Connection to robair

Olivier Aycard
Grenoble INP - PHELMA
GIPSA Lab
https://www.gipsa-lab.grenoble-inp.fr/user/olivier.aycard
olivier.aycard@grenoble-inp.fr

Outline

1. Connecting to the RobAIR: wireless connection;
2. ROS on robair: how it works;
3. Tests of connection to robair.

Wireless hotspot connection

1. Turn on the robot with the blue push-button (takes ~ 2 mins to boot).
2. On your laptop, click on the wifi / network icon in the top-right corner of the screen.
3. Select the RobAIR_hotspot_ that matches the MAC address of your robot (written on top of the robot with a label).

   Example ssid: `RobAIR_hotspot_0cb6d2f1ff17`

   Password: `robairRobair42`
4. Open a terminal (ctrl + alt + t) and check if you can ping the robot by typing the command:

   ```
   ping 10.0.0.42
   ```

Outline

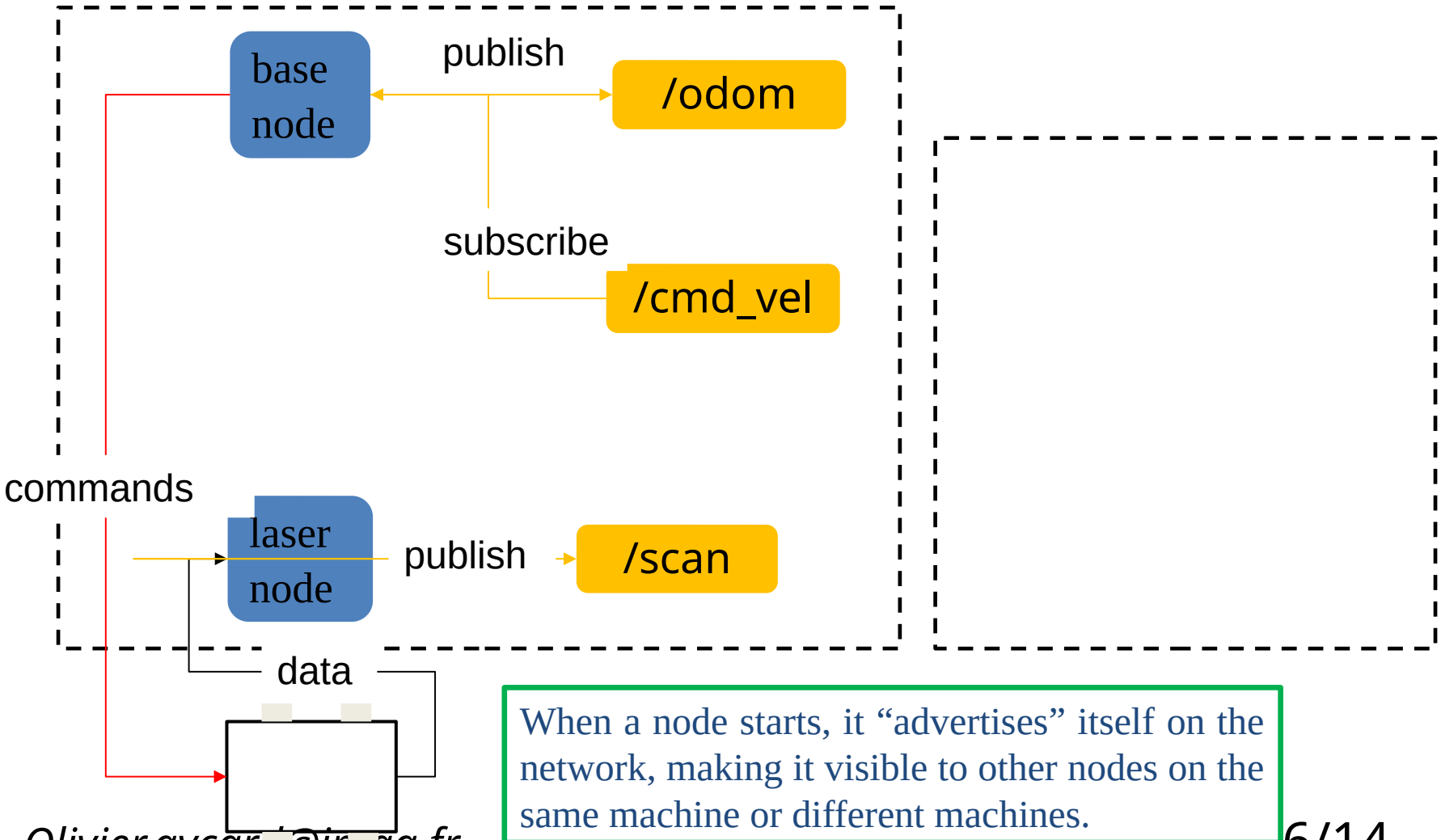
1. Connecting to the RobAIR: wireless connection;
2. ROS on robair: how it works;
3. Tests of connection to robair.

ROS on robair (1/5)

- Each robair publishes:
  - /scan (laserscanner data);
  - /odom (odometry).

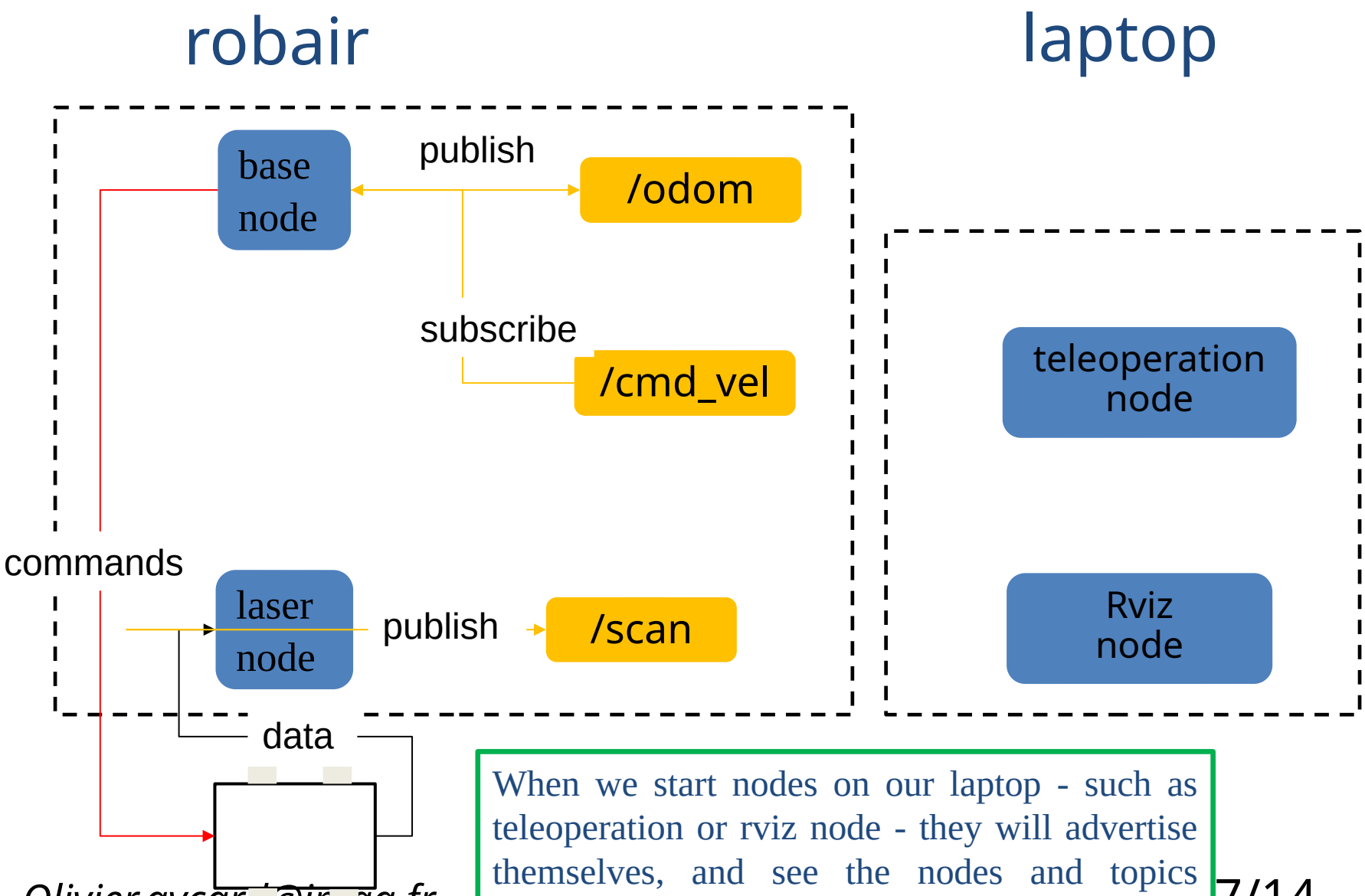
- Each robair subscribes to:
  - /cmd_vel to command robair in translation and/or rotation.

ROS on robair (2/5)



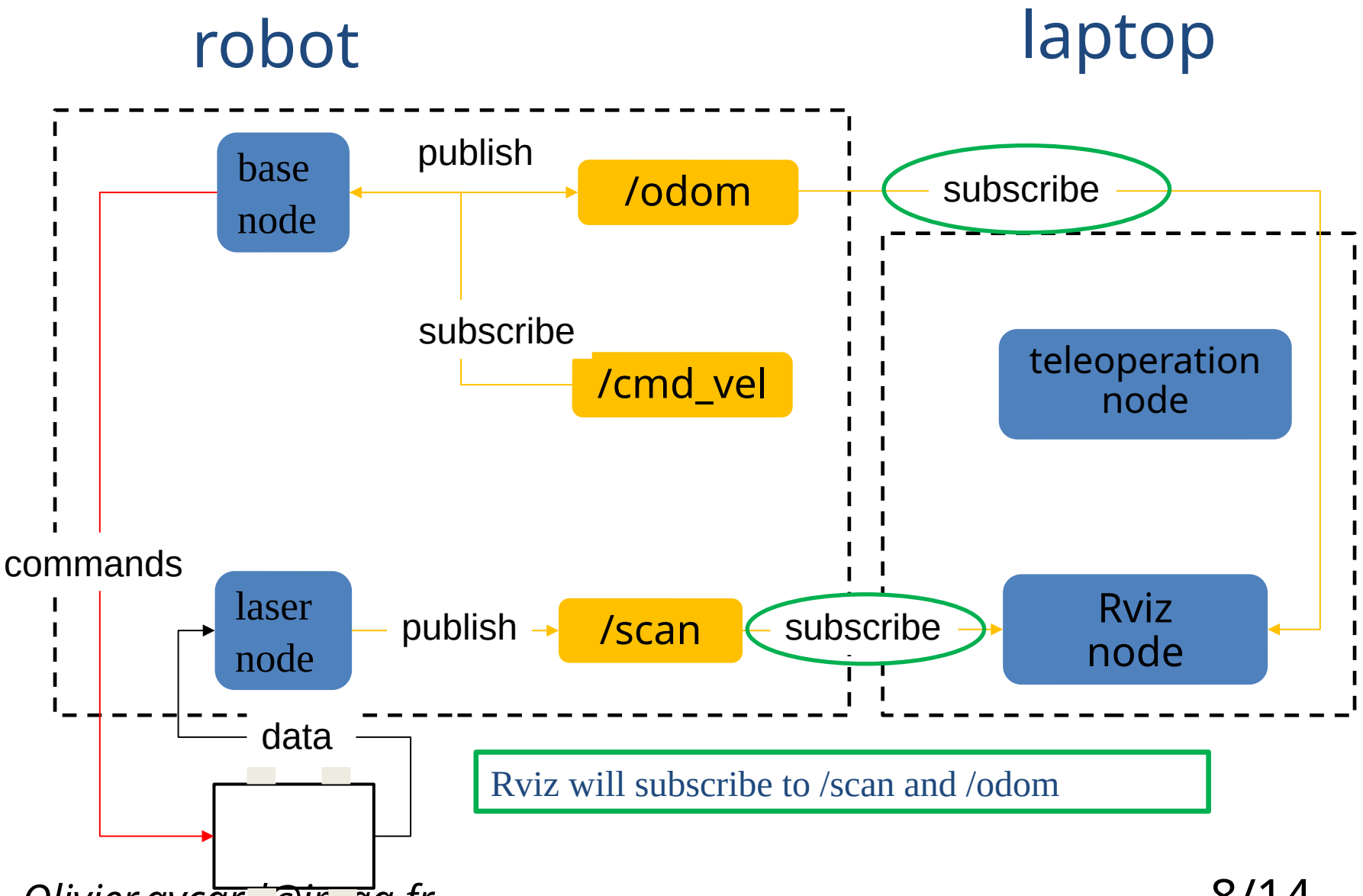
When a node starts, it “advertises” itself on the network, making it visible to other nodes on the same machine or different machines.

ROS on robair (3/5)



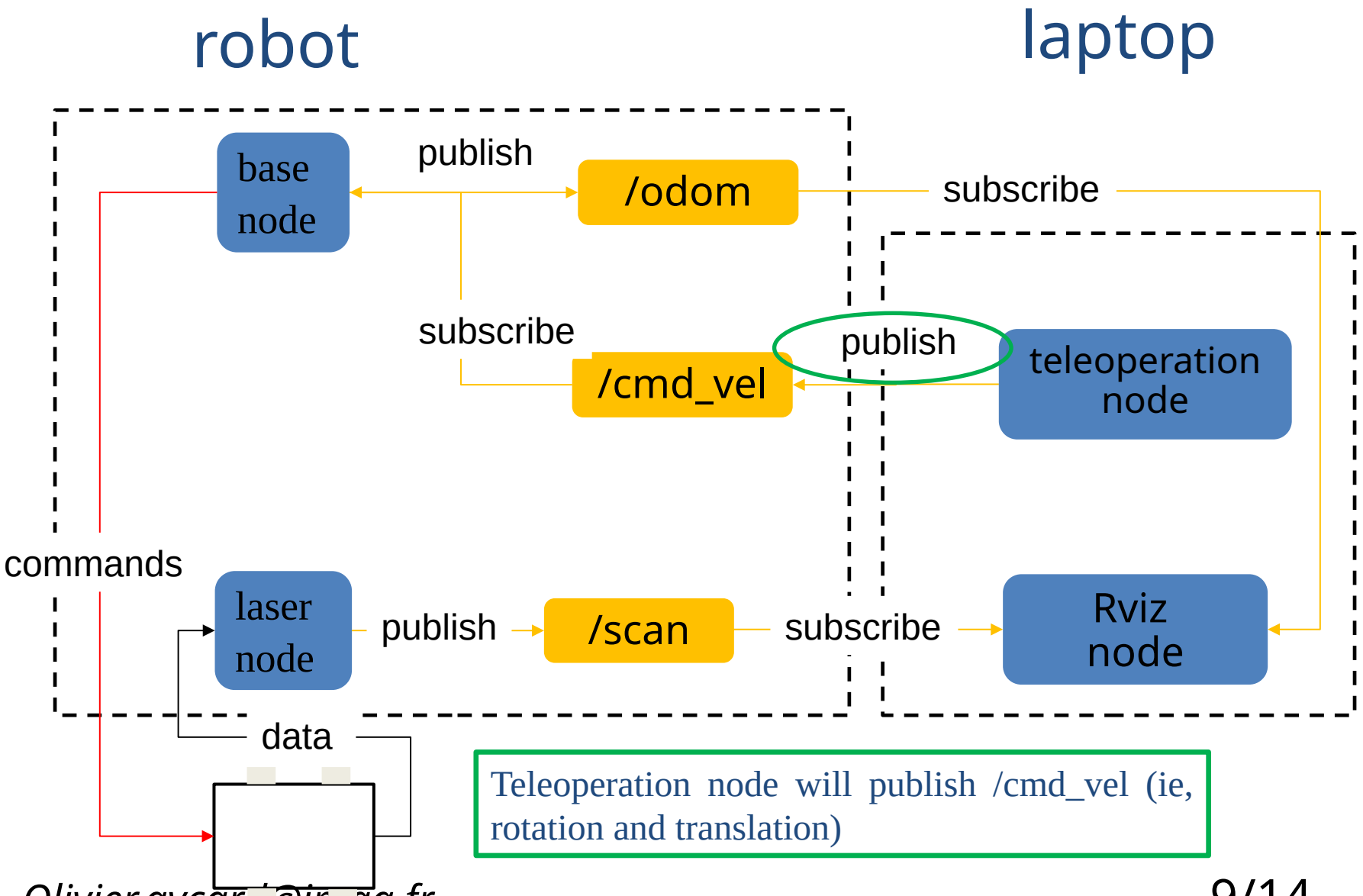
When we start nodes on our laptop - such as teleoperation or rviz node - they will advertise themselves, and see the nodes and topics running on RobAIR.

ROS on robair (4/5)



Rviz will subscribe to /scan and /odom

ROS on robair (5/5)



Teleoperation node will publish /cmd_vel (ie, rotation and translation)

Outline

1. Connecting to the RobAIR: wireless connection;
2. ROS on robair: how it works;
3. Tests of connection to robair.

Tests of connection on robair

- We will check if you are able to receive the laser data (/scan topic) and send motion commands to robair (/cmd_vel topic)
- In order to run a ros2 node, you must do the following:
  - Open a terminal (ctrl + alt + t), and run: `cd ~/ros2_ws`
  - Run: `source install/local_setup.bash`
  - Then, run the command for your node `ros2 run <package name> <node name>`

1. Laser data:
   - Start rviz: `ros2 run rviz2 rviz2 -d src/follow_me/config/laser_only.rviz`
   - You should see the data of the laser scanner
2. Motion commands:
   - Start smooth_teleop: `ros2 run smooth_teleop smooth_teleop_node`
   - Use the keyboard to move robair. Press “k” to immediately stop.
   - You should see robair moving