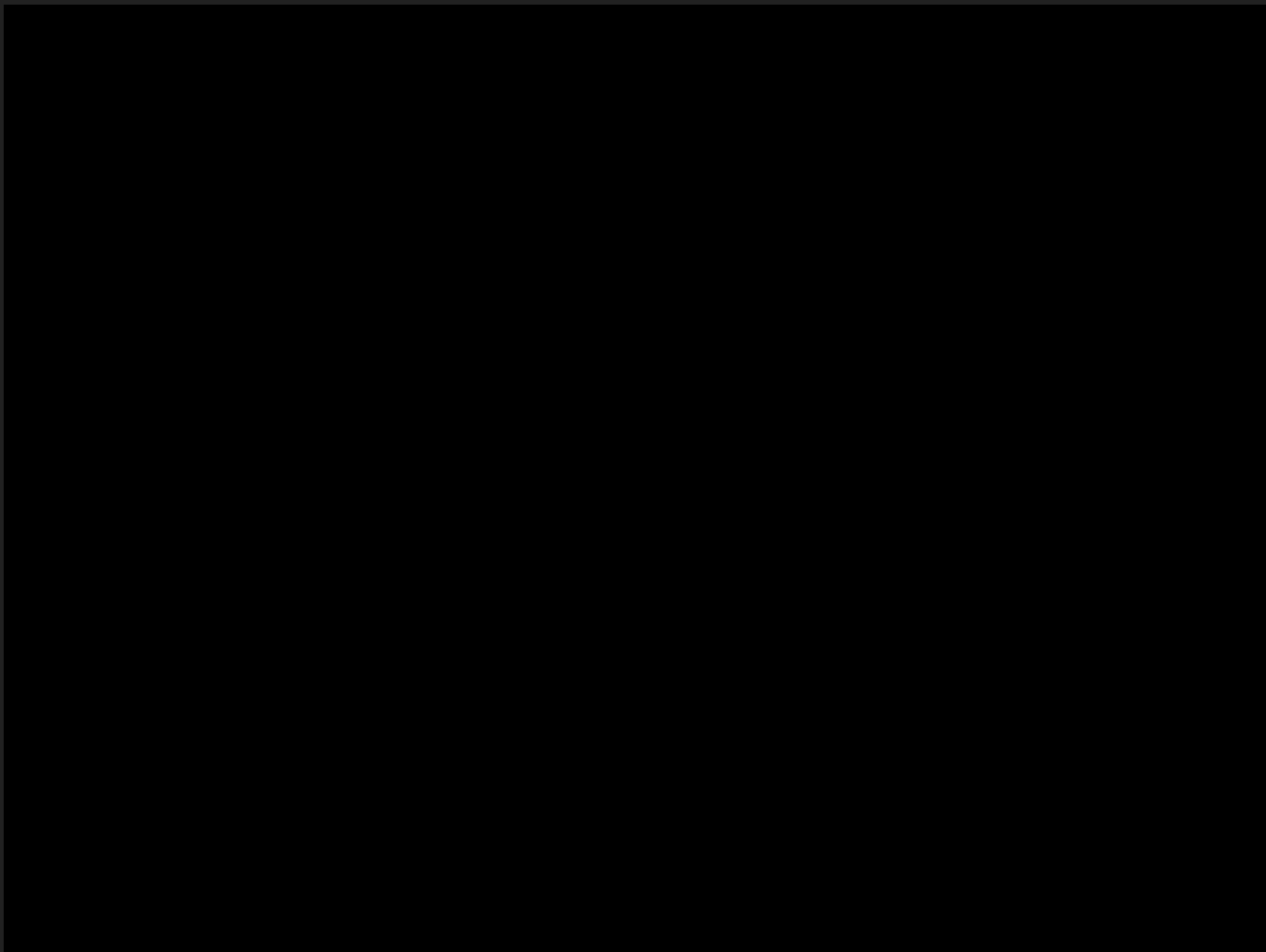


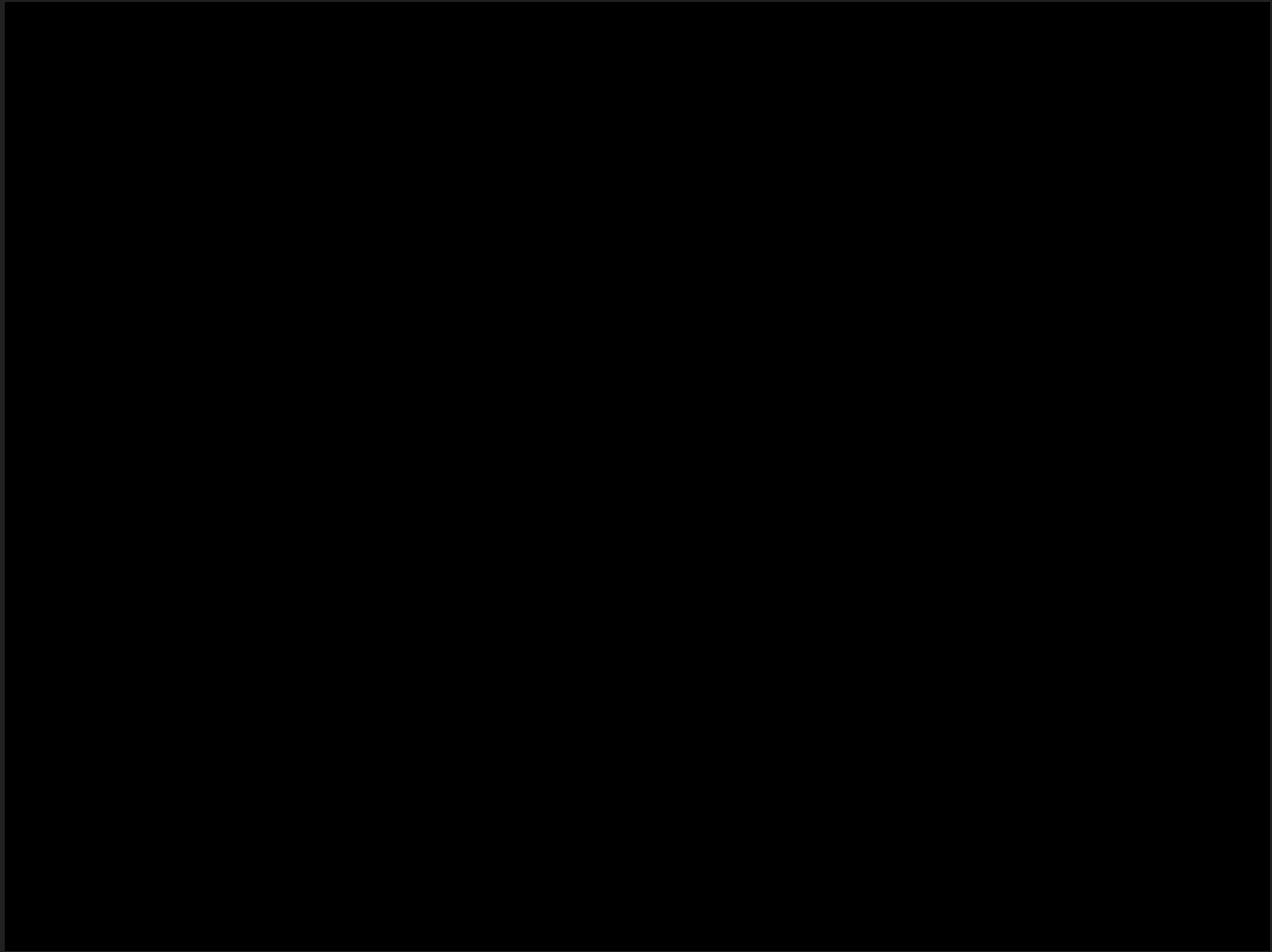
# Tello Driver IV

Pedro Arias

# Video I

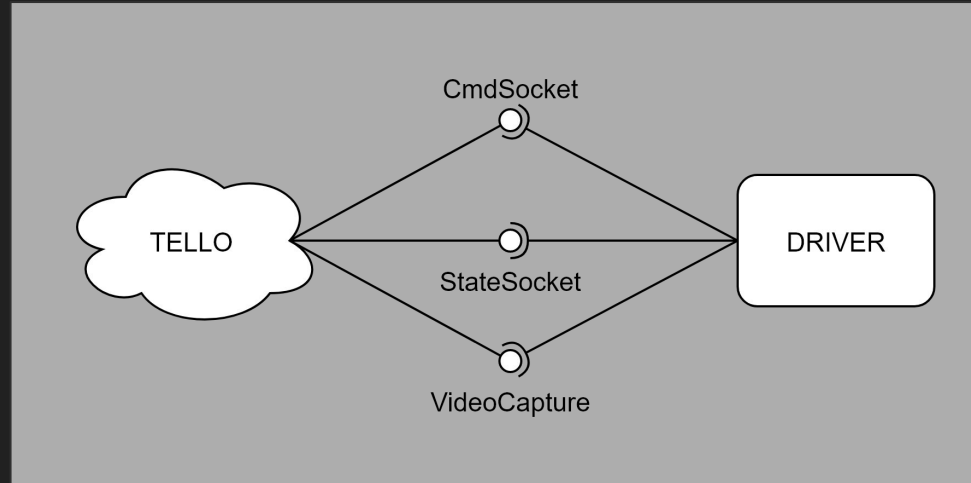


## Video II



# Cambio a Tello SDK

- Sin dependencias (sockets y threadings)
- Cambia el lado “*inferior*” del driver → mismos topics y servicios
- 2 sockets + cv2.VideoCapture()
  - Cmd socket: `recv(0.0.0.0:9000)`, `send(192.168.10.1:8889)`
  - State socket: `recv(0.0.0.0:8890)`
  - `cv2.VideoCapture(0.0.0.0:11111)`
- Hilo ppal + 3 threadings
  - Hilo ppal: envío de comandos
  - Response handler
  - State handler
  - Video handler



# Topics

## State

`connected` = `is_running`  
`is_armed` = `is_armed`  
`guided` = `False`  
`manual_input` = `False`  
`mode` = `OFFBOARD`  
`system_status` = 0

## ExtendedState

`vtol_state` = 0  
`landed_state` = `landed_state`

## BatteryState

`voltage` = 0.0  
...  
`percentage` = `percentage`  
...  
`present` = `True`  
...

## PoseStamped

`position.x` = ?  
`position.y` = ?  
`position.z` = `h`  
`orientation.x` = `qx`  
`orientation.y` = `qy`  
`orientation.z` = `qz`  
`orientation.w` = `qw`

## TwistStamped

`linear.x` = `vx`  
`linear.y` = `vy`  
`linear.z` = `vz`  
`angular.x` = `nan`  
`angular.y` = `nan`  
`angular.z` = `nan`

## NavSatFix<sup>1</sup>

`status` = -1  
`service` = 0  
...

# Setpoint

- Coordination Frame
- Type Mask
- Timer repeat\_setpoint
- Latencia?

```
std_msgs/Header header
```

```
uint8 coordinate frame
```

```
uint8 FRAME_LOCAL_NED = 1
```

```
uint8 FRAME_LOCAL_OFFSET_NED = 7
```

```
uint8 FRAME_BODY_NED = 8
```

```
uint8 FRAME_BODY_OFFSET_NED = 9
```

```
uint16 type mask
```

```
uint16 IGNORE_PX = 1 # Position ignore flags
```

```
uint16 IGNORE_PY = 2
```

```
uint16 IGNORE_PZ = 4
```

```
uint16 IGNORE_VX = 8 # Velocity vector ignore flags
```

```
uint16 IGNORE_VY = 16
```

```
uint16 IGNORE_VZ = 32
```

```
uint16 IGNORE_AFX = 64 # Acceleration/Force vector ignore flags
```

```
uint16 IGNORE_AFY = 128
```

```
uint16 IGNORE_AFZ = 256
```

```
uint16 FORCE = 512 # Force in af vector flag
```

```
uint16 IGNORE_YAW = 1024
```

```
uint16 IGNORE_YAW_RATE = 2048
```

```
geometry_msgs/Point position
```

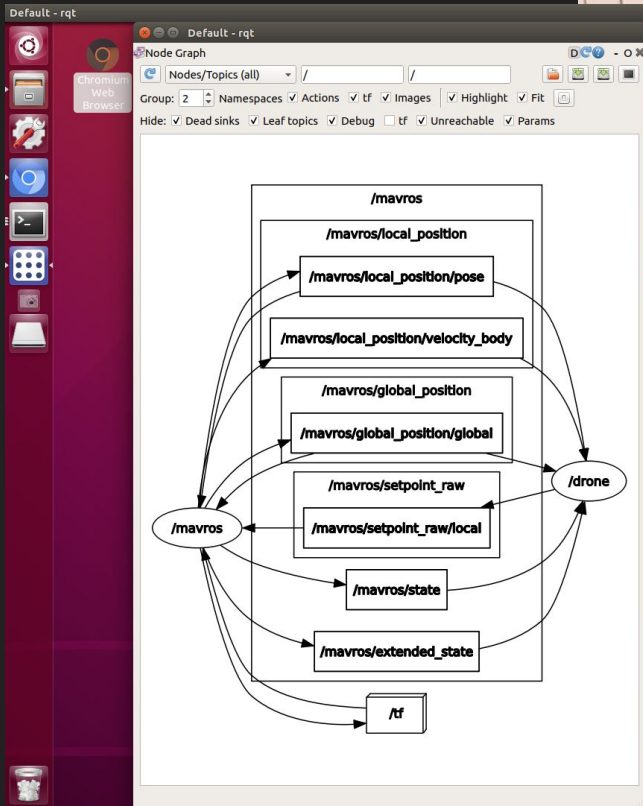
```
geometry_msgs/Vector3 velocity
```

```
geometry_msgs/Vector3 acceleration_or_force
```

```
float32 yaw
```

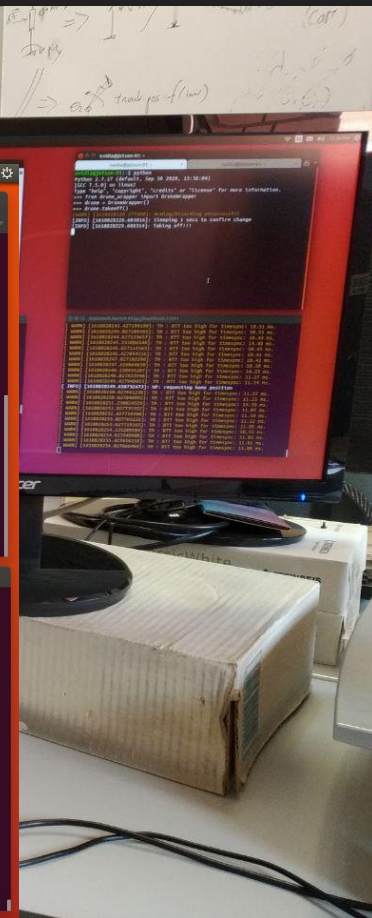
```
float32 yaw_rate
```

# PX4 Real



```
nvidia@jetson-01:~$ python
Python 2.7.17 (default, Sep 30 2020, 13:38:04)
[gcc 7.5.0] on linux2
Type "help", "copyright", "credits" or "license()" for more information.
>>> from drone_wrapper import DroneWrapper
>>> drone = DroneWrapper()
>>> drone.takeoff()
[WARN] [1618827941.500639]: Arming/Disarming unsuccessful
[INFO] [1618827941.710455]: Sleeping 1 secs to confirm change
[INFO] [1618827942.722226]: Taking off!!!
[]

mylaunch.launch http://localhost:11311
[ WARN] [1618827954.497082277]: TM: RTT too high for timesync: 10.94 ms.
[ WARN] [1618827955.097041438]: TM: RTT too high for timesync: 10.88 ms.
[ WARN] [1618827955.696973376]: TM: RTT too high for timesync: 10.83 ms.
[ WARN] [1618827956.296990502]: TM: RTT too high for timesync: 10.85 ms.
[ WARN] [1618827956.897022874]: TM: RTT too high for timesync: 10.82 ms.
[ WARN] [1618827957.499983152]: TM: RTT too high for timesync: 13.86 ms.
[ INFO] [1618827957.683559643]: HP: requesting home position
[ WARN] [1618827958.096970267]: TM: RTT too high for timesync: 10.78 ms.
[ WARN] [1618827959.696423850]: TM: RTT too high for timesync: 10.27 ms.
[ WARN] [1618827959.296915798]: TM: RTT too high for timesync: 10.72 ms.
[ WARN] [1618827959.896523218]: TM: RTT too high for timesync: 10.33 ms.
[ WARN] [1618827960.499811376]: TM: RTT too high for timesync: 13.72 ms.
[ WARN] [1618827961.096659567]: TM: RTT too high for timesync: 10.44 ms.
[ WARN] [1618827961.696764829]: TM: RTT too high for timesync: 10.56 ms.
[ WARN] [1618827962.296923085]: TM: RTT too high for timesync: 10.75 ms.
[ WARN] [1618827962.896815311]: TM: RTT too high for timesync: 10.61 ms.
[ WARN] [1618827963.500704514]: TM: RTT too high for timesync: 14.61 ms.
[ WARN] [1618827964.097719042]: TM: RTT too high for timesync: 11.53 ms.
[ WARN] [1618827964.697050760]: TM: RTT too high for timesync: 10.72 ms.
[ WARN] [1618827965.296675802]: TM: RTT too high for timesync: 10.51 ms.
[ WARN] [1618827965.896614168]: TM: RTT too high for timesync: 10.45 ms.
[ WARN] [1618827966.496614200]: TM: RTT too high for timesync: 10.50 ms.
[ WARN] [1618827967.097546337]: TM: RTT too high for timesync: 11.35 ms.
```



# PX4 Real

- Reinstalar mavros como fuente (ARMv8)
- Nuevo catkin\_ws bajo catkin\_tools (catkin build)
- Cumplir dependencias de jderobot\_drones
- Error con gazebo

Separar dependencias gazebo\_ros de drone\_wrapper

- single\_vehicle\_spawn\_sdf.launch