

Proof of Concept- 5G Berlin Test Network

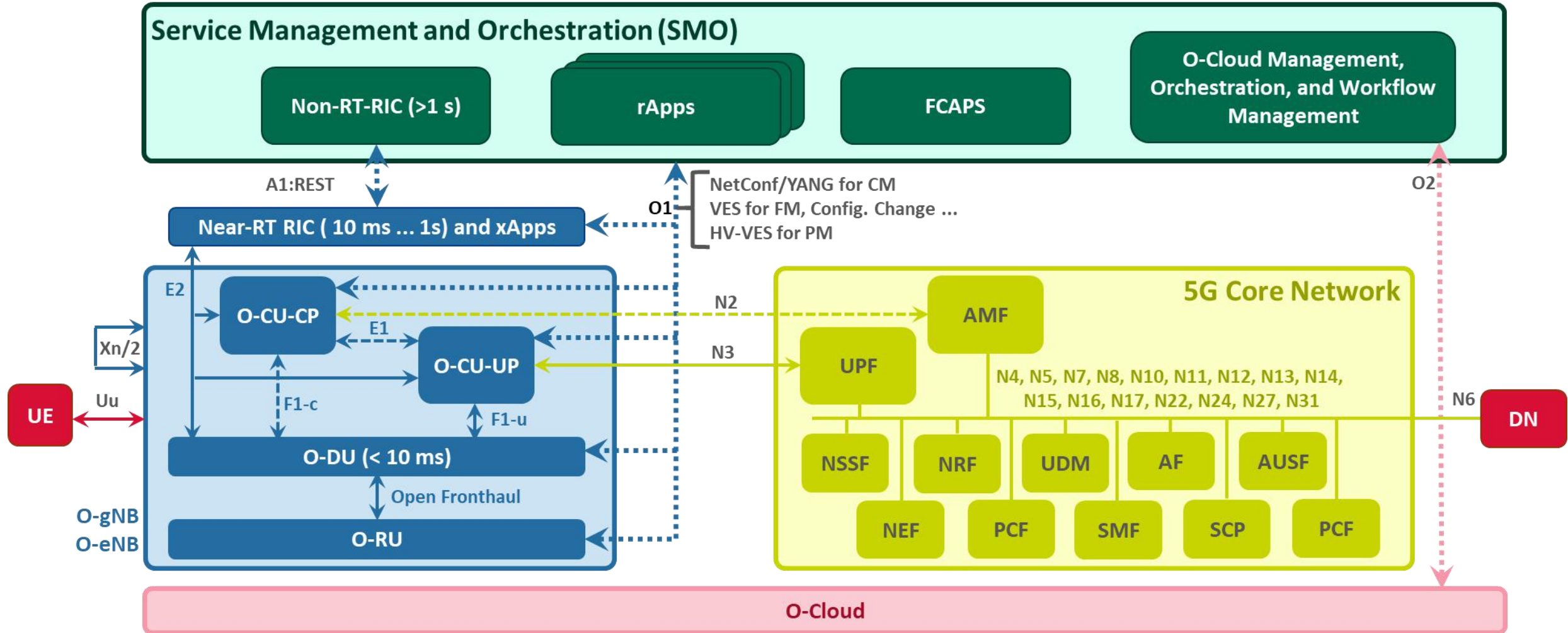
OSNL – The Open SDN & NFV Lab

June 2021



- Open RAN - Architectural Overview
- ONAP - Architectural Overview
- 5G Berlin Test Network
- From a Build-a-thon's perspective
 - NTS Simulators (Input)
 - Acumos (ML/AI Model Marketplace)
 - DCAE MOD (ML/AI Model Onboarding into ONAP)
 - DCAE Inventory (ML/AI Model Deployment as an ONAP microservice)

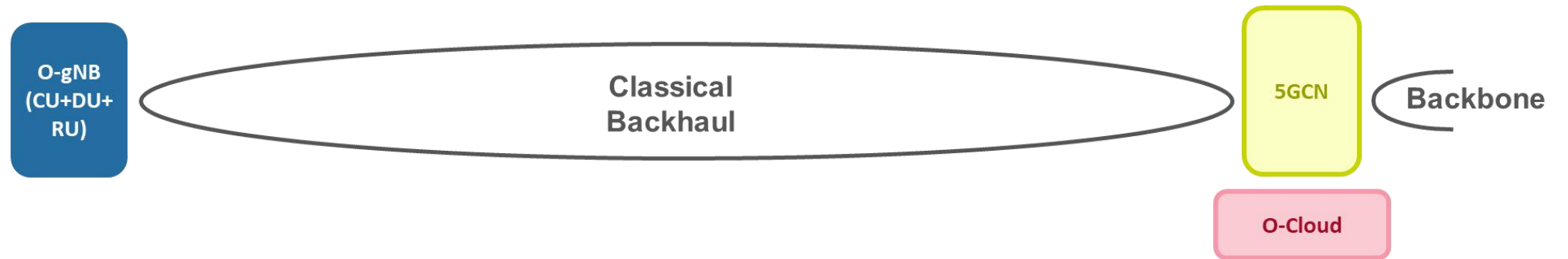
The O-RAN Alliance's Open RAN Architecture [1]



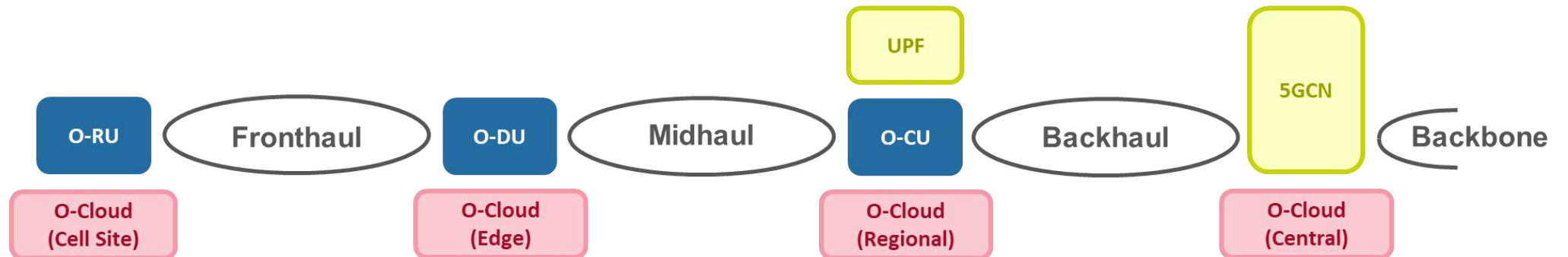
O-RAN xHaul Topologies



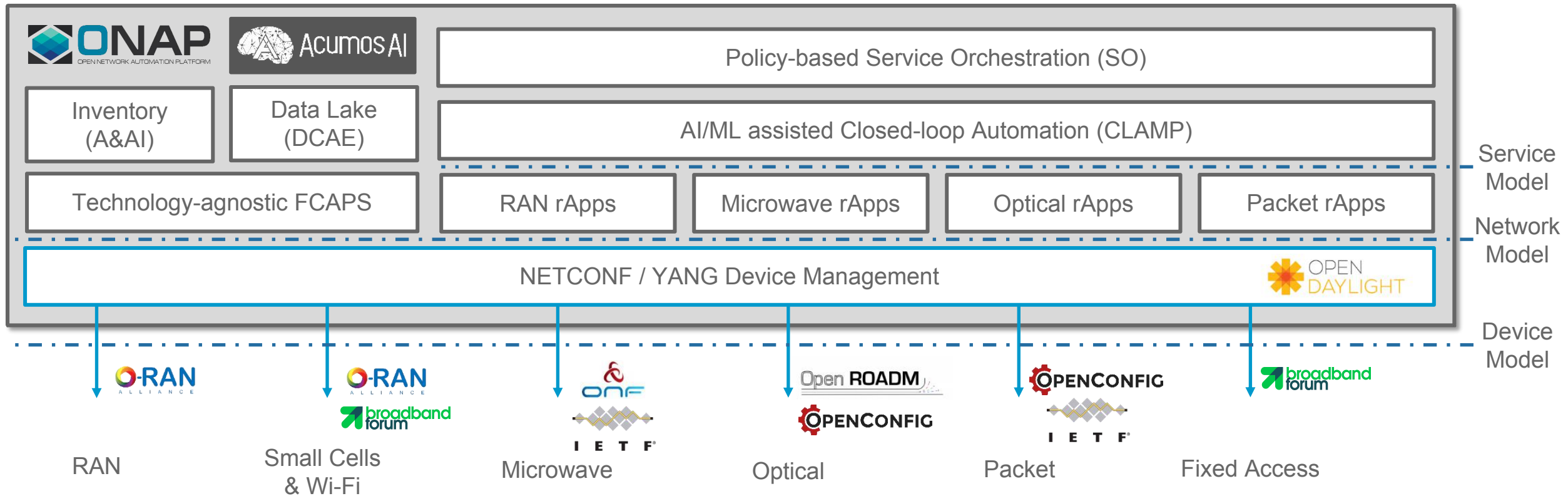
Classic Model



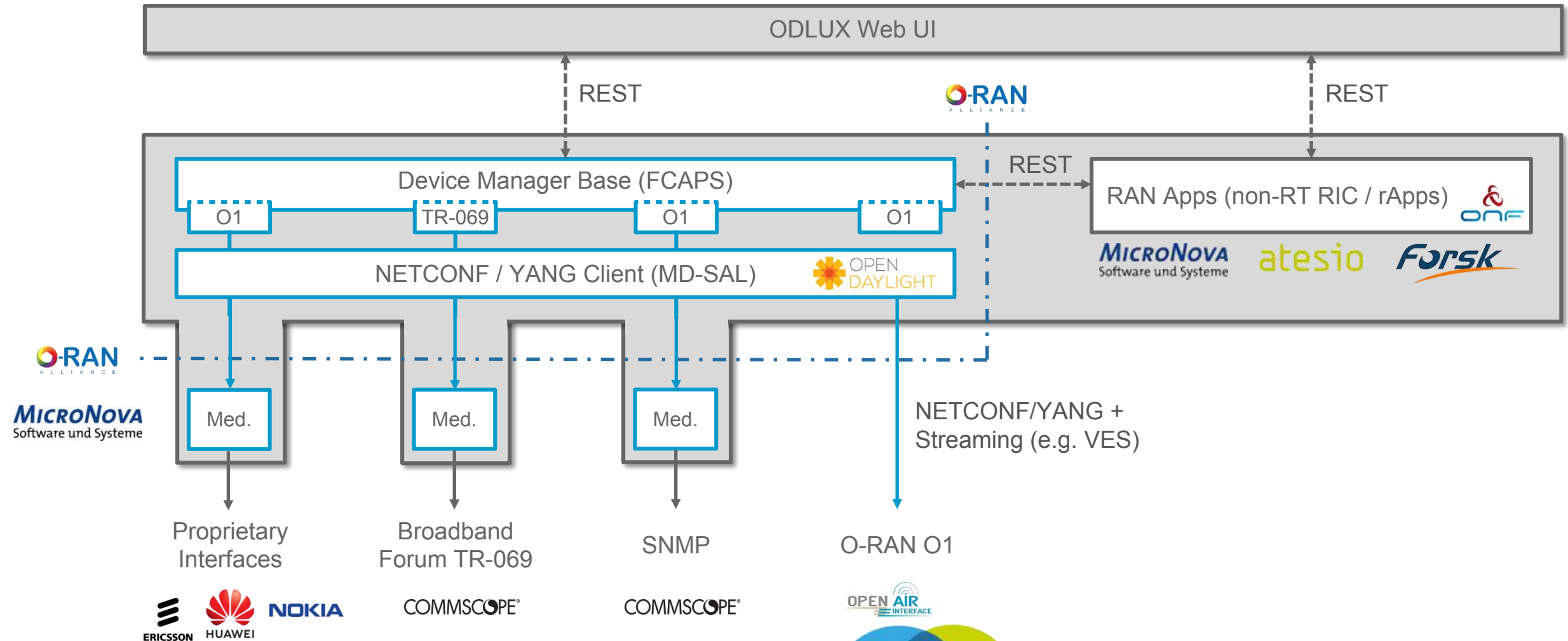
O-RAN Model



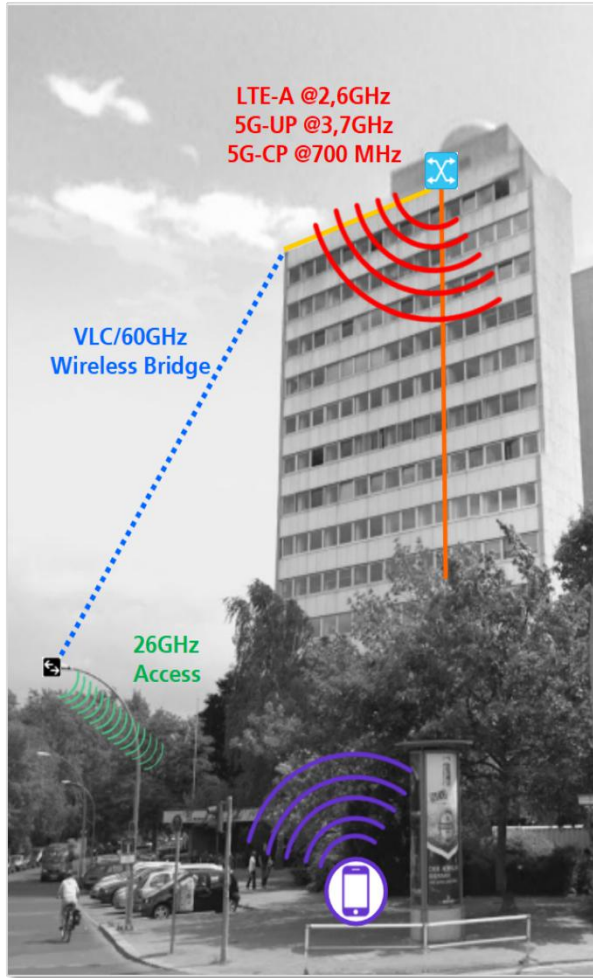
ONAP – Open Network Automation Platform [2]



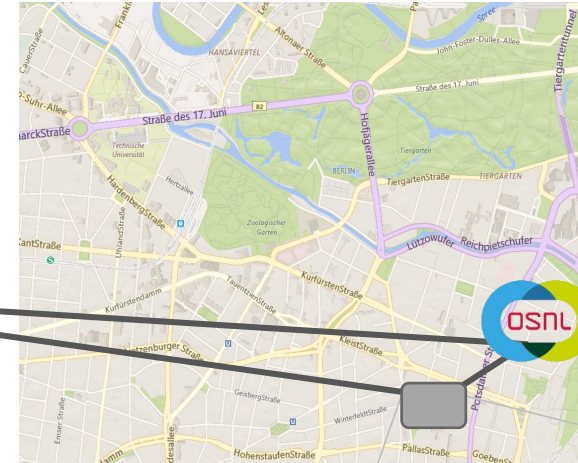
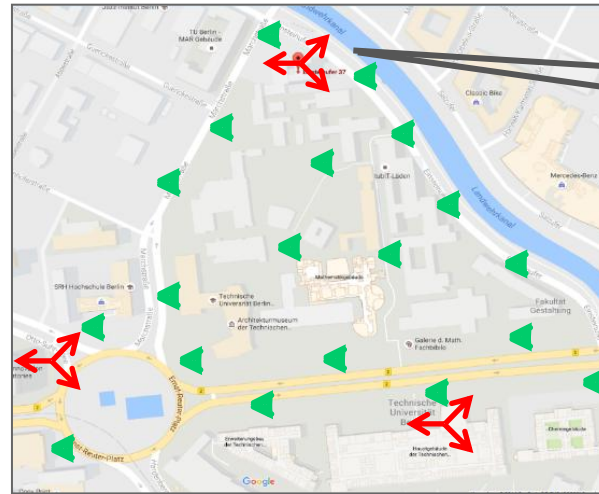
ONAP Integration - RAN Devices



An Open RAN Cluster in the Centre of Berlin



5G BERLIN



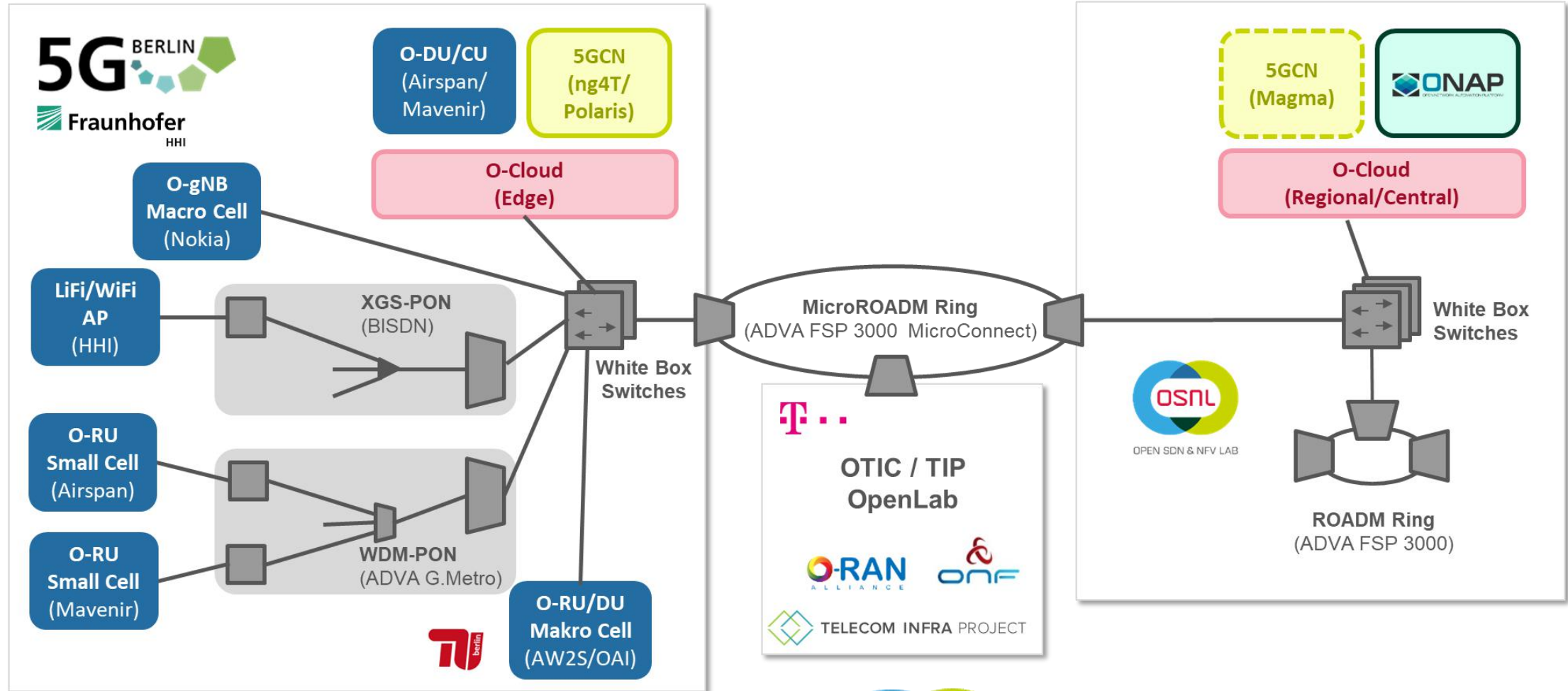
O-RAN
ALLIANCE



TELECOM INFRA PROJECT



An Open RAN Cluster in the Centre of Berlin



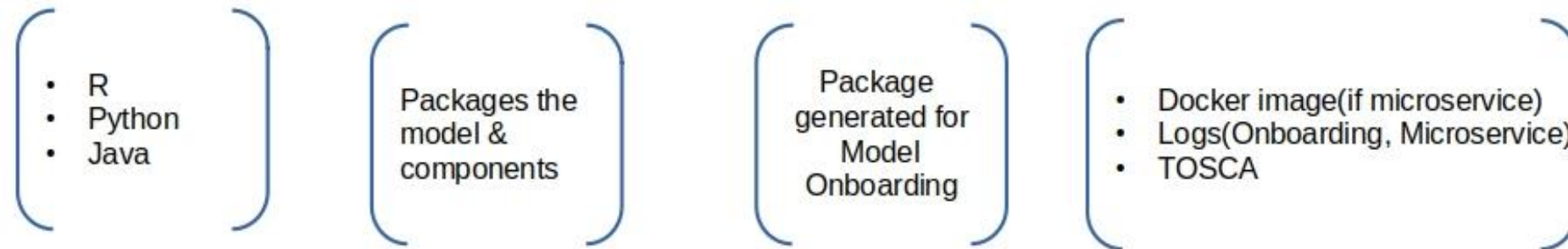
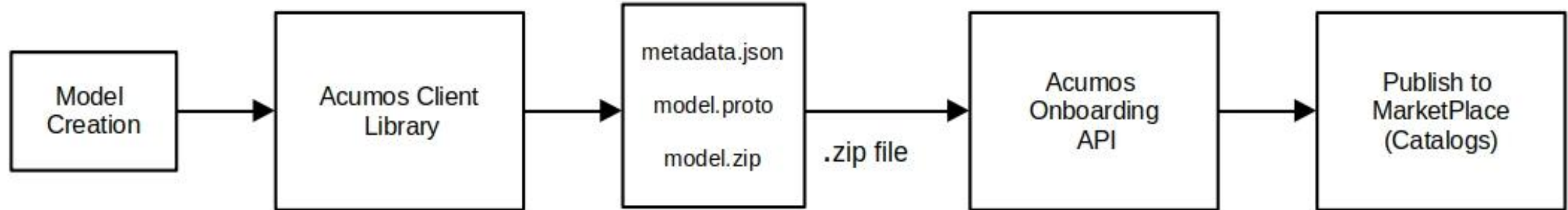
From a Build-a-thon's perspective



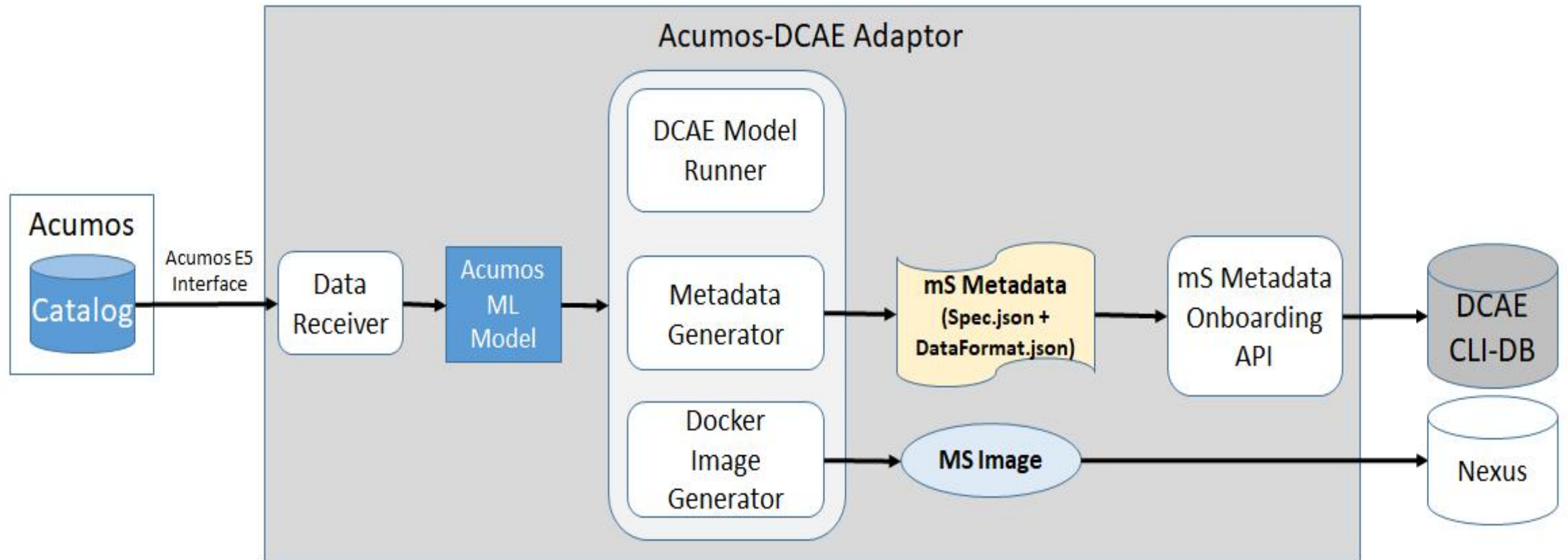
- The Network Topology Simulator is a framework that simulates devices that expose a management interface through a NETCONF/YANG interface.
- The NTS framework is based on several open-source projects such as
 - cJSON
 - libcurl
 - libyang
 - sysrepo
 - libnetconf2
 - Netopeer2
- Any YANG models can be loaded by the framework to be exposed, for example, OpenConfig, OpenRoadm
- Random data is generated based on the specific models, however, they can be loaded with user-defined data as well.
- Each simulated device is represented as a docker container, where the NETCONF Server is running.
- Can be used for test implementation, enhancements and performance of ONAP components such as the SDNC.



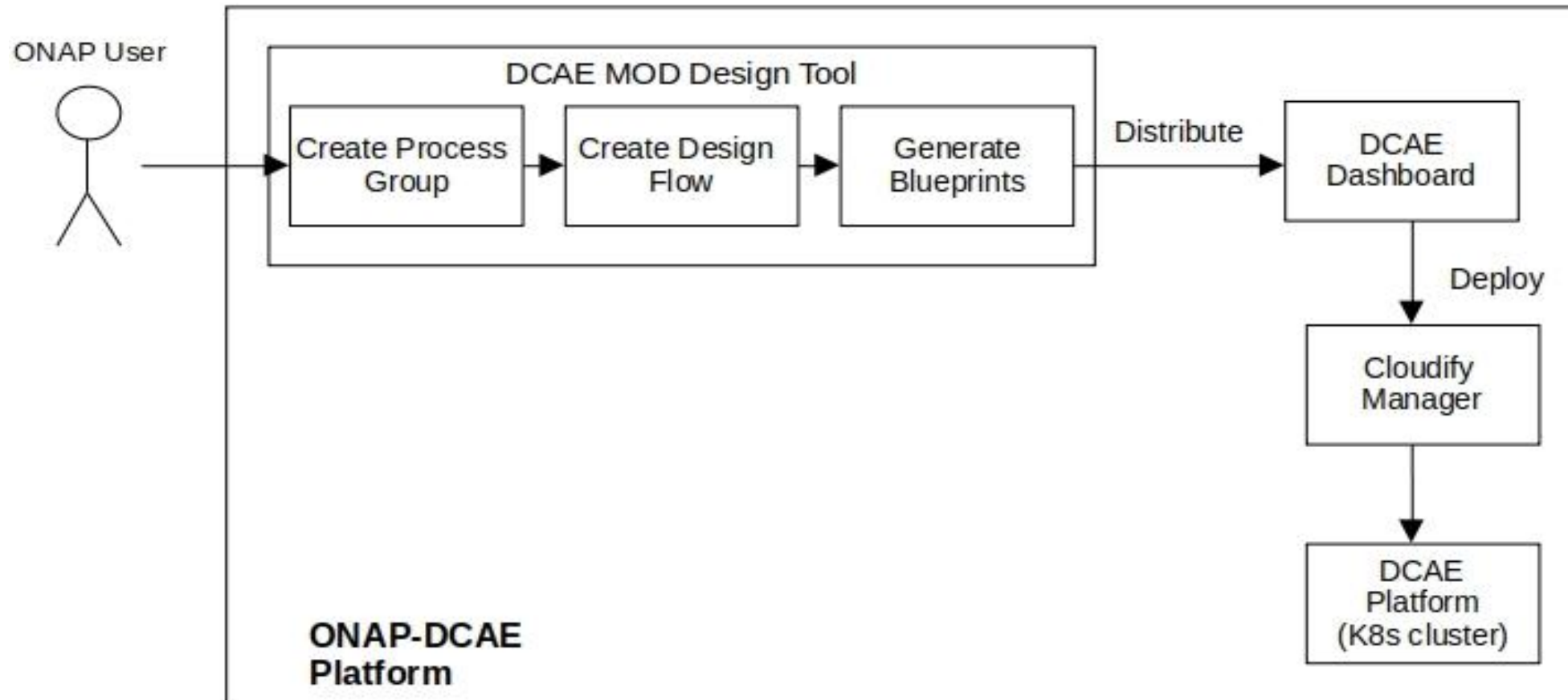
Acumos Model Onboarding & Publishing



DCAE Model Onboarding from Acumos



DCAE Model Deployment as ONAP Microservice



1. ORAN Alliance White Paper - O-RAN Use Cases and Deployment Scenarios, url: <https://static1.squarespace.com/static/5ad774cce74940d7115044b0/t/5e95a0a306c6ab2d1cbca4d3/1586864301196/O-RAN+Use+Cases+and+Deployment+Scenarios+Whitepaper+February+2020.pdf>
2. ONAP Wiki - <https://wiki.onap.org/>
3. 5G Berlin- <https://5g-berlin.de/en/fraunhofer-hhi-und-5g-berlin-nehmen-5g-testfeld-zurerprobung-neuer-5g-technologien-in-berlin-charlottenburg-in-betrieb/> NTS Simulator - <https://git-highstreet-technologies.com/highstreet/ntsim-ng>
4. OSNL- <https://www.osn-lab.com/>
5. Acumos Wiki - <https://docs.acumos.org/en/demeter/>
6. Acumos-DCAE Adapter - <https://wiki.onap.org/display/DW/Acumos+DCAE+Integration>
7. DCAE MOD User guide - <https://wiki.onap.org/display/DW/DCAE+MOD+User+Guide>
8. REST API Refs- <https://onap-doc.readthedocs.io/en/latest/guides/onap-developer/apiref/>
9. NTS Simulator - <https://git-highstreet-technologies.com/highstreet/ntsim-ng>



Thank you!



Q & A