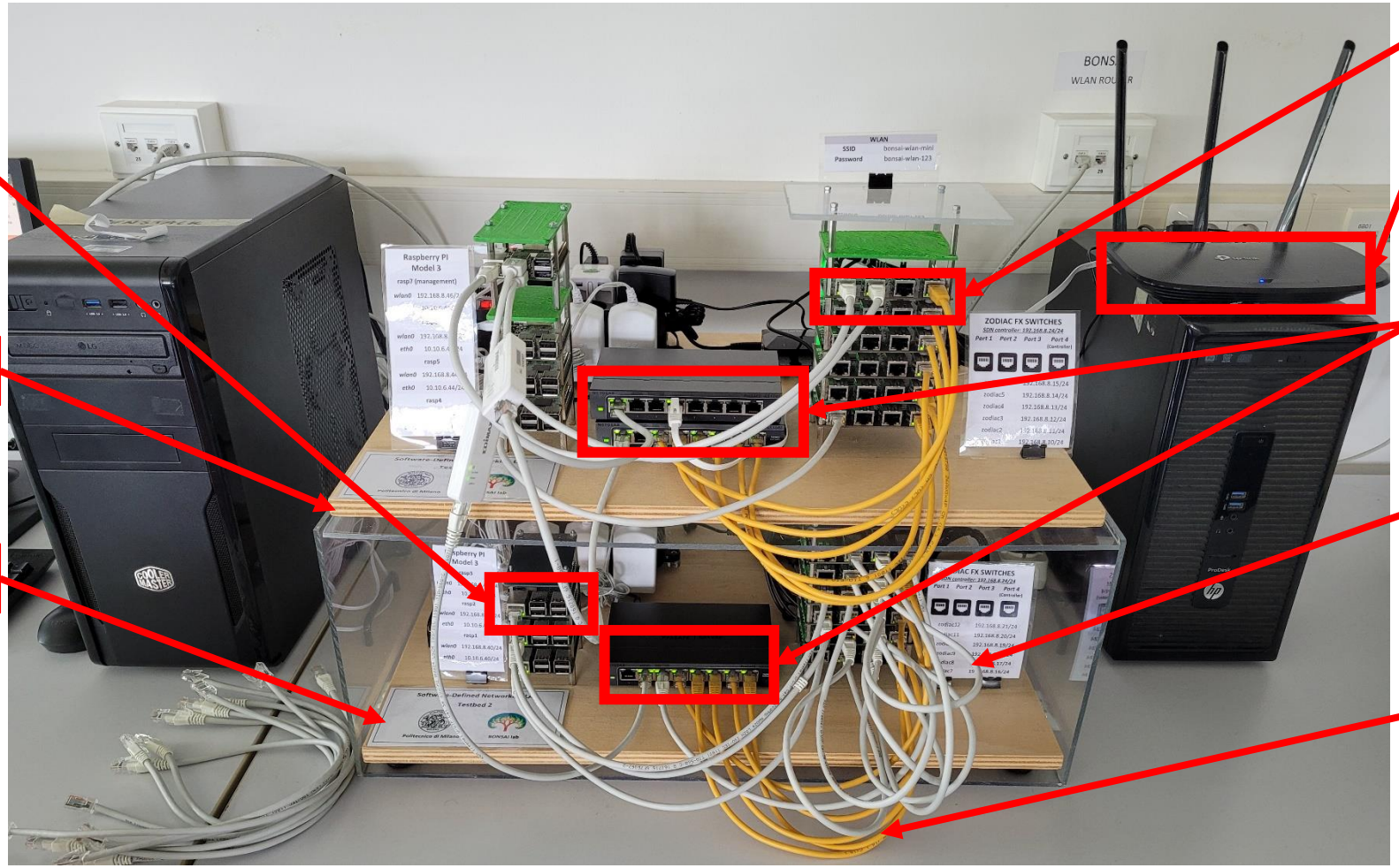
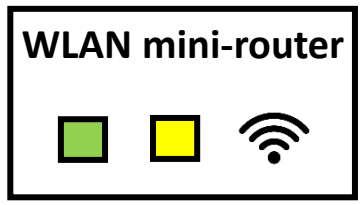
Introduction to the SDN testbed



Network devices



WAN interface

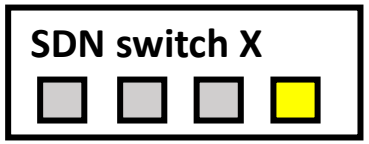
C-LAN: 192.168.8.1/24

Control plane Ethernet port

Data plane Ethernet port

Control plane WiFi port

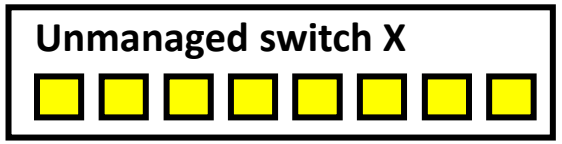
WAN Ethernet port



Management IP: 192.168.8.10-21/24
SDN switch X (from 1 to 12)

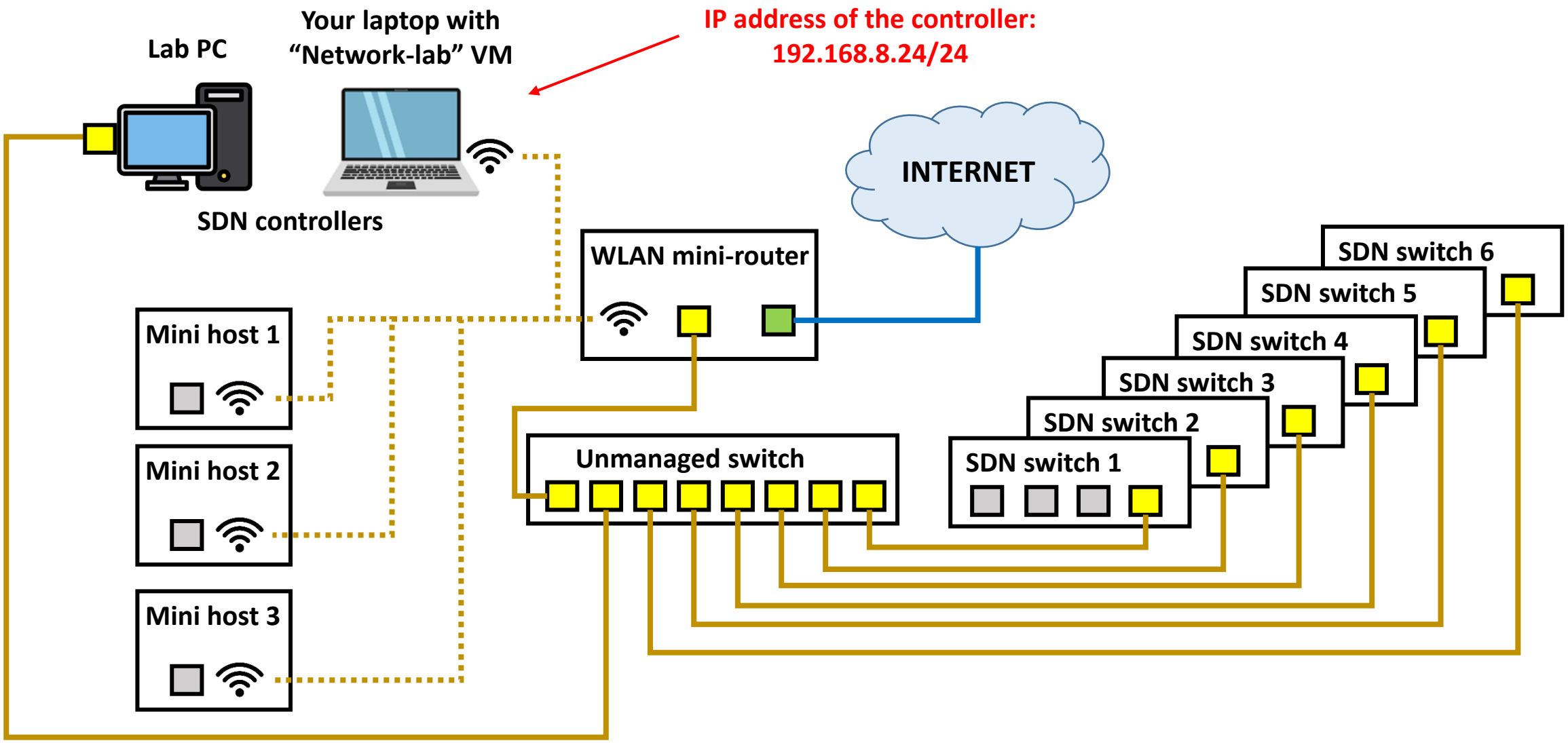
C-LAN: 192.168.8.40-46/24
Mini host X (from 1 to 7)

D-LAN: 10.10.6.40-46/24
Mini host X (from 1 to 7)

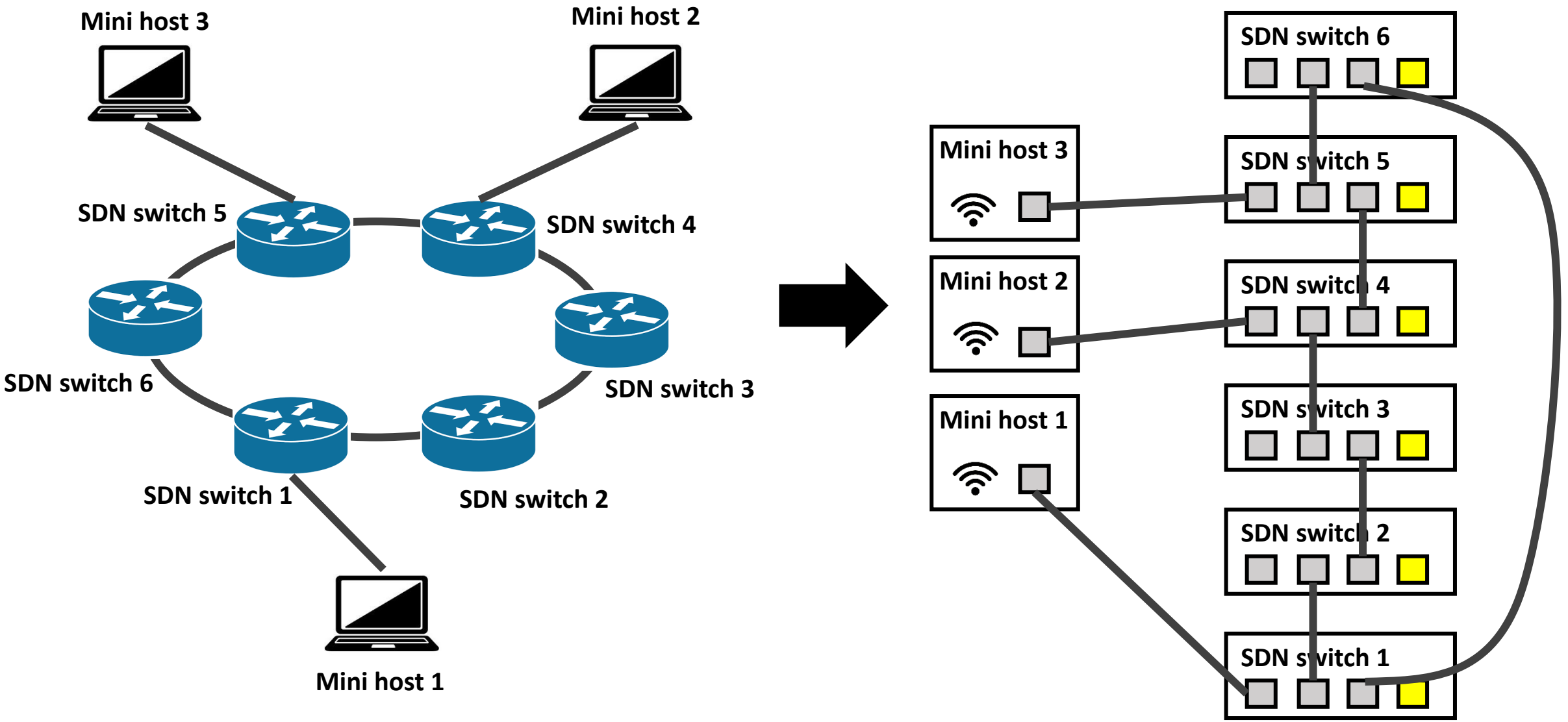


Unmanaged switch X (from 1 to 3)

Functional topology – Control plane



Functional topology – Data plane (Example)



How to access the testbed in lab

- Mini-hosts (wlan interface):
  - rasp1: 192.168.8.40/24
  - rasp2: 192.168.8.41/24
  - rasp3: 192.168.8.42/24
  - rasp4: 192.168.8.43/24
  - rasp5: 192.168.8.44/24
  - rasp6: 192.168.8.45/24
- SDN controllers:
  - Controller 1: 192.168.8.24/24
  - Controller 2: 192.168.8.25/24 (To be activated if needed)
- Access Mini-hosts:
  - Command: *ssh pi@192.168.8.40*
  - Password: *raspberry*
- Access Controller from PC lab:
  - User: *ryu*
  - Password: *ryu*
- Access Controller from your laptop VM:
  - User: *networklab*
  - Password: *networklab*

How to perform tests

- To test your project, you have to start your application with Ryu:
  - ./ryu/bin/ryu-manager ryu/ryu/app/my-first-app.py
- Then you can start sending network traffic among rasps through the LAN interface:
  - pi@rasp1:~ ping 10.10.6.41
- Following the IP addresses (data plane) of the rasps:
  - rasp1: 10.10.6.40/24
  - rasp2: 10.10.6.41/24
  - rasp3: 10.10.6.42/24
  - rasp4: 10.10.6.43/24
  - rasp5: 10.10.6.44/24
  - rasp6: 10.10.6.45/24
- You can also use traffic generators:
  - Iperf3
  - D-ITG