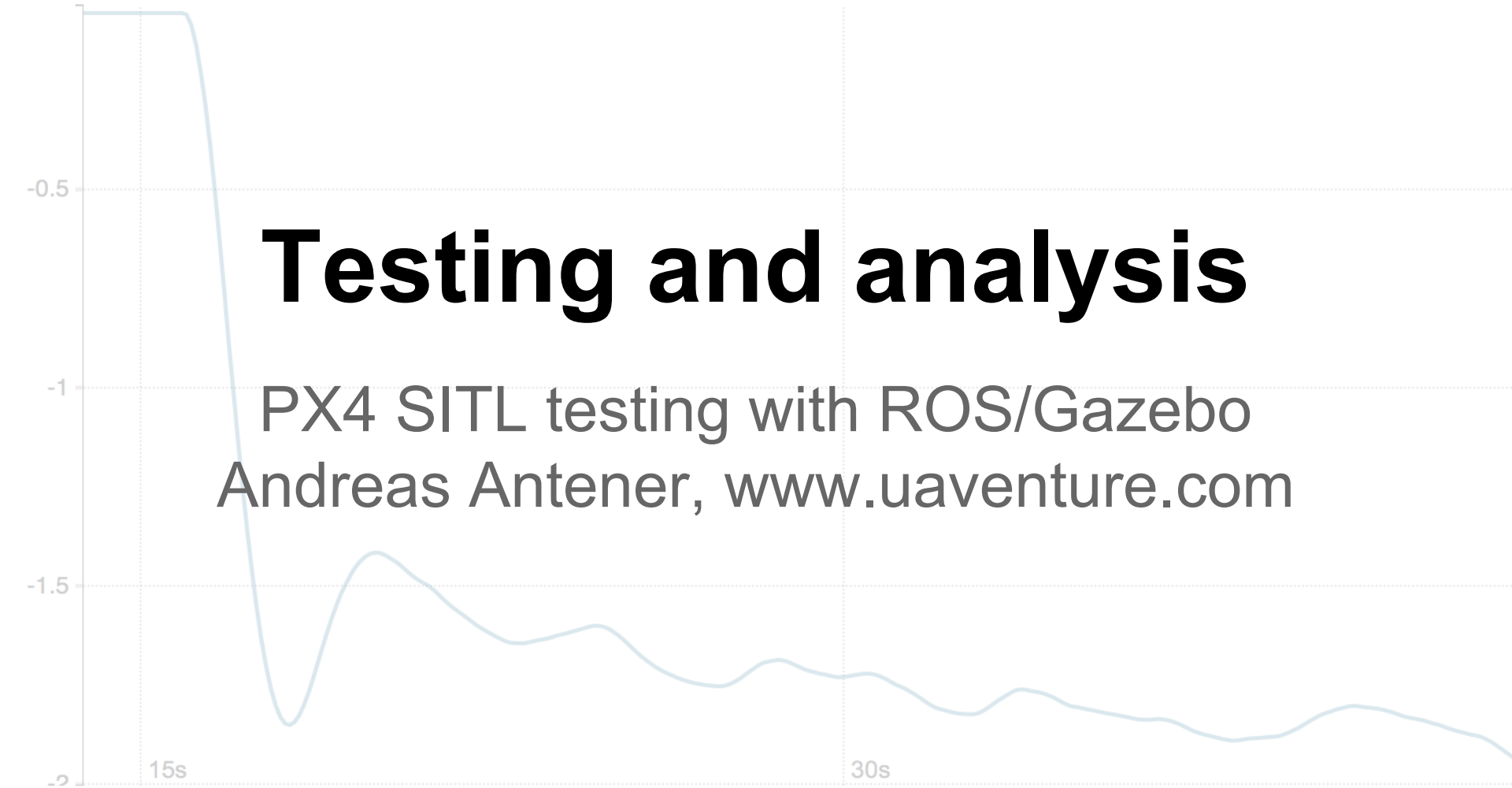


Testing and analysis

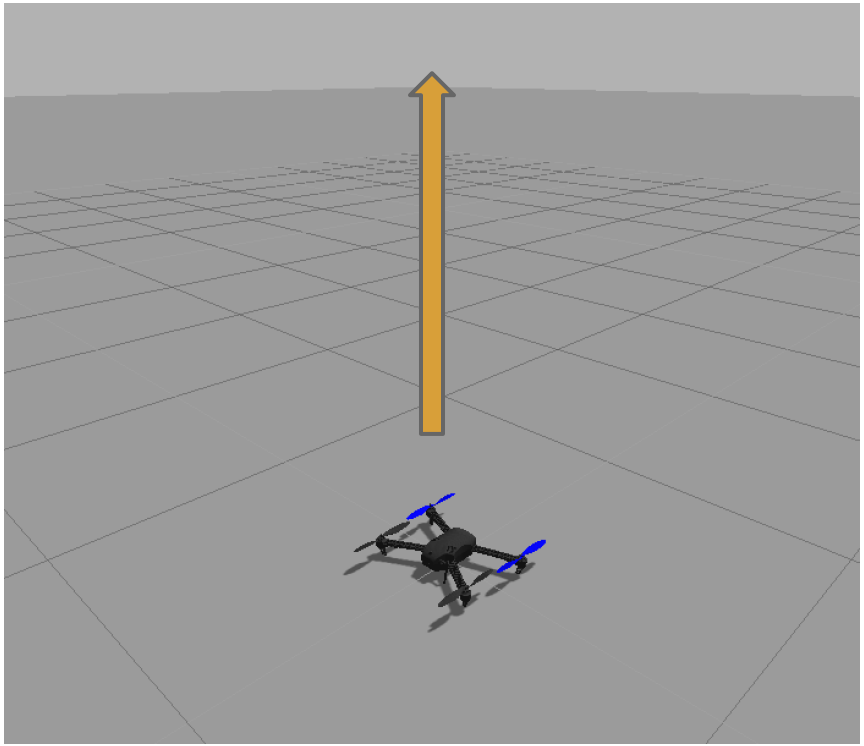
PX4 SITL testing with ROS/Gazebo

Andreas Antener, www.uaventure.com

Content

- Story
- Test
- Continuous Integration
- Feedback
- The Real Flight
- Reproducibility
- Conclusion

Story

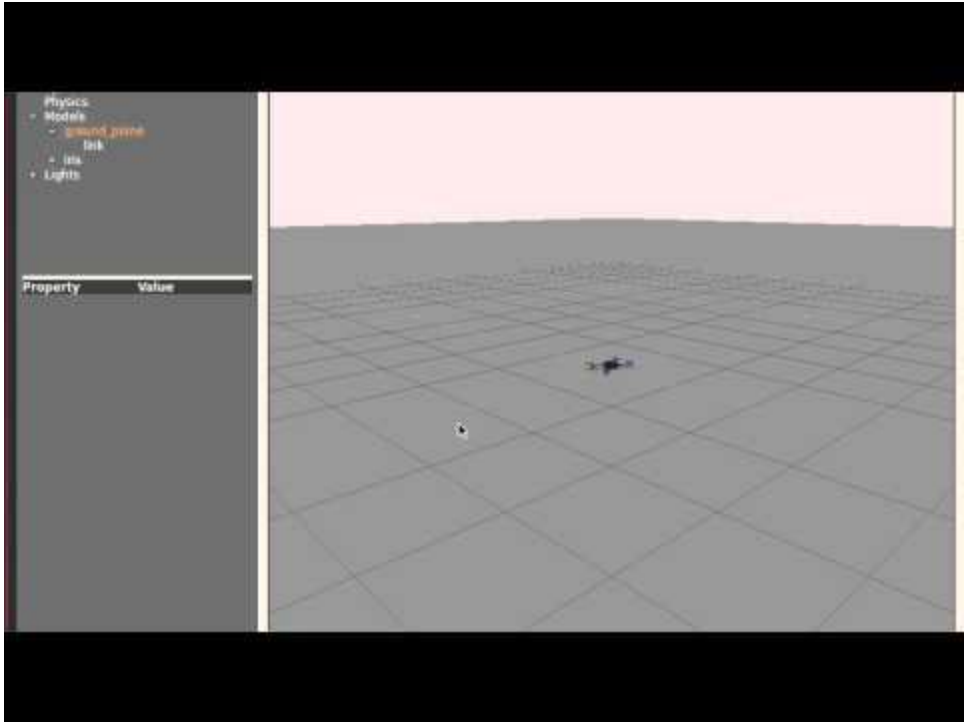


Story

- Offboard control
- Vertical takeoff to 10 meter AGL
- Loiter

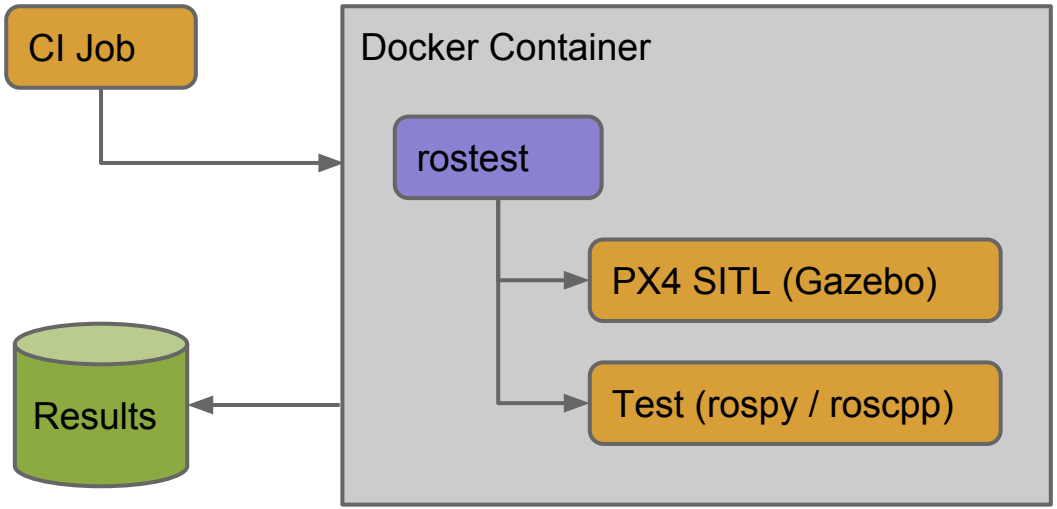
> Python script

Test


Physics
Models
ground_plane
link
iris
Lights
Property
Value

Continuous Integration

How it works:



Feedback

Test Result : __main__

0 failures (±0)

4 tests (±0)
Took 1 min 27 sec.

All Tests

Class	Duration	Fail	(diff)	Skip	(diff)	Pass	(diff)	Total	(diff)
DirectOffboardPosctlTest	31 sec	0		0		1		1	
ManualInputTest	21 sec	0		0		1		1	
MavrosOffboardAttctlTest	4.9 sec	0		0		1		1	
MavrosOffboardPosctlTest	29 sec	0		0		1		1	

Feedback

- rosbag
- Exported plots, examples:
  - Test 1
  - CI test

Limitations

Headless execution:

- everything except OpenGL/GLX

The Real Flight

The Real Flight

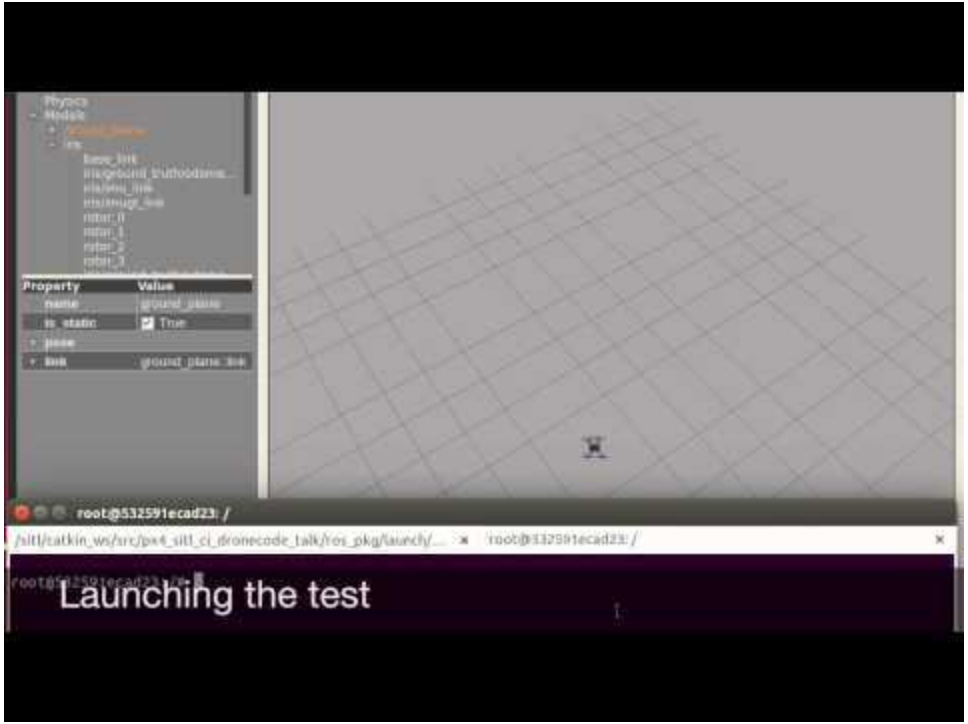
controller issue?

tuning?

GPS noise?

bad day?

Reproducibility



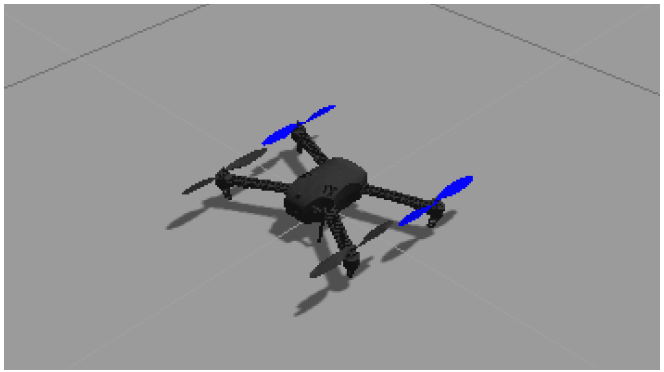
Reproducibility

- Fix for the real flight: use current heading in the setpoint

Reproducibility

Conclusion

- Comparable results for real and simulated flights



Conclusion

- Testing high-level functionality
- Regression testing
- Fast prototyping of complex use-cases

More Information

http://px4.io (search for "sitl")

Presentation content and example code:
https://github.com/UAVenture/px4_sitl_ci_dronecode_talk

Thanks

- Thomas Gubler
- PX4 community
- ASL ETH Zürich

www.uaventure.com