

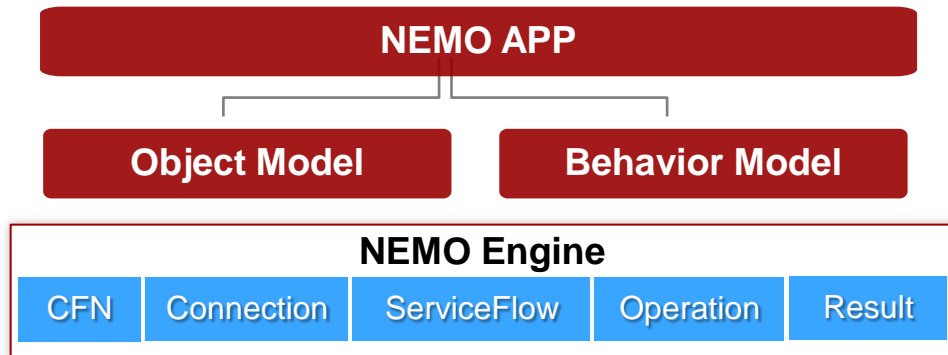
IETF 95 Hackathon

NEMO Language and ONOS SDN Controller

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NEMO Language for Service Level Network Programming

<https://wiki.opendaylight.org/view/NEMO:Main>



SDN Controller/Orchestrator

15 simple statement for hundreds of complex APIs

Resource Access		
Entity Model	node	Node/UnNode entity_id Type {FN PN LN} Properties key1,value1
	link	Link/UnLink entity_id Endnodes (node1_id,node2_id) Properties key1,value1
	flow	Flow/UnFlow entity_id Match/UnMatch key1,value1 Range(value,value)
Policy and Event Handling		
Capability Model	Query	Query key Value (value) From entity_id
	Policy	Policy/UnPolicy policy_id Appliesto entity_id Condition (expression) Action { "forwardto" "drop" "gothrough" "bypass" "guaranteeSLA" "Set" "Packetout " Node UnNode Link Unlink}
	Notification	Notification entity_id On key Every period RegisterListener callbackfunc
Model Definition		
Node definition	NodeModel <node_type> Property { <data_type> : <property_name> }	
Link definition	LinkModel <Link_type> Property { <data_type> : <property_name> }	
Action definition	ActionModel <Action_Name> parameter { <data_type> : <property_name> }	

Network application/user use NEMO Language to program their network service by telling what to do rather than how.

NEMO Language is an Intent oriented network DSL (domain specific language), which is a language style network open interface. Operator/End-user or 3rd party can use it to program network resource and behavior in their service applications.

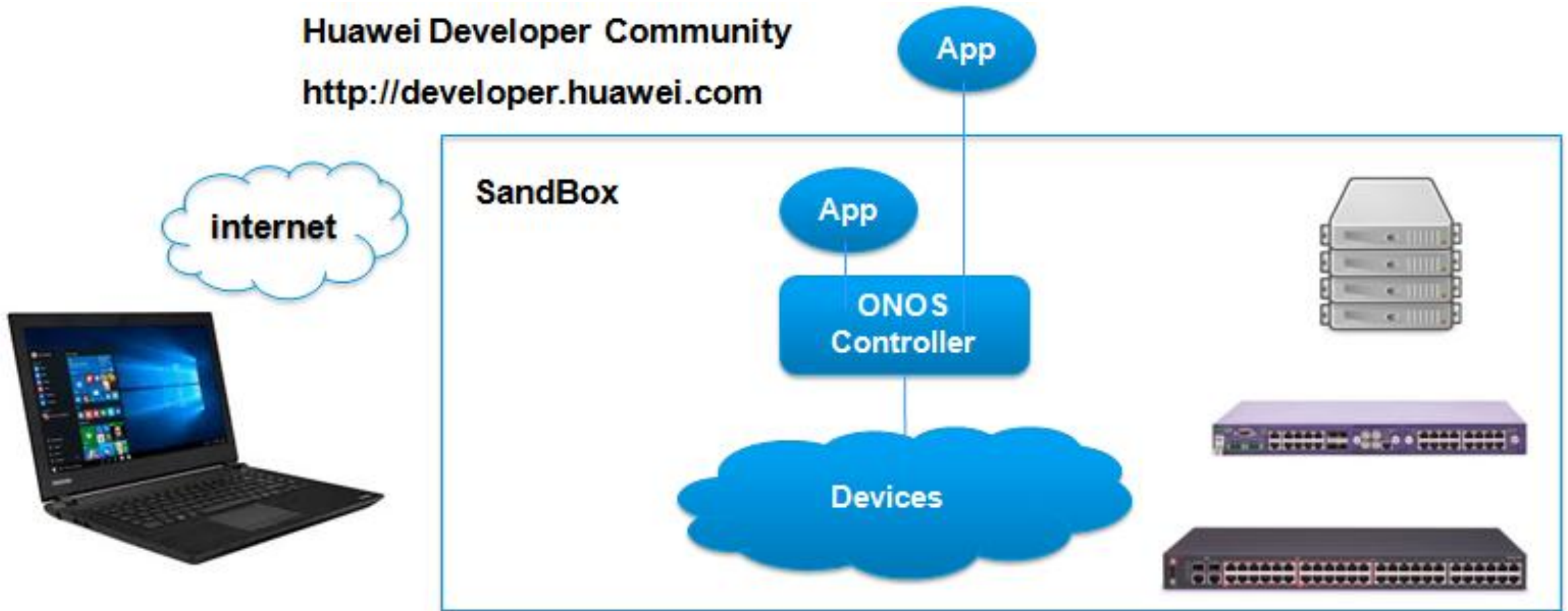
NEMO Engine is a network middleware, which translate high level service intent to real network instruction base on MDA (Model Driven Architecture).

Supporting tools, for example the Sandbox, to facilitate the testing, simulation, and deployment.

Develop, Deploy , Test and Show Your Ideas in the SandBox

Huawei Developer Community

<http://developer.huawei.com>



Proposed Tasks

- **NEMO Language Development**

- Features to show

- The intent composition capability to build multiple scenarios
 - The service intent description has nothing to do with the topology
 - Automatic deployment and fail over to guarantee the high level user requirements
 - NEMO language is simpler and easier to use compared to Json/XML based REST API

- Example use case : hybrid cloud, end to end carrier network.

- **ONOS SDN Controller Development**

- Install the ONOS controller and the development environment
 - Develop applications on ONOS

- **Tools**

- Produce an editor plug-in for NEMO in Eclipse

Thank You