Introducing industrial_ci

Isaac I. Y. Saito, TORK
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TORK (Tokyo Opensource Robotics Kyokai Association)

◆ Non-profit consultancy (2013~)
◆ ROS package support
  ◆ Kawada NEXTAGE Open
  ◆ Denso VS series
◆ Workshop, seminar (50+ occurrences)
◆ Custom development

NEXTAGE Open

Toyota “HSR” welfare robot hackathon

Workshop to public

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CI (Continuous Integration)

- Automated software development processes
  - Build
  - Test
  - Deployment (install)
  - Test from install space

- With CI you can:
  - find earlier platform incompatibility
  - find earlier regression if any
  - get more confidence, get peace of mind
Existing CI services/software

- Many CI services available online

- ros.org provides extensive features for ROS developers.

- buildbot-ros
Issue with CI for robotics engineers

• Configuring CI jobs takes some experience (CI platform, s/w build process, etc.)
• “Tests are extremely important, but I didn't have time”
• Ends up with:
  • CI config not updated
  • CI not even introduced yet
https://github.com/ros-industrial/industrial_ci/

- Provides CI configs commonly usable for ROS developers
- Originally a fork of jsk_travis (JSK lab, U-Tokyo)
- Travis CI is used mainly for now
  - Other CI service can be easily integrated
- ROS Indigo, Jade, Kinetic (docker)
industrial_ci advantage

• Travis CI is maintained vigorously
• Flexibly customizable by setting environment variable (no programming knowledge required)
• Always the newest code is used (“git clone” for every test job)
• Can be used from private repo (e.g. corporate production)
# This config file for Travis CI utilizes ROS-Industrial/industrial_ci package.
# For more info for the package, see https://github.com/ros-industrial/industrial_ci/blob/master/README.rst

sudo: required
dist: trusty

services:
  - docker

language: generic

compiler:
  - gcc

notifications:
  email:
    on_success: always
    on_failure: always
    recipients:
      - gm130s@gmail.com

env:

  matrix:
    - ROS_DISTRO="indigo" ROS_REPOSITORY_PATH=http://packages.ros.org/ros/ubuntu USE_DEB=true
    - ROS_DISTRO="indigo" ROS_REPOSITORY_PATH=http://packages.ros.org/ros-shadow-fixed/ubuntu USE_DEB=true
    - ROS_DISTRO="indigo" PRERELEASE=true
    - ROS_DISTRO="jade" ROS_REPOSITORY_PATH=http://packages.ros.org/ros/ubuntu USE_DEB=true
    - ROS_DISTRO="jade" ROS_REPOSITORY_PATH=http://packages.ros.org/ros-shadow-fixed/ubuntu USE_DEB=true
    - ROS_DISTRO="jade" PRERELEASE=true

allow_fails:
  - env: ROS_DISTRO="indigo" PRERELEASE=true  # Run docker-based ROS prerelease test http://wiki.ros.org/bloom/Tutorials/Prerelease
  - env: ROS_DISTRO="jade" PRERELEASE=true
  - env: ROS_DISTRO="jade" ROS_REPOSITORY_PATH=http://packages.ros.org/ros/ubuntu USE_DEB=true
  - env: ROS_DISTRO="jade" ROS_REPOSITORY_PATH=http://packages.ros.org/ros-shadow-fixed/ubuntu USE_DEB=true

install:
  - git clone https://github.com/ros-industrial/industrial_ci.git .ci_config

script:
  - source .ci_config/travis.sh
#  - source ./travis.sh  # Enable this when you have a package-local script
Usage metrics

• Daily avg: 81 clones, 59 unique clones
• → Safe to say it's used 59 times per day
Future work

• Improvements
  • Overcome Travis CI capacity (4MB)
• Delegate to software engineering tools ros.org provides
• Things to contribute to software maturity (as “industrial” context)
  e.g. CMMI?
• We’ll like to hear more usecases

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Followup

• Related resource in ROS community
  • “Continuous integration for ROS in commercial environments” by Mike Ferguson’s talk at ROSCon 2014
  • Test-driven development in ROS by Víctor González
    https://docs.google.com/presentation/d/1eraurS9rlMXyN0kbQMjdCyWOxRC5jTBV7FskyMaYNpM/present#slide=id.p

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Isaac I. Y. Saito
Co-founder, software engineer
TORK
Tokyo, Japan
Sacramento, CA

Phone: 469-688-9008
Email: iiysaito@opensource-robotics.tokyo.jp
http://opensource-robotics.tokyo.jp/?lang=en