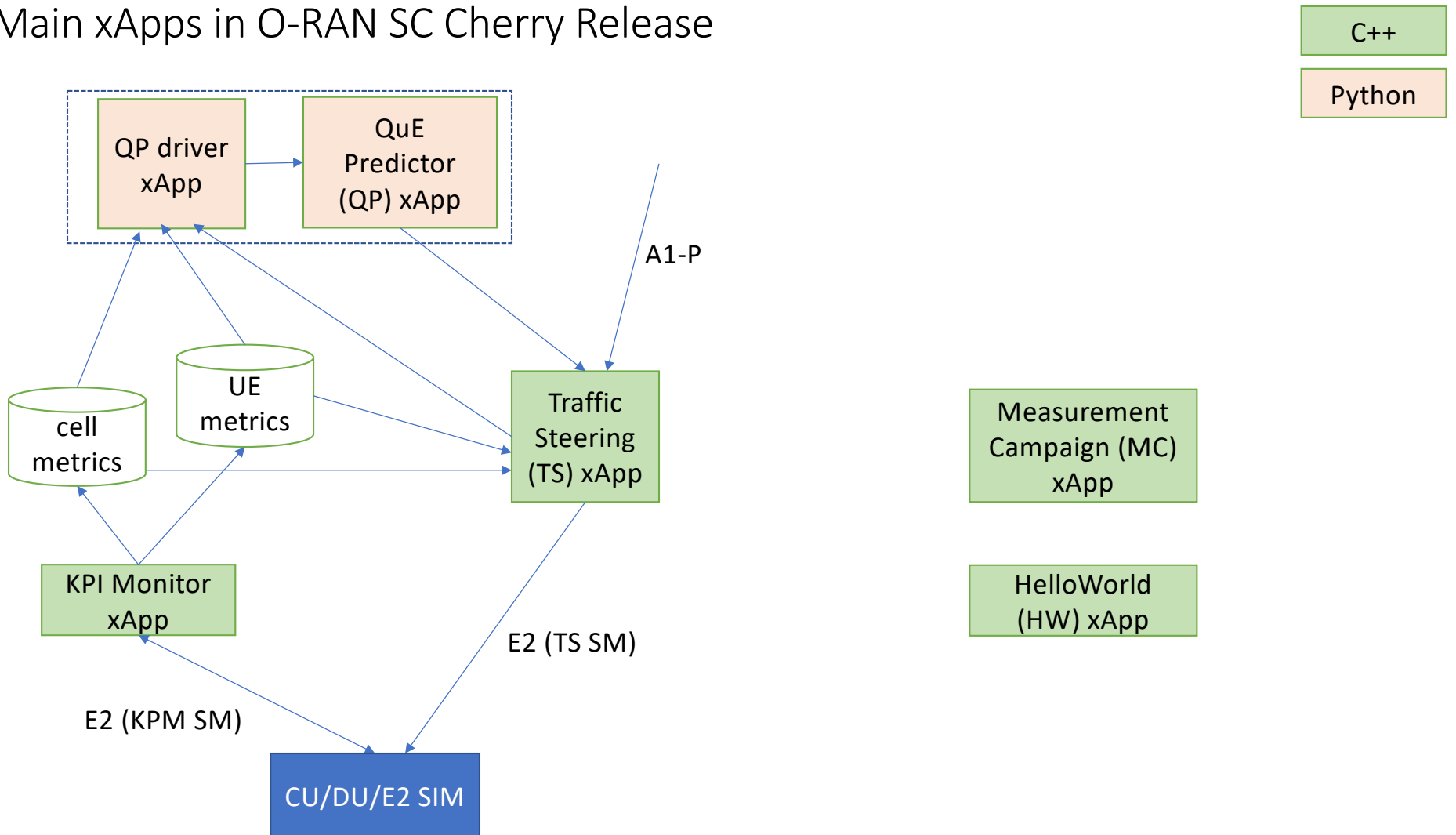# RICAPP: Cherry epics

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# Main xApps in O-RAN SC Cherry Release
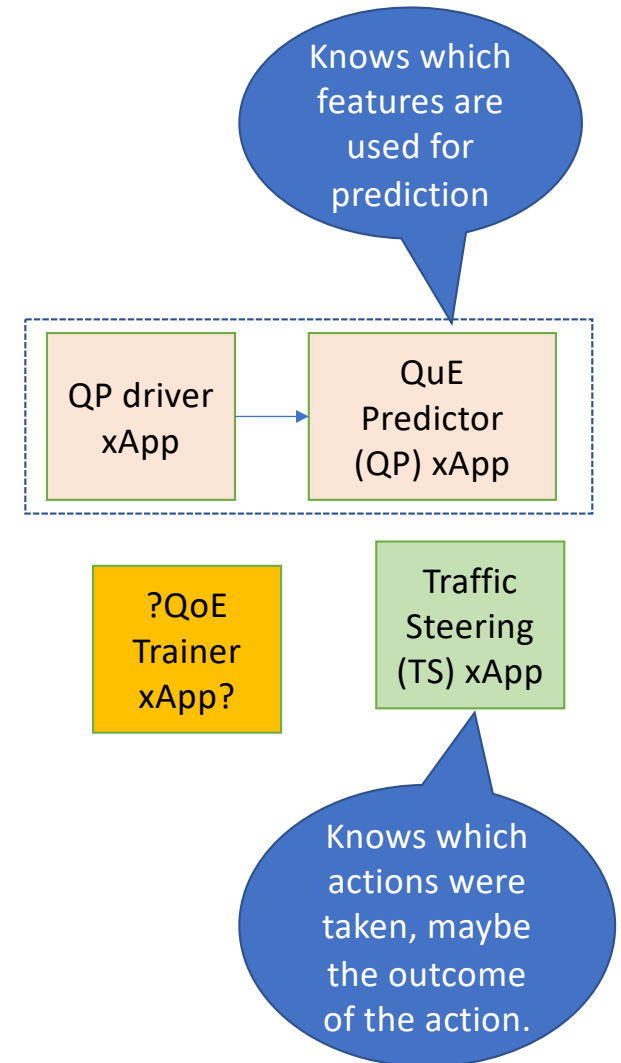
# Main RICAPP epics for Cherry

- Extend the use of RIC SDK to support O1-PM/FM/CM and A1-P:
  - Implement alarming using *new alarm API in SDK*
  - Implement statistics collection using *new stats API in SDK*
  - Exercise *new RIC SDK higher-level abstractions for A1-P, O1-CM*

- TS use case extensions:
  - More interesting A1-P policy intents
  - E2 CONTROL message (initially using our own SM, later WG-3 SM)
  - QP with real machine learning model and training
  - Integration with O-DU/O-CU or more realistic simulator (Viavi?)
  - Design and integration with ML training outside the RIC

- More comprehensive example xApps.

# How to support ML training in Cherry?

Training data: original input features, (predicted value), measured value (after some time period)

Multiple open issues:
- How to communicate the training data to non-RT RIC (e.g., VES file transfer) – WG-2
- New SDK API for xApps to communicate the info? – nearRT-RIC

- Which xApp should collect the training data? – RICAPP
- What features are used for prediction (e.g., are the identities of the current serving cell and the target neighbor cell used) – RICAPP, R-SAC

- Which component will consume the training data in Cherry release – non-RT-RIC - ML FRQAMEWORK

- Reinforcement learning? Large data set needed?

Knows which features are used for prediction

QP driver xApp → QuE Predictor (QP) xApp

?QoE Trainer xApp?

Traffic Steering (TS) xApp

Knows which actions were taken, maybe the outcome of the action.

# What is RIC SDK?

Enable xApp to:
- Define xApp descriptor for on-boarding and dynamic configuration
- Send and receive messages
- Access data persistence layer (SDL), R-NIB and other database
- Communicate with E2 Nodes
- Report alarms, statistics, and logs

SDK components:
- Libraries, Interfaces and APIs
- Tools
- Documentation and guides
- Code Samples
- Processes and Flows

Help developers:
- Generate skeleton codes
- Setup development and testing environments
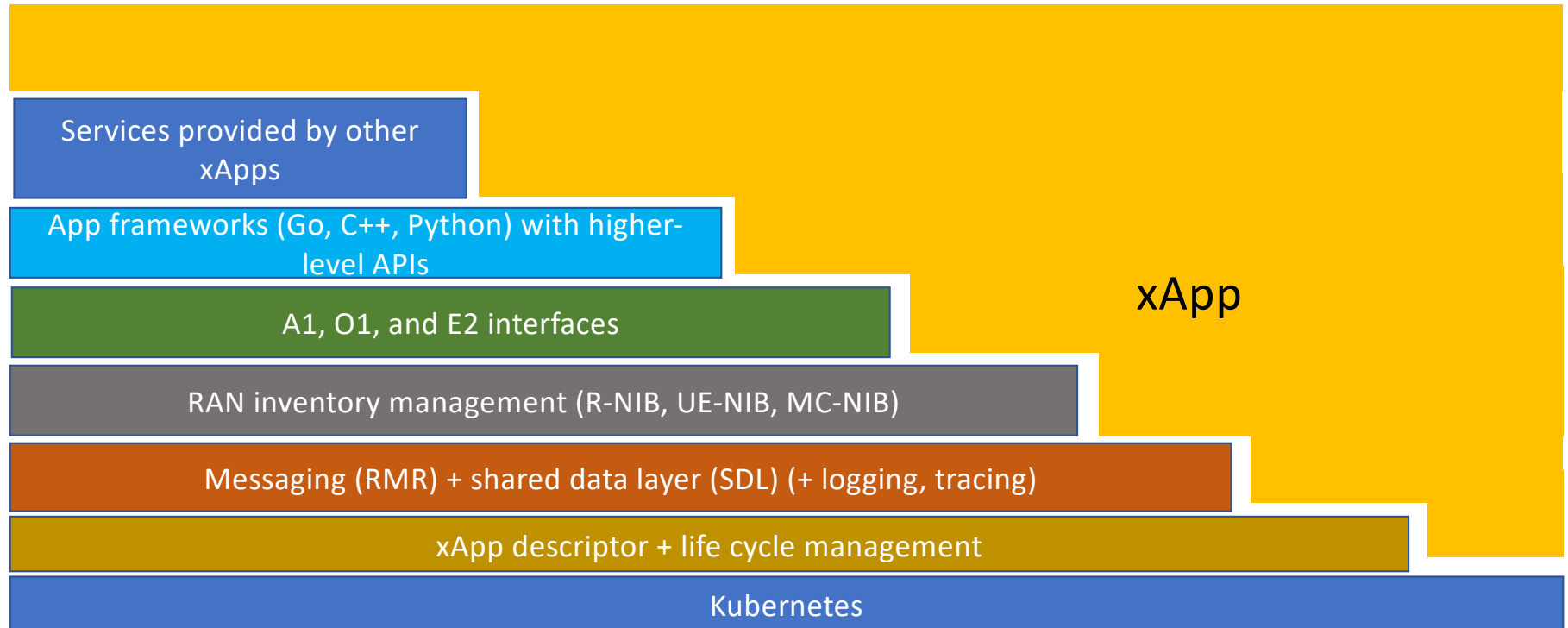- Package, distribute and onboard their xApp

Provide an abstraction layer to insulate xApps from a specific underlying technology, improve portability.

https://wiki.o-ran-sc.org/display/ORANSDK/

# RIC SDK Libraries, Interfaces and APIs



The RIC SDK implementation could be utilized directly in other projects (e.g., logging, life cycle management) or the RIC SDK API could be utilized with a different underlying implementation – initial discussions underway.