

O-RAN Architecture for UAV Communication Management

(UAV Policy xApp Integration with Near-RT RIC)

Service Management and Orchestration (SMO)

Non-RT RIC

rApps / AI/ML

A1
(Policy)

Near-RT RIC Platform

xApps



UAV Policy xApp

RSRP/SINR

Traffic Steering xApp

QoS/QoE xApp

Metrics

Prometheus

Grafana

O1

(Mgmt)

PRB Allocation

SDL

(Redis)

RMR Messaging

E2 Term

Handover Cmd

E2

(Control)

E2 Nodes (O-RAN Compliant)

gNB-CU

(Central Unit)

gNB-DU

(Distributed Unit)

O-RU

(Radio Unit)

ns-3 LTE Simulation (E2SM-KPM)

UE Measurements

UAV UE

(User Equipment)

Legend:



Interface



Measurement Flow



Control Flow



Highlighted