

# ROS World 2020 Recap

## Lightning Talk from Lightning Talks

Tomoya Fujita @ [linkedin](#) [github](#)

# rosvbag2

- recording bag file can be split based on file size and duration.
- compression module [zstd](#) for file or message
- QoS automatically adjusted on each topic. also can be overridden.

# Security Launch

- Before

```
ubuntu@ros2-dev ~ $ mkdir /tmp/keystore
ubuntu@ros2-dev ~ $ ros2 security create_keystore /tmp/keystore
ubuntu@ros2-dev ~ $ ros2 security create_enclave /tmp/keystore /minimal_publisher
ubuntu@ros2-dev ~ $ export ROS_SECURITY_KEYSTORE=/tmp/keystore
ubuntu@ros2-dev ~ $ export ROS_SECURITY_ENABLE=true
ubuntu@ros2-dev ~ $ export ROS_SECURITY_STRATEGY=Enforce
ubuntu@ros2-dev ~ $ ros2 run examples_rclcpp_minimal_publisher publisher_lambda --ros-args --enclave
```

Create a keystore

Initialize the keystore

Create an enclave for your node

Export Environment Variables

Run

# Security Launch

- After (Upcoming)

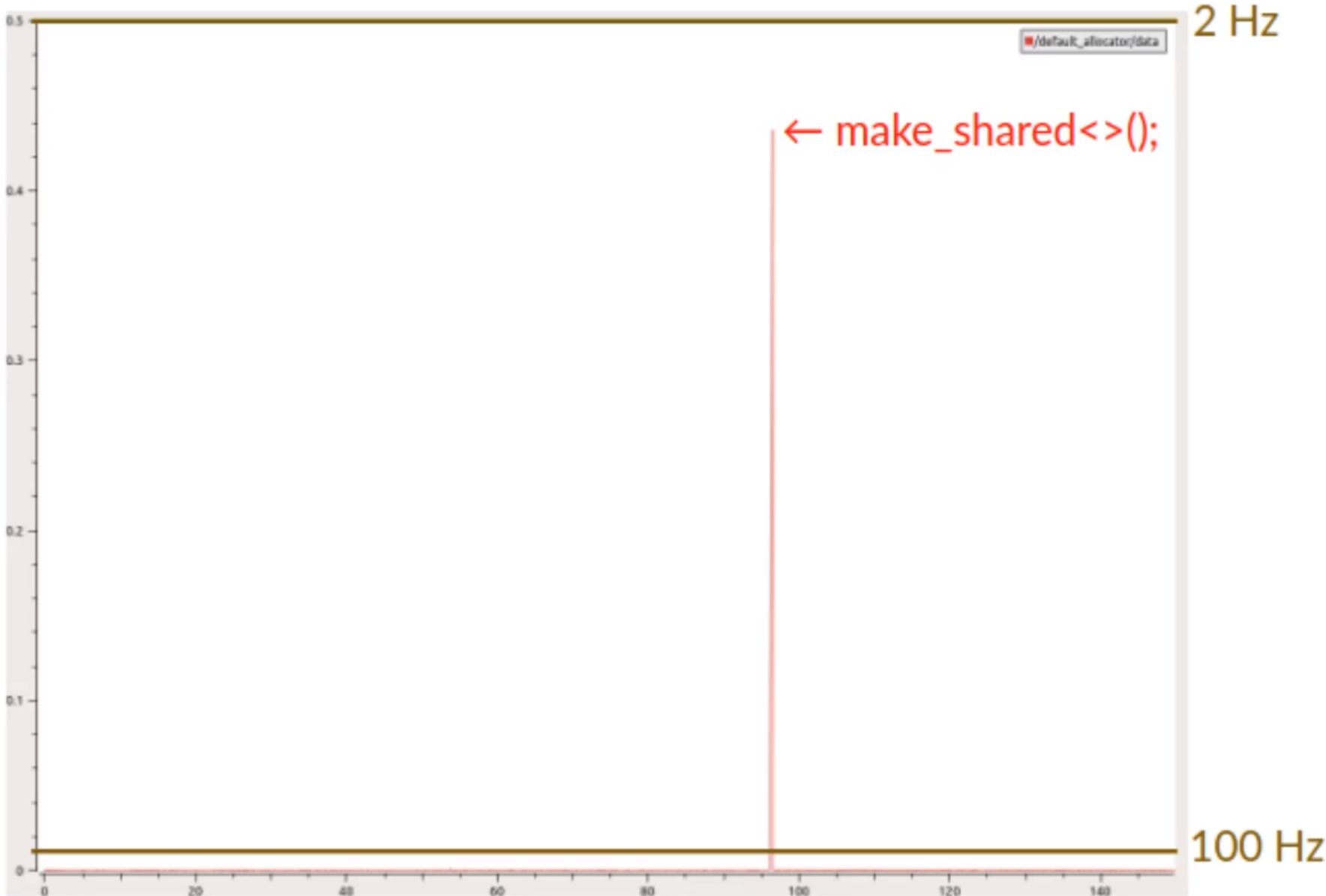
```
ubuntu@ros2-dev ~ $ ros2 launch example.launch.py --secure
[INFO] [launch]: All log files can be found below /home/ubuntu/.ros/log/2020-09-30-18-42-49-135776-ros2-dev-2634
[INFO] [launch]: Default logging verbosity is set to INFO
[INFO] [publisher_lambda-1]: process started with pid [2637]
[INFO] [subscriber_lambda-2]: process started with pid [2639]
[publisher_lambda-1] [INFO] [1601491369.238011039] [rcl]: Found security directory: /tmp/tmp7851b3pj/enclaves/mini
mal_publisher
[subscriber_lambda-2] [INFO] [1601491369.238011509] [rcl]: Found security directory: /tmp/tmp7851b3pj/enclaves/min
imal_subscriber
```

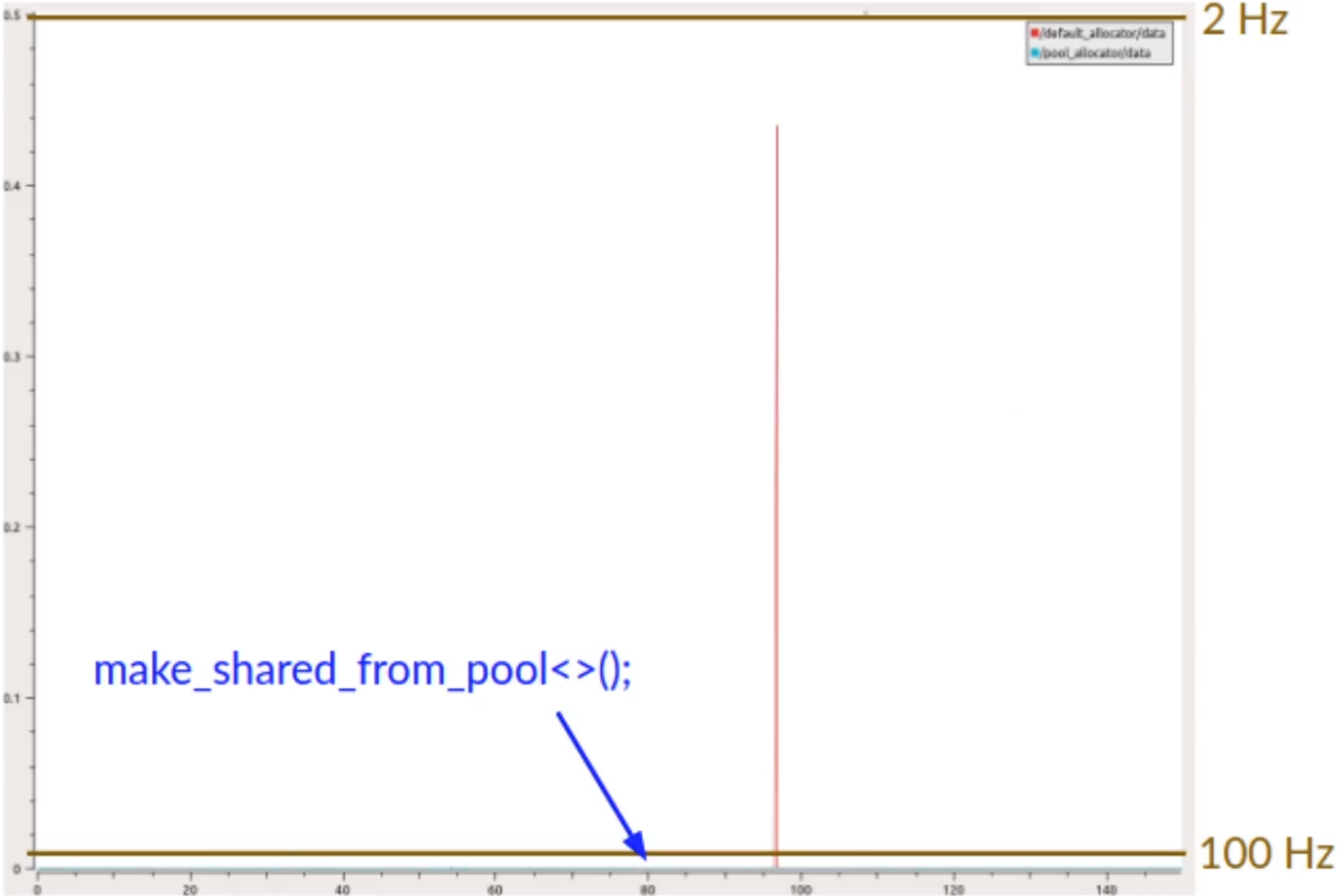
# system statistics

- [system\\_metrics\\_collector](#)
- NodeOption to enable statistics on subscription.
- publishes /statistics type with `statistics_msgs::msg::MetricsMessage`
- CPU & Memory usage
- Linux Only
- External parameter configuration in consideration

# Boost Pool Allocation

- it is all about `std default allocator` vs `boost::fast_pool_allocator`
- can be used for intra-process communication.







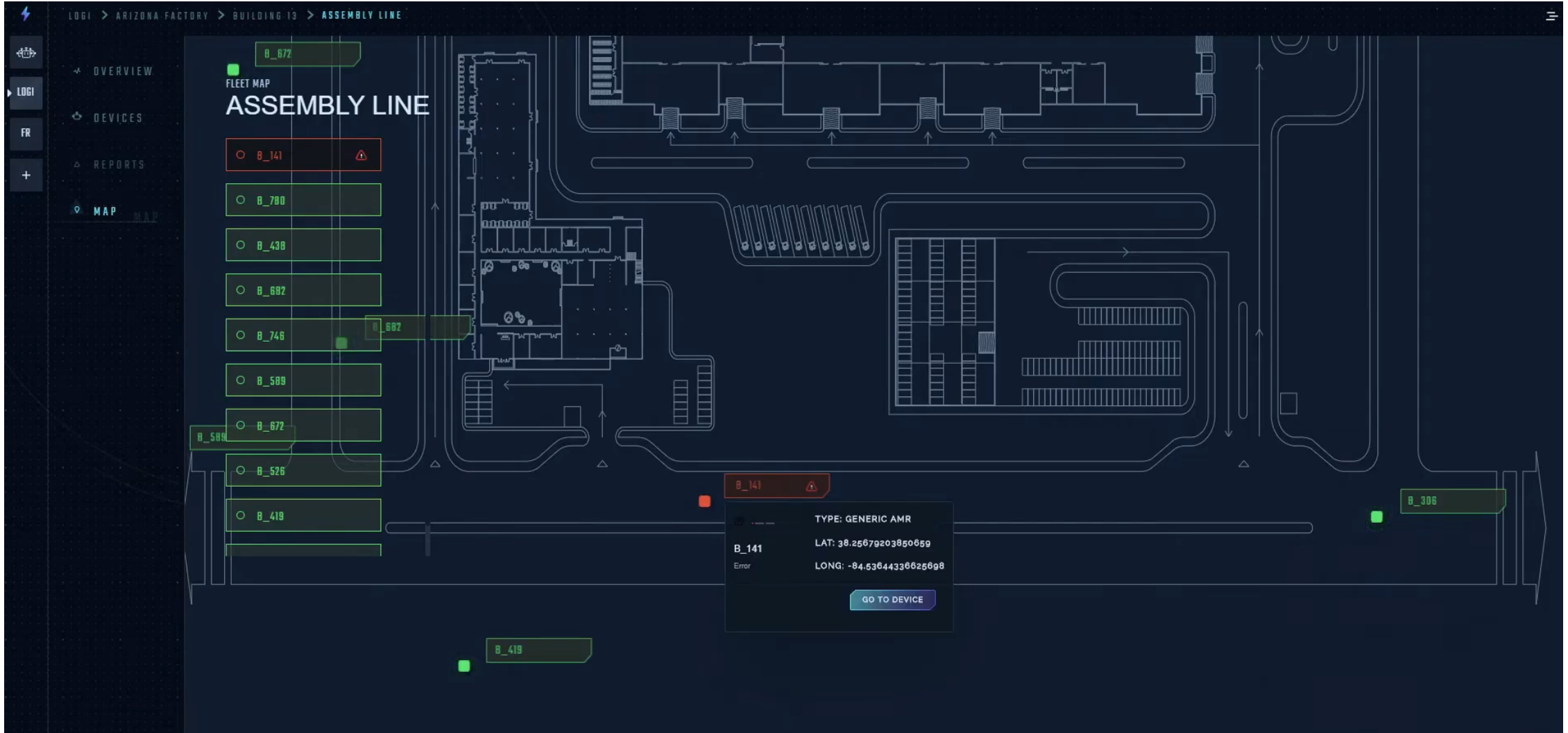
# ROS + Docker

- Repeatable / Reproducible
- Platform / Distro Dependencies
- Contribution Friendly
- Official Library Images: `library/ros:<tag>`
- Docker Images: `osrf/ros2:<tag>`

# Object Computing DDS

- DDS can connect between different subnets.
- DDS can connect to the cloud.
- DDS can connect over the Internet.
- DDS can communicate on different network.

# Freedom Robotics



# Dronecode Tips



Lightweight messaging protocol  
Specification



Reference Hardware & Industry  
Standards



Firmware for autonomous vehicles

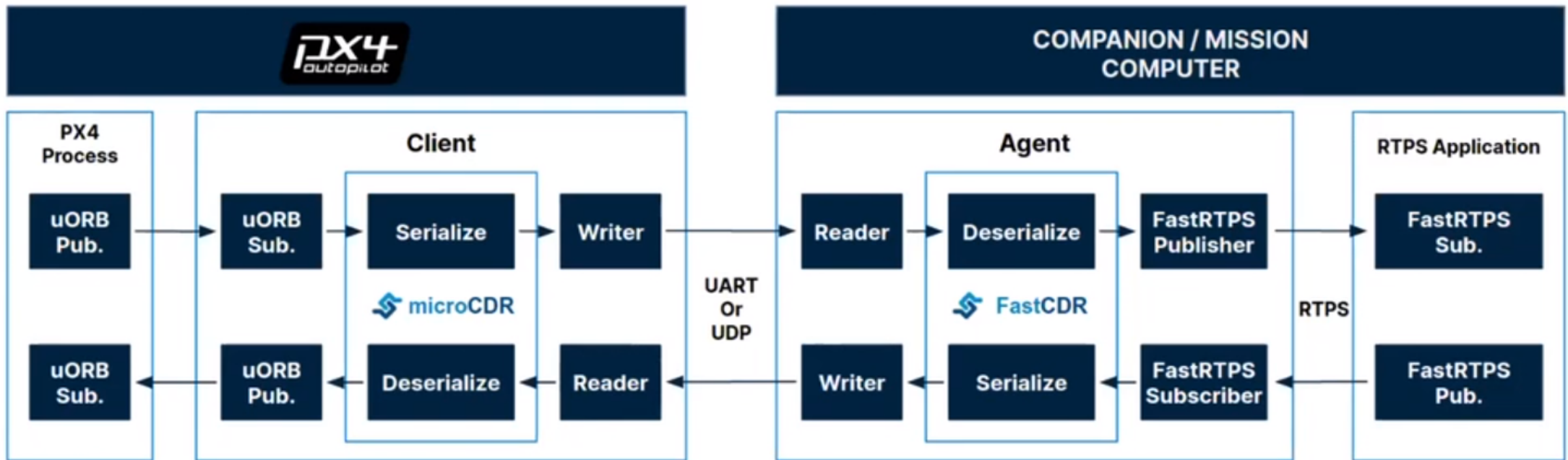


Simplified API for MAVLink



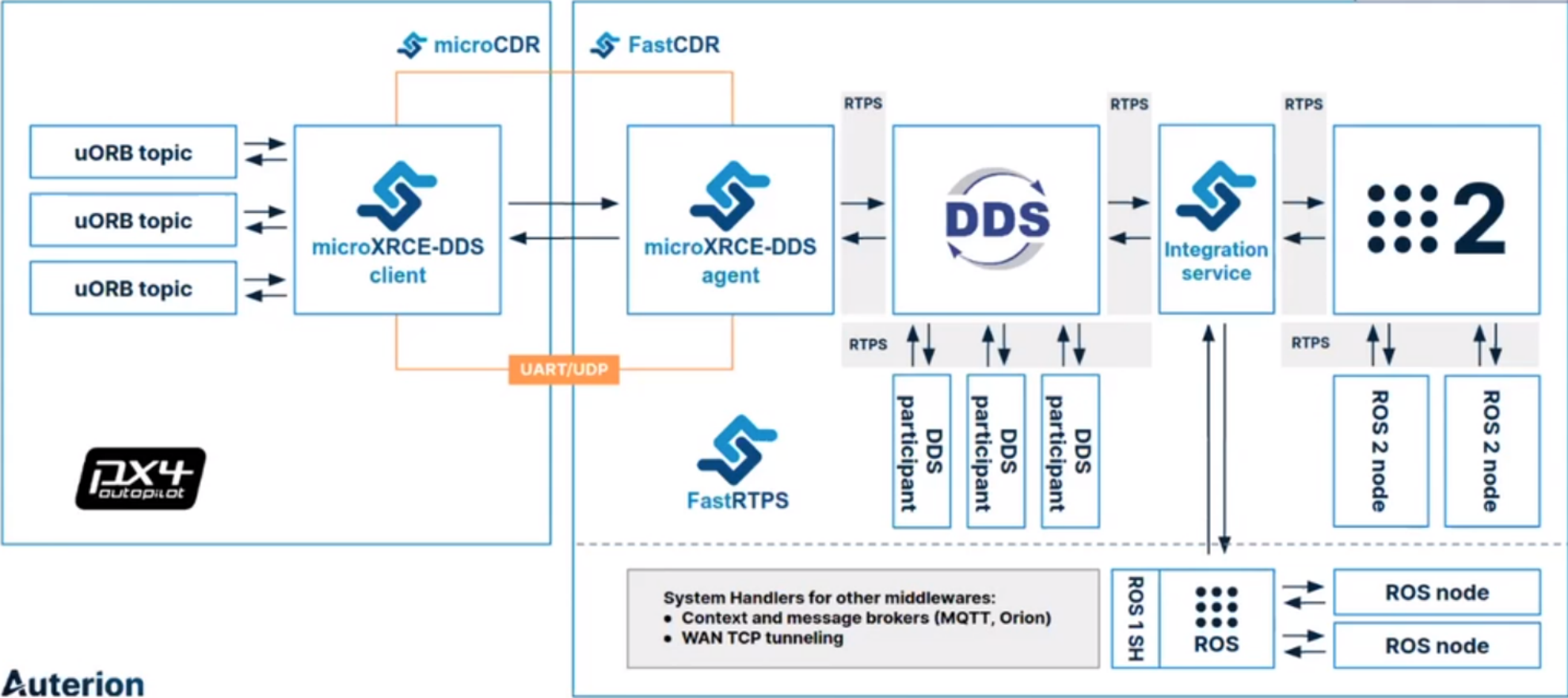
Cross-platform Control Station for  
MAVLink based Drones

# PX4 with DDS



# PX4-ROS 2 (and others) bridge v2.

Powered by  
px4 ros com



**Auterion**