



SD-RAN Techinar

February 9, 2021 | 9am PST

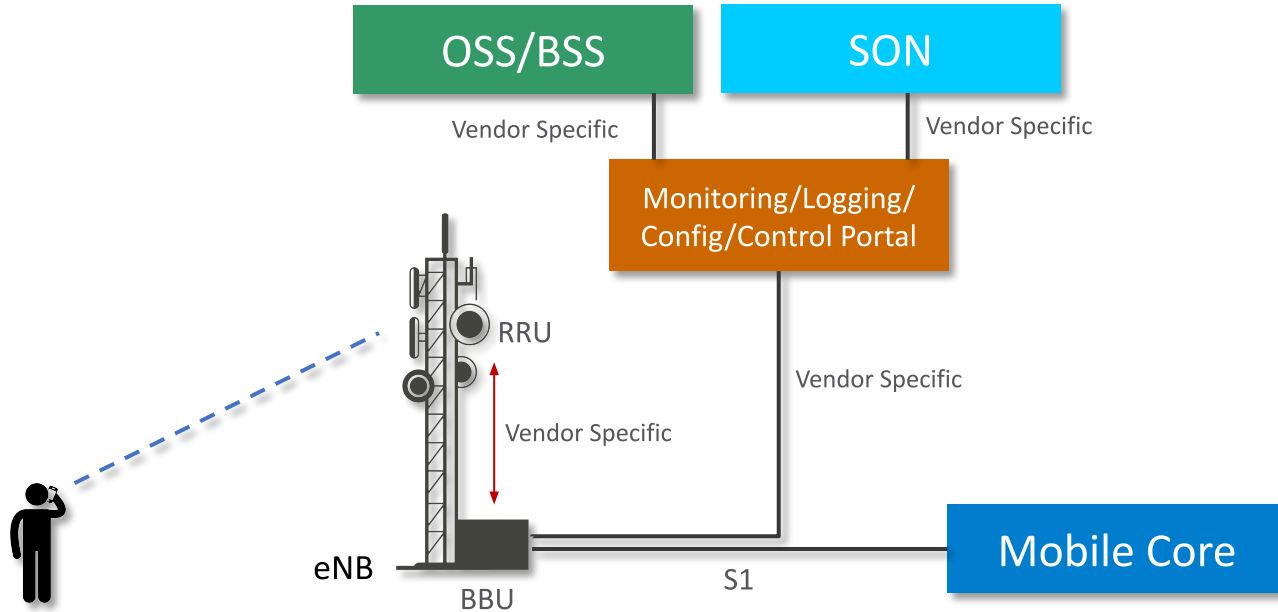


Oguz Sunay
VP of R&D, Mobility

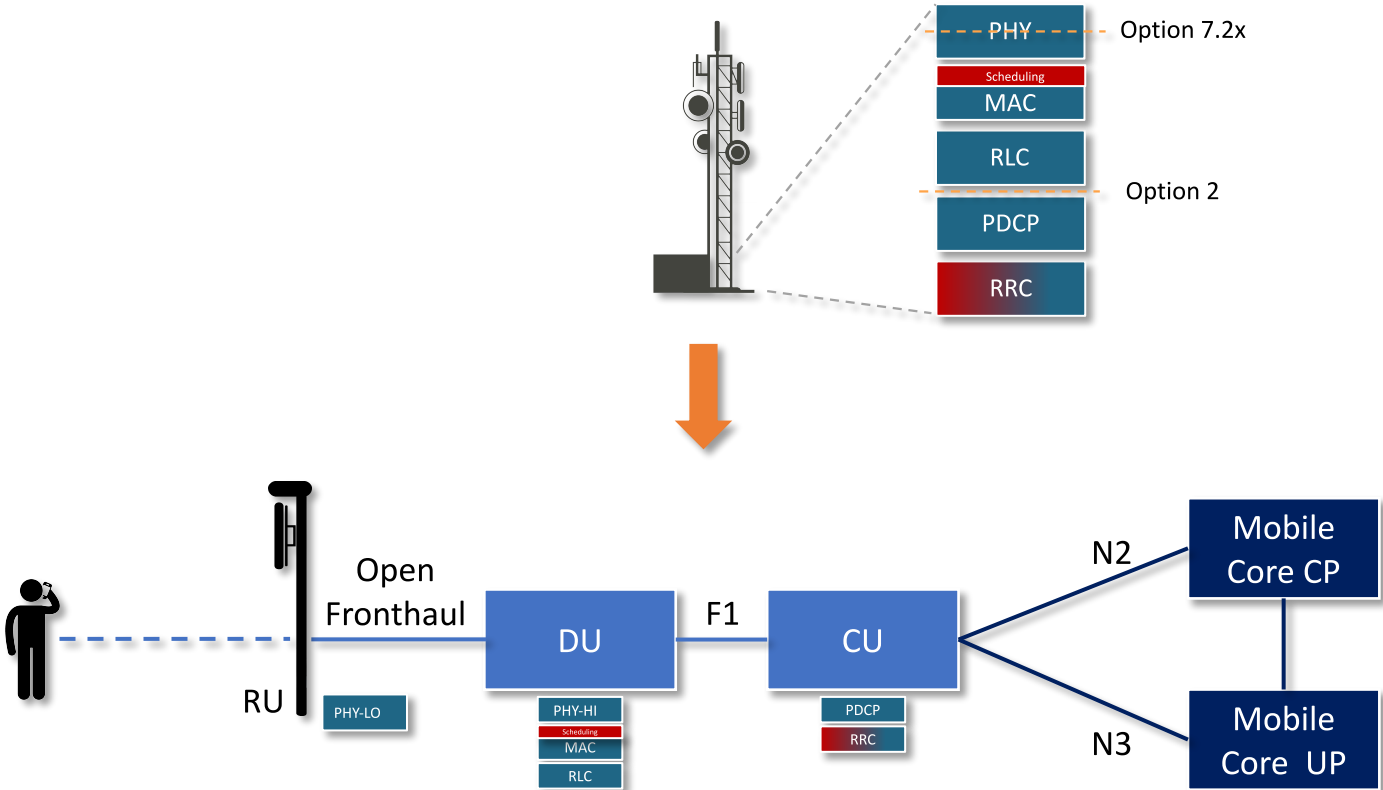


Saurav Das
VP of Engineering

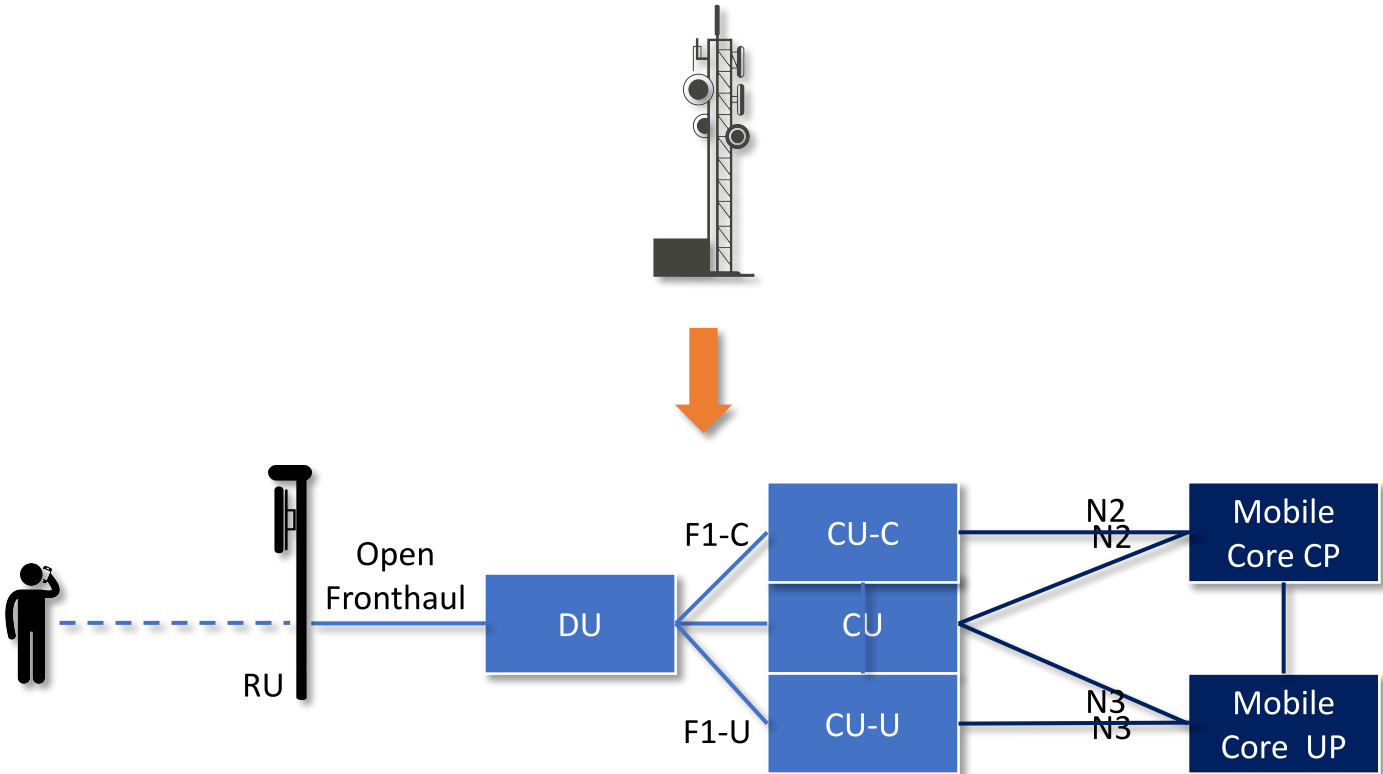
RAN transformation: Starting point



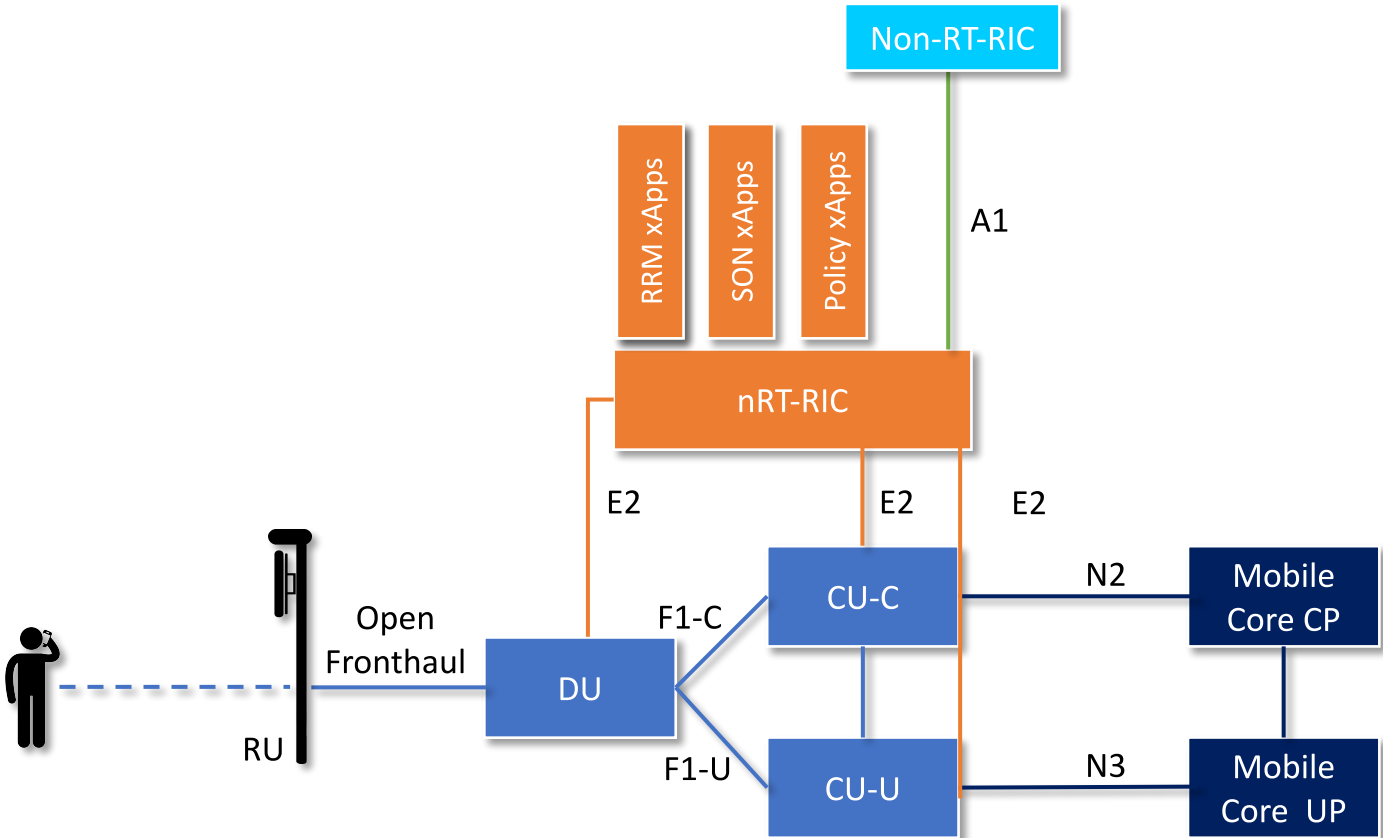
RAN disaggregation



RAN disaggregation

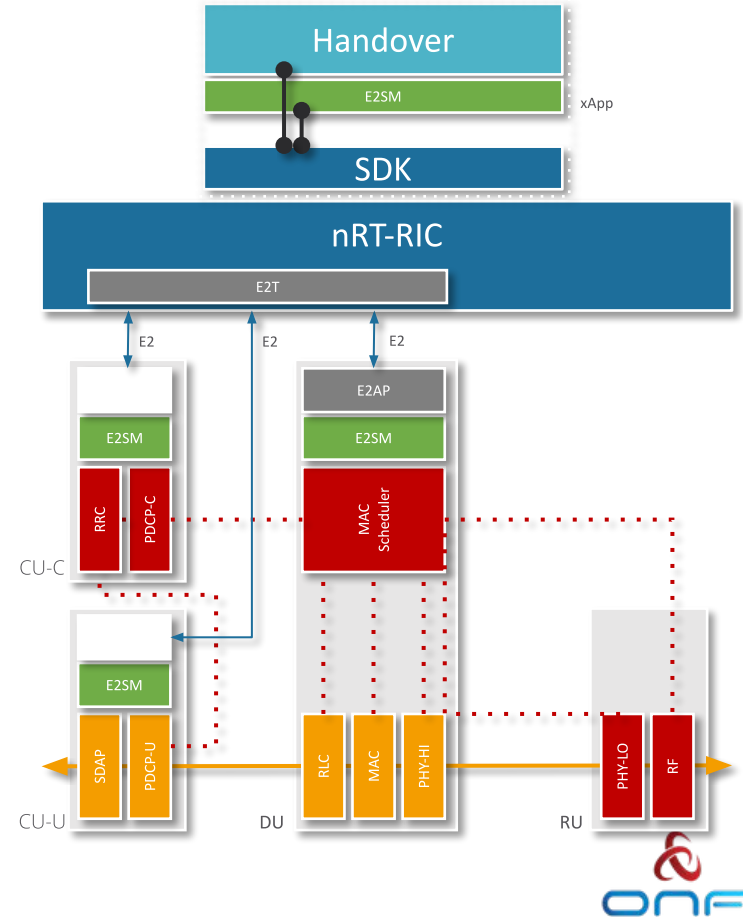


RAN disaggregation

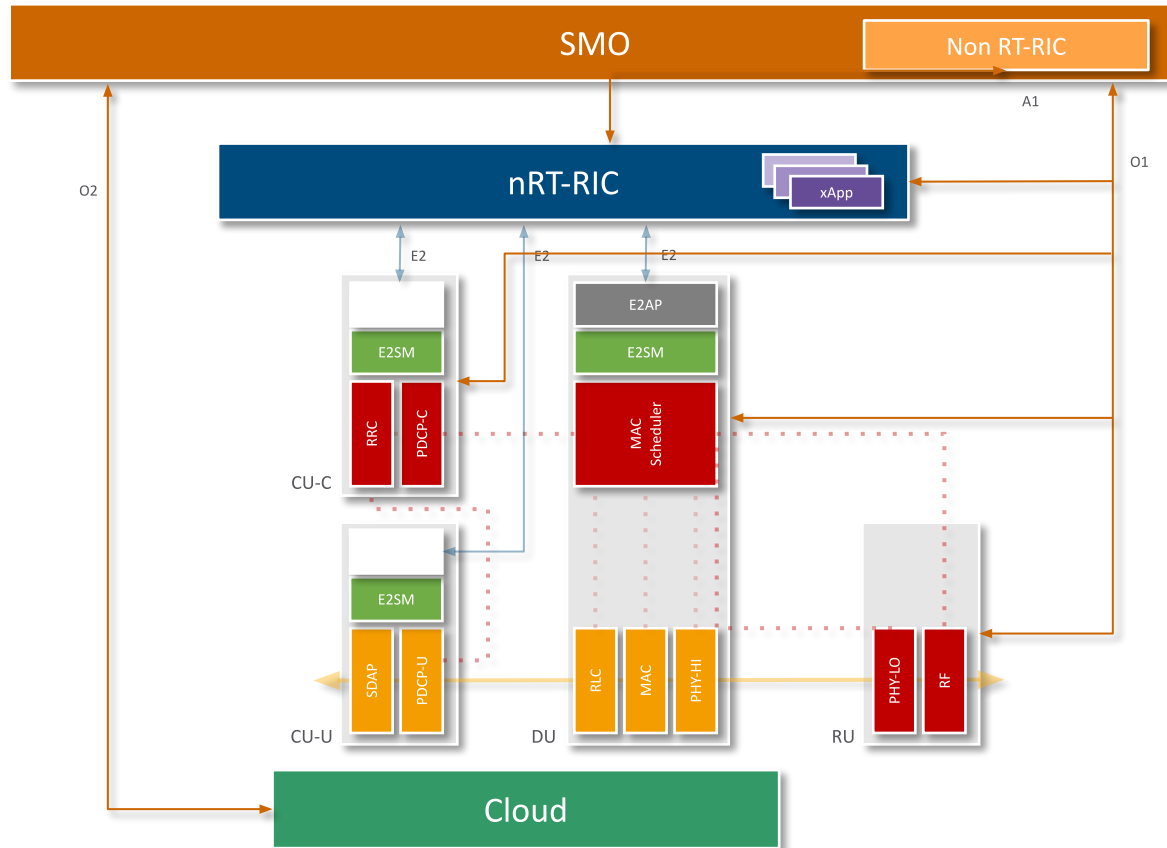


E2AP & E2SM

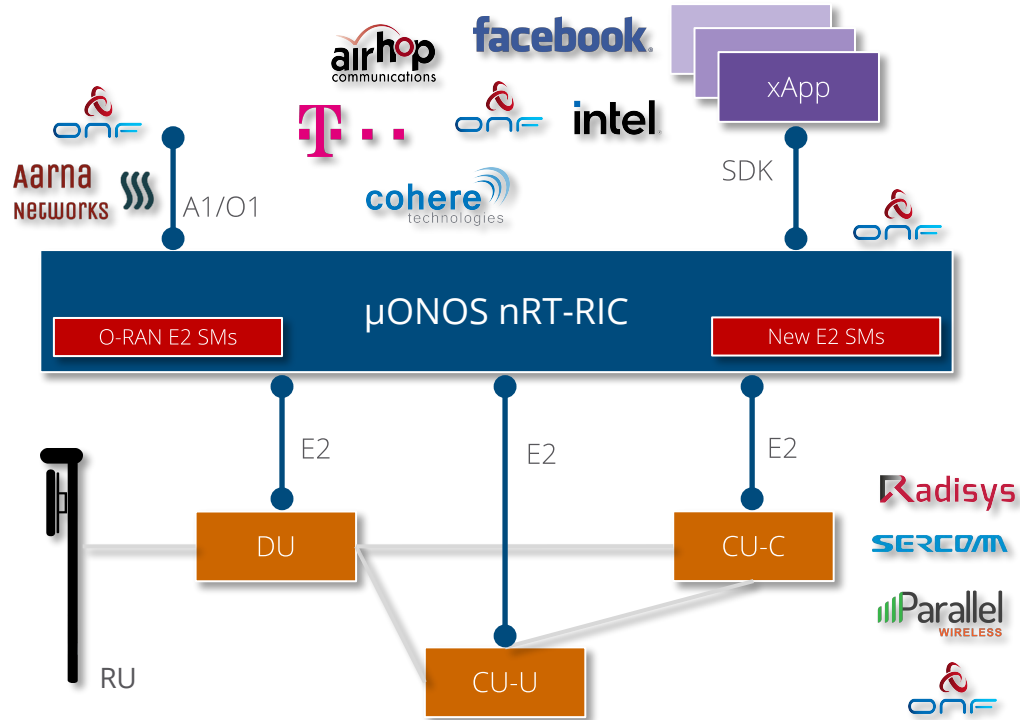
- E2AP defines the general protocol by which the nRT-RIC and disaggregated E2 Nodes communicate.
 - Action Types: Report, Insert, Policy, Control
- E2SMs are “contracts” between an xApp and the E2 Node. They define function specific protocols that are implemented on top of the E2AP specification.
- The implementation of a given E2SM on the gNB side requires explicit feature and interface development / stack enhancements



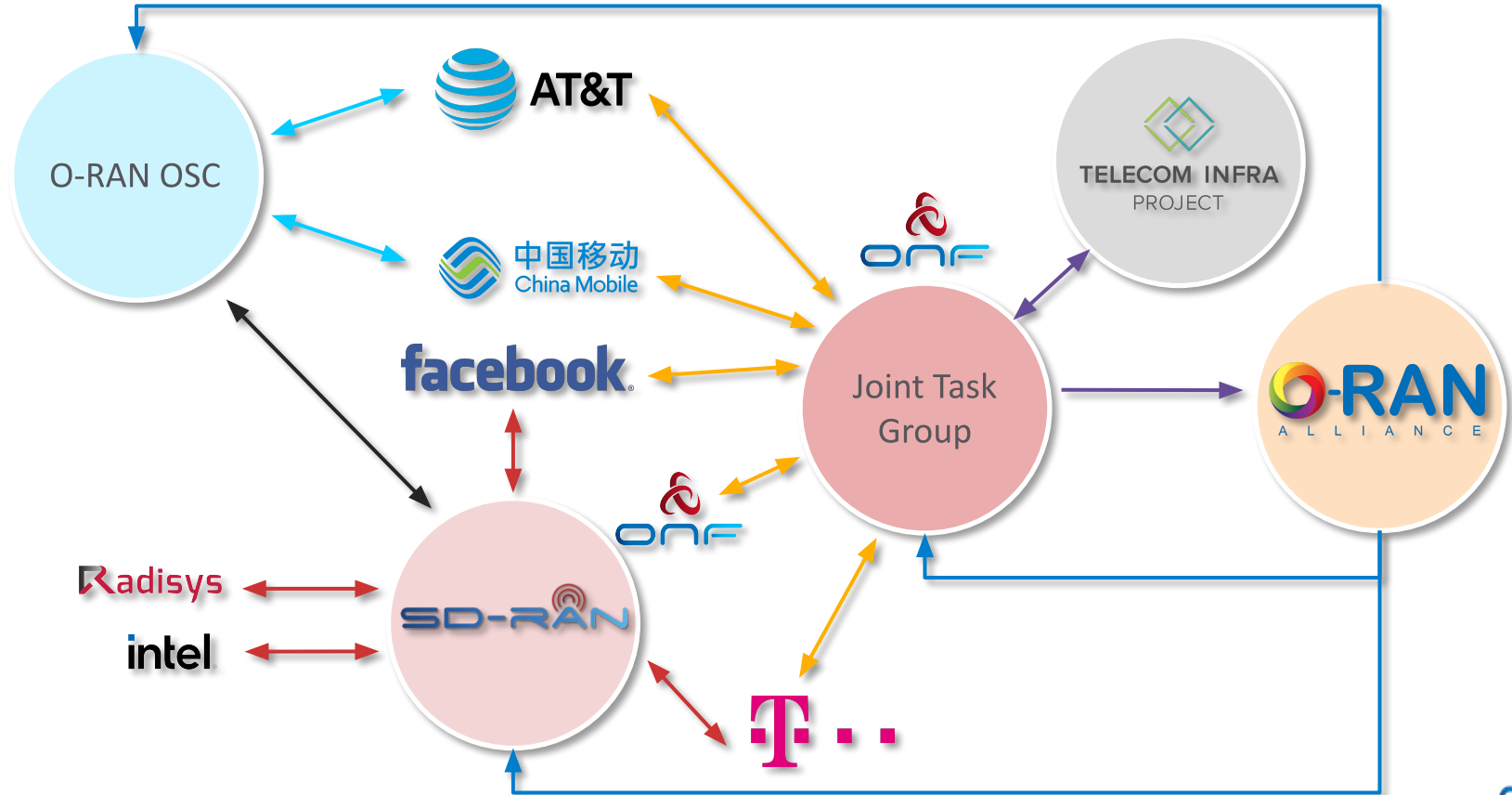
A1, O1 & O2



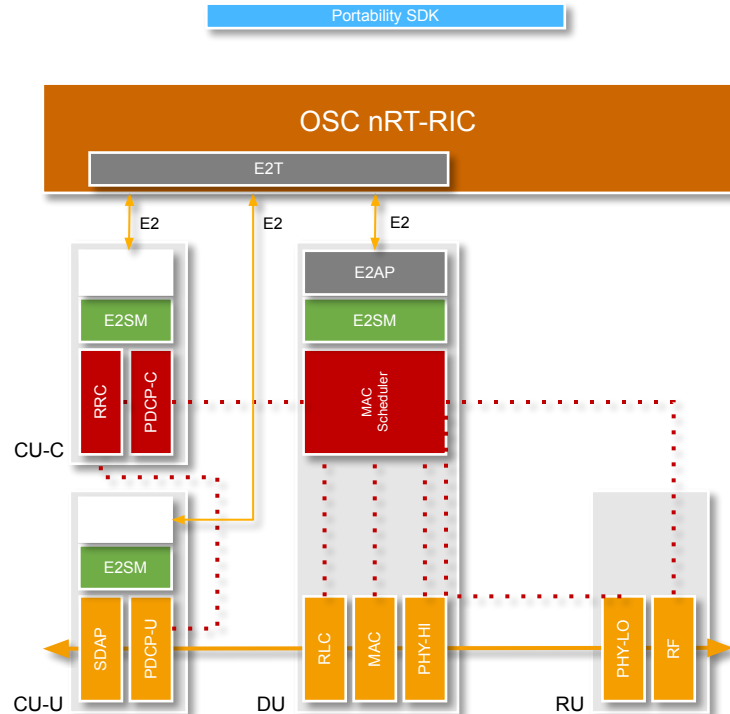
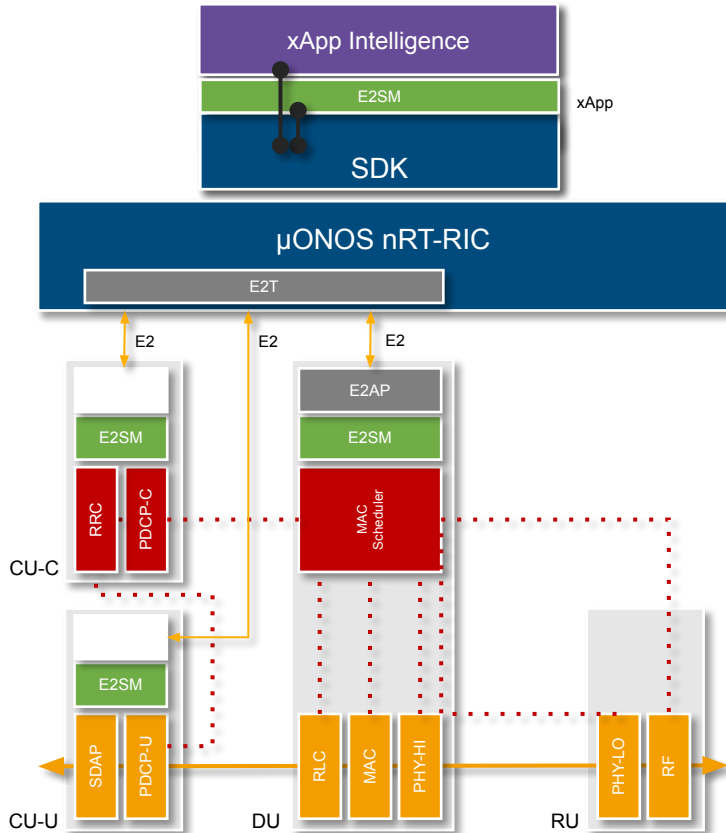
SD-RAN



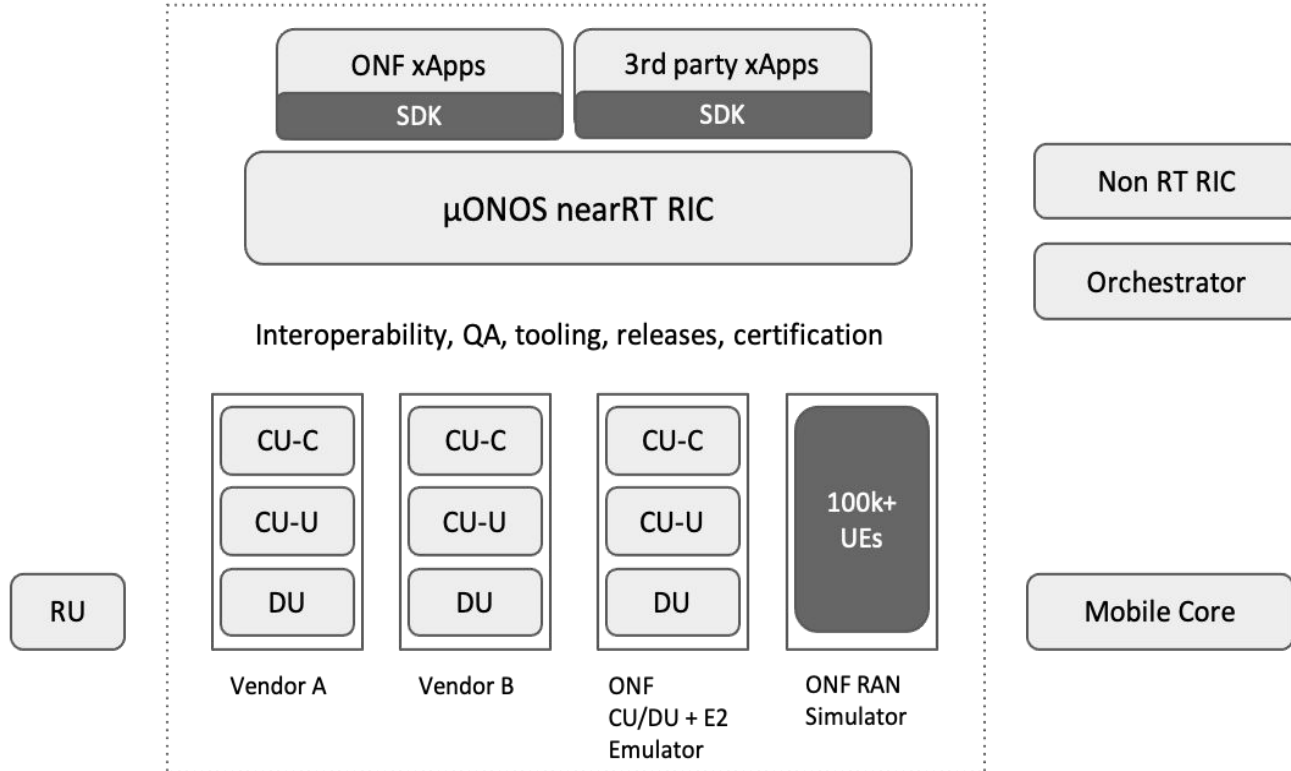
ONF, O-RAN and TIP



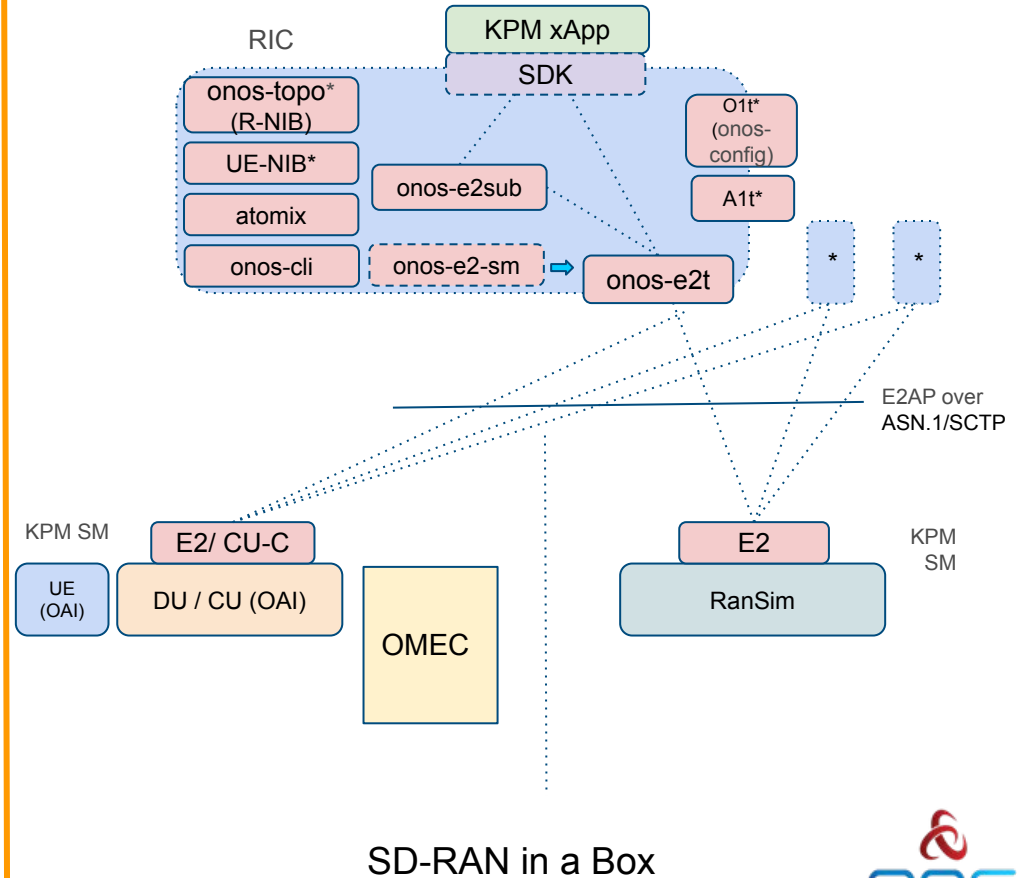
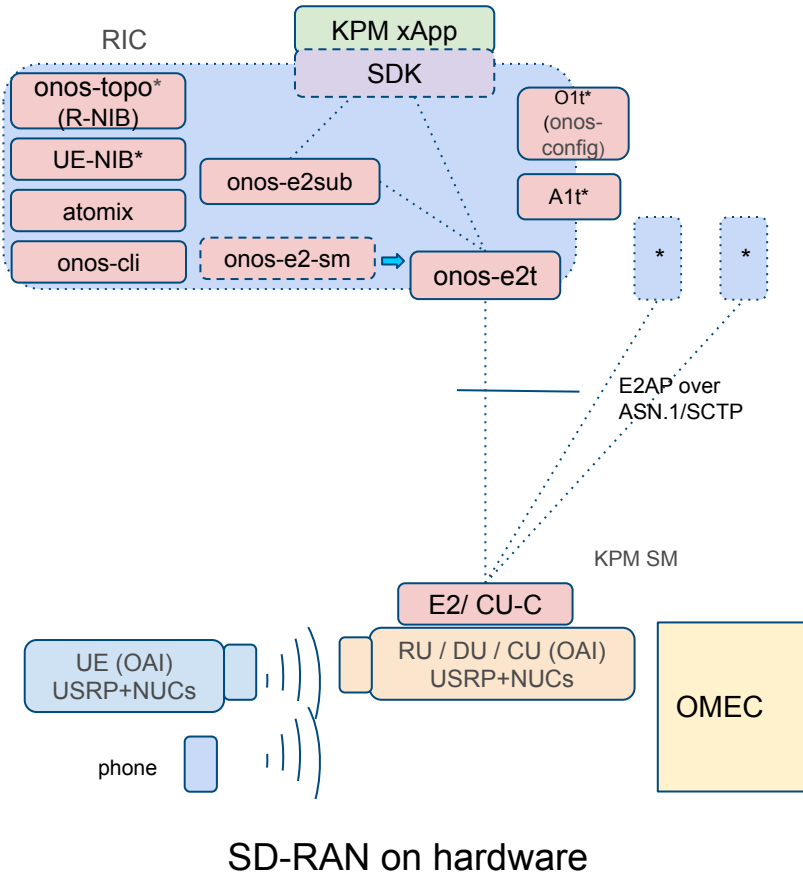
xApp SDKs



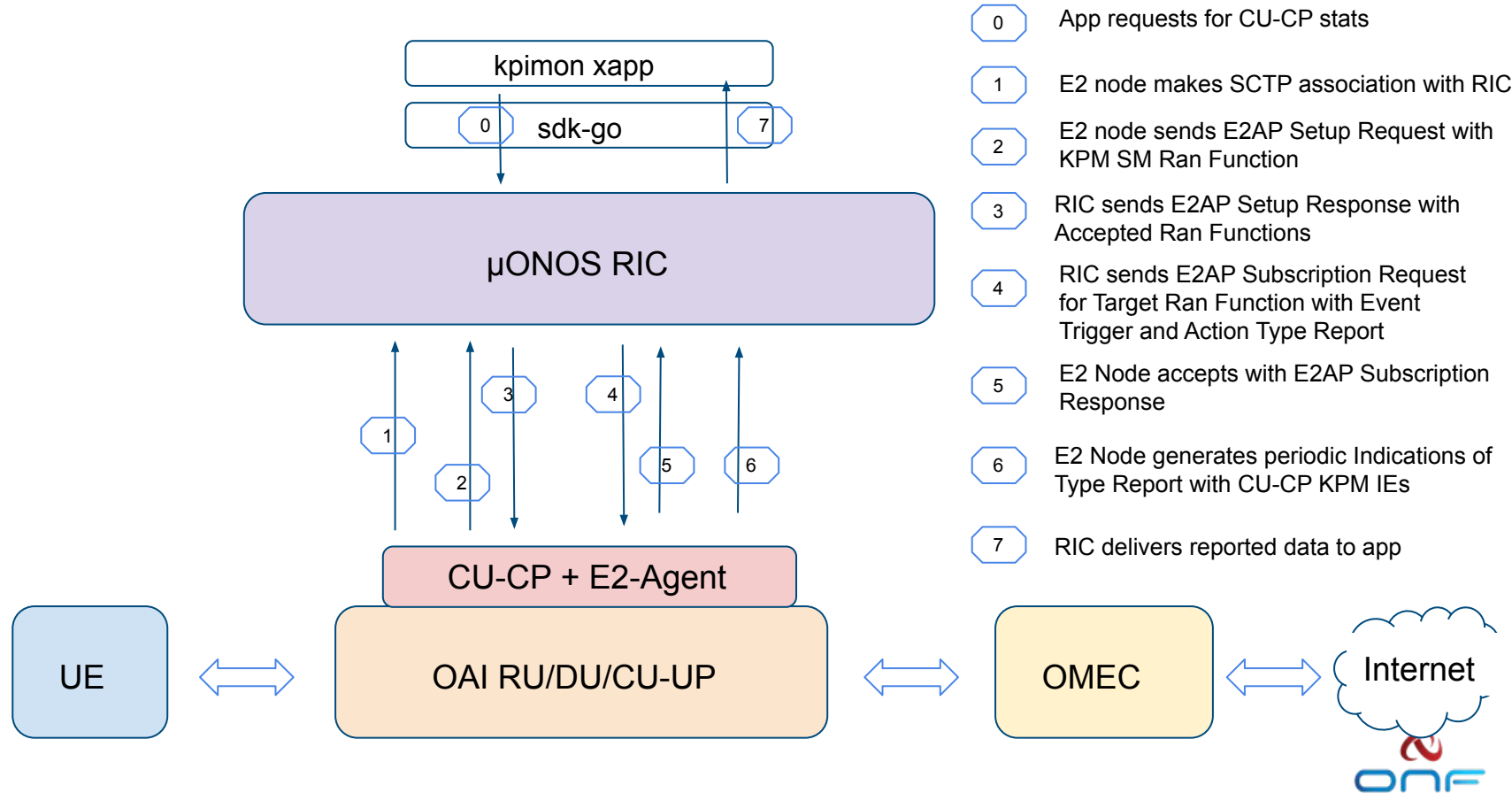
SD-RAN Solution



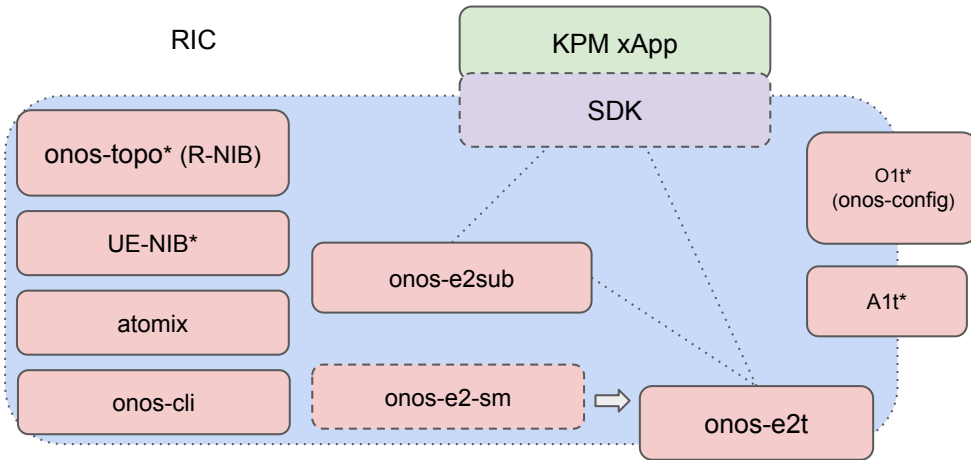
SD-RAN v1.0



SD-RAN v1.0 Components & Operation



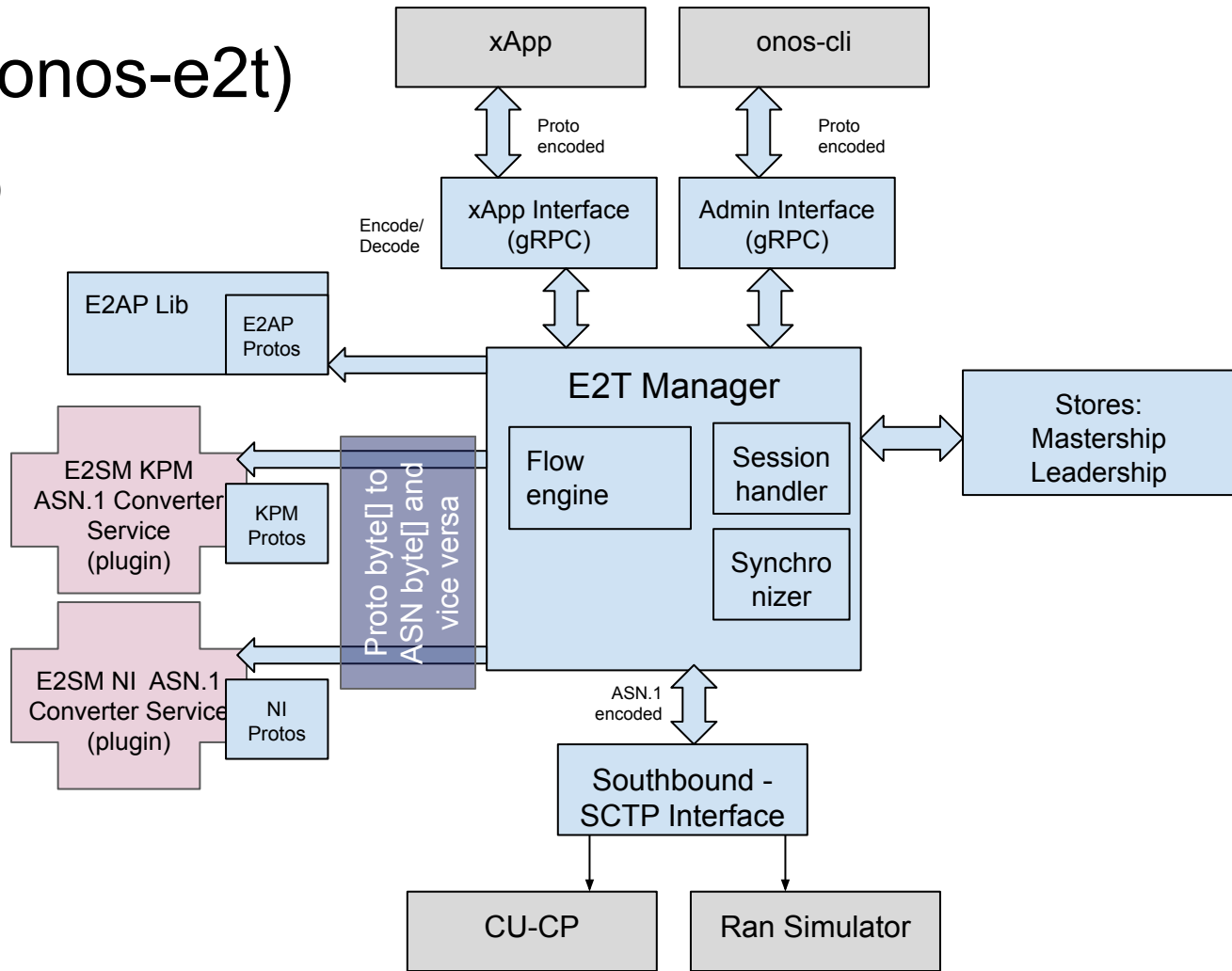
SD-RAN Component: nRT-RIC ← μONOS



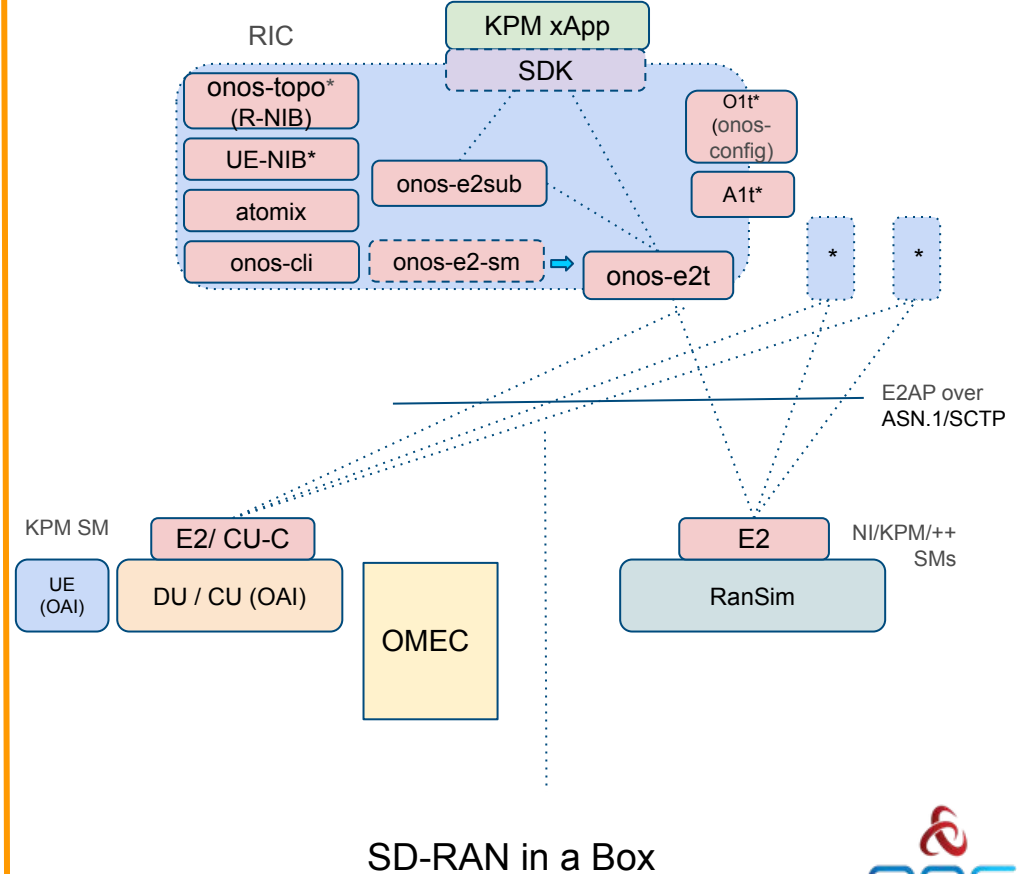
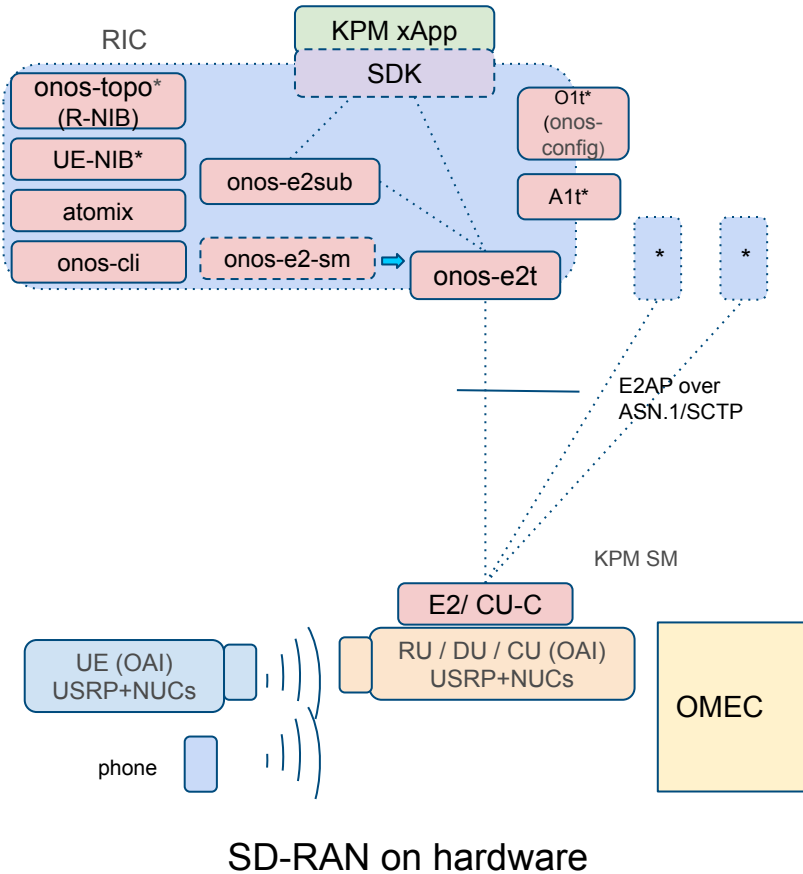
- xApps use SDK to connect - via gRPC - to various RIC platform services in order to:
 - Learn RAN topology of E2 nodes, etc.
 - Subscribe to telemetry from E2 nodes
 - Send control messages to E2 nodes
 - Accept configuration via O1 termination
 - Accept policies via A1 termination
- E2Ts manage connections to E2 nodes:
 - Handle E2AP handshake
 - Transcode ASN.1 <> Protobuf
- Subscription service tracks:
 - Subscription requests
 - Available E2T nodes

E2 Termination (onos-e2t)

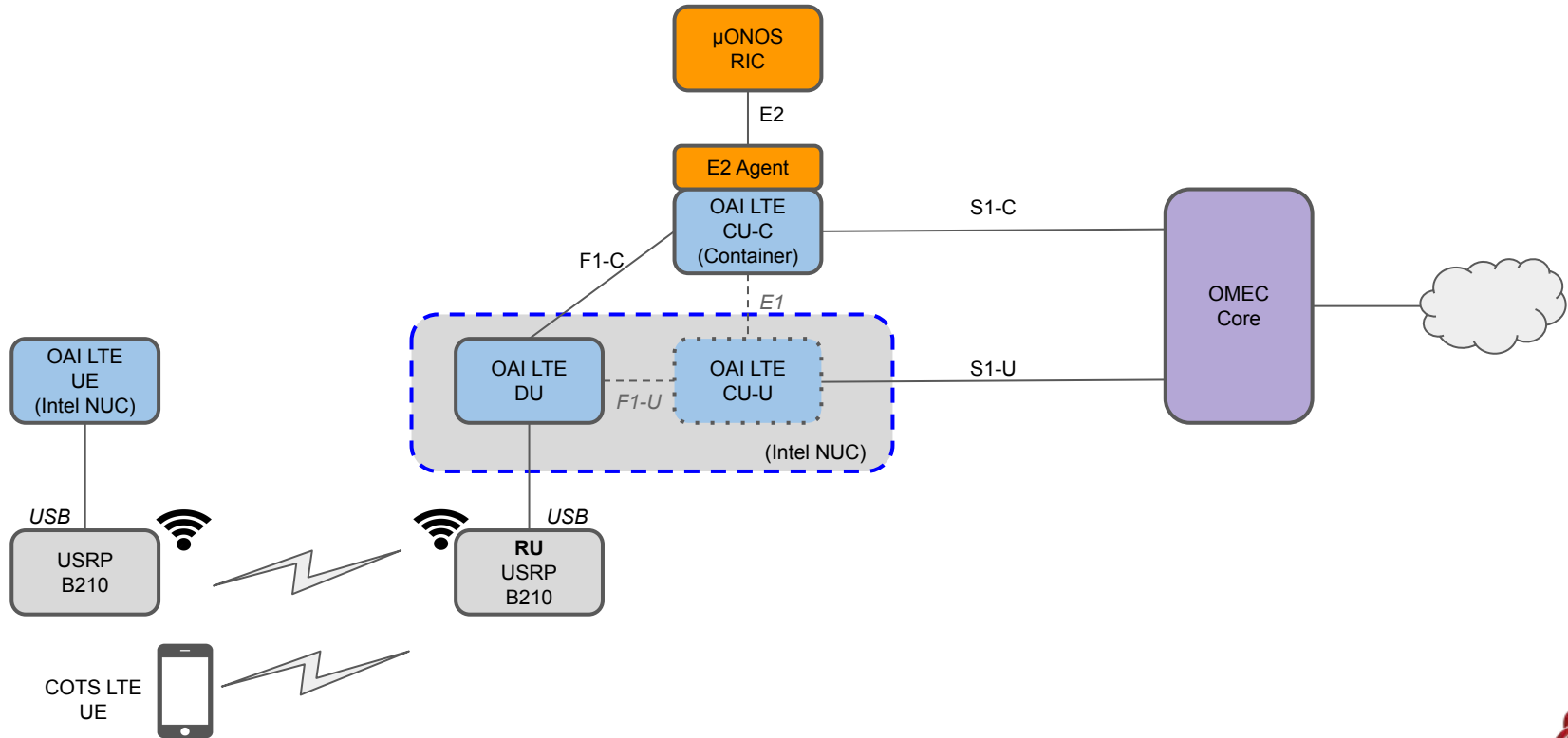
- E2 Access Protocol (E2AP)
 - Handled by Manager
 - ASN.1 driven object model
- E2 Service Models
 - Handled by plugins
 - ASN1 converted to Protobuf for xApp
 - Loaded in to same process
 - Common interface



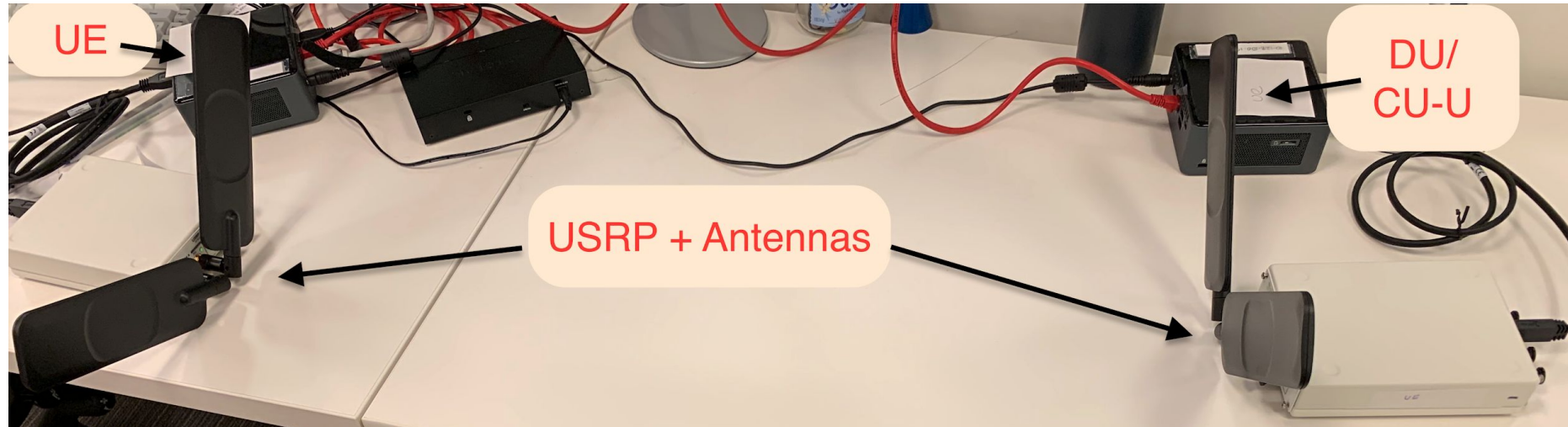
SD-RAN v1.0



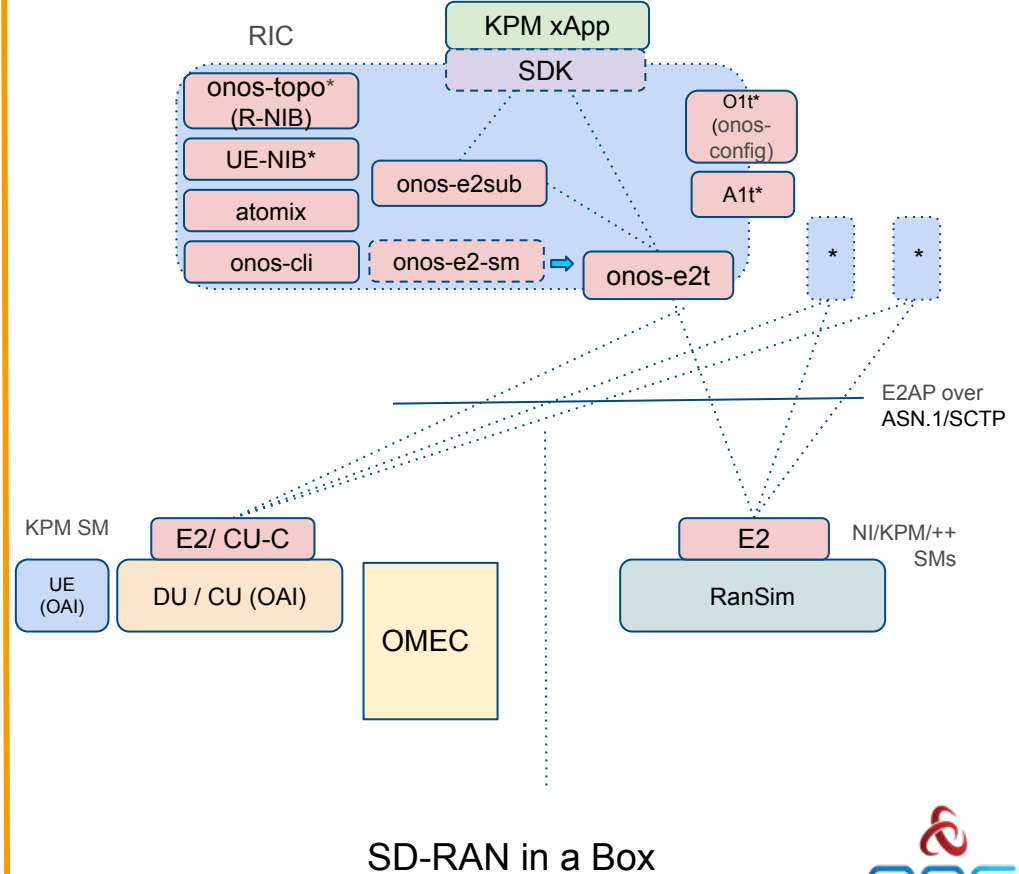
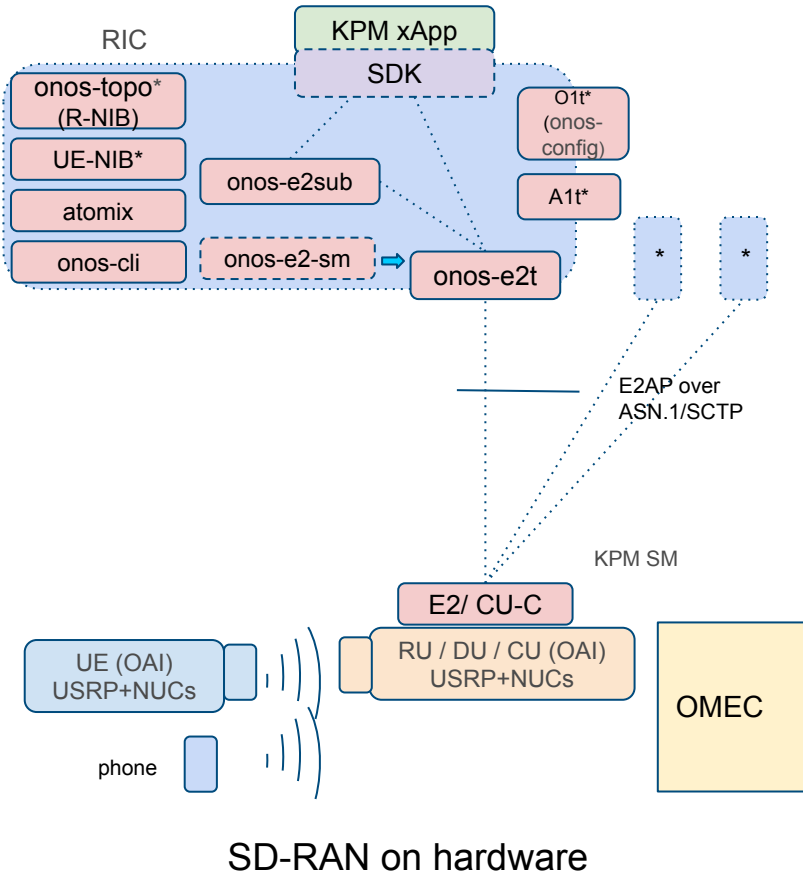
SD-RAN Component: CU/DU/RU & UE



Hardware Setup

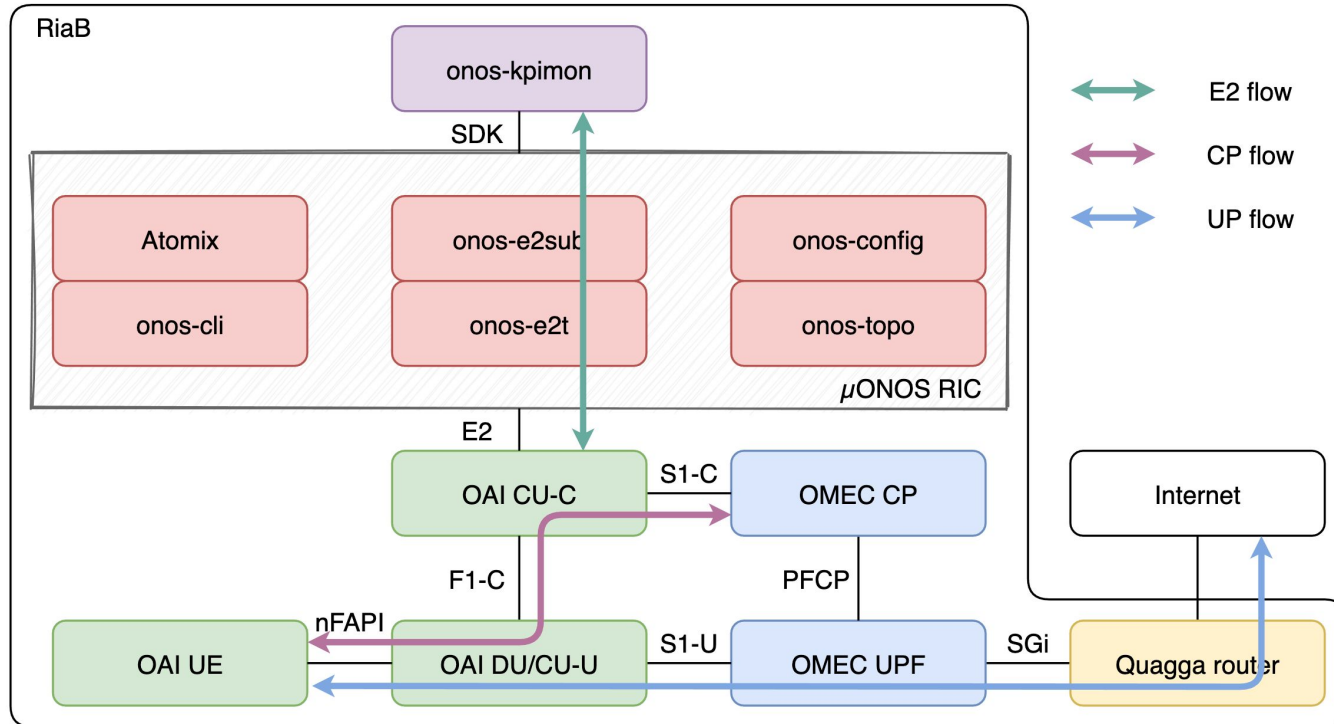


SD-RAN v1.0



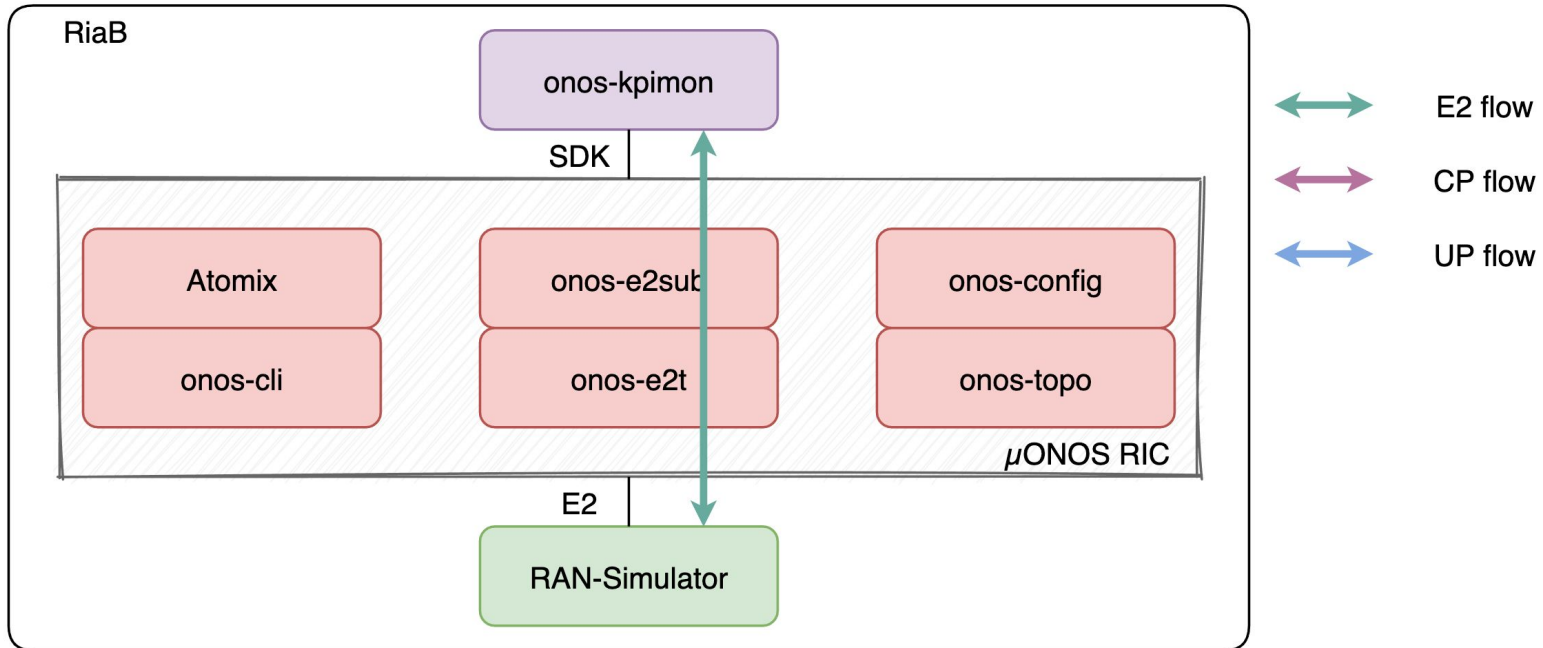
SD-RAN Dev/Test: sdRan-in-a-Box (RiaB)

OAI version

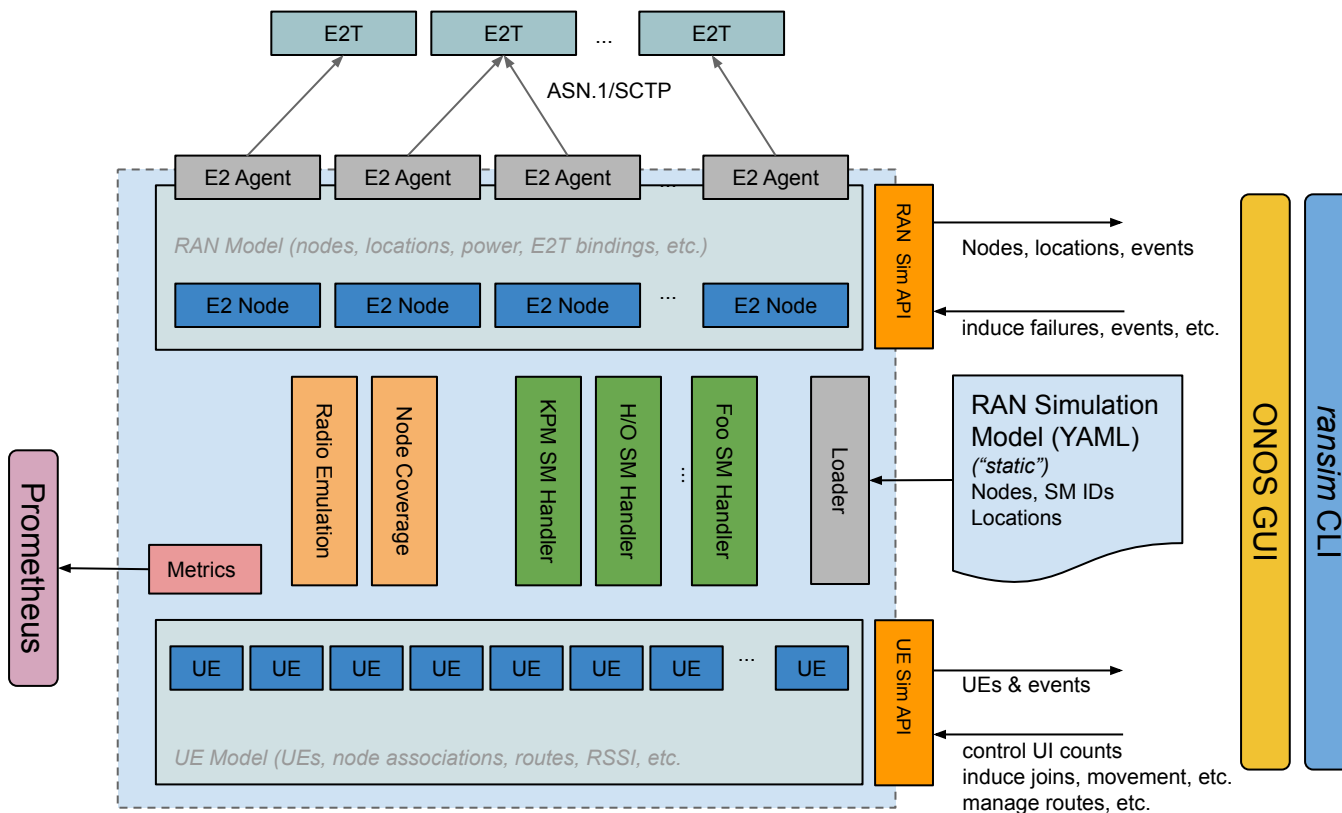


SD-RAN Dev/Test: sdRan-in-a-Box (RiaB)

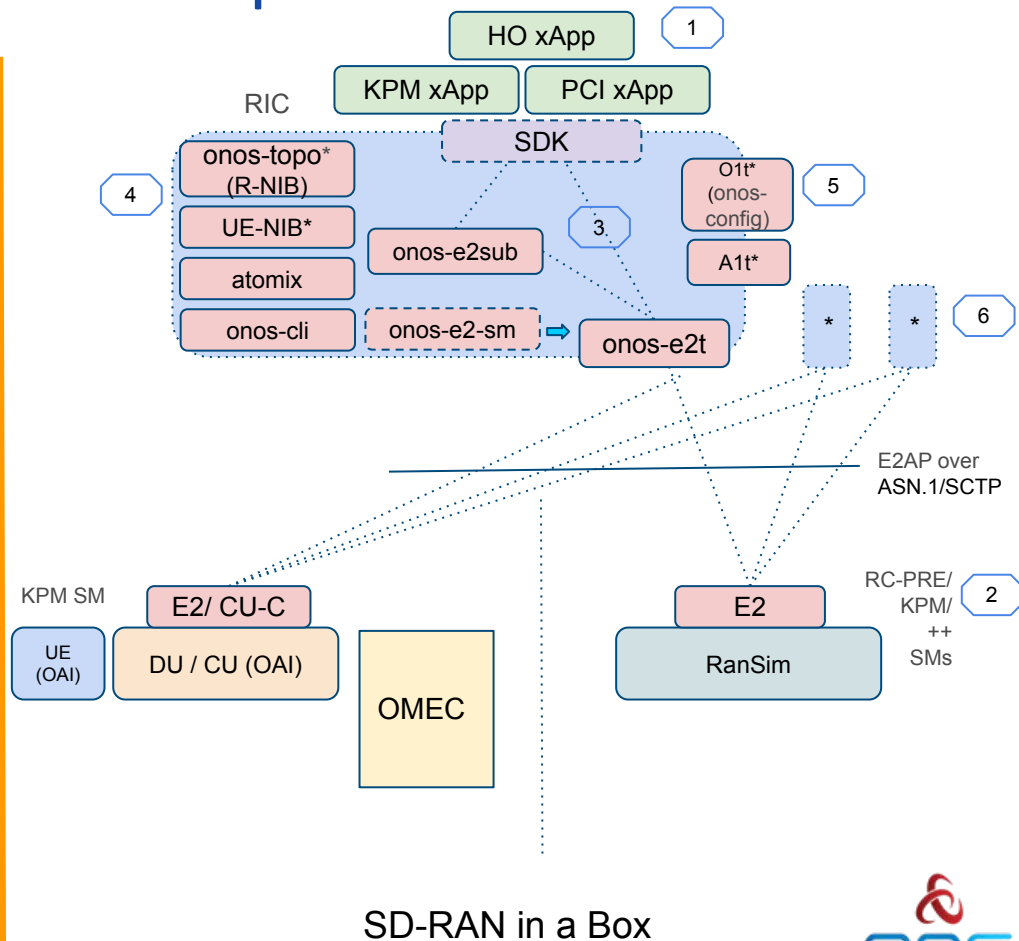
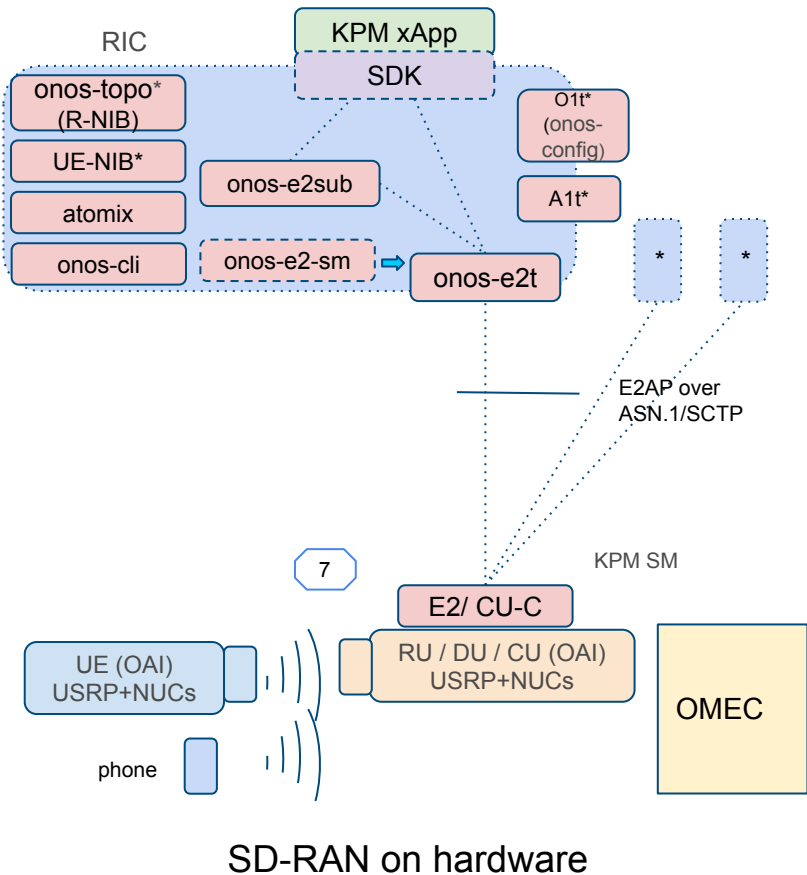
RANSim version



Revised RAN Simulator Architecture



SD-RAN Roadmap





Thank You

<https://opennetworking.org/sd-ran/>