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Deutsche Telekom AG TNAP Portal

Portal Technology + Demo

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AGENDA

01 **Intro**
Why we do what we do?
Who we are?

02 **Portal Development**
How do we do it?

03 **Demo**
Where are we right now?

04 **Issues**
How to cope?

05 **Outlook**
What is planned next?

01 Intro - Why we do what we do

The conditions for our work are:

- Deutsche Telekom (DT) is trialing ONAP and ORAN
- The first real world use case for the ONAP platform is managing the Open Radio Access Network (O-RAN).
- ONAP already features various web applications.

In this context the goal is to:

- fill gaps in the User Experience and functionality provided by standard ONAP components
- provide a twist towards radio engineering so that DT radio staff recognize their RAN domain, and we satisfy their requirements
- still remain generic to cater for new use cases while adapting the experience to the RAN domain

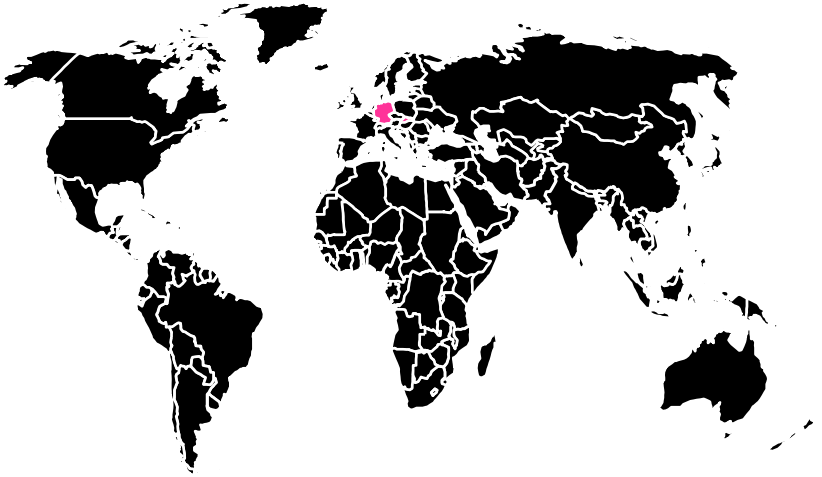
01 Intro - Who is we?

DT Portal team is one scrum team

inside the TNAP project

As of today:

- developers
- test automation engineers



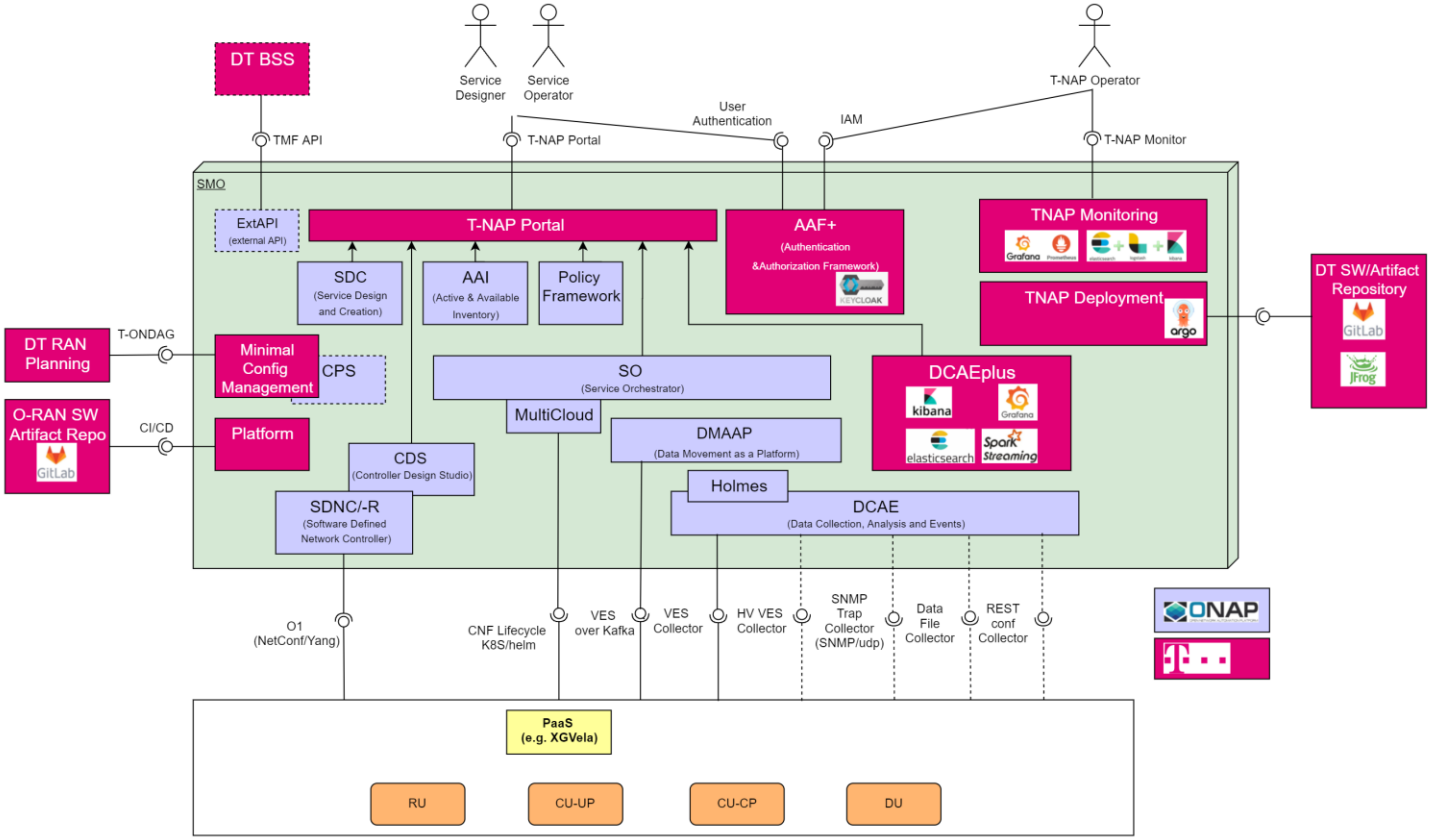
Slovakia: Kosice

Germany: Münster, Bonn

02 Portal Development – T-NAP architecture

Portal Focus:

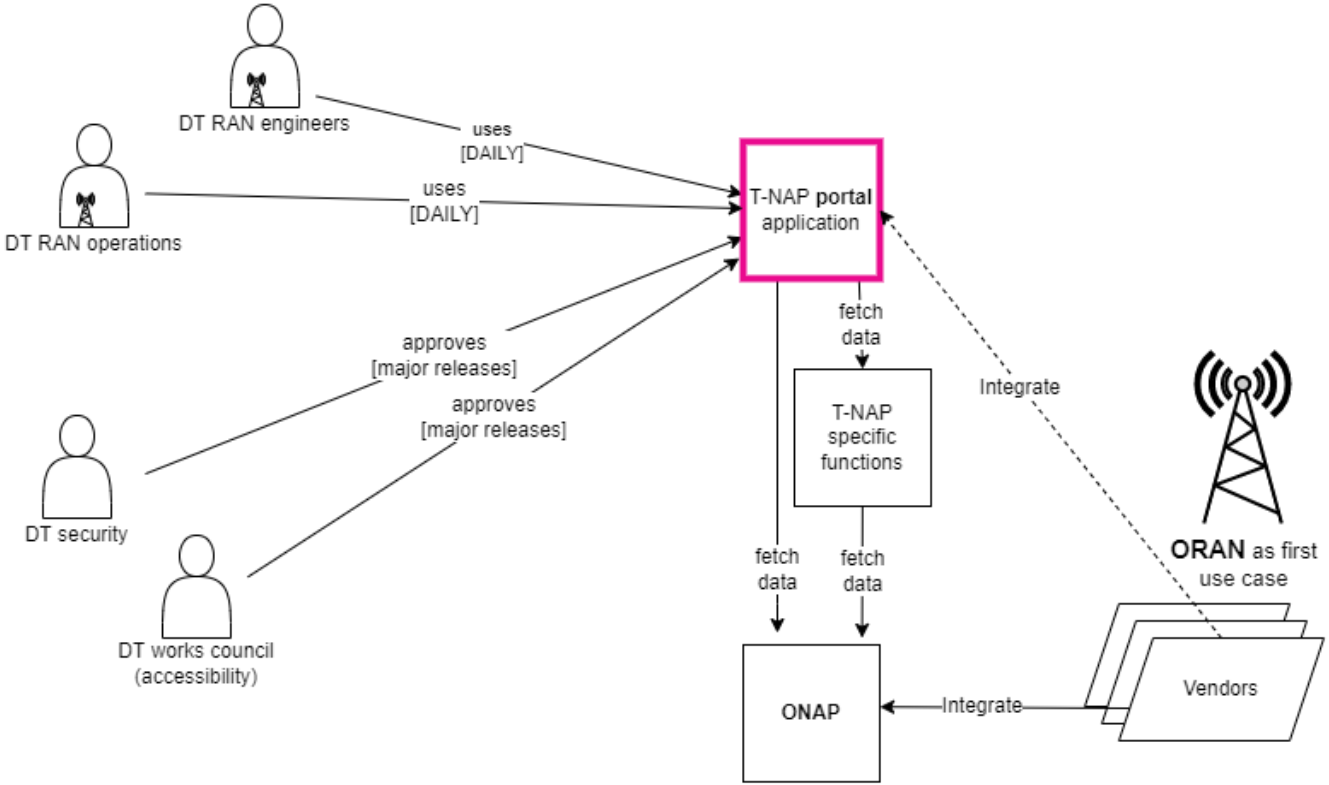
- **Role Based Access**
- **UI Application launch**
  (ONAP + TNAP)
- **Service Instantiation**
  (VID replacement)
- **Service Inventory**
  (AAI topology view)
- **Service Monitoring**
  (DCAE+)
- **Business Mgmt UI (planned)**
  (Customer, LoB, Project…)
- **Service Infra UI (planned)**
  (ESR UI replacement)
- **Usecase specific UIs**



02 Portal Development - Context

Portal is:

- Accessible
- Secure
- Manage ORAN as first use case
- Leveraging ORAN promise to onboard several vendors



02 Portal Development – High Level Concepts

Layered architecture

Frontend

- ✓ Developed using Angular
- ✓ Provides Single Page Application
- ✓ Communicates with Backend via REST requests

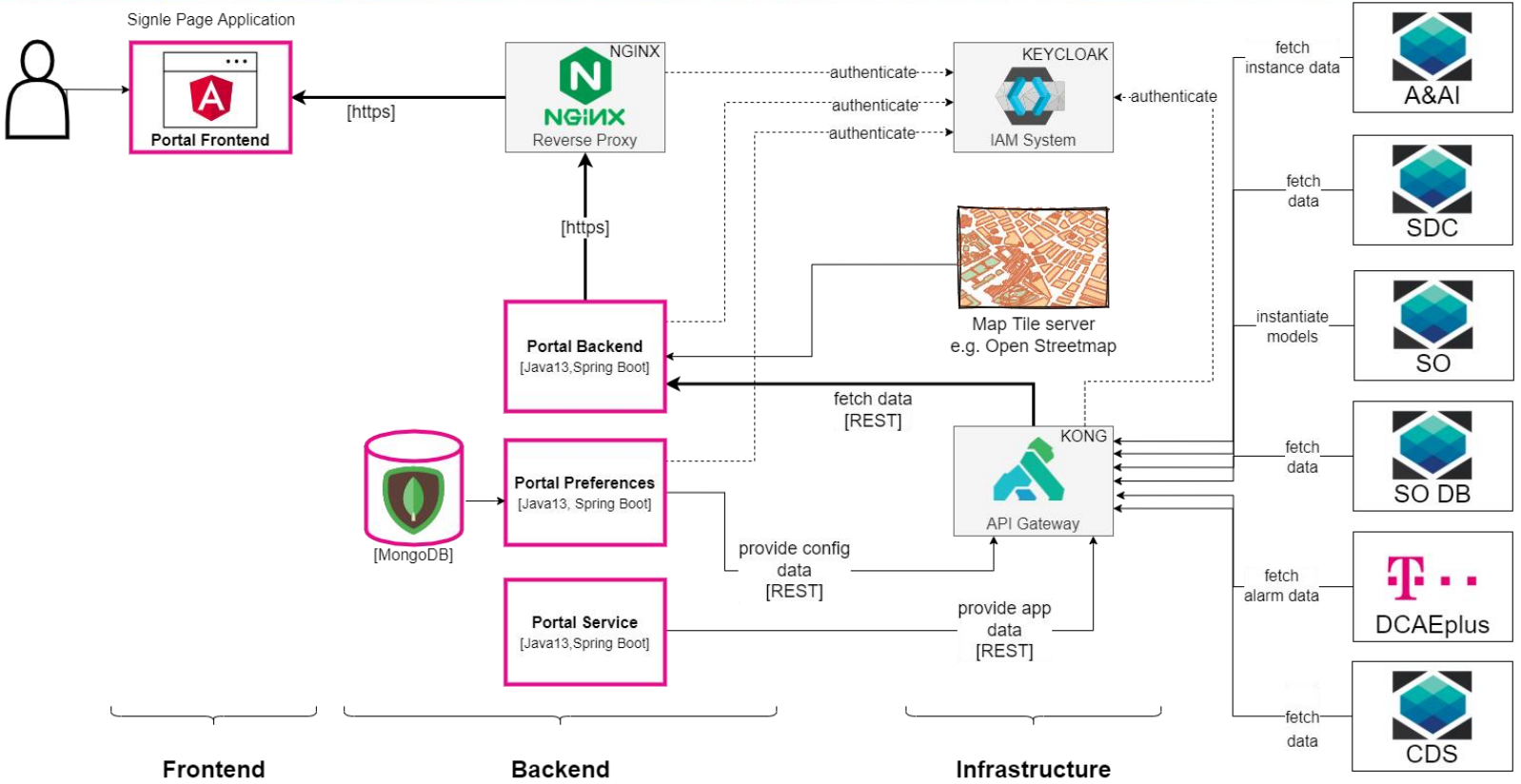
Backend

- ✓ Developed using Java 11 + Spring Boot
- ✓ Microservice based
- ✓ Reduces complexity of southbound APIs for Frontend

Southbound

- ✓ ONAP services: SDC, A&AI, …
- ✓ Infrastructure services: API Gateway, Authentication, Maps

02 Portal Development – Detailed View



02 Portal Development - How we work!

Code Quality and Code Security

Mocking APIs with WireMock - http://wiremock.org/)

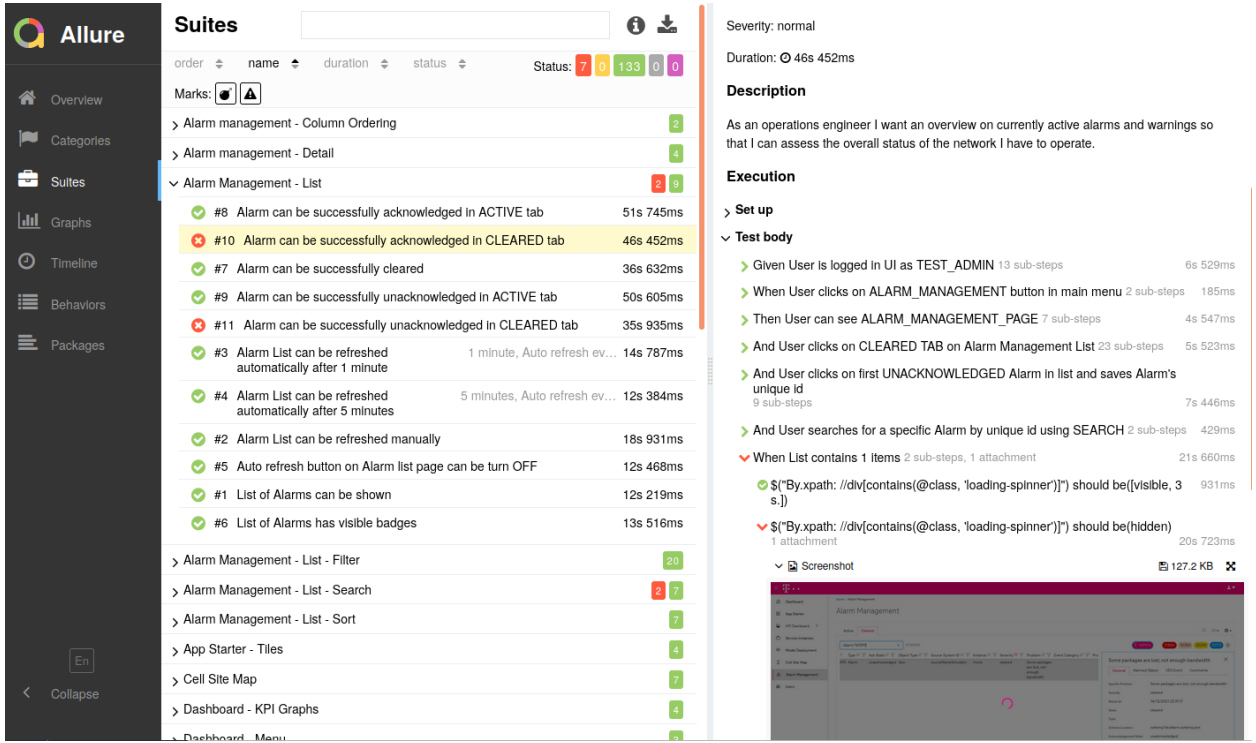
Generate clients, servers, and documentation from OpenAPI documents - https://openapi-generator.tech

End to End test with: Allure- http://allure.qatools.ru/)
Serenity https://serenity-bdd.info/what-is-serenity/

02 Portal Development – Automatic Testing

End to End testing

Is achieved with a combination of serenity and Allure



03 Demo – The Real Thing

Functions shown in the demo

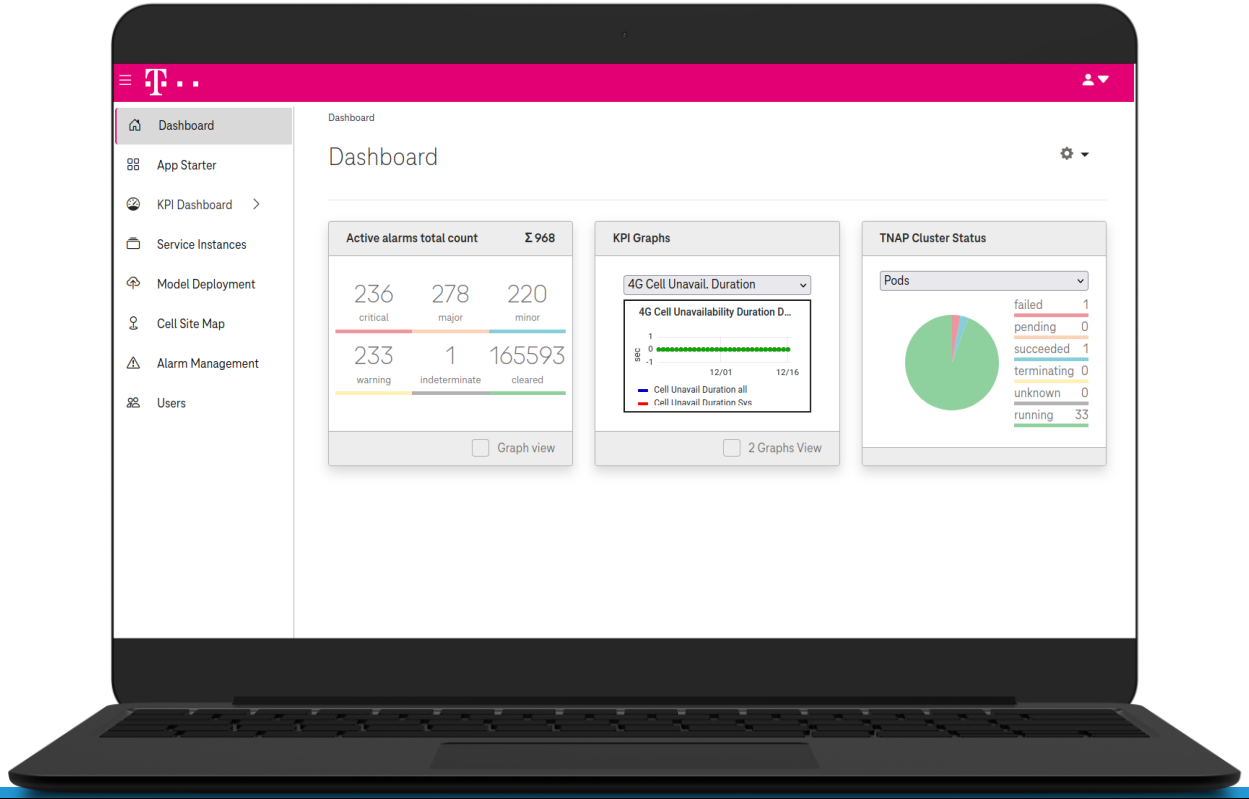
01 App Starter

02 Model Deployment

03 Instance View

04 Topology View

05 Alarm View



04 Issues

Size of ONAP deployment

- Parallel development with several teams requires multiple setups e.g. for independent automatic tests
- ONAP has extensive resource requirements and running several clusters is thereby expensive

Incomplete API descriptions

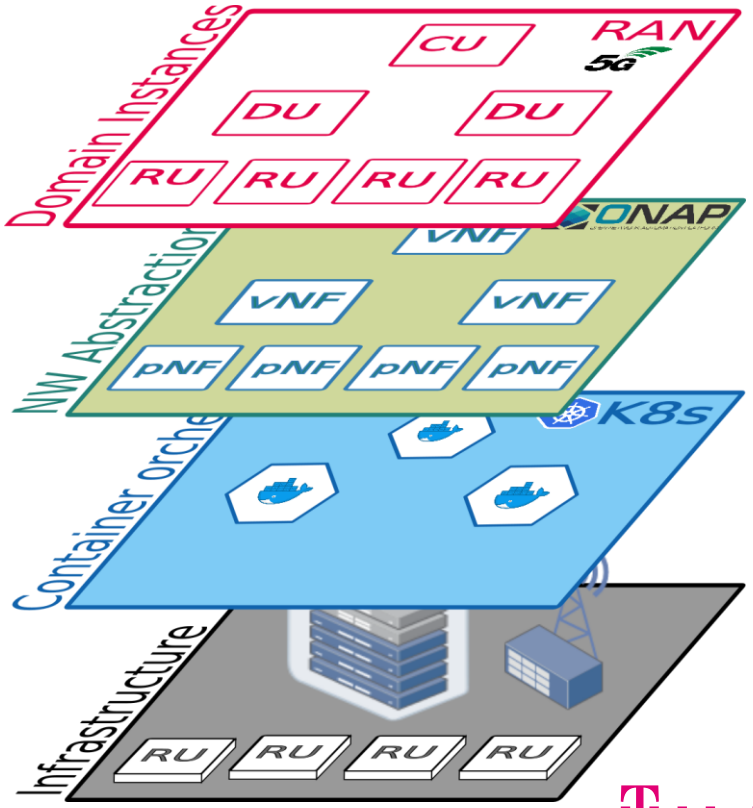
- APIs provided via „Open API File“ are partially not described, described wrong or even not existing
  - As one example, for SO we had to write/reverse enginner our own file to get instantiation working
  - Every cloud has a silver lining, the approach „Use the source Luke!“ was working for us.

04 Issues

Teach ONAP to NW operation or

customize ONAP to mimic domain of NW operation

- Development teams face the challenge of mastering: SW Domain + ONAP Domain + RAN Domain
- Users are experts in their domain but usually not in the ONAP domain



05 Outlook – What is planned next?

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“Just saying, just some keywords”

Specific for the portal:

- Day 2 Network Management e.g.:
  - Radio Site/Cell handling
  - RAN monitoring
  - RAN trouble shooting
- Use domain APIs that are built on top of NetConf
- Treeview for NW discovery
- Business context management (Customer, Project, LineOfBusiness,…)
- Service Infrastructure Management (Cloud region, ESR GUI replacement)

General:

- Midterm prepare for contribution of portal to ONAP
- ORAN a first domain handled as plug-in/module