Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

b-it Bonn-Aachen International Center for Information Technology

ROS Nodes, Topics, and Messages

Foundation Course

August 27, 2019

Hassan Umari

1. Recap

2. ROS nodes in Python

2.1 A simple ROS node in Python

2.2 Writing a publisher node in Python

2.3 creating a package

Recap

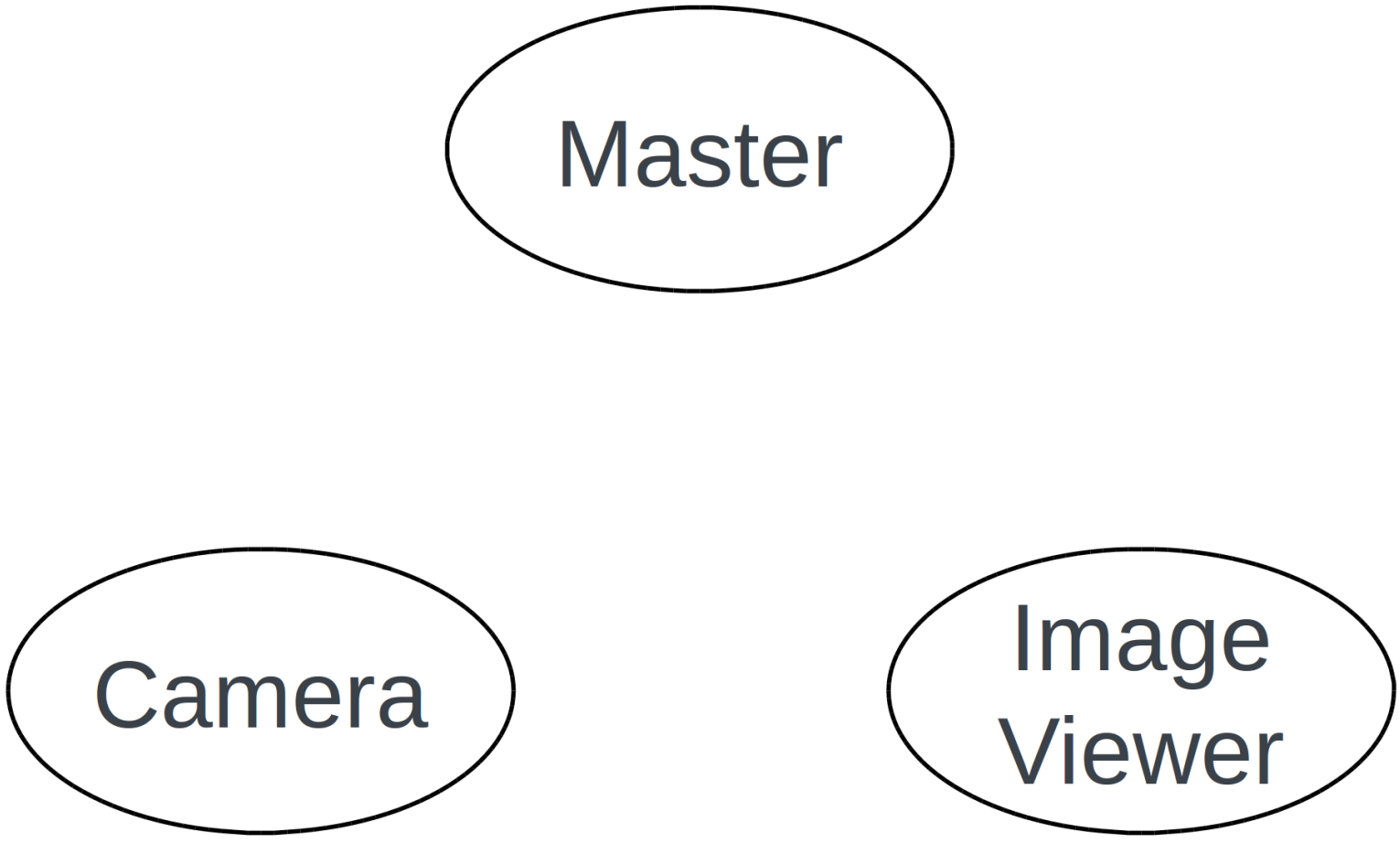
Summary of yesterday's session

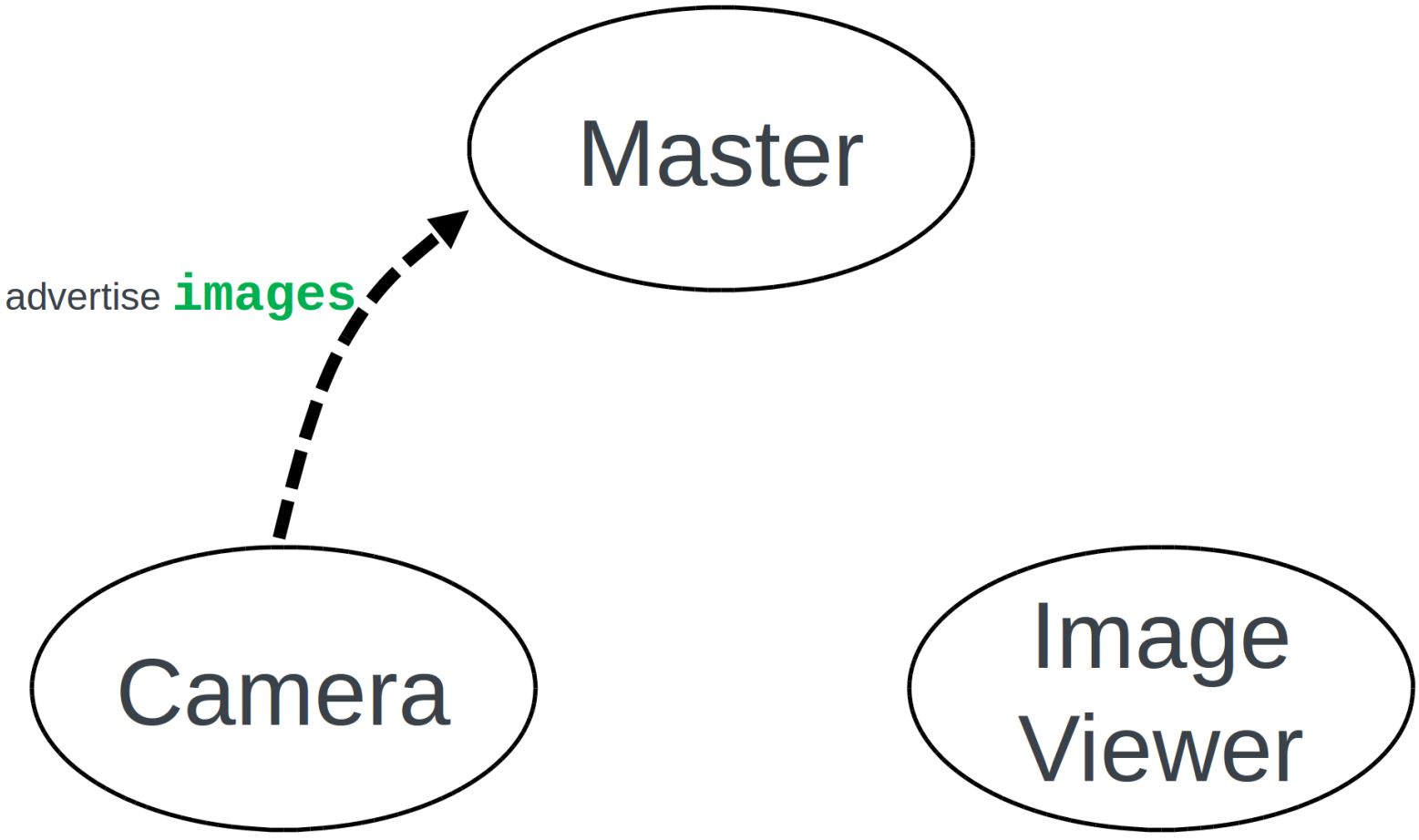
- ROS is a collection of libraries and tools that helps you when you develop software for robots.
- ROS provides several ways to transfer data between nodes:
  1. ROS topics and messages (**publish/subscribe**).
  2. ROS services (**request/reply**).
  3. ROS actions (**request/reply**).
  4. Parameter server.

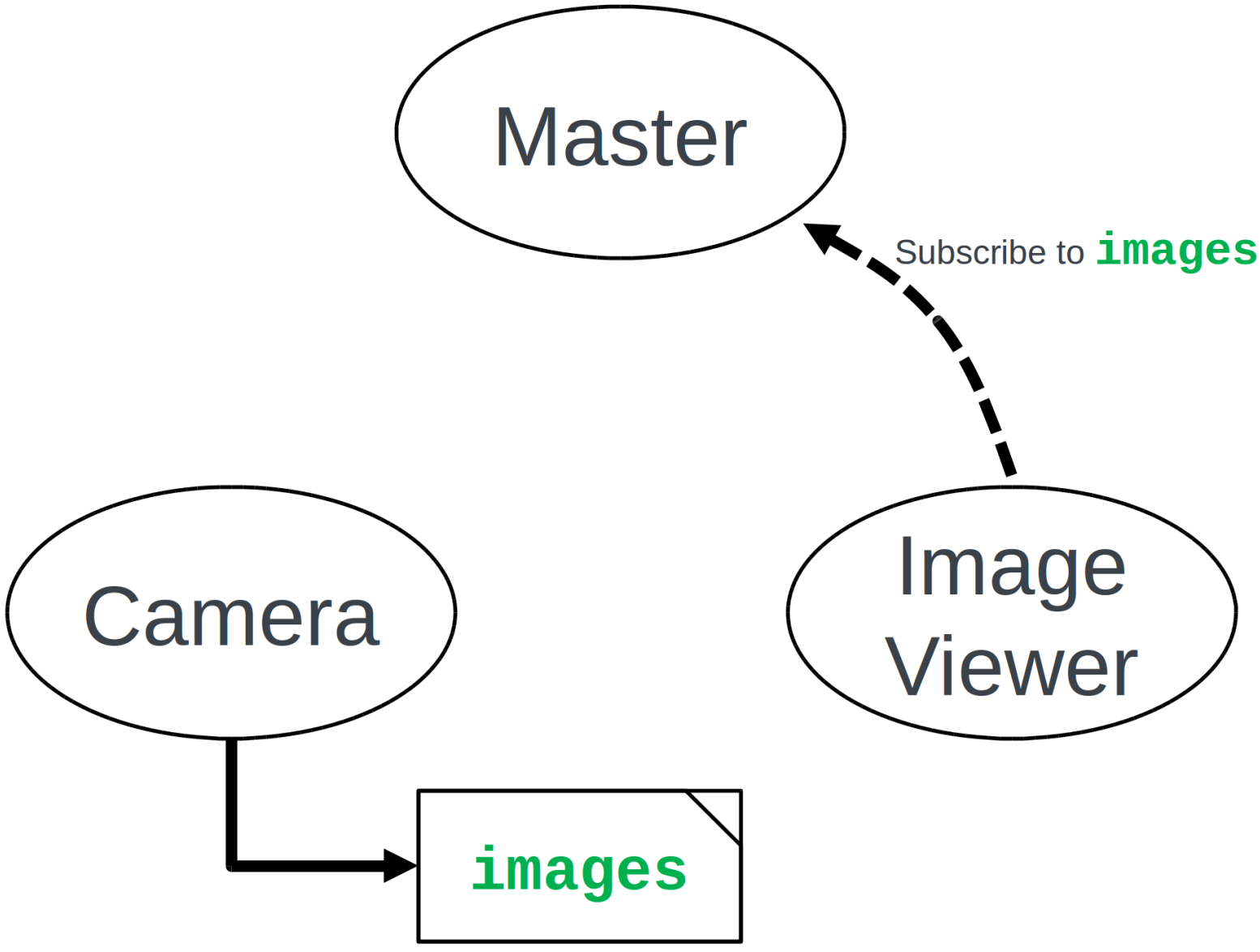
Recap

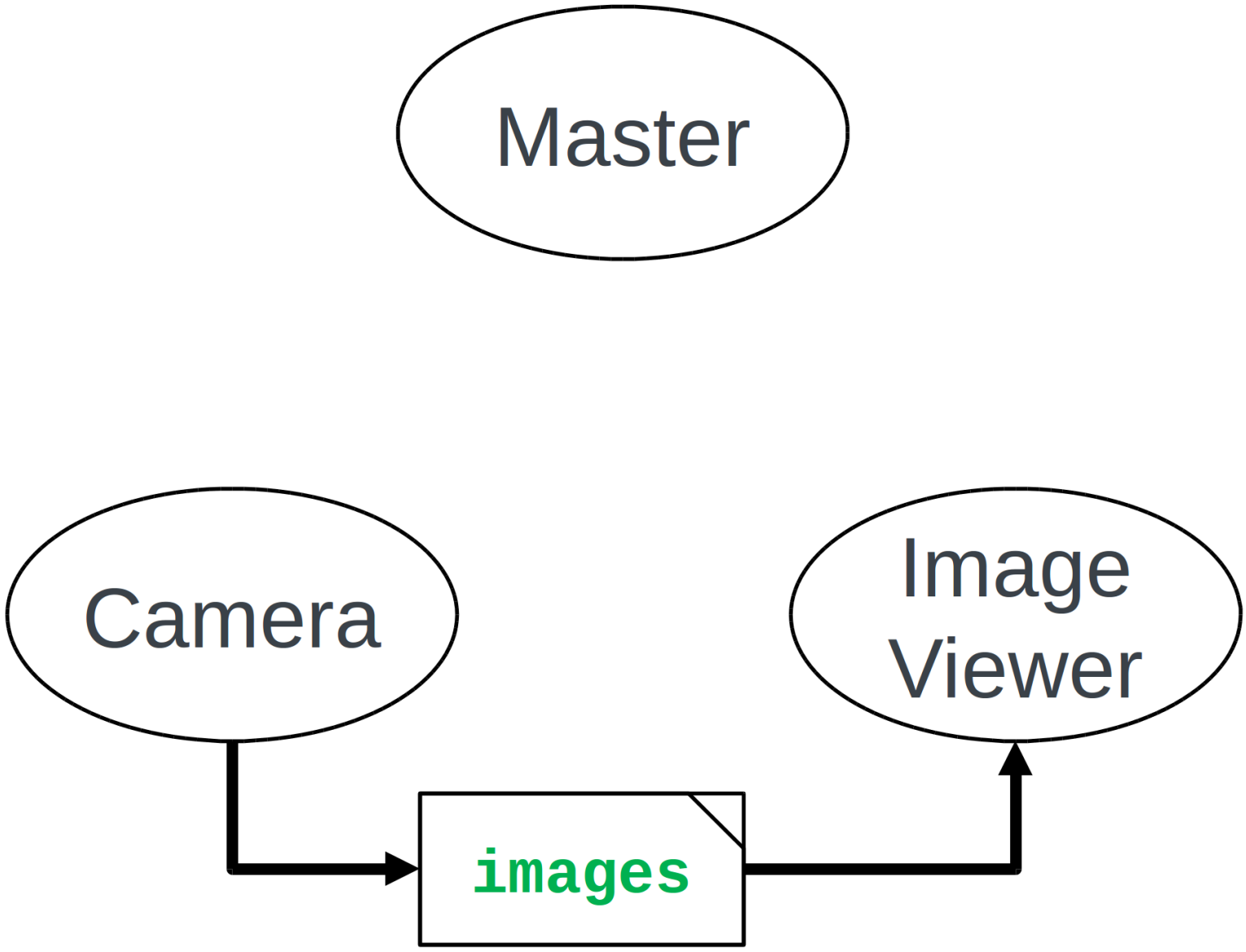
Summary of yesterday's session

- We will focus today on ROS topics and messages..


Master
Camera
Image
Viewer


Master
advertise images
Camera
Image
Viewer


Master
Subscribe to images
Camera
Image Viewer
images


Master
Camera
Image
Viewer
images

1. Recap

2. ROS nodes in Python

2.1 A simple ROS node in Python

2.2 Writing a publisher node in Python

2.3 creating a package

A simple ROS node

```
#!/usr/bin/env python


import rospy
from time import sleep

rospy.init_node("print_text")


while True:
    print "Hello world!"
    sleep(1)
```

A simple ROS node

ROS Nodes

```
#!/usr/bin/env python

import rospy


rospy.init_node("print_text")
rate = rospy.Rate(1)

while not rospy.is_shutdown():
    print "Hello world!"
    rate.sleep()
```

Three ways to run a node

ROS Nodes

There are 3 ways to run a node:

1. Like you normally do. Example (in case of python node):

```
python <file name>
```

2. using rosrun command:

```
rosrun <package name> <node name>
```

3. Using launch files. (we'll see it later)

A simple ROS node

ROS Nodes