ROS 2

it's coming

Dec. 13th 2017
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Stuttgart, Germany

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WHAT IF I TOLD YOU
IT'S ALREADY THERE
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ROS 2 - Why

ROS 1 is great!

But there are some things which are "improvable"

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What is the same, what is different

Same concepts

- Nodes, messages, publishers, subscribers, services, ...
- Command line as well as graphical tools

Different [🔗]

- Middleware interface [🔗]
  - Reusing existing standards rather then developing "our" own
  - DDS [🔗]: distributed discovery, serialization, transport, rich QoS, security
  - Non-DDS implementation possible, e.g. using OPC UA
- Modern technologies: CMake, C++ 14, Python 3.5, etc.
- Address design flaws:
  - No crawling of the FS at runtime (ament resource index)
  - Choose process layout at deploy time (node vs. nodelet)
  - ...

See the slides / video from the ROSCon 2015 presentation for more information.

How to roll out "the new thing"

👎 Each ROS release: add new, deprecate old, remove ancient

- That requires **every** package to move forward

👎 Add new stuff in parallel in a ROS 1 distribution

- Fragmentation and not transparent:
  some packages use `roscpp`, others `roscpp2`

👍 Release a separate distribution

- Each package needs to opt-in when it wants to

See this design article for more information.

ROS 2 Ardent Apalone

released on Dec. 8th 2017

Dictionary

ardent

ar·dent
/ˈärdnt/

adjective

enthusiastic or passionate.
"an ardent baseball fan"
synonyms: passionate, fervent, zealous, fervid, wholehearted, vehement, intense, fierce, fiery; More

- *archaic literary*
  burning; glowing.
  "the ardent flames"

Translations, word origin, and more definitions

Spiny softshell turtle

See release page for more information.

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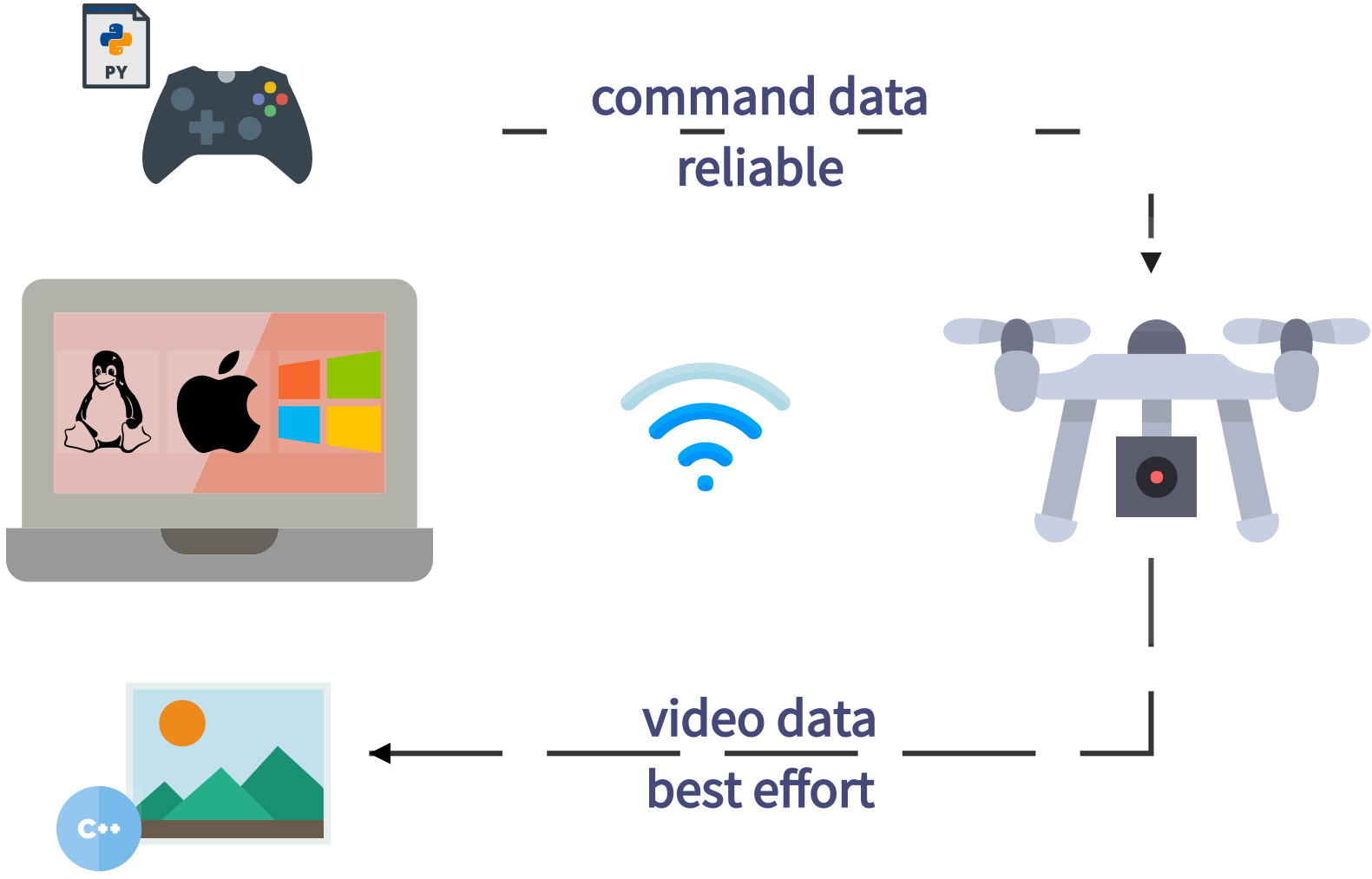
Pub / Sub, QoS, Cross Platform / Language



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Usage Patterns of the "ros1_bridge"

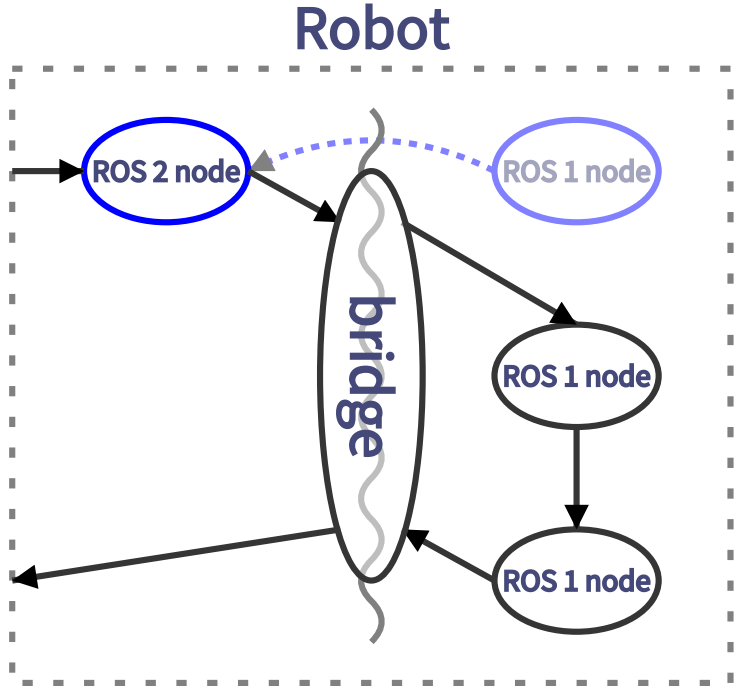
Beta 2

- TurtleBot 2 demo
- Robot using ROS 2 onboard
- Computer uses ROS 1 tools, leverage existing ROS 1 packages

Beta 3

- HSR demo
- Robot using ROS 1 onboard
- Computer uses ROS 2 tools, leverage intrinsic advantages of the communication protocol

- Incrementally migrate a ROS system



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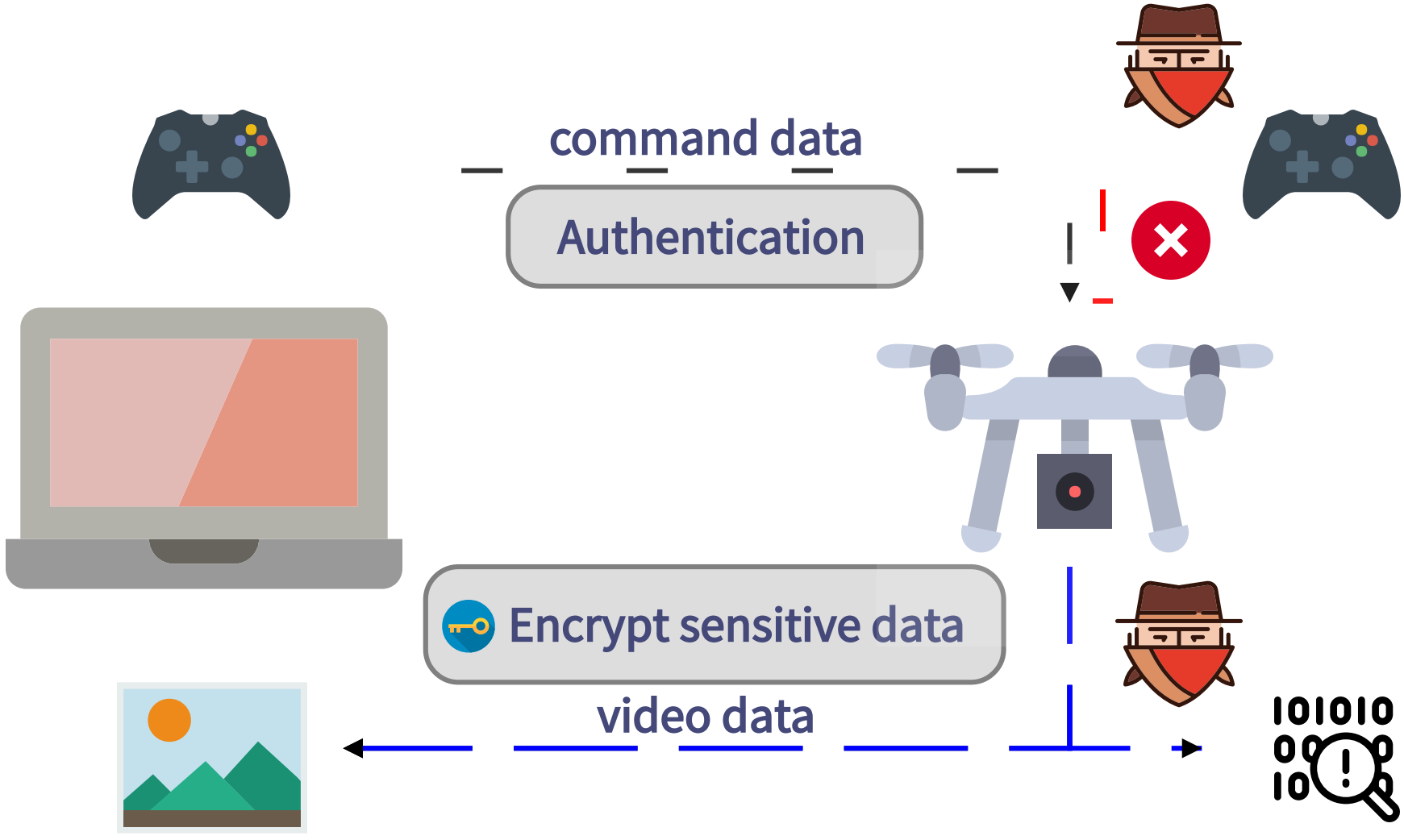
Security



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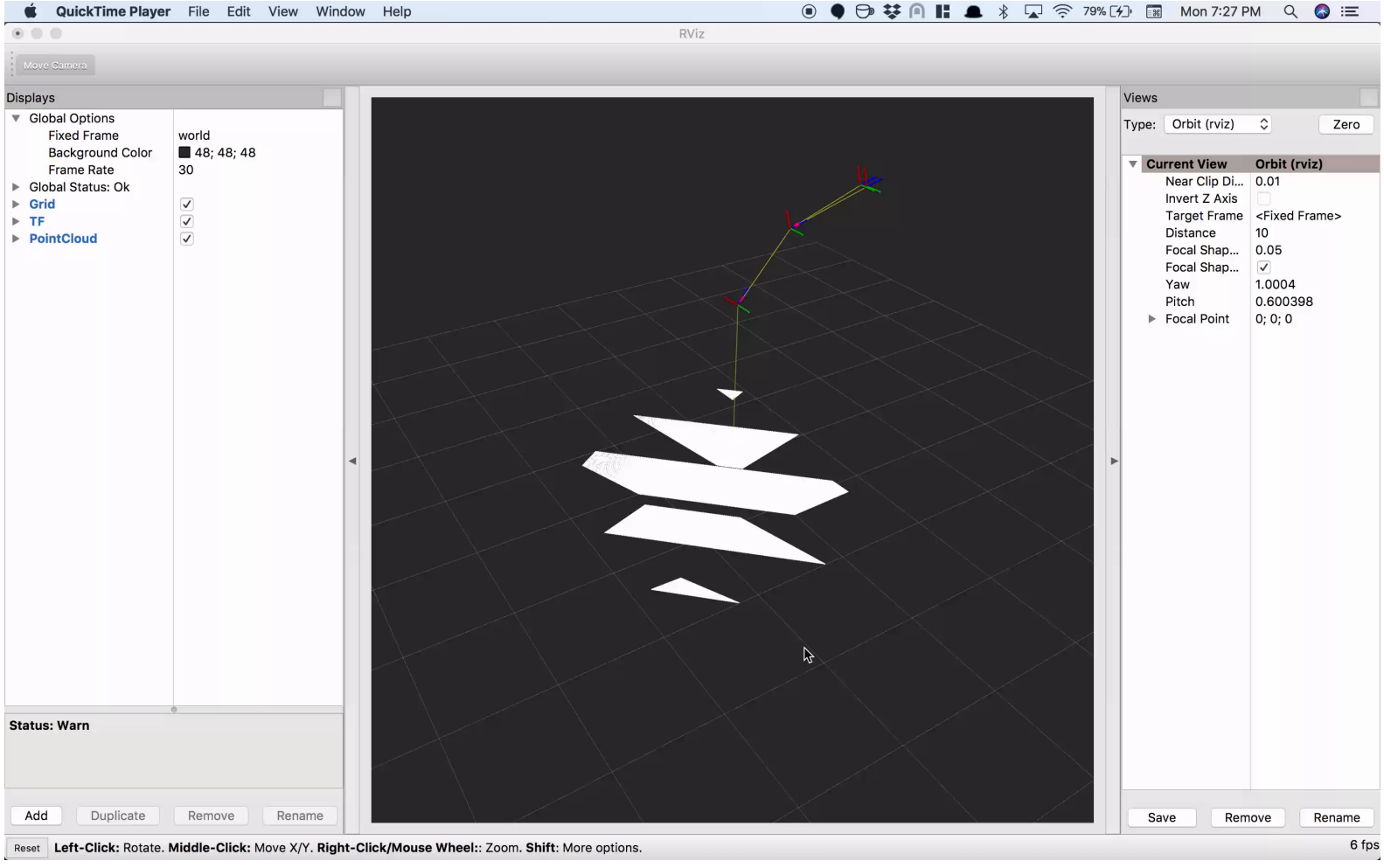

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Outlook

- New releases every ~6 months
- Support two releases at a time (same as in ROS 1 without LTS)
  - Major bug fixes
  - Keep platforms working which have rolling dependencies (Mac OS, Windows)
- Items for the next 6 months cycle will be selected soon (see roadmap)
  - Actions, preemptable services ?
  - rosbag ?
  - ...

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Questions...

For more information go to:
ros2.org

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