NETRUNNER
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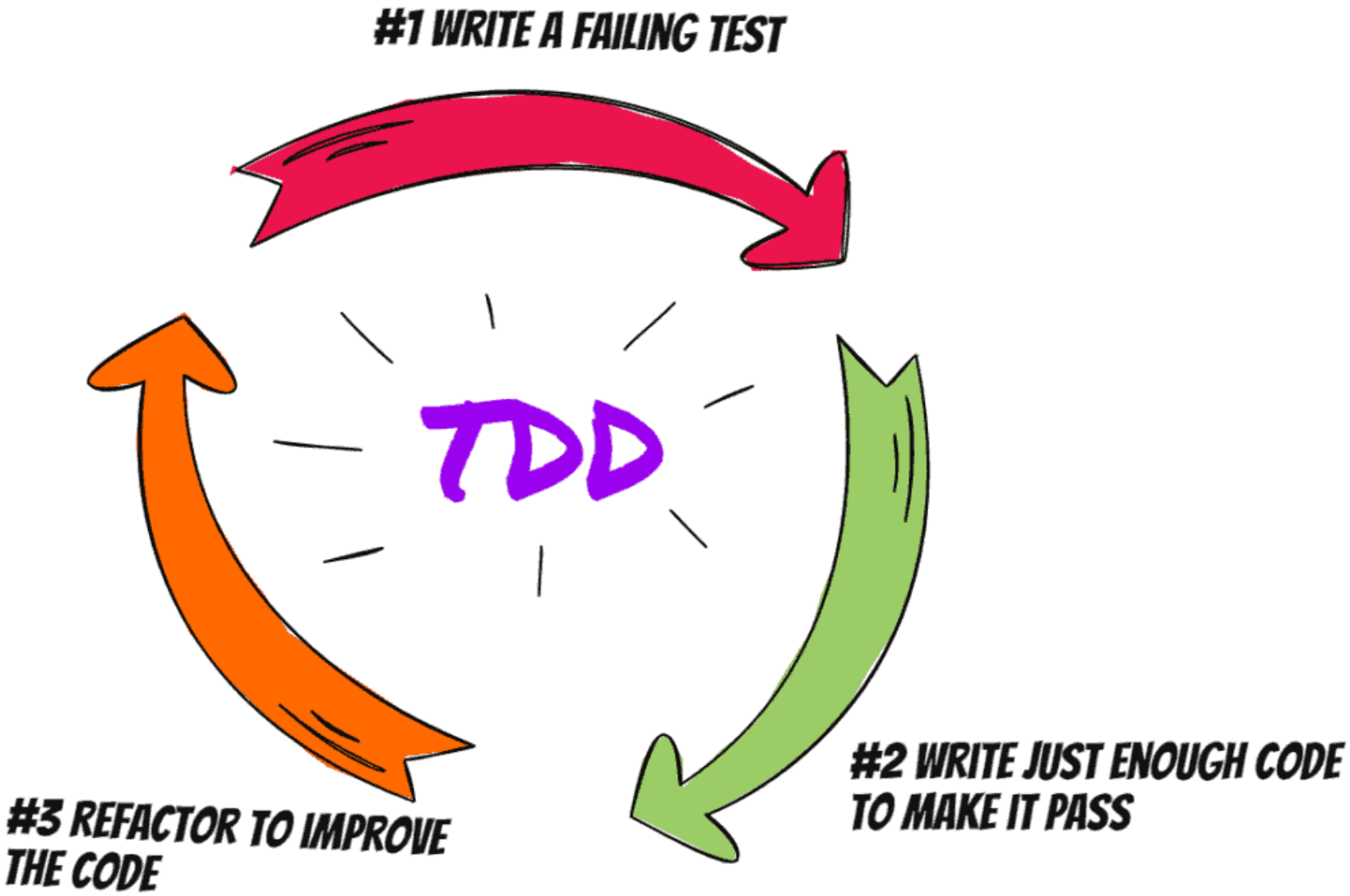
TDD – Test Driven Development

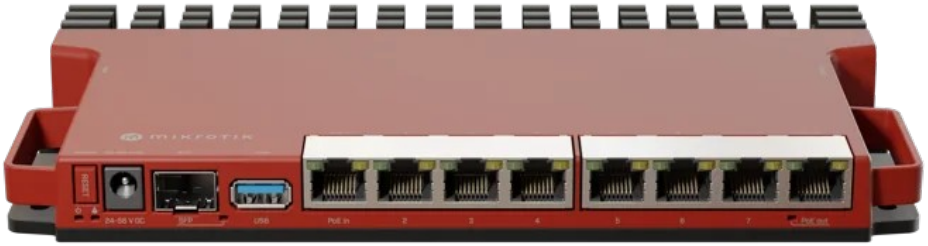


https://commons.wikimedia.org/wiki/File:Tdd-abstract.png

Why not TDN? – Test Driven Networking

- Write testcases
- configure network
- run test

```
Test Results

[FAILED] | 2026-01-21 13:37:48.232999 | no NAS access for guests
```



Protects against unwanted infrastructure changes.

sites:

vel-01

WG / OSPF

vie-01

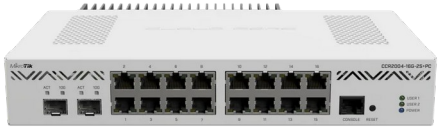
WG / OSPF

rem-01

WG / OSPF

muf-01

WG / OSPF



sla-01

Core switch

AP2

hypervisor

V M

V M

V M

storage

Lab

Netrunner

AP1

segments:

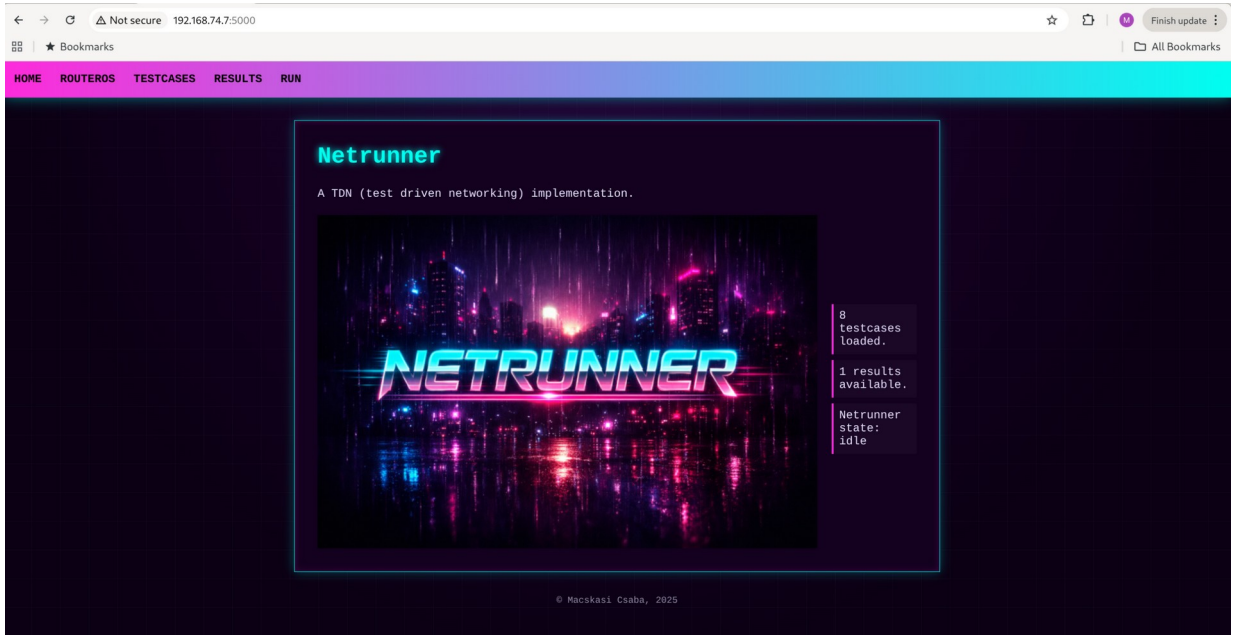
- wifi
- guest
- IOT / infra
- server
- work
- cam
- lab

Testcases

requirement	test
As a guests I want to be able to use Google.	Send HTTP request from guest VLAN to https://google.com
Servers should be isolated.	SSH / RDP requests from guest network to server network.
NAS must be accessible for employees	SMB reachable from work VLAN
Remote authentication should be possible	RADIUS / AD reachable from remote subnet

Netrunner

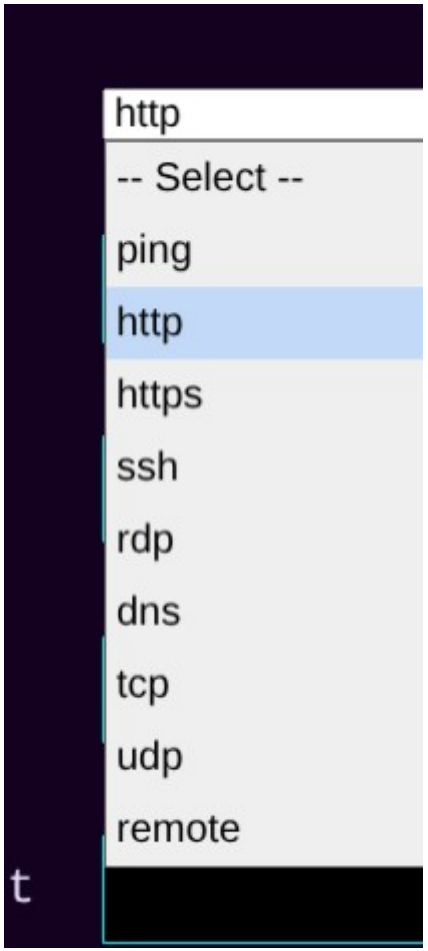
- hosted on RouterOS (arm, arm64, x86)
- runs in a container
- web interface
- bridged connection via VETH
- uses router’s network features
- supports remote routers



Setup

```
# VETH interface
/interface veth add address="" dhcp=no gateway="" gateway6="" mac-
address=24:0A:0F:EE:71:4B name=veth1

# VLAN for container
/interface vlan add interface=bridge name=vlan3999 vlan-id=3999
/ip address add address=172.16.39.1/24 interface=vlan3999 network=172.16.39.0
/interface bridge port add bridge=bridge interface=veth1 pvid=3999

# DHCP for container
/ip pool add name=netrunner-pool ranges=172.16.39.2/31
/ip dhcp-server network add address=172.16.39.0/24 dns-server=172.16.39.1
gateway=172.16.39.1
/ip dhcp-server add address-pool=netrunner-pool interface=vlan3999 name=netrunner-server

# Firewall rules
/ip firewall nat add action=masquerade chain=srcnat comment="netrunner default outbound
access" src-address=172.16.39.0/24
# The netrunner webapp will be accessible via 192.168.74.7
/ip firewall nat add action=dst-nat chain=dstnat comment="web access to netrunner" dst-
address=192.168.74.7 dst-port=5000 protocol=tcp to-addresses=172.16.39.3 to-ports=5000

# Add container
/container add cmd=/entrypoint.sh file=usb1-part1/netrunner.tar interface=veth1
name=netrunner root-dir=usb1-part1/tmp workdir=/app
```

Testcase definition



Testcase overview

Time for results!

Test Results

```
[OK] | 2026-01-26 13:19:28.875272 | Google DNS reachable
[OK] | 2026-01-26 13:19:28.997614 | gw reachable
[OK] | 2026-01-26 13:19:29.467905 | webfig reachable
[OK] | 2026-01-26 13:19:32.591927 | local dns works
[OK] | 2026-01-26 13:19:32.700972 | lab doesnt resolve dns
[OK] | 2026-01-26 13:19:36.392446 | no NAS access for guests
[OK] | 2026-01-26 13:19:40.045032 | NAS access for wifi
[OK] | 2026-01-26 13:19:40.581406 | remote test case
```

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Where does Netrunner live?

- opensource, free to use

- source on Github: https://github.com/mcsaba87/netrunner

- precompiled containers: <insert link here>

Q&A, Thank you

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