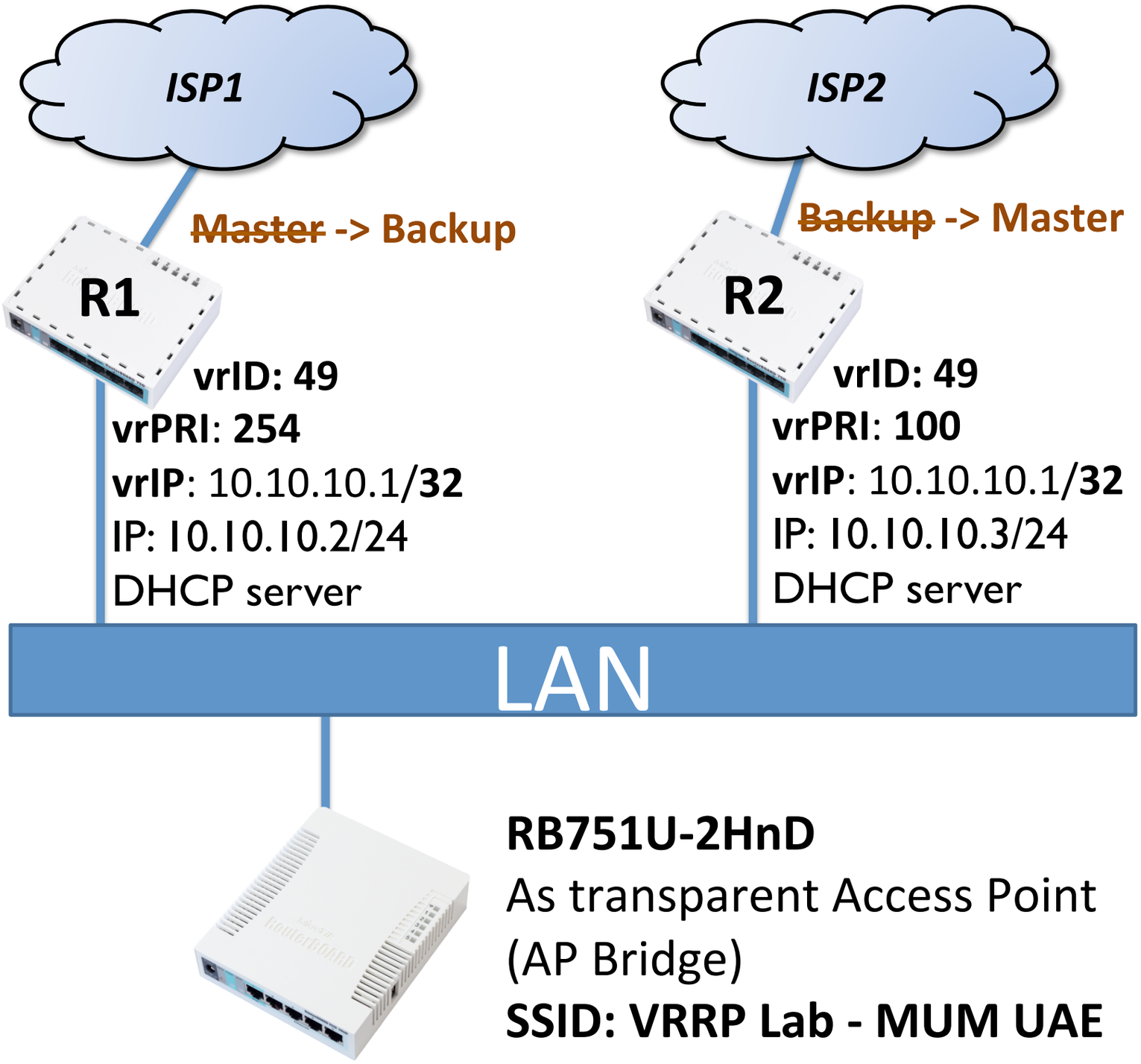
I'll change the **preemption** settings in both routers.

I'll turn off the R1, the actual Master.

R2 will be the new Master.

The Preemption Live Lab

LAB



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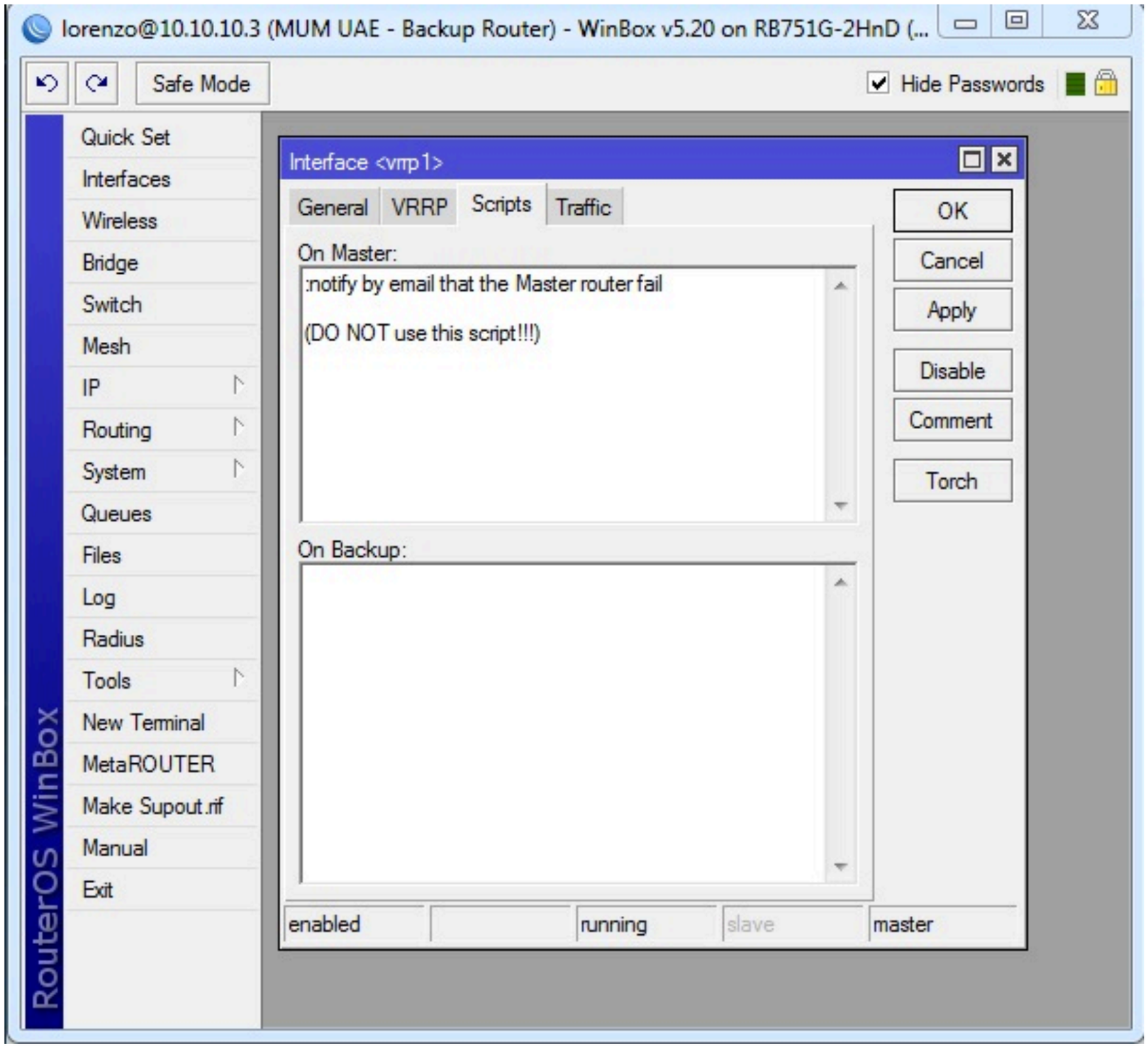
Now I'll turn on the R1.

R2 will remain the Master, even if R2 have less priority.

User notification



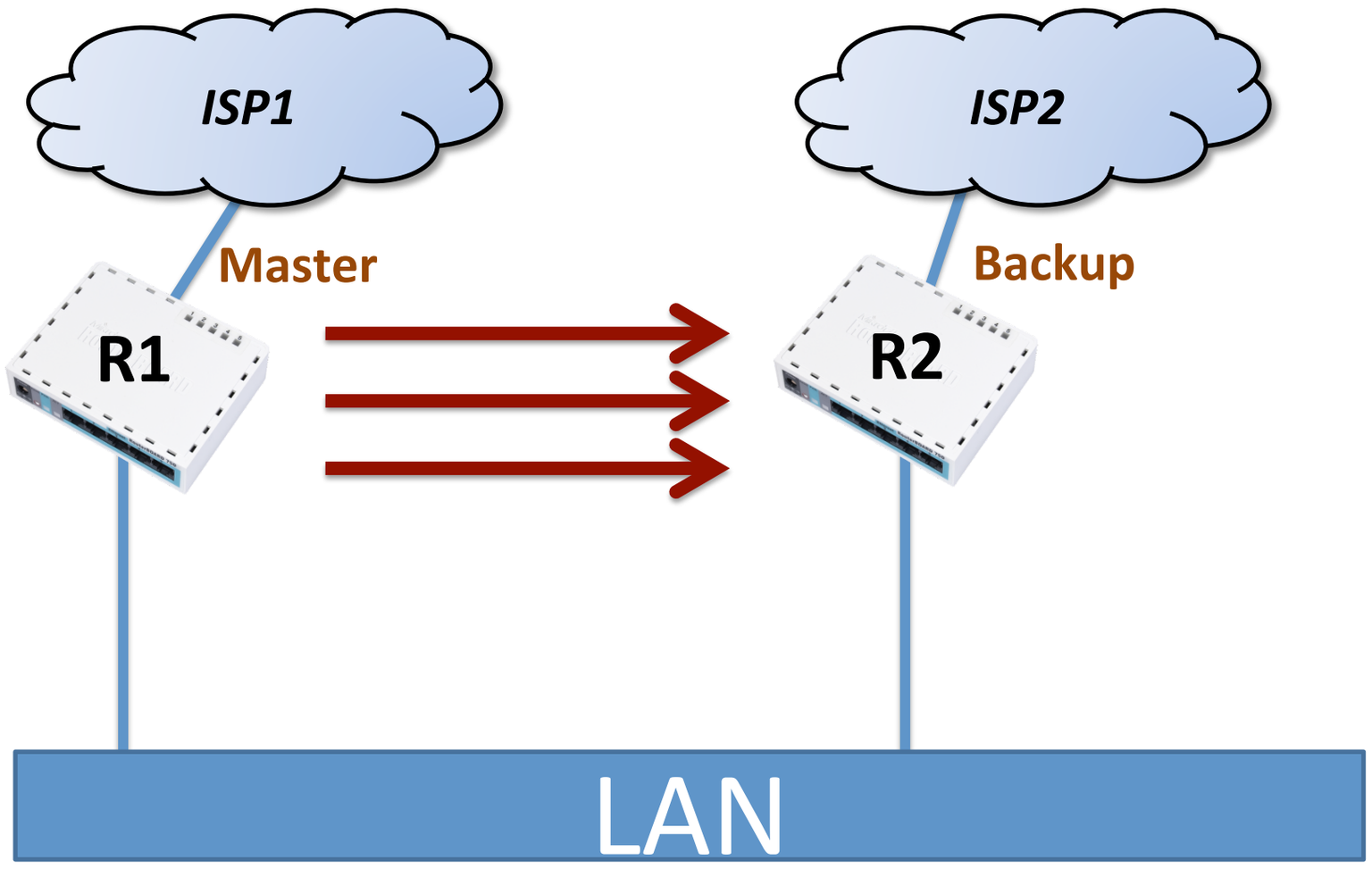
Synchronize the configurations

Synchronization

Using two routers you have to remember to manually duplicate the configuration on the backup router.

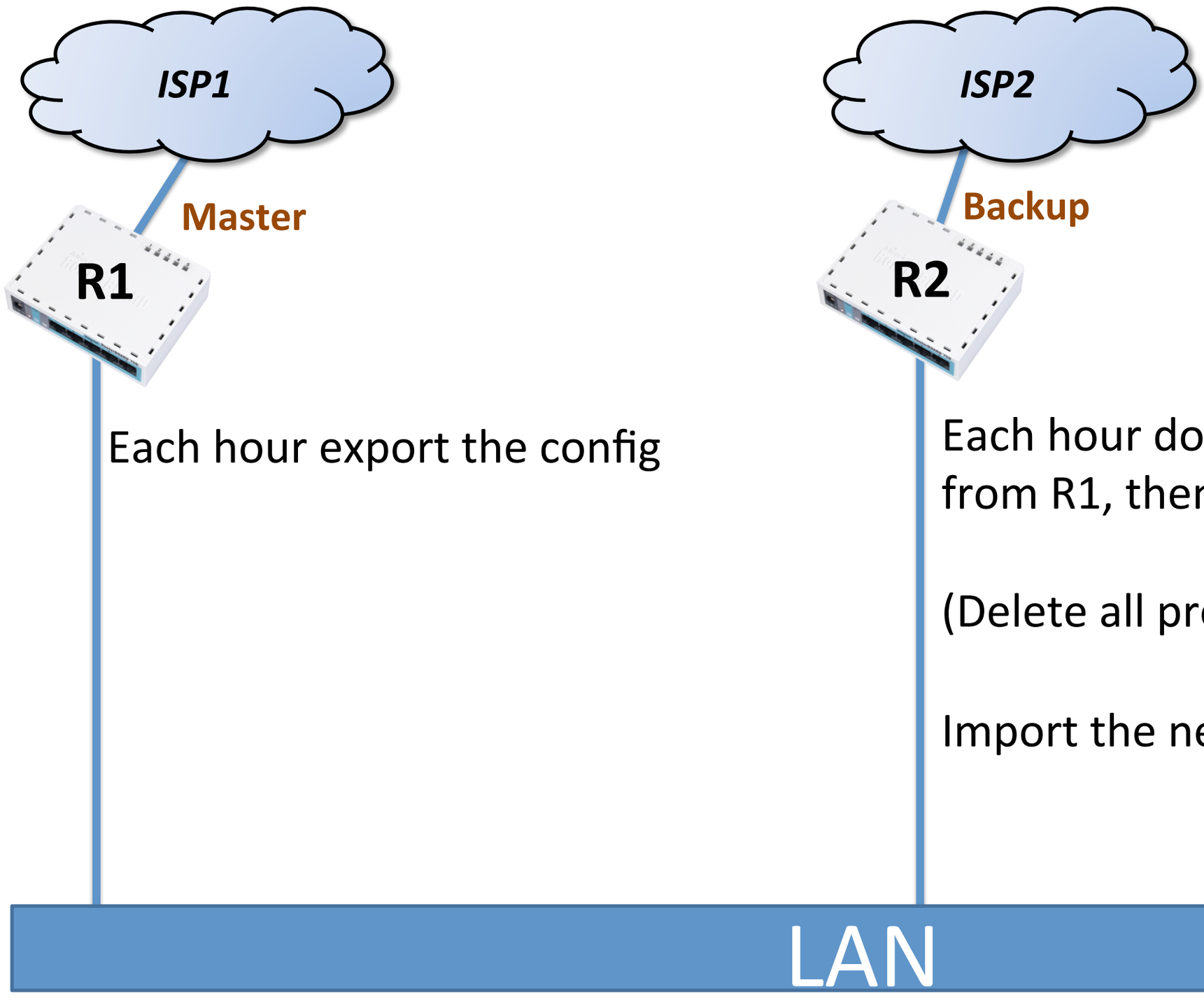
Synchronization

Or you can just use the tools that RouterOS provides you:



- Scripts;
- Scheduler (use the NTP)
- Export/ Import CLI
- Fetch;

Synchronization Example



Synchronization Example

On the R1:

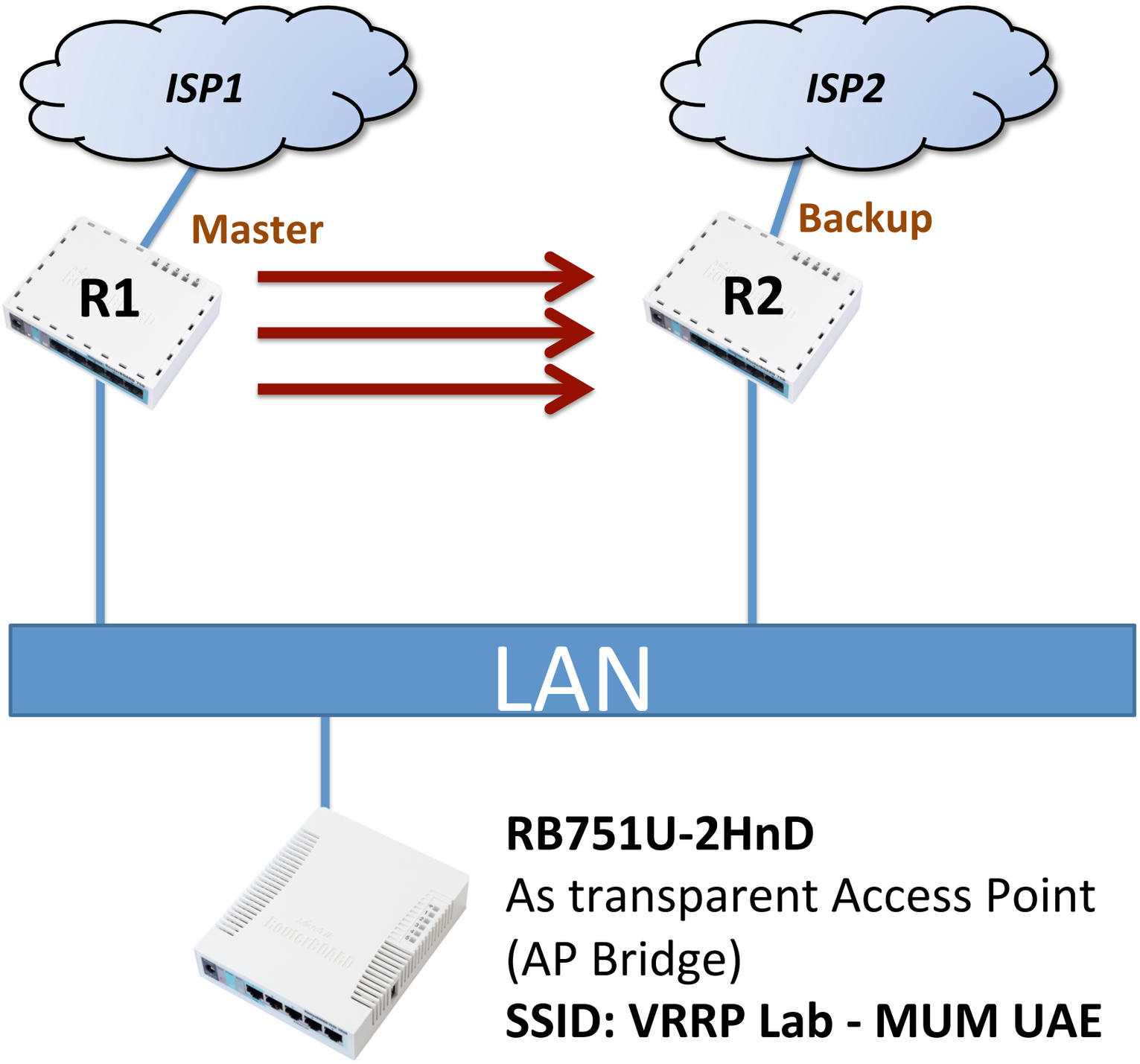
ip dhcp-server lease export file=dhcp-lease

On the R2:

```
/tool fetch mode=ftp address=10.10.10.2 src-path=dhcp-lease.rsc user=usr
password=pass
delay 2s
/ip dhcp-server lease;
    :foreach i in=[find] do={
        /ip dhcp-server lease;
        remove $i;
}
/import dhcp-lease.rsc
```

Synchronization Live Lab

LAB



Now I'll synchronize the DHCP statics leases.

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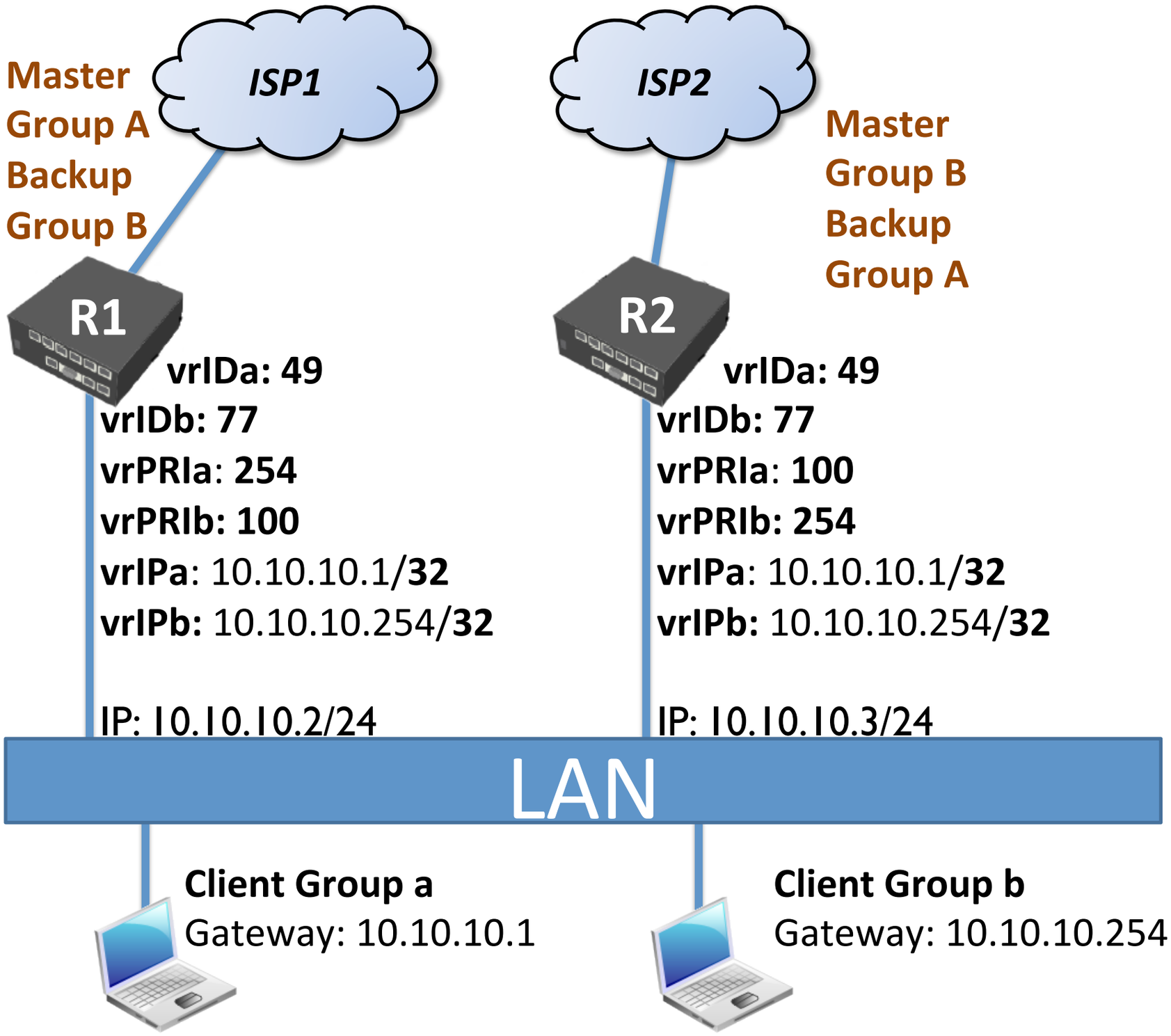
Double Gateway



Normally the Group A will use R1 and the Group B will use R2.

In case of failure both group will use the same router.

Thankyou!

Q & A

http://training.grifonline.it

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