WHAT IS ROS?

- ▸ ROS is an open-source software framework for robot software development

- ▸ Provides an operating system-like functionality

:::ROS

WHAT IS ROS?

▸ Provides OS services

▸ Hardware abstraction

▸ Low-level device control

▸ Implementation of commonly-used functionality

▸ Message-passing between processes

▸ Package management

WHAT IS ROS?

USER APPS

ROS

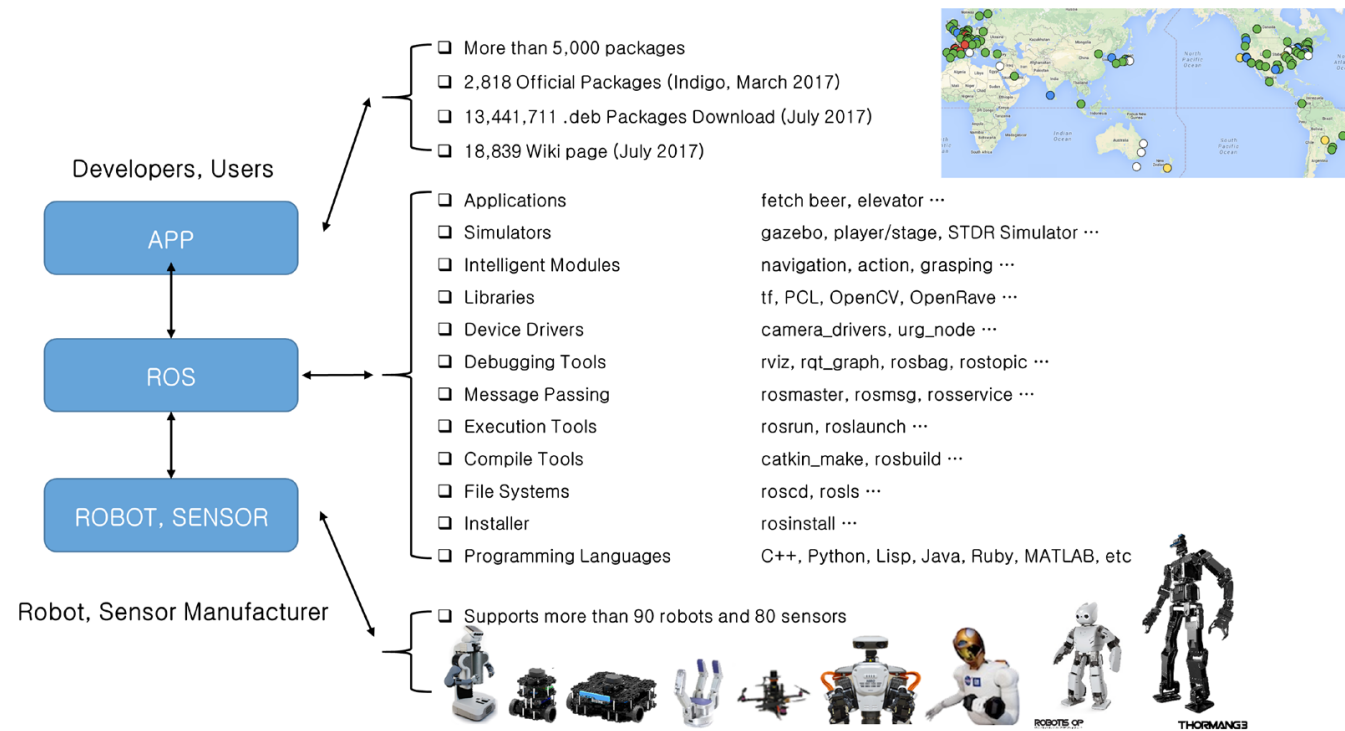ROBOT HARDWARE
(SENSORS, ACTUATORS)

ROS ECOSYSTEM

FIGURE 2-4 ROS Ecosystem

Reference Book: **ROS Robot Programming** (in English). Authors: Yoonseok Pyo, Hancheol Cho, Leon Jung, Darby Lim

ROS DISTRIBUTIONS

- Dec 08, 2017   - Release of ROS 2.0
- Sep 21, 2017   - ROSCon2017 (Canada)
- May 23, 2017   - Release of Lunar Loggerhead
- May 16, 2017   - Changed name from OSRF to Open Robotics
- Oct 8, 2016   - ROSCon2016 (South Korea)
- May 23, 2016   - Release of Kinetic Kame
- Oct 3, 2015   - ROSCon2015 (Germany)
- May 23, 2015   - Release of Jade Turtle
- Sep 12, 2014   - ROSCon2014 Conference (U.S.)
- Jul 22, 2014   - Release of Indigo Igloo
- Jun 6, 2014   - ROS Kong 2014 Conference (Hong Kong)
- Sep 4, 2013   - Release of Hydro Medusa
- May 11, 2013   - ROSCon2013 Conference (Germany)
- Feb 11, 2013   - Open Source Robotics Foundation takes on development/management
- Dec 31, 2012   - Release of Groovy Galapagos
- May 19, 2012   - ROSCon2012 Conference (U.S.)
- Apr 23, 2012   - Release of Fuerte
- Aug 30, 2011   - Release of Electric Emys
- Mar 2, 2011   - Release of Diamondback
- Aug 2, 2010   - Release of C Turtle
- Mar 2, 2010   - Release of Box Turtle
- Jan 22, 2010   - Release of ROS 1.0
- Nov 1, 2007   - Willow Garage starts development under the name 'ROS'
- May 1, 2007   - Switchyard Project, Morgan Quigley, Stanford AI LAB, Stanford University
- 2000   - Player/Stage Project, Brian Gerkey, University of Southern California (USC)
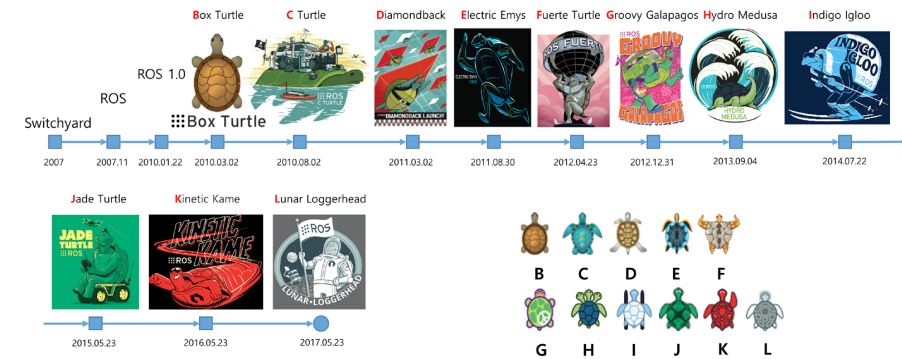

FIGURE 2-7 ROS Versions(http://wiki.ros.org/)

FIGURE 2-8 Turtle icons for each version of ROS

Distro	Release Date	Poster	Symbol	EOL Date
Lunar Loggerhead	2017.05.23			2019.05
Kinetic Kame **(Recommended)**	2016.05.23			2021.04 (Xenial EOL)
Jade Turtle	2015.05.23			2017.05
Indigo Igloo	2014.07.22			2019.04 (Trusty EOL)

FIGURE 2-9 Recent ROS versions and end of support date

WHY ROS?

▸ Code reuse in Robotics R&D

▸ Ready-to-use development environment

▸ Comprehensive tools and client API libraries

▸ Scalable (distributed network of processes loosely coupled)

▸ Large community

▸ Continuous support