

# Blueprint: KubeEdge Edge Service Family

(Type 1: ML Inference Offloading)

Yin Ding

November 2020



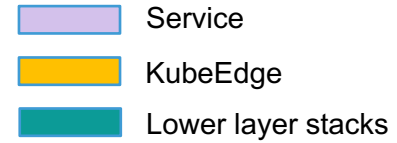
# General Blueprint Introduction

- ❖ KubeEdge Edge Service family focuses on a device/edge/cloud collaboration framework around KubeEdge. The verticals of focus have been IoT and MEC etc.
- ❖ The key component KubeEdge is a unique design from scratch of edge nodes and edge cloud, with all source code developed in the upstream CNCF KubeEdge Project.
- ❖ Type I of KubeEdge Edge Service family focuses an edge stack listed in the next slide of the use case ML Inference Offloading on edge servers.
- ❖ This blueprint family will leverage various infrastructures. Arm servers support is the next case. This blueprint family is infrastructure neutral.

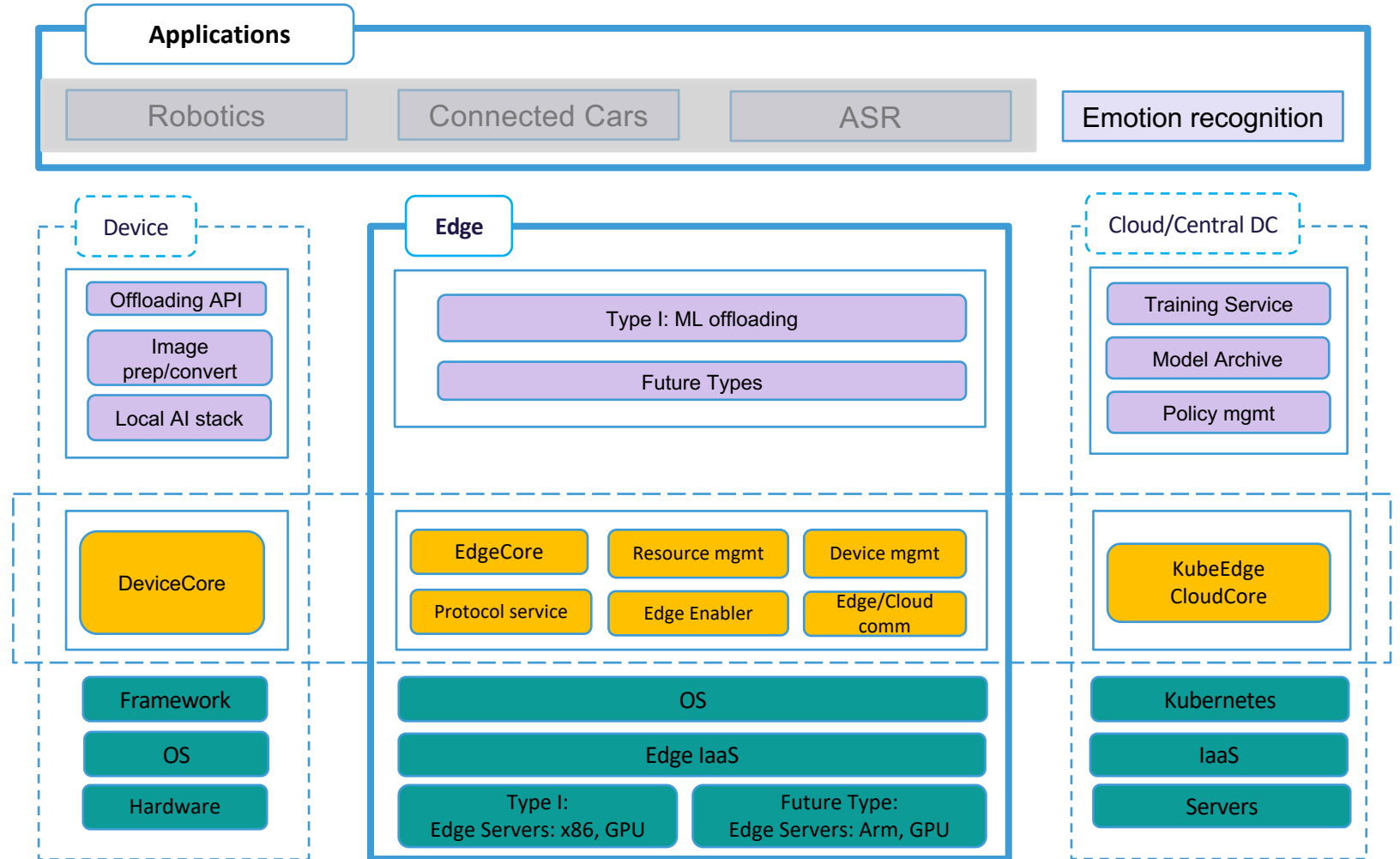
# Release 4 Status

- › KubeEdge BP Architecture Documents: <https://wiki.akraino.org/display/AK/KubeEdge+BP+Architecture+Documents>
- › KubeEdge BP API Documents: <https://wiki.akraino.org/display/AK/KubeEdge+BP+Architecture+Documents>
- › KubeEdge BP Installation Guide: <https://wiki.akraino.org/display/AK/KubeEdge+BP+Architecture+Documents>
- › KubeEdge BP Release Notes: <https://wiki.akraino.org/display/AK/KubeEdge+BP+Release+Notes>
- › KubeEdge BP Test Documents: <https://wiki.akraino.org/display/AK/KubeEdge+BP+Test+Documents>
- › KubeEdge Edge Service Blueprint Release 4 datasheet: <https://wiki.akraino.org/display/AK/KubeEdge+Edge+Service+Blueprint+Release+4+datasheet>

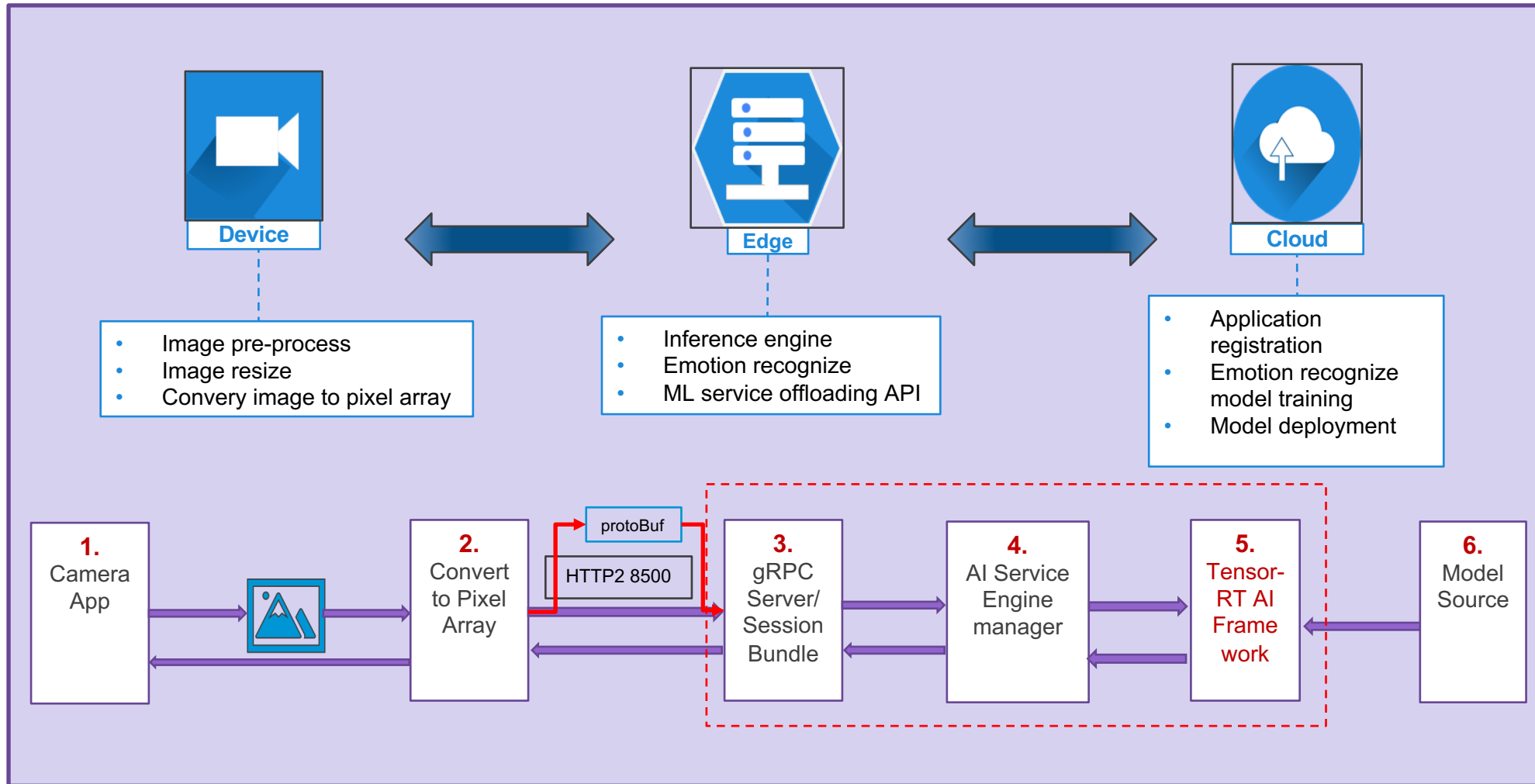
# KubeEdge ML Offloading Functional Block Diagram



- **KubeEdge:** Device, Edge and Cloud Collaboration.
- **ML offloading service:**
  - Resource limited device needs to offload AI processing
  - Typical offloading approach is offloading inference to edge and training to central DC/Cloud
  - A device/edge/cloud collaboration framework is essential to ML offloading. KubeEdge provides underline software platform.



# Use Case 1: Device App ML model inference offloading workflow



• Emotion recognition

# Thank you

## We welcome all participants

- **Wiki:** <https://wiki.akraino.org/display/AK/KubeEdge+Edge+Service+Blueprint>
- **Weekly Meeting:** <https://zoom.us/j/91049610205>, every Tuesday 19:00 PST.
- **Slack Channel:** <https://lfedge.slack.com/archives/C0155MP4TSB>

# Legal Notices

The Linux Foundation, The Linux Foundation logos, and other marks that may be used herein are owned by The Linux Foundation or its affiliated entities, and are subject to The Linux Foundation's Trademark Usage Policy at <https://www.linuxfoundation.org/trademark-usage>, as may be modified from time to time.

Linux is a registered trademark of Linus Torvalds. Please see the Linux Mark Institute's trademark usage page at <https://lmi.linuxfoundation.org> for details regarding use of this trademark.

Some marks that may be used herein are owned by projects operating as separately incorporated entities managed by The Linux Foundation, and have their own trademarks, policies and usage guidelines.

TWITTER, TWEET, RETWEET and the Twitter logo are trademarks of Twitter, Inc. or its affiliates.

Facebook and the "f" logo are trademarks of Facebook or its affiliates.

LinkedIn, the LinkedIn logo, the IN logo and InMail are registered trademarks or trademarks of LinkedIn Corporation and its affiliates in the United States and/or other countries.

YouTube and the YouTube icon are trademarks of YouTube or its affiliates.

All other trademarks are the property of their respective owners. Use of such marks herein does not represent affiliation with or authorization, sponsorship or approval by such owners unless otherwise expressly specified.

The Linux Foundation is subject to other policies, including without limitation its Privacy Policy at <https://www.linuxfoundation.org/privacy> and its Antitrust Policy at <https://www.linuxfoundation.org/antitrust-policy>, each as may be modified from time to time. More information about The Linux Foundation's policies is available at <https://www.linuxfoundation.org>.

Please email [legal@linuxfoundation.org](mailto:legal@linuxfoundation.org) with any questions about The Linux Foundation's policies or the notices set forth on this slide.