ROS 2 Status Update

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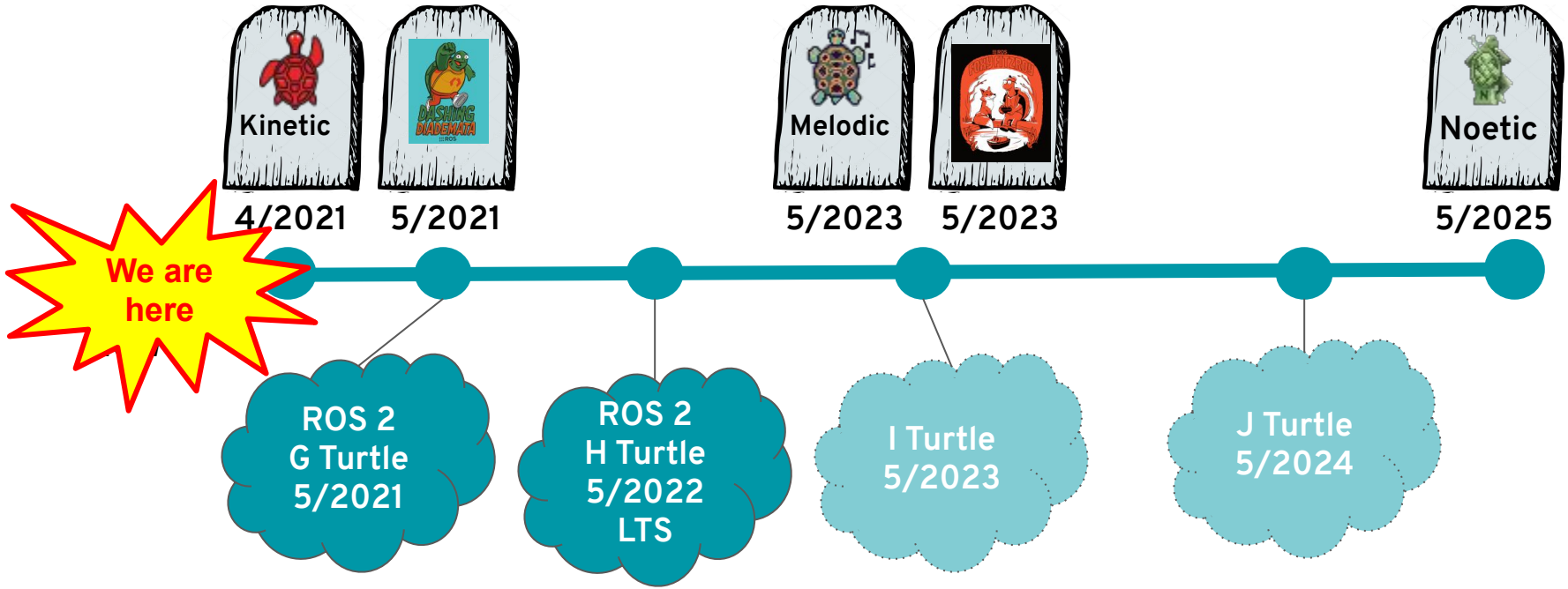
Agenda

1) Kinetic goes EOL
2) Galactic Update / RMW Info
3) Some Data
4) Transition Resources
5) Events / Errata

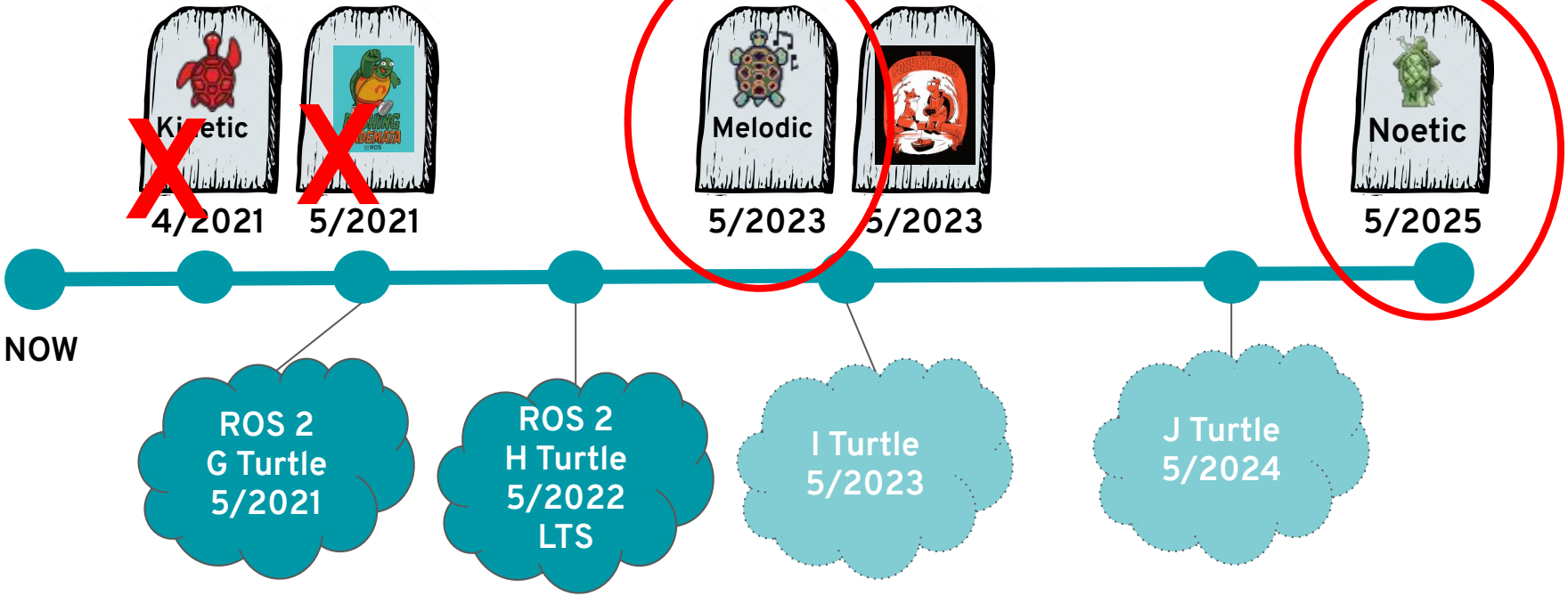
Let's talk timelines:



Let's talk timelines:

END OF ROS 1 + Python 2

END OF "OFFICIAL" ROS 1 SUPPORT



Take Homes on ROS 2

- ~2 years left for Python 2
- ~4 years left for ROS 1

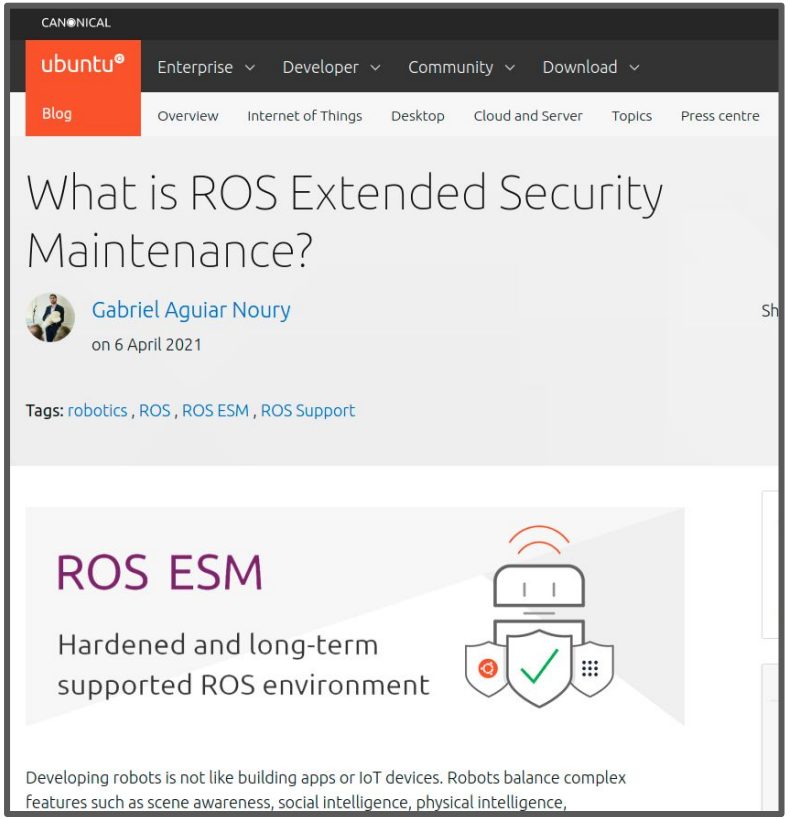
- **The clock is ticking!** -- thanks @dlu!

ROS 1 Kinetic Kame

- **OFFICIAL EOL IS 4/30/2021**
- ***LAST UPDATE IS THE END OF APRIL***
- PLEASE, PLEASE, PLEASE, SYNC
- Kinetic to Melodic really should be trivial
- However, for the slackers...

New Canonical + Open Robotics Offering

- Open Robotics recently partnered with Canonical to offer “extended security maintenance” or ESM
- Kinetic updates, security patches, support.
- This ***is*** a step towards more industry friendly ROS.
- This ***is not*** an excuse to avoid upgrades.
- Details: **bit.ly/ROS-ESM**



ROS 2 Galactic Geochelone! (Non-LTS)

- Release scheduled ~5/23/2021
- This is a non LTS release
- New **default** RMW
  - Your mileage may vary!
- Details: **bit.ly/ROS-Galactic**

ROS 2 Galactic Geochelone Features

- Lots of Logger Love
  - Per-logger levels
  - Environment Variable Logger Settings
- External QoS Settings at Start
- TF2 Python Refactor
- General RMW API Improvements
- RCL's Lifecycle State Machine: new init API
- Details: **bit.ly/ROS-Galactic**

ROS 2 Galactic Geochelone! (Non-LTS)

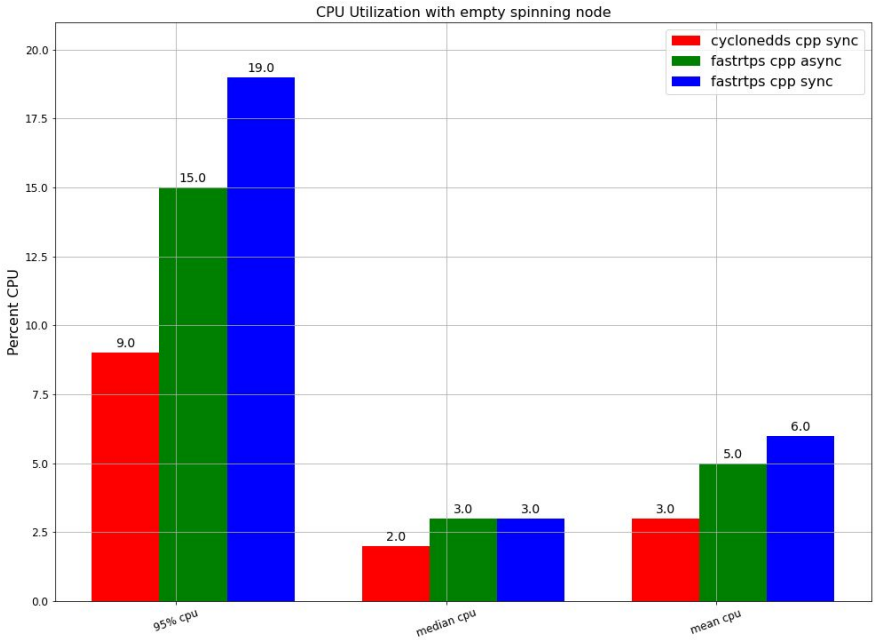
bit.ly/ros2-space

“Collaborations with industry are also feeding into key aspects of VIPER’s software operating system. Rather than creating only custom code, the rover’s flight and ground-based software will make extensive use of open source software, including key components adapted from the Robot Operating System 2 (ROS 2) which is widely used in everything from robot vacuum cleaners to autonomous drones and self-driving cars. ….. This approach allows for a rapid, agile, and cost-effective way of developing the rover’s software systems that can also benefit future rovers on the Moon and beyond. “

https://www.nasa.gov/viper/lunar-operations

NEW: Regular RMW Report

- For each release evaluate Tier 1 ROS RMWs
- TSC evaluates and votes on ***default***
  - Default != “best for everyone”
- Balance of real world and simulated testing along community survey data
- Moving from FastDDS to Cyclone
  - This could change with H Turtle
- Details: bit.ly/ROS-RMW-Report



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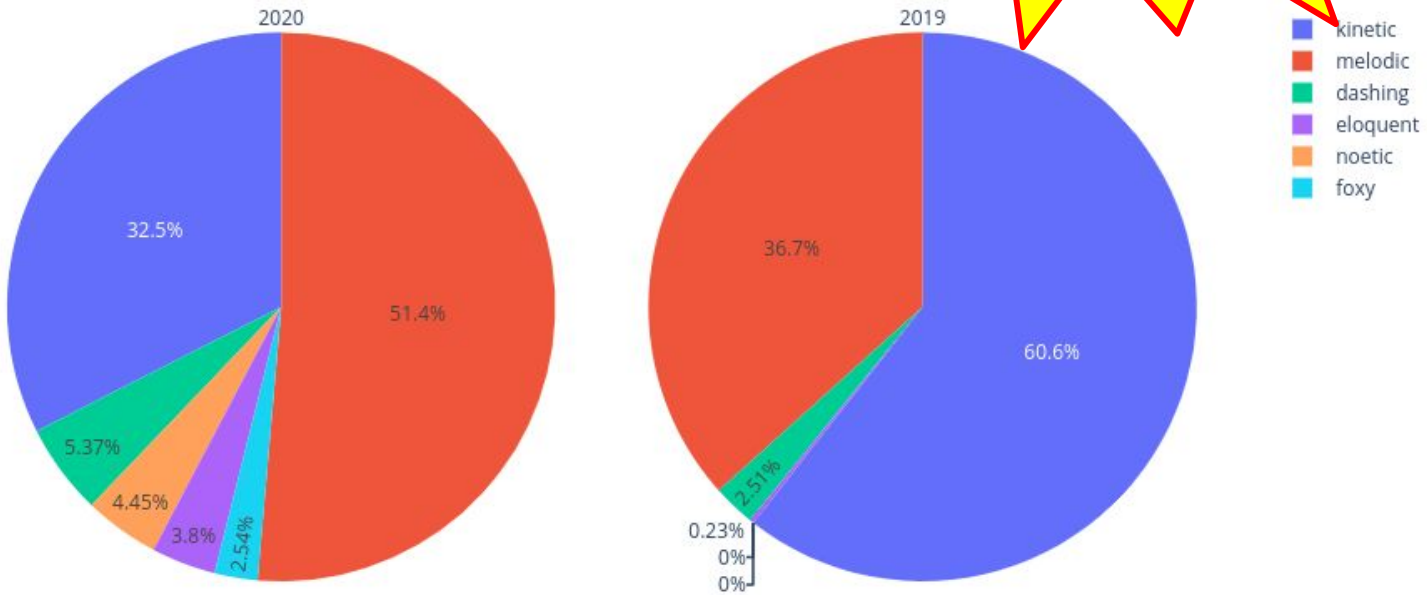
ROS 2

ROS 2 Transition Update

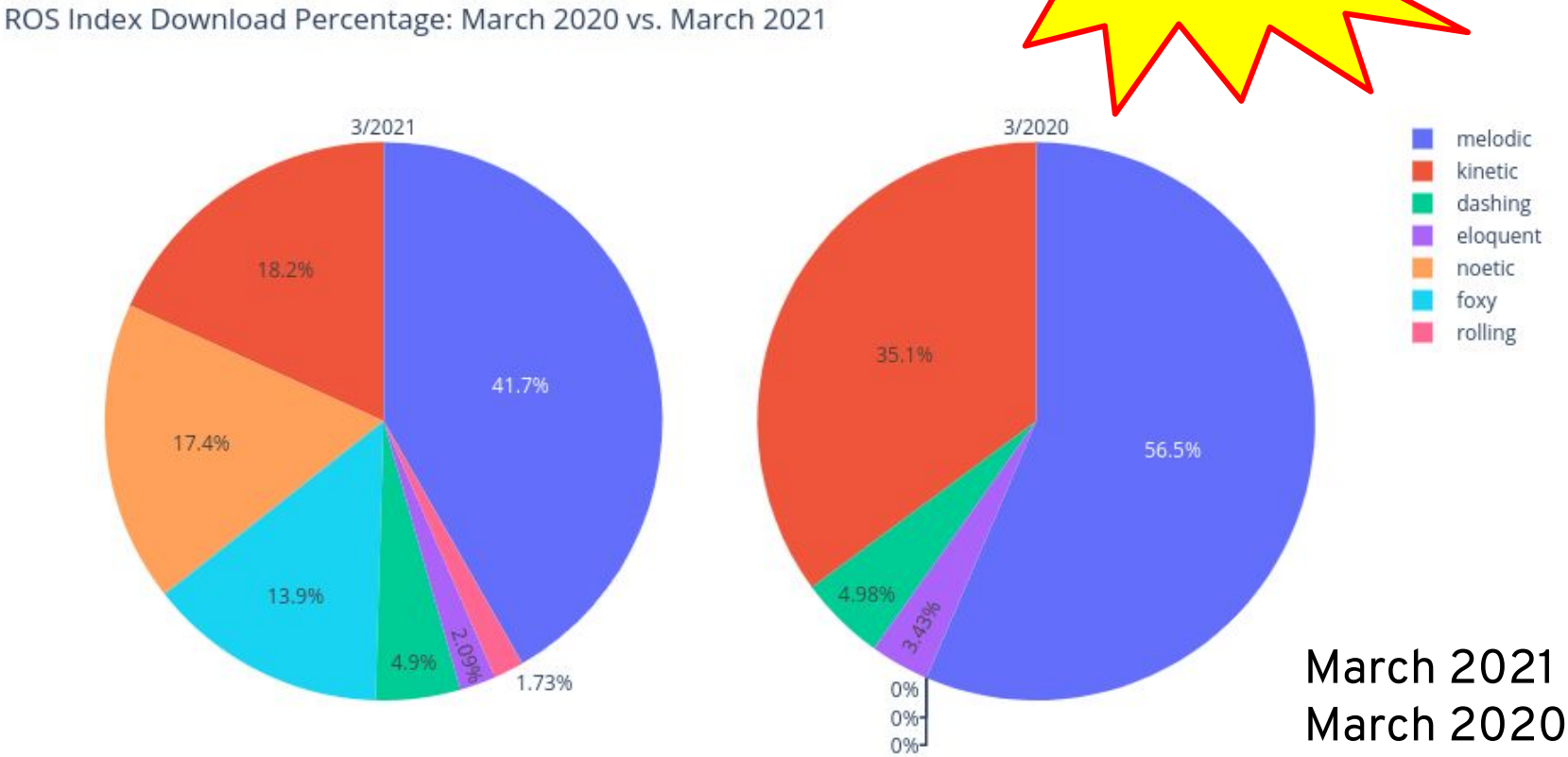
2019: 2.5% ROS 2
2020: 11.7% ROS 2



2020 vs 2019

ROS 2 Transition Update

22.62% ROS 2!



March 2021 vs. March 2020

ROS Usage Update

94% increase in ROS Downloads in 2020

Total Deb Downloads 2019	264,103,294
Total Deb Downloads 2020	**512,482,844**
Difference	248,379,550
Percent Increase	+94%

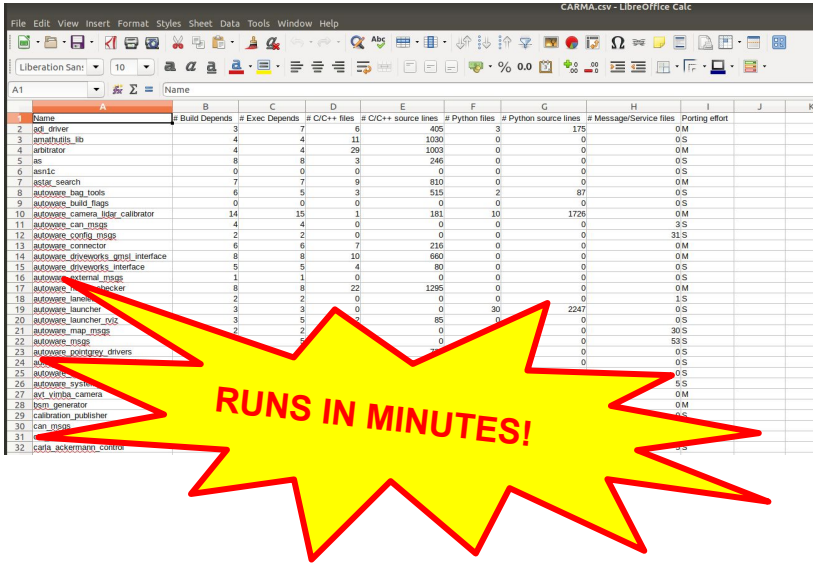
* This data is just for packages.ros.org. IT DOES NOT INCLUDE MIRRORS, VMs, OR CONTAINERS

Top 20 Packages in 2020

	name	package	distro	2020	2019	YoY	YoY_Prct
0	python-catkin-pkg-modules	pkg-modules	catkin	2131184	1458422.0	672762.0	46.129447
1	python-catkin-pkg	pkg	catkin	2126073	1456559.0	669514.0	45.965457
2	python-rosdistro-modules	modules	rosdistro	1850443	1372700.0	477743.0	34.803162
3	python-rosdistro		rosdistro	1848320	1371723.0	476597.0	34.744405
4	python-rospkg-modules	modules	rospkg	1772498	1179426.0	593072.0	50.284800
5	python-rospkg		rospkg	1770166	1188371.0	581795.0	48.957354
6	python-rosdep-modules	modules	rosdep	1395588	92434.0	1303154.0	1409.821062
7	python-rosdep		rosdep	1369341	1273169.0	96172.0	7.553750
8	ros-melodic-rviz	rviz	melodic	1182825	391294.0	791531.0	202.285494
9	ros-melodic-tf2-ros	tf2-ros	melodic	1173811	395100.0	778711.0	197.092129
10	ros-melodic-tf2-py	tf2-py	melodic	1167259	368370.0	798889.0	216.871352
11	ros-melodic-tf	tf	melodic	1164361	394681.0	769680.0	195.013188
12	ros-melodic-tf2-msgs	tf2-msgs	melodic	1143169	370290.0	772879.0	208.722623
13	ros-melodic-tf2	tf2	melodic	1139014	369066.0	769948.0	208.620680
14	ros-melodic-image-transport	image-transport	melodic	1100499	356131.0	744368.0	209.015222
15	ros-melodic-actionlib	actionlib	melodic	1097650	390339.0	707311.0	181.204287
16	ros-melodic-laser-geometry	laser-geometry	melodic	1085962	357346.0	728616.0	203.896504
17	ros-melodic-roscpp	roscpp	melodic	1084647	357184.0	727463.0	203.666178
18	ros-melodic-interactive-markers	interactive-markers	melodic	1081123	361777.0	719346.0	198.836853
19	ros-melodic-python-qt-binding	python-qt-binding	melodic	1075572	335320.0	740252.0	220.759871

ROS 2 Transition Help

- Still worried about ROS 2 Transition?
- There is now a tool to estimate effort!
- Examines messages, file types / size, etc to judge difficulty.
- Gives time to port in
  - Easy ⇒ Days
  - Medium ⇒ Weeks
  - Hard ⇒ Months
- bit.ly/ROS2PortHelp



ROS 2 Transition Help

- Lots of other tools to help you transition your project.
- I made a “cheat sheet” with some resources.
- Cheat Sheet Includes:
  - Conversion Tools
  - Porting Requests
  - Videos
  - Guides

bit.ly/ROS2CheatSheet

ROSCon is Back in 2021!

- NOLA: In person + live stream
- Call for Papers: OPEN
- Call for Workshops: OPEN
- Call for Sponsors: OPEN

- More Info: roscon.ros.org

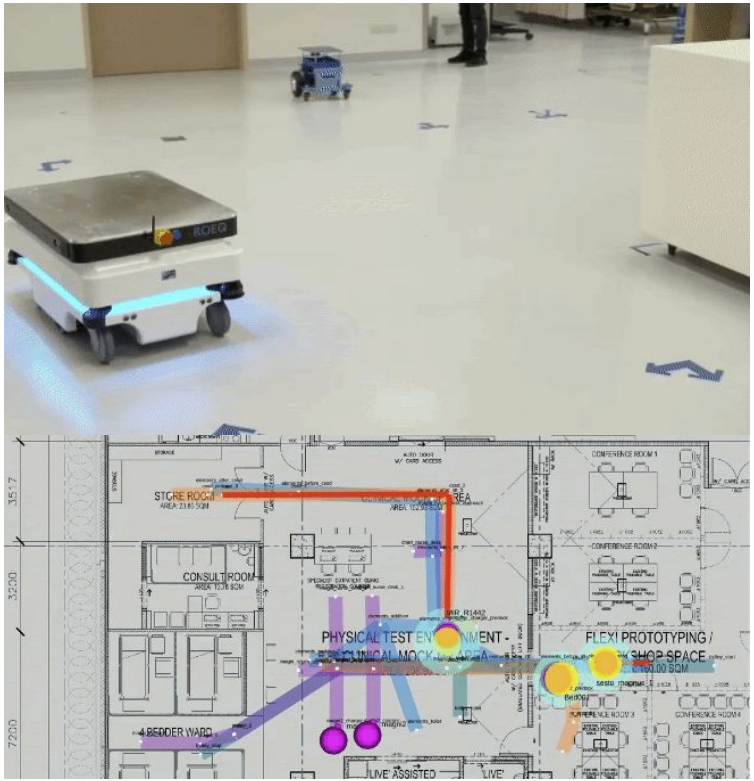
Errata: Ignition Gazebo / Edifice

- Latest version of Ignition was just released,
- This is a non-LTS release
- Staggering number of features due to a variety of customer and internal demands
- Rare case where I would say move to non-LTS

- bit.ly/IgnitionRelease

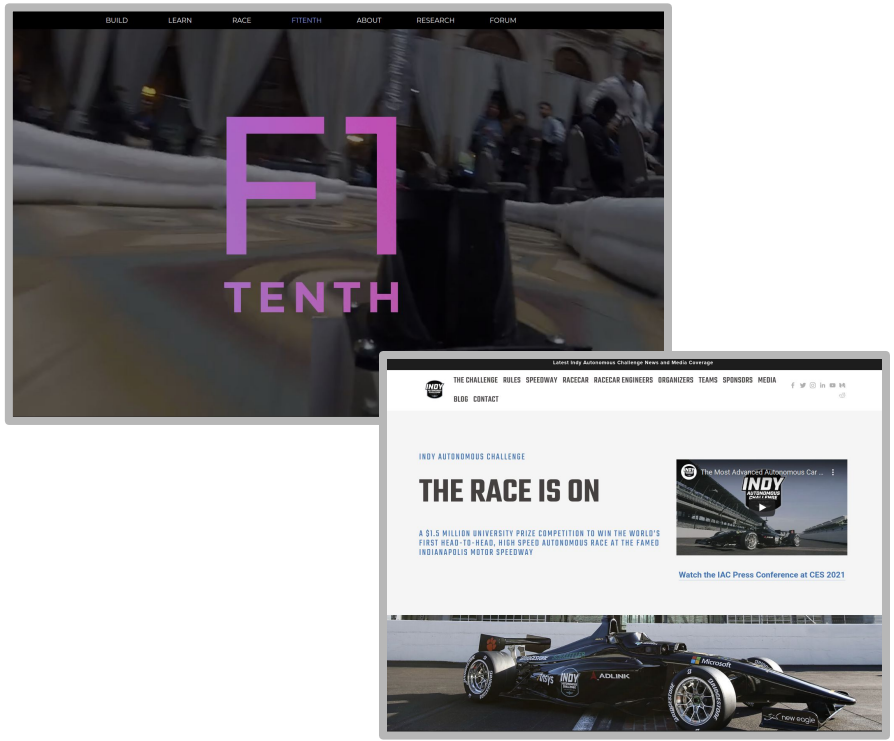
Robot Meta Framework (RMF)

- We rarely talk about our work in Singapore
- Busy building a layer on top of ROS for heterogeneous robot fleets + building infrastructure
- This is widely applicable to AMR systems
- Check out OpenRobots.org



Errata: Grow Your Own Engineers

- *We frequently get asked where to hire ROS engineers*
- Discourse job category
- Great engineers need to be trained:
  - ROSCon diversity scholarships
  - Black in Robotics workshops
  - F1/Tenth
  - Indy Autonomous Challenge
  - VRX
- *Please, if you have cycles to spare, consider ROS mentorships and internships*

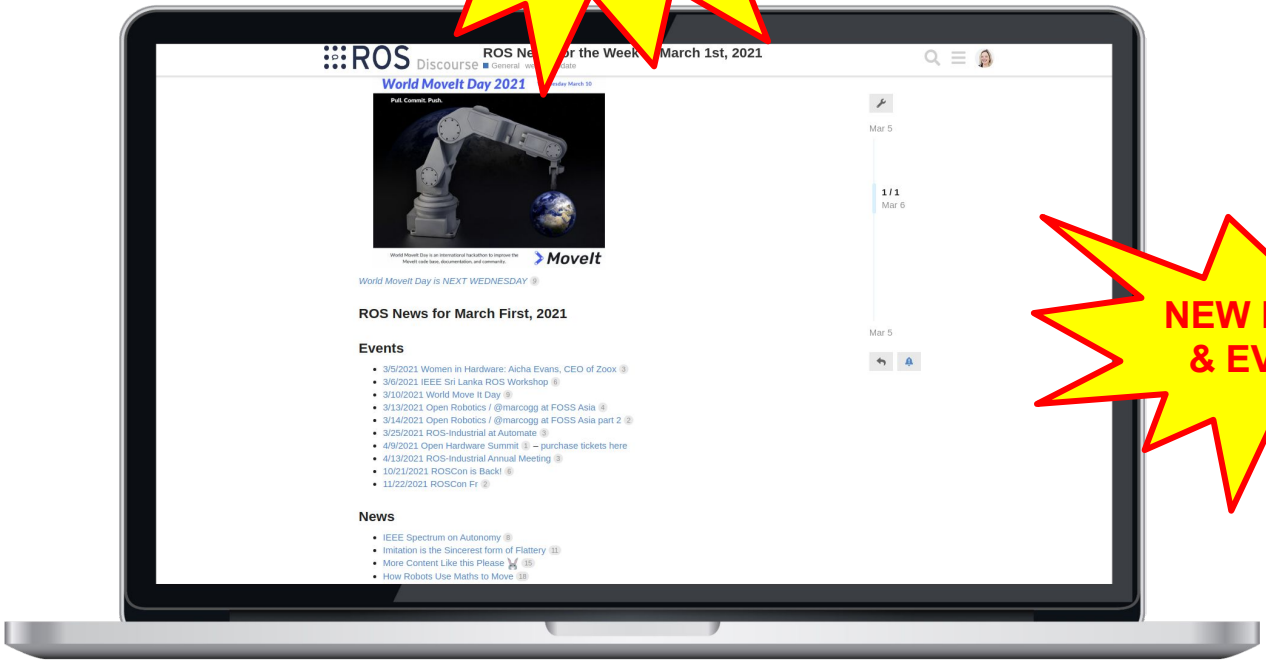


Errata: RQT Needs Your Help

CALL FOR MAINTAINERS

- rqt
- rqt_common_plugins
- rqt_console
- rqt_dep
- rqt_graph
- rqt_gui
- rqt_gui_cpp
- rqt_gui_py
- rqt_image_view
- rqt_logger_level
- rqt_msg
- rqt_nav_view
- rqt_robot_dashboard
- rqt_robot_plugins
- rqt_robot_steering
- rqt_runtime_monitor
- rqt_srv
- rqt_web

EVERY FRIDAY



NEW DIGEST & EVENTS

discourse.ros.org

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Questions

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