



ROS-I Native Robot Controllers

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KEBA

KEBA[®]

Automation by innovation.

Agenda



Company presentation



KEBA KeMotion system



Requirements of our customers to ROS



Outlook

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Who are we?



Industry experts
in automation



Founded in 1968



Active worldwide



In private ownership



193 million euro
turnover



87% export



20% R & D rate



1040 employees

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KEBA Worldwide

KEBA Corp.
US-Valparaiso

A M E R I C A

Delem BV
NL-Eindhoven

KEBA GmbH
DE-Bonn

KEMAS
DE-Oberlungwitz

KEBA GmbH
DE-Göppingen

KESAT a.s.
CZ-Jihlava

KEBA AG
Linz / Austria

E U R O P E

KEBA Italy
IT-Milano

KEBA S.R.L.
RO-Bucharest

KEBA Türkiye
TR-Istanbul

CBPM-KEBA
CN-Beijing

KEBA Korea
KR-Seoul

KEBA Japan
JP-Tokyo

KEBA Ltd.
CN-Jinan

KEBA Ltd.
CN-Shanghai

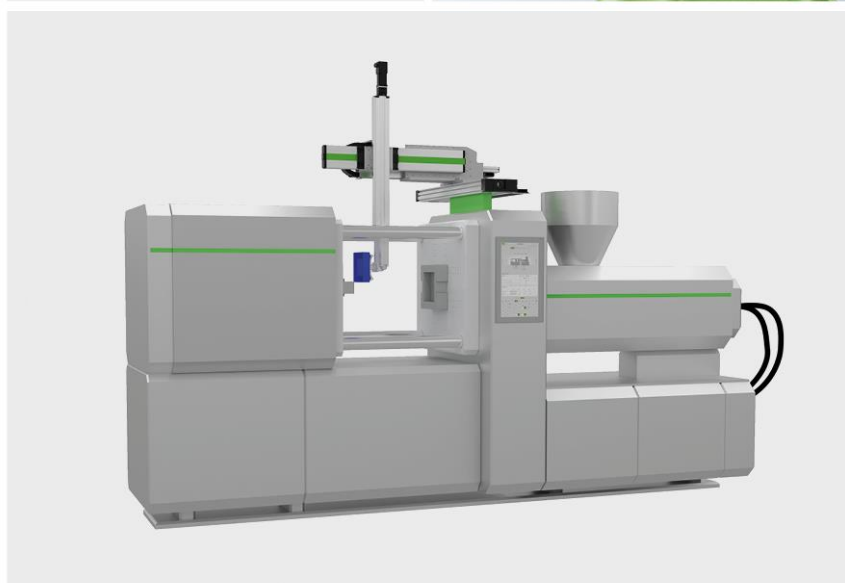
KEBA Ltd
CN-Ningbo

KEBA Ltd
CN-Guangzhou

KEBA Taiwan
TW-Taipei

A S I A

Customers who trust KEBA



KeMotion

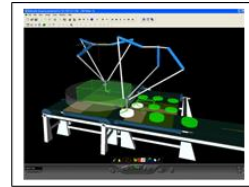
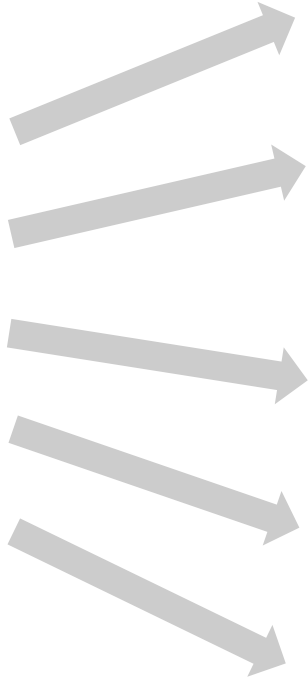
The complete solution for the automation of robots and machines



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KeMotion

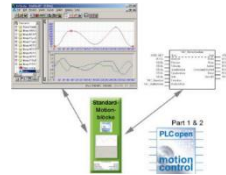
A complete system with 5 core components



Robotics

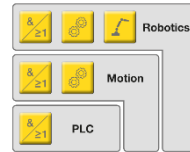
Turn-key robotic solution including

- Tool set
- Real World Simulation Package
- Wizards and Templates
- Ready-to-use robot programming language



PLC and Motion

Predefined PLC and Motion functions for machine and process control



Safety

Integrated and scalable safety controller for PLC, Motion and Robotics



Control and Drives

- All-in-one control and drive solution
- Modular multi-axes drives for space reduction of more than 50%



HMI

- Turn-key robotic teach-in solution
- Mobile pendants from the world market leader

KeMotion For a wide range of applications



Painting • Welding • Grinding • Metal Bending • Palletizing • Pick & Place • Handling • CNC • Glueing • Wafer Handling • Service Robotics • Textile Printing • Die Casting • Plastics • etc.

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KeMotion

The proven industrial complete solution for high-end robotics

Highest
QUALITY



Absolute
FLEXIBILITY



Maximum
AVAILABILITY



Scalable
**HARDWARE
RANGE**



Open Source is not new to us



GitLab



Requirements of our customers to ROS



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Basics

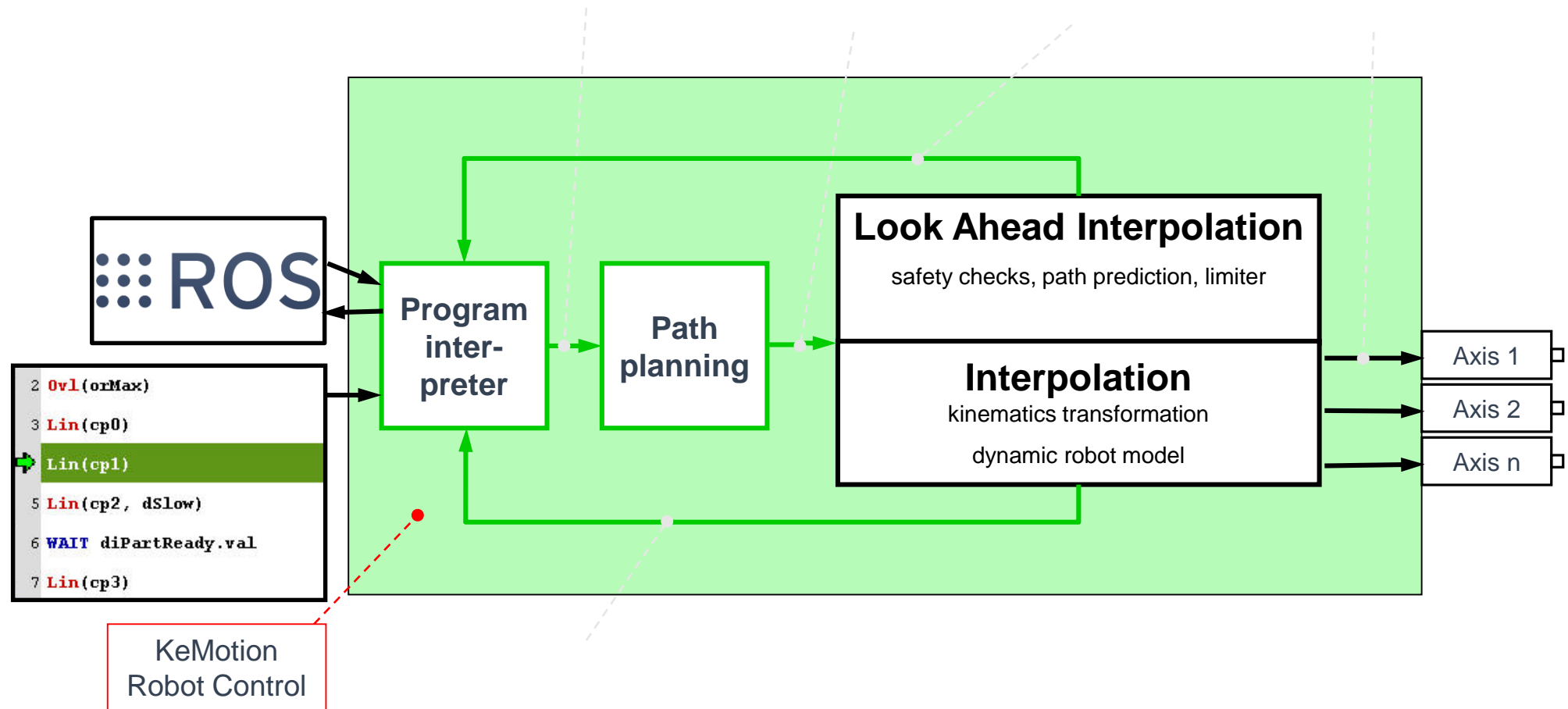
Deliver a versioned package of the main ROS packages

- ✓ ROS Softwareunit

Offer a possibility to move the robot out of ROS

- ✓ Deliver an interface to our Robot Control

Integration of ROS



Additional features

Offer a possibility to trigger PLC applications out of ROS

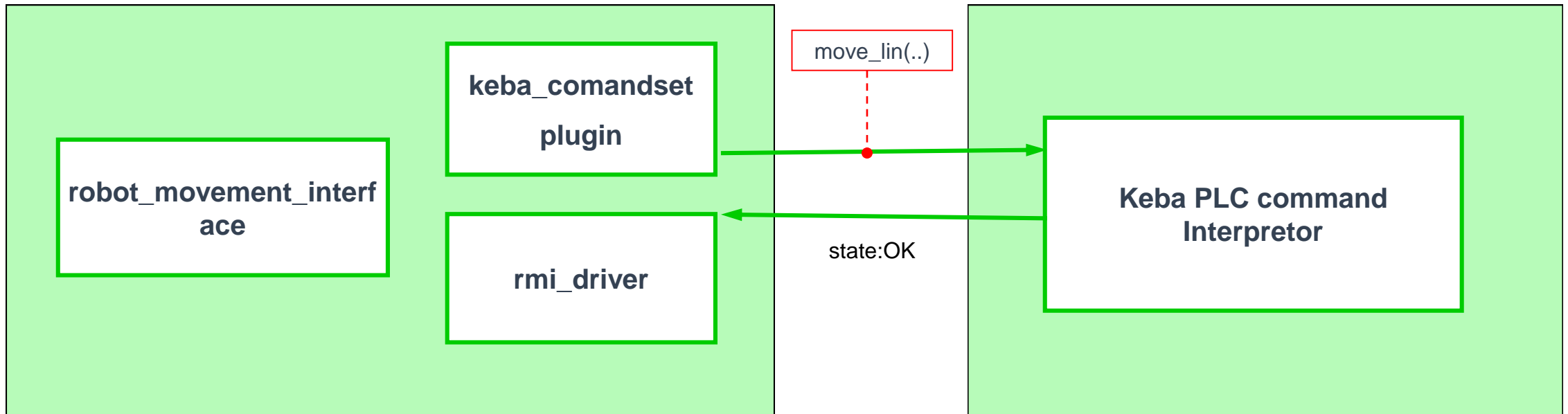
- ✓ Establish an ROS-interface to our PLC variable-tree

Offer a possibility to process cartesian coordinates out of ROS

- ✓ Enlarge commandset of RMI_Driver

rmi_driver package

- based on ros_industrial/robot_movement_interface
- create movement commands in ROS
- Plugin-based



https://github.com/smith-doug/rmi_driver

Additional features

Offer a possibility to upload an application to several units

- ✓ Develop a plugin for our PLC configuration Suite (KeStudio)

j.project* - KeStudio *** UNCERTIFIED PLUGINS ***

File Edit View Project Build Online Debug Tools Window Help

Devices

- CP24x_A [Disconnected] (CP24x/A)
 - Diagnostics
 - Messages
 - Trace
 - Expert Entries
 - Message Editor
 - PLC Logic
 - Application
 - Library Manager
 - ROS
 - Visualisation
 - AddOnModules
 - CAN
 - Panel
 - Slot PCI 0
 - Ethernet 0
 - Ethernet 1

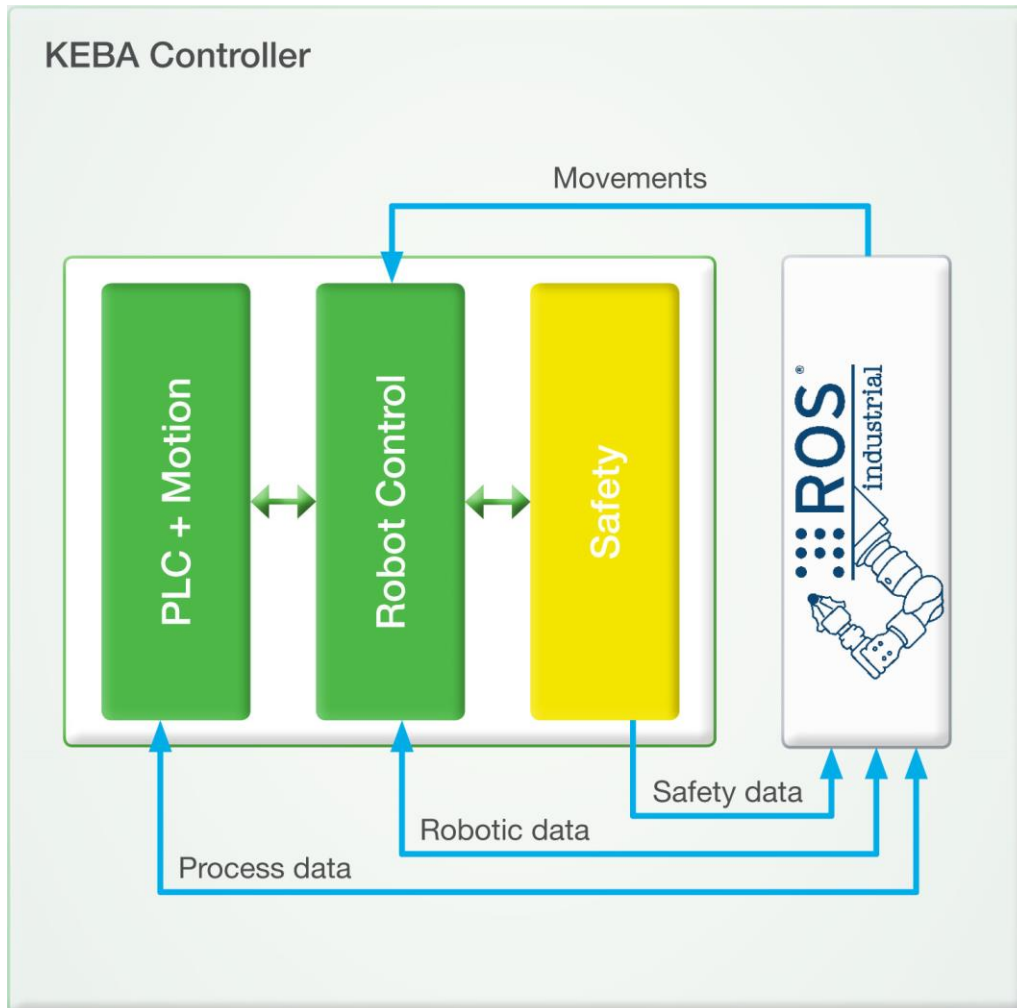
ROS Application

ROS Trace

Connected to ROS!

Timestamp	Sender	Msg
1510040080	/rosbridge_websocket	[Client 22] Subscribed to /rosout
1510038091	/rosapi	Rosapi started
1510040108	/rosbridge_websocket	Client connected. 7 clients total.
1510040108	/rosbridge_websocket	[Client 23] Subscribed to /rosout

KEBA solution



- all in one platform
- PLC, Robotik, Safety, ROS
- 1 development tool for robotics and ROS
- no additional ROS PC
- full access from ROS to KEBA controller

KeMotion FlexCore

The open platform for powerful and versatile robotic applications

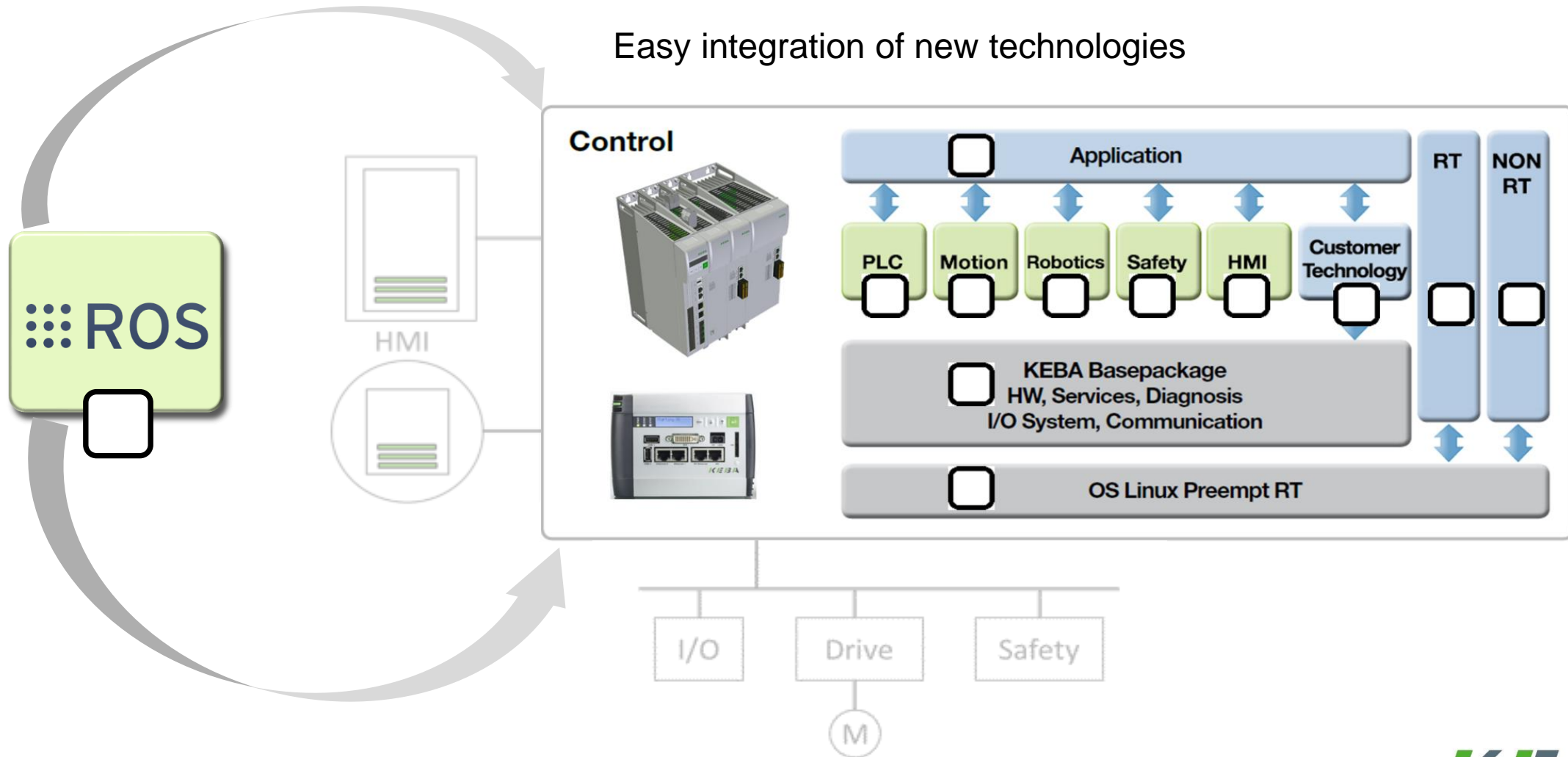


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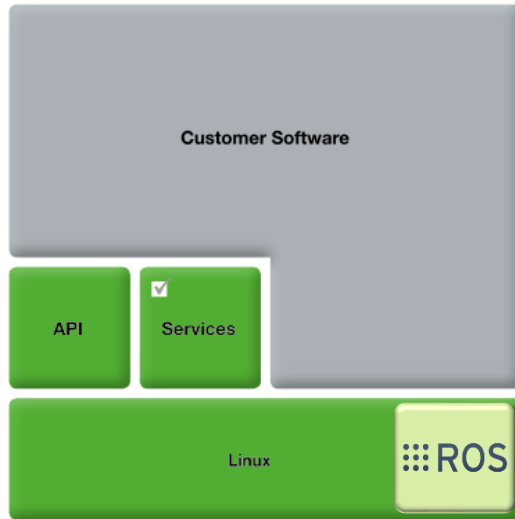
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Open control architecture

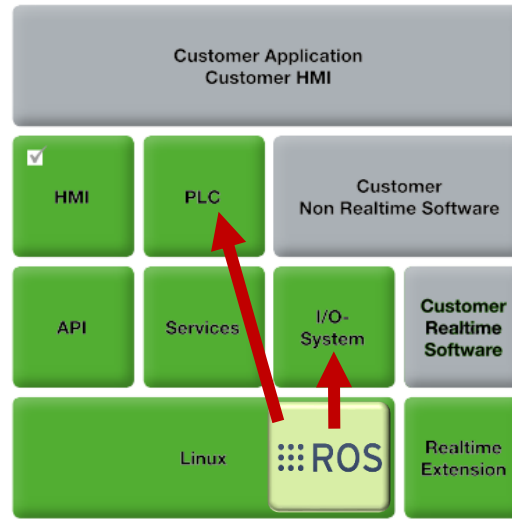
Easy integration of new technologies



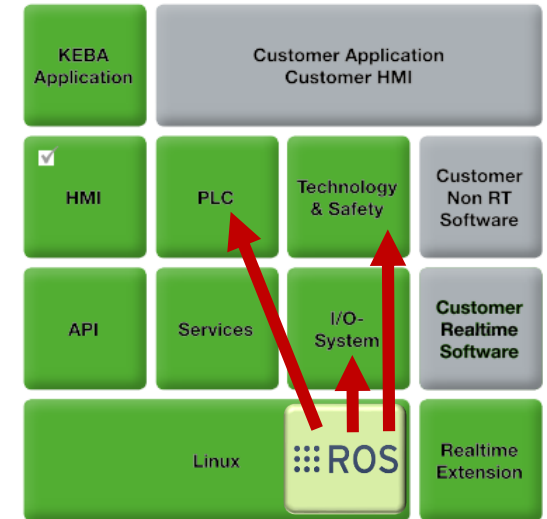
Integration Levels



- ROS core on IPC
- No interfaces



- ROS interface to basic system



- Full integration
- ROS with KeMotion technology features

Outlook



Official release




Further Development with industrial partners



Multikinematic support

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Visit us at the Demo of
ROS-native hardware
afterwards

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Thank you
for your attention!

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