



Advanced
Remanufacturing and
Technology Centre

ARTC

ROS-INDUSTRIAL ASIA PACIFIC UPDATES

Global Community Meeting

23rd June 2020

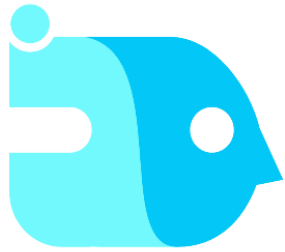
Agenda



- 1) Membership
- 2) Training
- 3) Events and Calendar
- 4) Quality Efforts
- 5) Upcoming Releases

MEMBERSHIP

New Member – Cognicept Systems



COGNICEPT

Cognicept provides Human-in-the-loop (HITL) error handling with telerobotic networking technology and remote robot trainers. Cognicept's supervised autonomy products make unpredictable applications reliable and enable use cases that were previously impossible.

Technology

- Supervised autonomy solutions for robots in unstructured applications (Logistics, Service, Delivery)
- Robust algorithms for real-time teleoperation and error handling/diagnostics
- Data and Analytics of robot performance

<http://www.cognicept.systems>

TRAINING

Training Update



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ROS-Industrial Asia Pacific is glad to announce our partnership teaming up with Member Singapore Polytechnic in order to increase the frequency of the ROS-Industrial Developer's Trainings going forward.

After a short break due to the current COVID-19 situation, we are now offering fully digital (Southeast and East Asia time zones) trainings, with the first session starting 20-23 Jul - registration is now open!

2020 training calendar:

- 20-23rd July
- 24-27th August
- 12-15th October
- 7-10th December

<https://rosindustrial.org/events/2020/7/20/ros-industrial-asia-pacific-developers-training-session-1>

EVENTS AND CALENDAR

Asia Pacific Workshop Update



The annual ROS-Industrial Asia Pacific workshop will be held in early Q4, with the date and registration to be announced soon on both rosindustrial.org, and through our APAC newsletter and LinkedIn channels.

It will be possible to attend the workshop digitally this year. Looking forward to seeing you all there!

New Asia Pacific workshop date and registration to be announced soon!

Calendar of Events



▲ **ROS-I SP Boot Camp (Singapore)** 16-20 Mar
 ▲ **ROS-I Training (Digital)** 20-23 Jul
 ▲ **ROS-I Training (Digital)** 24-27 Aug
 ▲ **ROS-I Training (Digital)** 12-15 Oct
 ▲ **ROS-I Training (Digital)** 7-10 Dec

▲ **ROS-I Training Members Run** 29 Jun - 2 Jul
 ▲ **ROS-I Training Members Run** 21-24 Sept

World Movelt! Day (Hackathon) 2 Jun ▲
World ROS-I Day (Hackathon) 6 July ▲
ROS-I AP Workshop (Singapore/Digital) Early Q4 ▲
ROSCON 2020 Digital Event TBC ▲

ROS-I AP Developer's Meeting 10 Mar ▲
ROS-I AP Developer's Meeting 9 Jun ▲
ROS-Industrial Community Meeting 23 Jun ▲
ROS-I AP Developer's Meeting 8 Sep ▲
ROS-I AP Developer's Meeting 8 Dec ▲

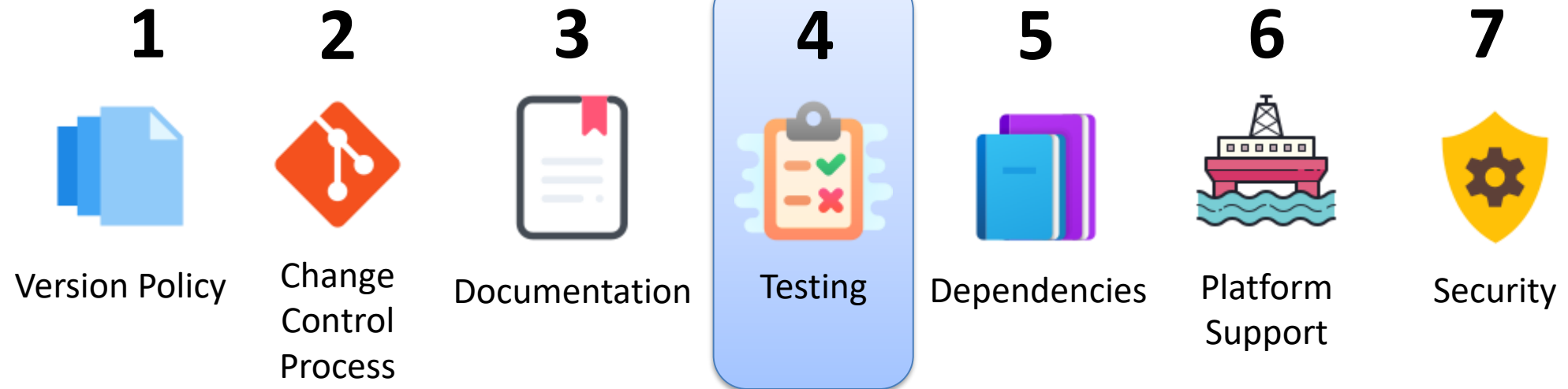
▲ Training
 ▲ Workshops/ Events/ Annual Meeting/ Hackathons
 ▲ ROS Conferences / IEEE / Exhibitions

QUALITY EFFORTS

Quality Efforts – REP-2004 Package Quality Categories



- Global community effort taking place on standardizing the quality expectations of ROS packages (REP-2004). Contributors from industry, community and ROS-Industrial all participating in the forum to derive standard operating procedures and criteria to determine quality.
- Crash course (or read more here: <https://ros.org/reps/rep-2004.html>):
 - There are **5 different Quality Levels** (1 highest – 5 lowest)
 - There are **7 metrics** used to distinguish between different Quality levels



Focus Area! Automation testing is key for quality and maintainability over time

Quality Efforts – REP-2004 Testing Subcategory



Testing refers to the use of static and dynamic analysis quality assurance tools (pytest, googletest, linters et c)



[4]

4	Requirements
i.	Must have system tests which cover all items in the "feature" documentation.
ii.	Must have system, integration, and/or unit tests which cover all of the public API.
iii.	Code Coverage: <ul style="list-style-type: none"> a) <i>Must have code coverage tracking for the package</i> b) <i>Must have and enforce a code coverage policy for new changes</i>
iv.	Performance: <ul style="list-style-type: none"> a) <i>Must have performance tests (exceptions allowed if they don't make sense to have)</i> b) <i>Must have a performance regression policy (i.e. blocking either changes or releases on unexpected performance regressions)</i>
xxii.	Linters and Static Analysis: <ul style="list-style-type: none"> a) <i>Must have a code style and enforce it</i> b) <i>Must use static analysis tools where applicable</i>

Quality Efforts – industrial_ci Package



ROS-Industrial Continuous Integration (industrial_ci) maintained by Mathias Lüdtkke (Fraunhofer) is our default package for Continuous Integration and Automated testing: https://github.com/ros-industrial/industrial_ci

Recent work done now include extended support:

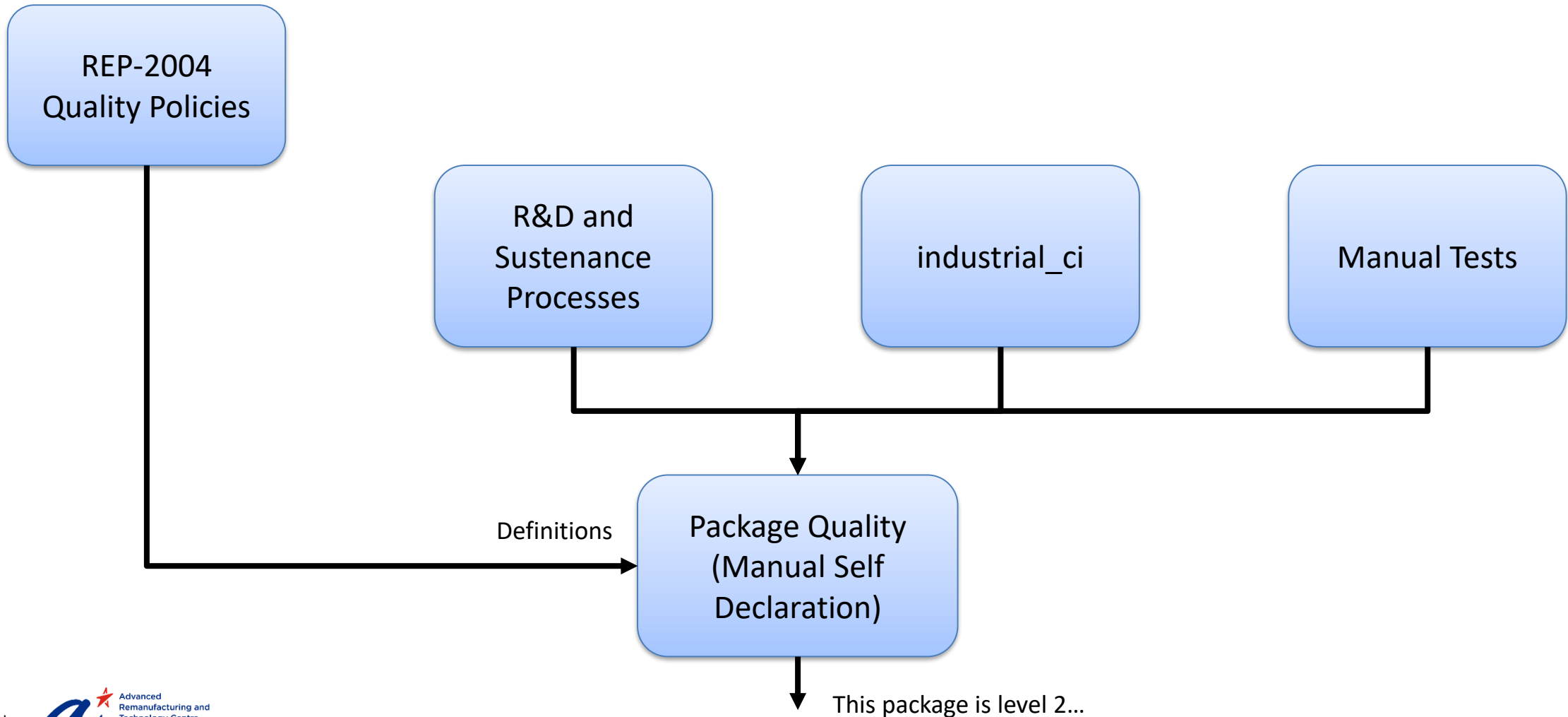
- Version support include **ROS1** Indigo, Jade, Kinetic, Lunar, Melodic and **ROS2** distributions
- Support for **Bitbucket CI**, **Gitlab CI**, **GitHub Actions** and **Travis CI**

In addition, there are pull request out that will soon enable for both ROS1 and ROS2:

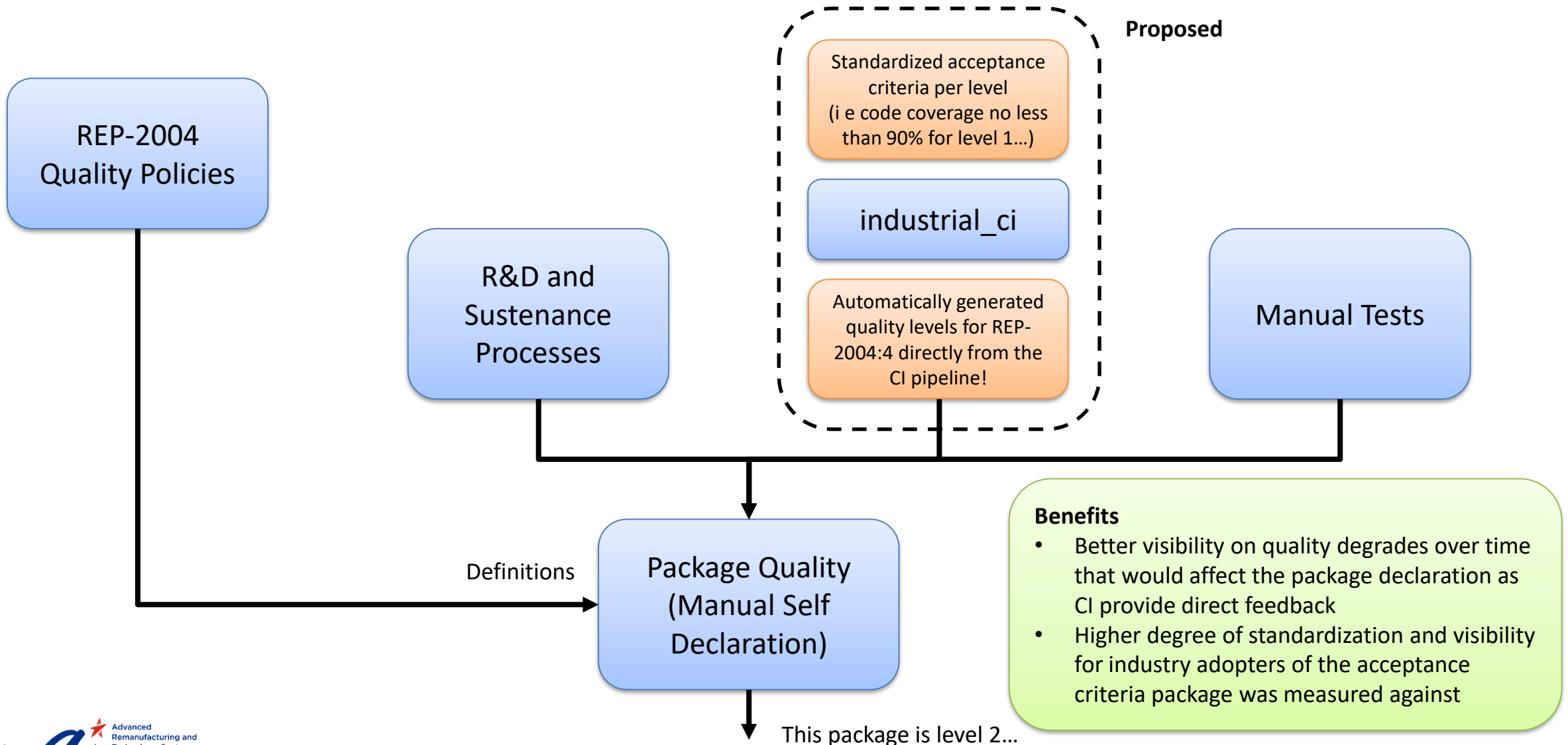
- Code coverage (codecov.io/coveralls.io)
- Sanitizers (asan/tsan)

Focus Area! Ties in with REP-2004 4i, 4ii, 4iii and 4xxii

Quality Efforts – Connecting the Dots



Quality Efforts – Connecting the Dots



UPCOMING RELEASES

Upcoming Releases – Perception Toolkit



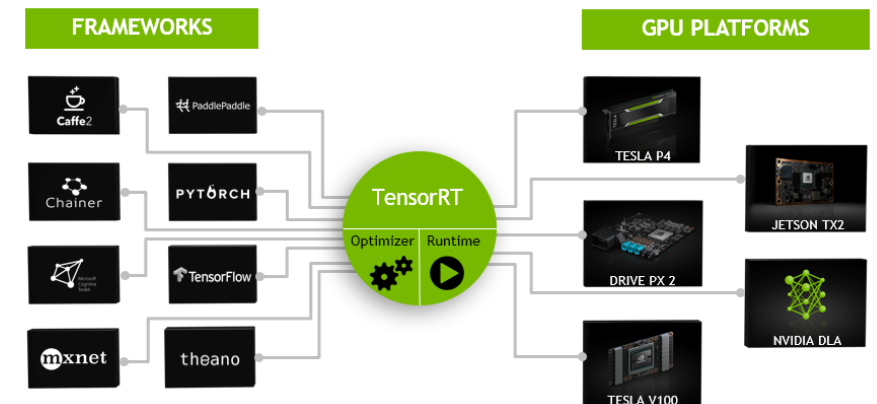
Description

A production-ready ROS2 package for training and deploying custom-trained Computer Vision models for industrial applications (detection, classification, tracking, integration with grasping)

Features

- Open Source – will be published on Github
- User-friendly workflow for
 - Computer Vision AI system training
 - Optimization (EfficientNet et c)
 - Deployment in industrial production
- High runtime performance using TensorRT deployment framework
- Integration of Open Neural Network Exchange (ONNX) models

Adopting TensorRT runtime for deployment



THANK YOU