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Microwave Operations Automation using ONAP

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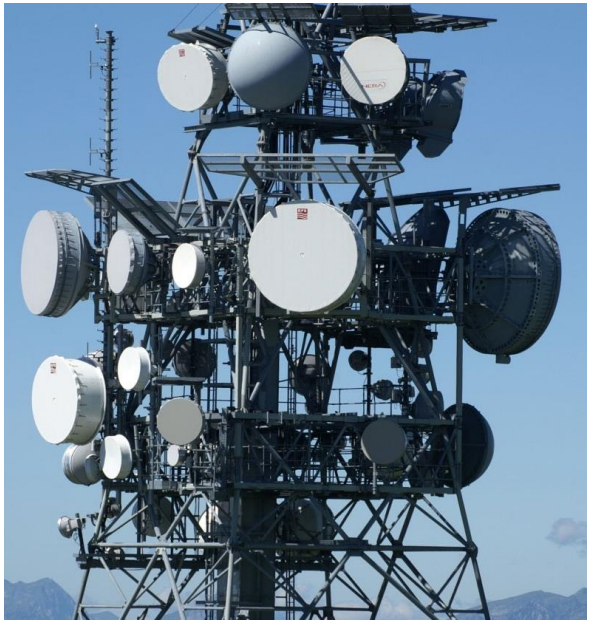
Agenda

- Context and automation approach
- Use case description
- Demonstration
- Conclusion and perspectives

Context

- Microwaves are L2/L3 transport equipment widely used in Mobile Backhaul and B2B connectivity networks.

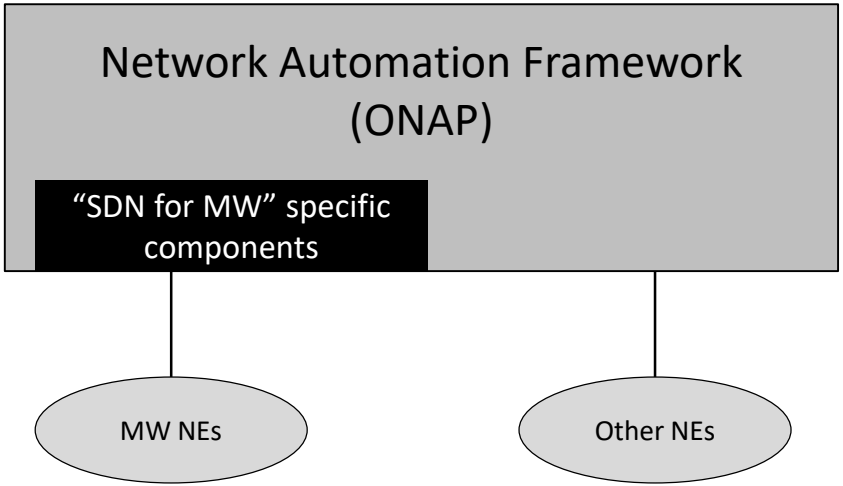
- Project carried out within the Microwave Skill Center, a team providing networking and radio expertise to the Orange Group affiliates.



Microwave Automation Approach

The target is to automate MW operations with a common automation platform

(targeting ONAP components) integrating MW specific software components.



Enablers:

- Equipment openness:

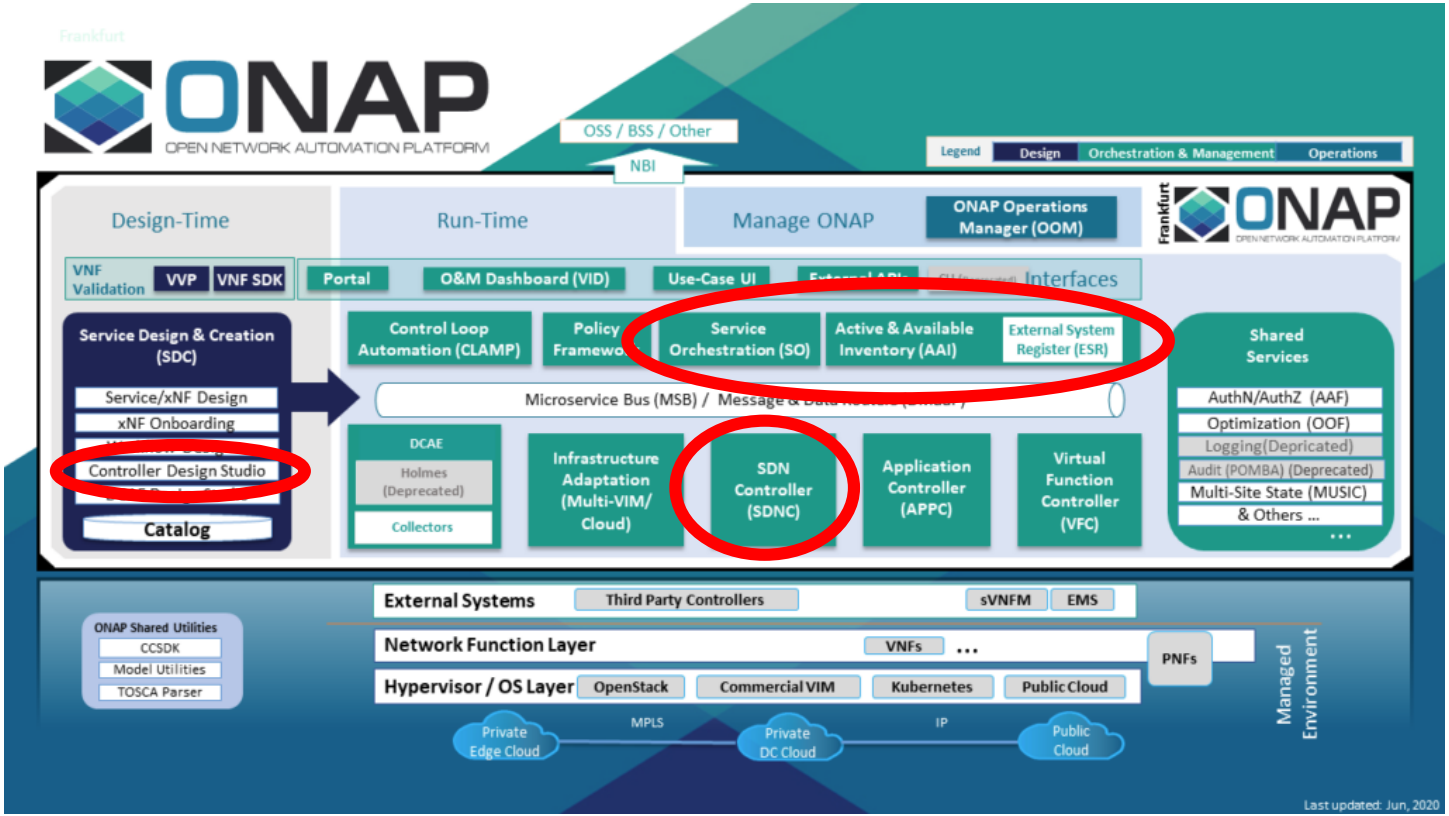
→ *Now: full access to SNMP.*

→ *Soon: NETCONF support with standard YANG models.*

- Leverage the current NMS when relevant:

→ *The NMS must provide a rich REST NBI.*

Relevant ONAP Components



Controller Design Studio

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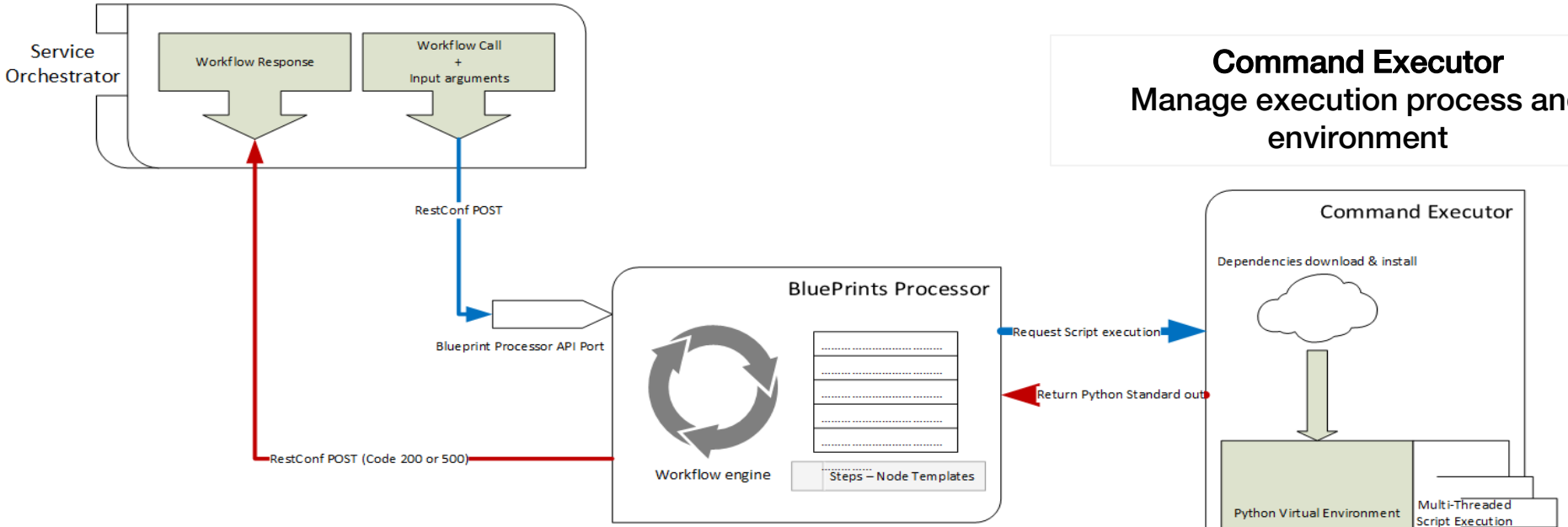


Command Executor
Manage execution process and environment

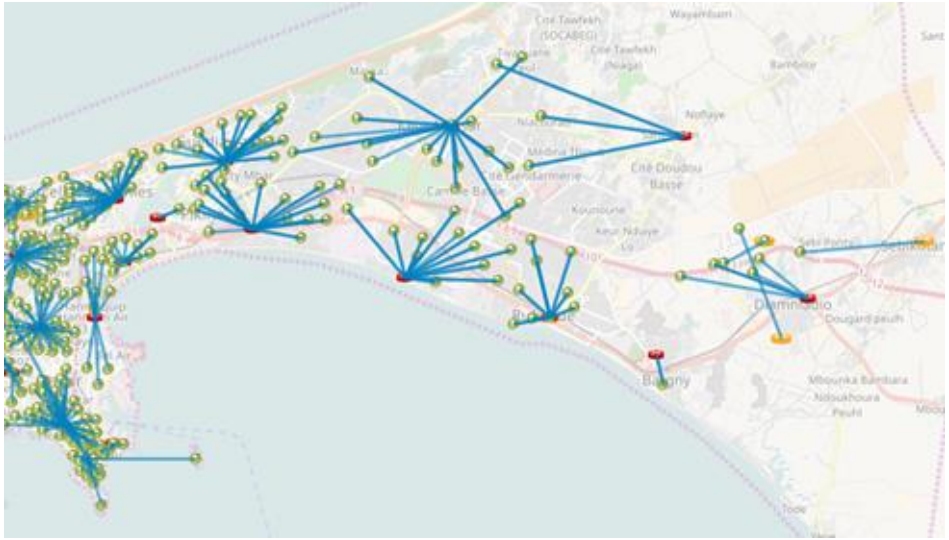
Blueprints Processor
Handles workflow and RestConf API management

Topology Discovery

- Automatically discover network nodes and interfaces.

- Retrieve links between nodes and “neighborship” information.

- Provide a representation of the network topology.

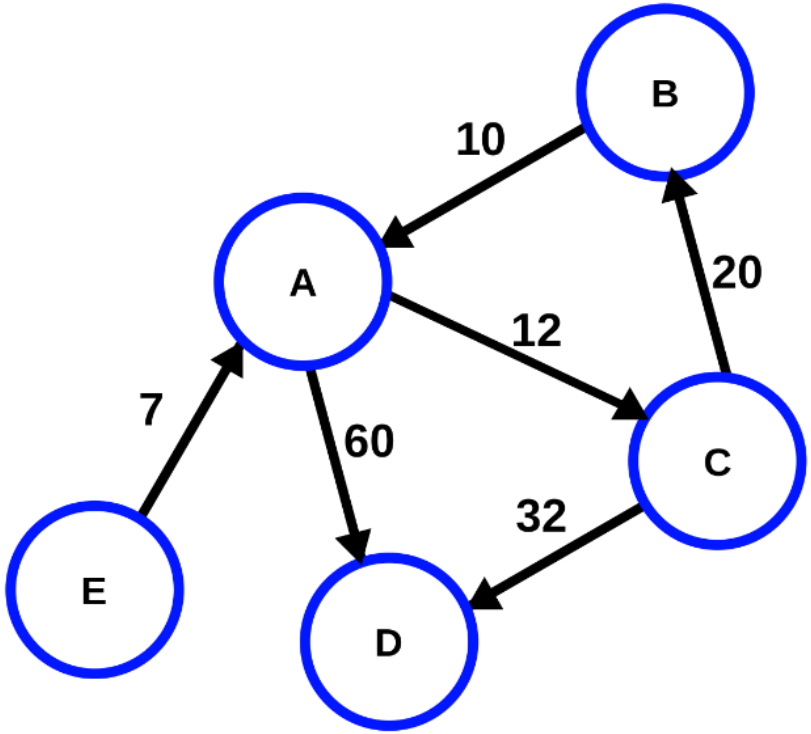


Path Calculation

- Find different paths between 2 nodes based on the retrieved topology data.

- Two possibilities then :
  - ✓ Let the user choose a path in a list of suggestions
  - ✓ Automated path selection based on policies

- Path finding will be mandatory to create services.



Example of weighted oriented graph

L2VPN Service Provisioning

- Offer a service provisioning feature for at least 2 different types of vendor (NEC and Huawei).
- Provide services with VLAN-based L2 connectivity.
- Make this operation easy to process.
- Deal with existing device configurations.

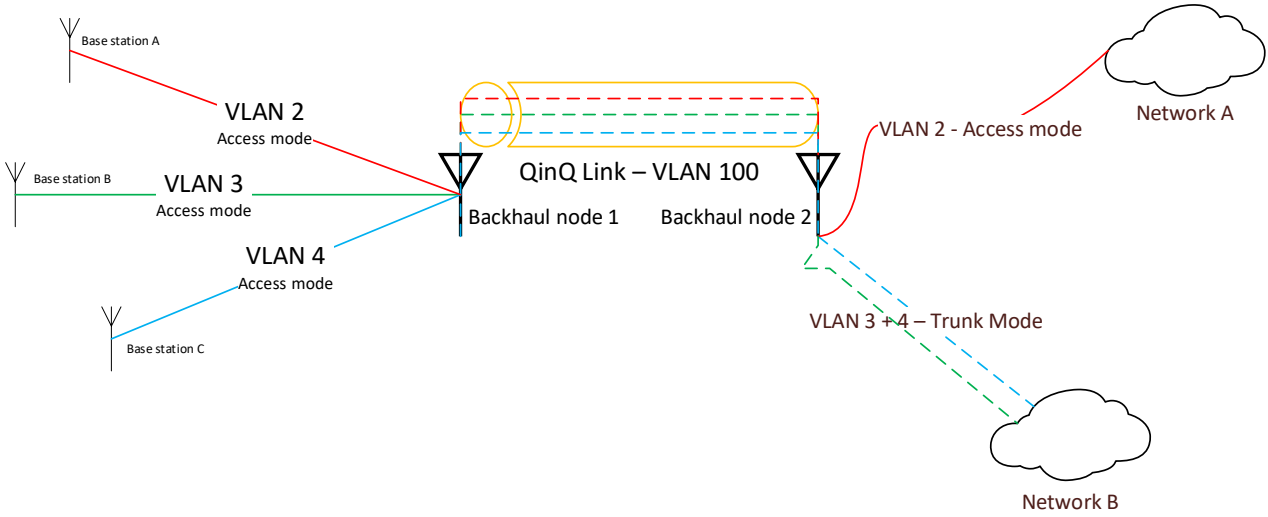
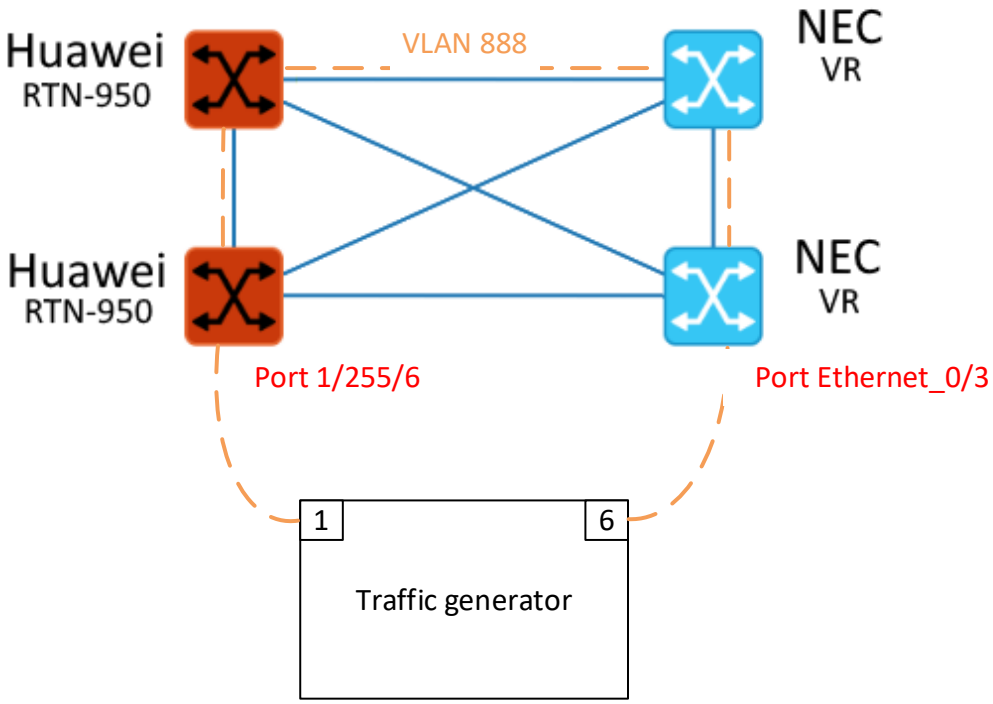


Illustration of VLAN-based backhaul

Demonstration



Demonstration test bench

Conclusion and perspective

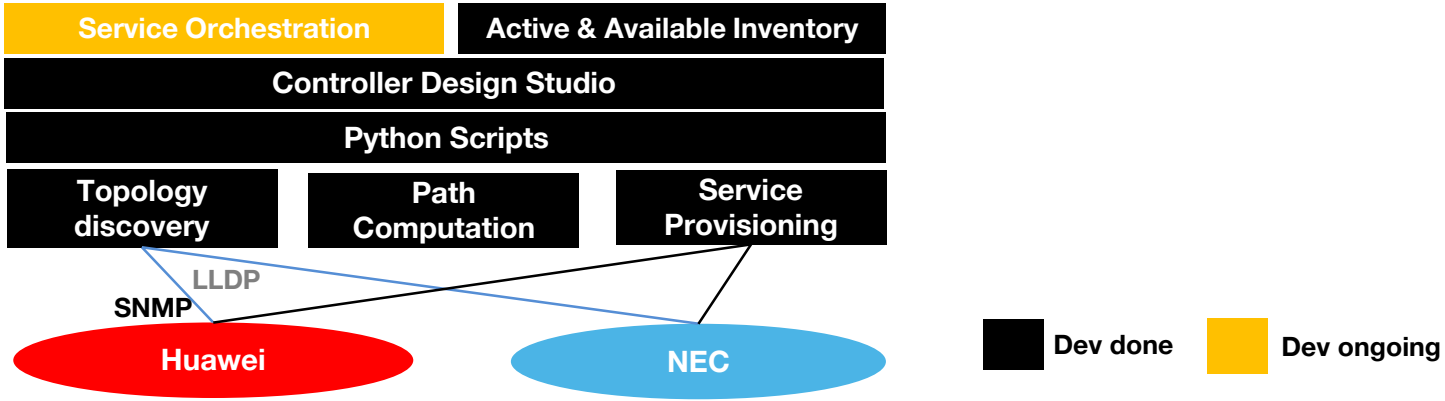
Focus on few ONAP components to provide a multi-vendor MW operations automation.

Developed features:

- Topology auto-discovery.
- Path computation between 2 edge nodes (required since L2 network).
- L2VPN service configuration across the selected path.
- Implementation of data persistence through A&AI integration.

Perspectives:

- Bring a level of abstraction from MW specifics by introducing Service Orchestration.
- Carry out a field trial.

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