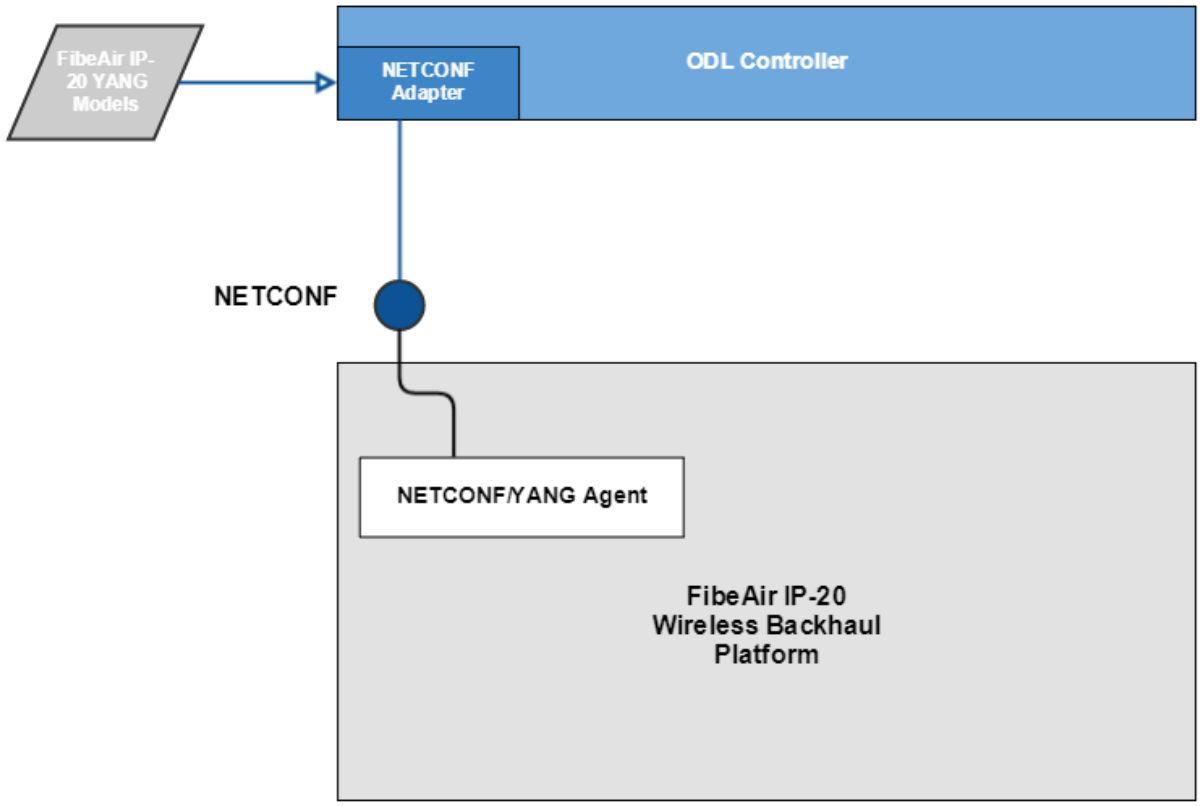
OpenDaylight NETCONF/YANG Adapter for Ceragon Wireless Device

Abstract:

All NETCONF/YANG-enabled network functions - whether physical or virtualized - can be controlled by an OpenDaylight (ODL) SDN controller as long as an appropriate device adapter has been installed in the ODL controller. That ODL device adapter (or southbound plugin) can be generated from the network function's YANG model, and can be completed with Java programming.

Developers are developing such adapters for a range of NETCONF/YANG enabled devices. In this project, developers are able to develop the ODL device adapter for a wireless backhaul platform supplied by MEF member Ceragon - the FibeAir IP-20.



Goals:

- Learn about:
  - Software Defined Network (SDN) - https://www.opennetworking.org
  - OpenDaylight SDN Controller – https://www.opendaylight.org/
  - NETCONF/YANG – https://www.ietf.org/slides/slides-edu-netconf-yang-00.pdf
  - MEF LSO - https://wiki.mef.net/pages/viewpage.action?pageId=56165271
- Study relevant OpenDaylight tutorials including:
  - https://wiki.opendaylight.org/view/OpenDaylight_Controller:MD-SAL:Startup_Project_Archetype
  - https://wiki.opendaylight.org/view/OpenDaylight_Controller:MD-SAL:Toaster_Step-By-Step
  - Optionally: https://devnetevents.cisco.com/events and https://learninglabs.cisco.com/modules/intro-device-level-interfaces
- Install Ceragon's simulation device SW in a Linux environment
- Use the device YANG model(s) to develop the ODL device/function adapter with Java code
- Ceragon will support and guide the students, and provide access to FibeAir IP20 devices in Ceragon's lab for testing and integration with ODL. NE access can be remotely or on site in Ceragon HQ in Tel Aviv in the SDN lab. Ceragon will allocate an engineer for the integration phase for assistance, guidance and development.
- Contribute resulting device/function adapter to the ODL Unimgr project
- Stretch goals
  - Test provisioning of layer 2 service using the device/function and ODL
  - Test orchestration of the device/function using LSO
  - Test configuring radio related features (TR-532)

Requirements:

Java, Internet Networking Course

Guided by:

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CERAGON

About MEF:

The MEF is a collaborative code and specs development organization that starting in 2001 defined Carrier Ethernet and helped build the global Carrier Ethernet market now valued at $80Bn. MEF has 210 member companies, of which 130+ are the world's leading service providers, including AT&T, Verizon, Deutsche Telekom, BT, China Telecom, Cisco, Huawei, Ciena and many Israeli companies such as ECI, Amdocs, MRV, Gigaspaces, Contextream (HPE), RAD, Telco Systems and Ceragon. Carrier Ethernet services defined by the MEF and widely adopted by the telecoms industry include E-Line, E-LAN, E-Tree, E-Access and E-Transit.

The MEF's membership is now developing code and specs for Third Networks using NaaS (Network as a Service) principles in order to combine the agility and ubiquity of the Internet with the security and performance of Carrier Ethernet. Third Networks use a combination of LSO (Lifecycle Service Orchestration), SDN (Software Defined Networking) and NFV (Network Function Virtualization) to scale telecoms services to support the future tens of billions of IoT (Internet of Things) devices, billions of 5G users, and hundreds of millions of enterprises for whom cloud services and applications are essential.

Important!

Developers working on this project will benefit from learning about industry leading technologies firsthand, and will be exposed to potential employment opportunities based on their experience in this project.