

The Robot Operating System: Package reuse and community dynamics

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ROS, the Robot Operating System, offers a core set of software for operating robots that can be extended by creating or using existing packages, making it possible to write robotic software that can be reused on different hardware platforms. With thousands of packages available per stable distribution, encapsulating algorithms, sensor drivers, etc., it is the de facto middleware for robotics. Like any software ecosystem, ROS must evolve in order to keep meeting the requirements of its users. In practice, packages may end up being abandoned between releases: no one may be available to update a package, or newer packages offer similar functionality. As such, we wanted to identify and understand the evolution challenges faced by the ROS ecosystem. In this article, we report our findings after interviewing 19 ROS developers in depth, followed by a focus group (4 participants) and an online survey of 119 ROS community members. We specifically focused on the issues surro