Deutsche Telekom Deploys ONAP in O-RAN TOWN

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NETWORK DIFFERENTIATION – DEUTSCHE TELEKOM’S JOURNEY TO BECOME A SOFTWARE TELCO

DISAGGREGATION
to drive flexibility and scalability - and renewal of supply ecosystem

CLOUDIFICATION
NT and IT production in fully virtualized and eventually cloudified way

SOFTWARE DEFINED NETWORKS
across domains for quicker lifecycles and efficient ops

OPEN APIs
to optimize TCO, push innovation, enable global reach and direct network monetization

Mastering the network Automation is key to enable benefits of software-defined, cloudified, disaggregated networks
What is the best automation sourcing/production model?

As a leading Telco we want to be able to provide the best services for our customers.
Key Challenges in RAN

- Ecosystem challenge
- Deployment cost & flexibility
- Cumbersome & costly RAN swap
- Low flexibility limits innovative power
What do we expect from RAN Disaggregation/O-RAN

- Enrich the vendor landscape, avoid vendor lock-in effect
- Less complex and shorter RAN modernization
- New use cases via intelligence and programmability
- Lower TCO vs. S-RAN (to be proven)

1. O-RAN Open fronthaul adoption
2. SW/HW decoupling
3. Independent management framework (SMO)
Operating model: integration responsibility moves towards the operator

1. O-RAN Vendor/Supplier
   - RU vendor A, B, C, ...
   - vDU/vCU vendor A, B, C, ...
   - O-Cloud vendor A, B, C, ...
   - Server vendor A, B, C, ...
   - SW xyz vendor A, B, C, ...

2. Integration and Testing according to DT requirements
   - Illustrative
   - Demand
   - Delivery

3. NatCo specific deployment scenario/vendor combination
   - Illustrative
   - Demand
   - Delivery
DT SMO introduction strategy

01 Open Standards
O-RAN and 3GPP have defined (open) standards to manage cloud network functions in the radio access network.

02 Open interfaces / models
DTs network services will be based on aligned data models and interfaces to manage the upcoming complexity.

03 State of the art technology
The management of PNF, VNF and CNF functions requires a future proof architecture of network service management functions.

Goal
DT wants to leverage the benefits of an independent, integrative approach of the management of our future network functions.
T-NAP pilots the SMO concept for O-RAN Town.

Platform for Service Management and Orchestration (SMO)
- Integration with O-RAN cloud native functions (CNF)
- Integration with O-RAN compliant RUs as physical network functions (PNF)

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<th>Portal (User Interface)</th>
<th>APIs (northbound)</th>
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<td>Orchestrate</td>
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<td>Design Studio</td>
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<td>Control loops</td>
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<td>Data Messaging &amp; analytics</td>
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<td>Controllers (southbound)</td>
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**Functionalities for Lifecycle Management**
- Service Design 4G and 5G
- Day 0 and Day 1 Configuration of network elements
- KPI calculation and Performance measurement
- Alarm list and dashboard for fault management
- Basic policies for Network optimization
- Security and access management
O-RAN SMO architecture

Decentralized SMO Components

Central SMO services / Non realtime aspects

Transport

RH SW/GW
Transport

UE

eCPRI Open FH (C/U/S)

Network Controller

Near-RT RIC

Network Controller

O1

O2

E2

FH SW/GW
Transport

vO-DU

VIM + K8s

Radio site

vO-CU

VIM + K8s

Aggregation Site

vO-DU

Transport

vO-CU

Transport

4G

5G

VIM

INFRA (DC)

Backend DC
**Key take-aways**

**01**

**What is good**
- ONAP platform can be used in several different network domains / contexts
- Platform has matured over the releases
- Open Source is one means to lowering the implementation efforts

**02**

**What we’ve learned**
- Mastering the automation is key
- NT & IT skills need to be combined for proper network automation
- Agile development is an imperative
- Partnerships are helpful

**03**

**What we wish for**
- Richer eco-system (developers, startups, etc.)
- Plug & Play integration of network functions into the platform
- Truly cloud-native network functions

**Network Differentiation**
In a software-defined network a relevant part of the customer experience is defined on the automation layer
Questions & Answers