Robot Operating Systems

Robot Software Development

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2025-05-08

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Outline

2. Getting started with ROS2

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We begin by checking which shell we are using on Linux:

```bash
which $SHELL
```

Sourcing our ROS installation.

```bash
source /opt/ros/humble/setup.bash
```

Run the turtlesim_node executable from the turtlesim package.

```bash
ros2 run turtlesim turtlesim_node
```

The below command returns the list of current active topics

```bash
ros2 topic list -t
```

Details on a particular type of message can be retrieved through:

```bash
ros2 interface show geometry_msgs/msg/Twist
```

We can publish data on a topic as follows:

```bash
ros2 topic pub --once /turtle1/cmd_vel geometry_msgs/msg/Twist
"{linear: {x: 1.}}"
```

`--once` means we publish only one message and exit.

```bash
ros2 topic pub -r 1 /turtle1/cmd_vel geometry_msgs/msg/Twist
"{linear: {x: 1.,y: 0.,z:0.}, angular:{x: 0.,y: 0.,z: .7}}"
```

`-r 1` means we keep publishing our message in a steady stream at 1 Hz. We can see the data being published on the `/turtle1/cmd_vel` by running:

```bash
ros2 topic echo /turtle1/cmd_vel
```

We can also use the keyboard to move around `turtle1`

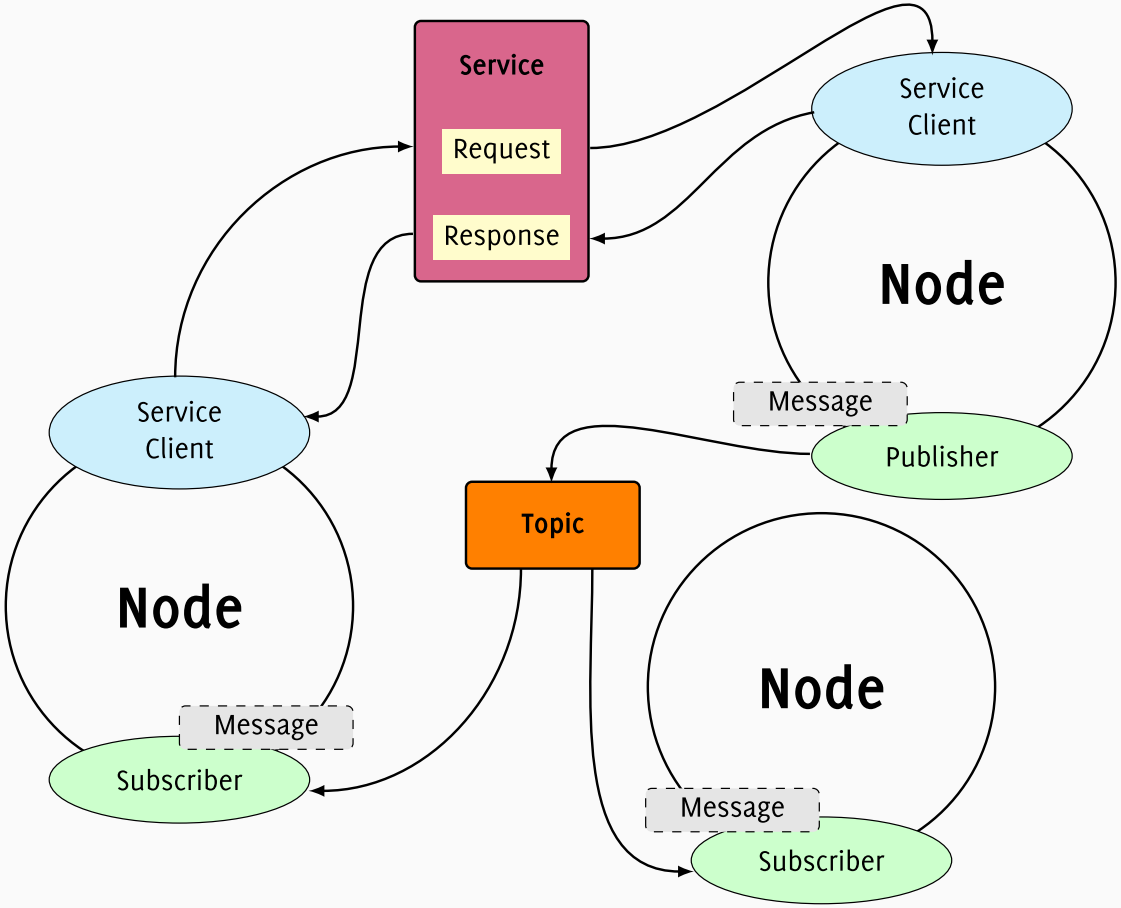
```bash
ros2 run teleop_twist_keyboard teleop_twist_keyboard --ros-args --remap cmd_vel:=/turtle1/cmd_vel
```

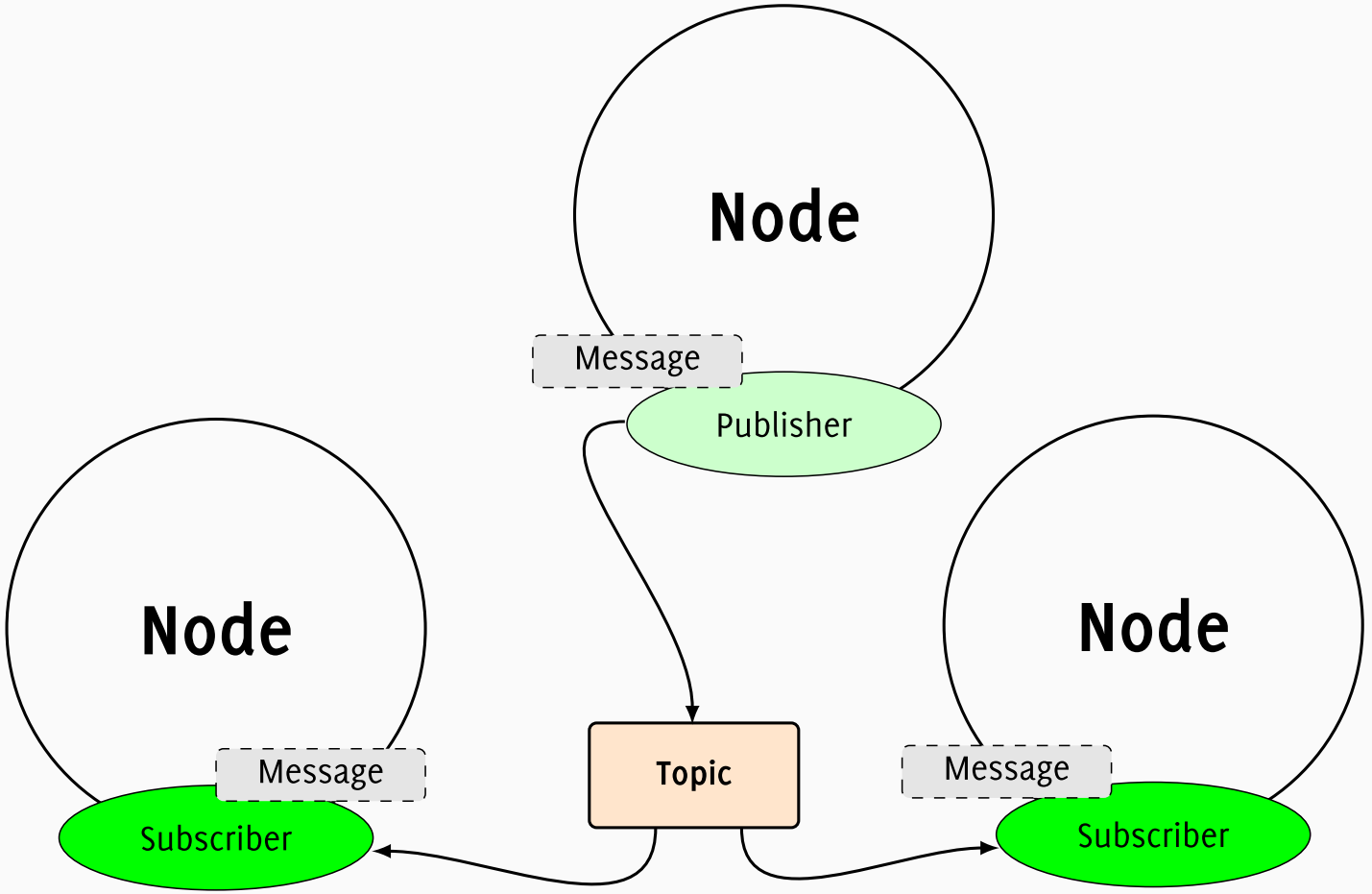
The executable `turtle_teleop_key` does the same previous thing and avoids all the hassle of remapping

```bash
ros2 run turtlesim turtle_teleop_key
```

This utility allows us to display the graph of data flow between our running nodes;

```bash
rqt_graph
```


Service
Request
Response
Service Client
Node
Message
Publisher
Topic
Service Client
Node
Message
Subscriber
Node
Message
Subscriber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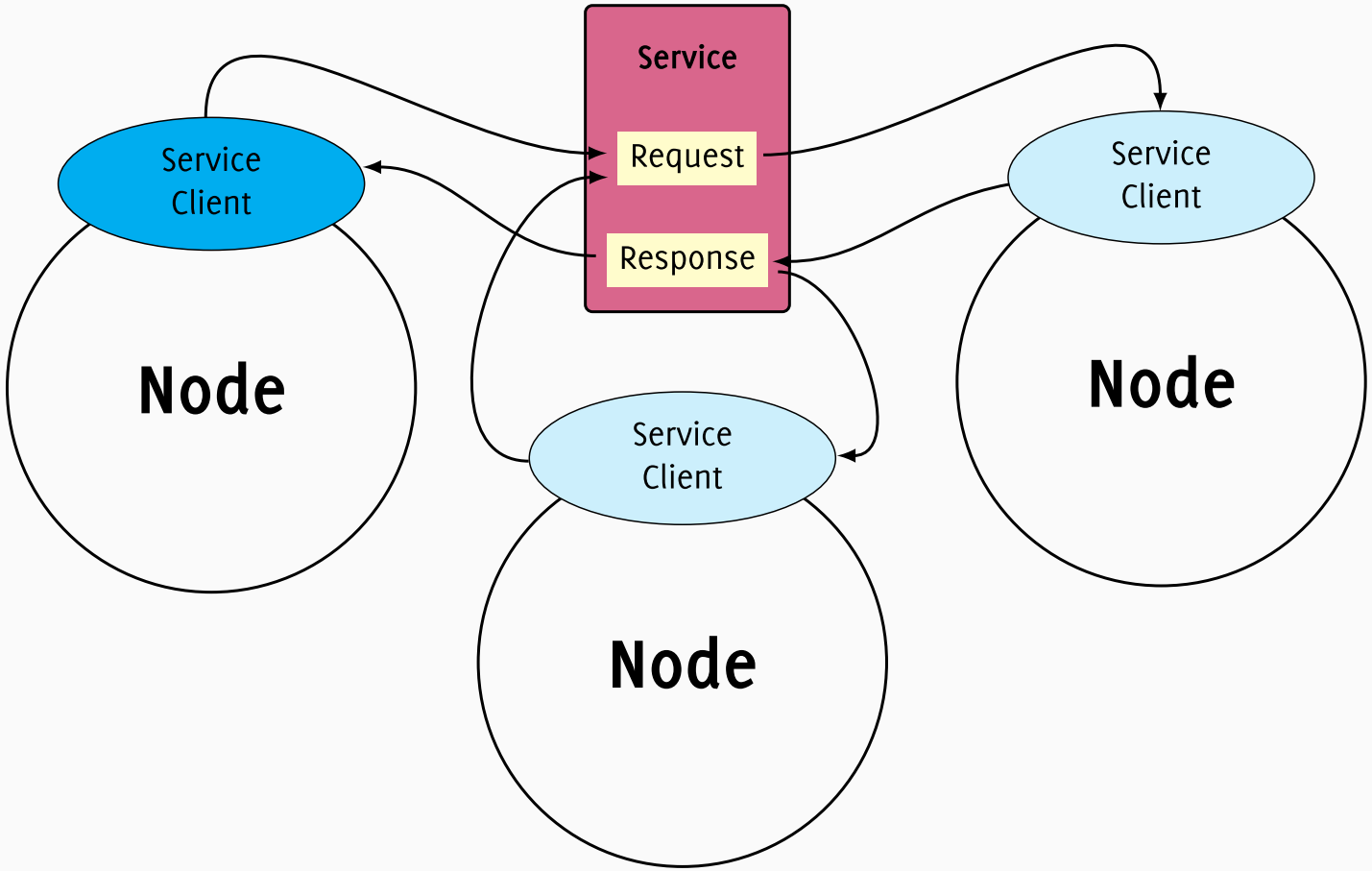
Service
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Response
Service Client
Service Client
Service Client
Node
Node
Node

Thank you for your attention!

References