O-RAN A1 Policies in ONAP Honolulu

Architecture for Honolulu Release:

blocked URL

Non-RT RIC components:

A1 Policy Management GUI / NONRTRIC Dashboard (*in O-RAN Source Community (OSC)*) (Wiki)

A1 Policy Management Service (*In ONAP CCSDK/SDNC*)

SDNC A1 Adapter (*In ONAP CCSDK/SDNC*)

Near-RT RIC / A1 Simulator (*in O-RAN Source Community (OSC)*) (Wiki)

The Gerri Repos for code: ONAP CCSSDK (O-RAN), with support functions available in OSC repos: OSC A1-Simulator & OSC NONRTRIC Control Panel

ONAP A1 Policy Management Service ("*Policy Agent*") (ONAP CCDSK)

The Policy Management Service is a micro service which maintains a transient repository of:

- All A1 policies instances in the network. Each policy is targeted to a Near-RT RIC instance and is owned by a 'service' (R-APP or the NONRTRIC Dashboard).
- All Near-RT RICs in the network. This information can be maintained using the ONAP CDS database (which is using the Cloudify Consul database) or using a plain text file.
- All Policy types supported by each Near-RT RIC

The service provides :

- Unified REST API for managing A1 Policies in all near-RT RICs.
- A DMAAP API for A1 Policy management.
- Synchronized view of A1 Policy instances for each R-APP
- Synchronized view of A1 Policy instances in each Near-RT RIC
- Synchronized view of A1 Policy types supported by each Near-RT RIC
- Lookup service to find the Near-RT RIC to control resources in the RAN as defined in O1 (e.g. which Near-RT RIC should be accessed to control a certain CU or DU, which in turn controls a certain cell).
- Monitors all Near-RT RICs and maintains data consistency – e.g. recovery from Near-RT RIC restarts
- Support for different Southbound APIs to the Near-RT RICs (different versions of the A1-P and other similar APIs).

HTTPS can be configured to use a supplied certificate/private key and to validate peers towards a list of trusted CAs/certs.
There is also support for tunneling HTTP/HTTPS through a HTTP Proxy.

ONAP A1 Adapter (part of ONAP CCSDK/SDNC):

Mediation point for A1 interface termination in SMO/Non-RT RIC

- Implemented as OSGI Feature/Bundles
- A1 Rest southbound
- NETCONF YANG Northbound
- RESTCONF > NETCONF adapter
- Mapping logic / Provider
- Can be included in an any SDNC/CCSDK persona

OSC A1 Policy Management GUI / NONRTRIC Dashboard

Graphical user interface. This tool is available in O-RAN SC and is not essential for the A1 Policies / Non-RT-RIC.

- View and Manage A1 policies in the RAN (Near-RT RICs)
- Interacts with the Policy Management Services's NBI (REST API)
- Graphical A1 policy creation/editing is model-driven, based on policy type's JSON schema
- Frontend: Angular framework
- Backend Java Springboot application

- Please refer [this](#) developer guide to set up in your local environment.

OSC Near-RT RIC Simulator / A1 Simulator:

A1 simulator used for testing purposes. This tool is available in O-RAN SC and is not essential for the A1 Policies / Non-RT-RIC.

- Used to create multiple stateful A1 providers (simulated Near-RT RICs)
- Implemented as a Java Springboot application
- Swagger-based northbound interface, so easy to change the A1 profile exposed