Dynamic Configuration of Devices and Services with ONOS

Solution Showcase @ ONS2017

Participating Organizations
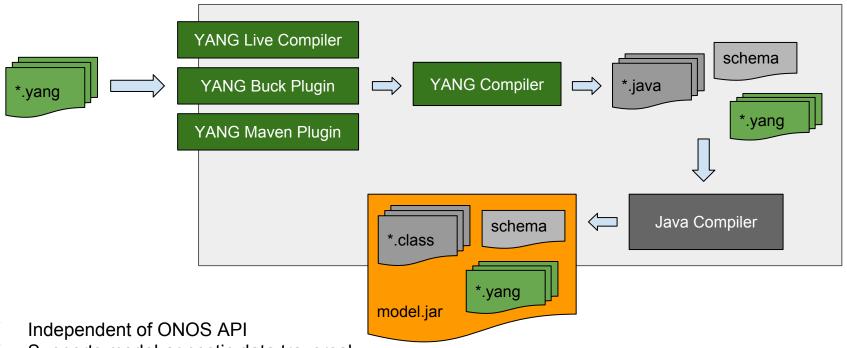
Configuration of Devices

- Goal is to enable a network operator to seamlessly configure devices from different vendors and to verify the configuration
  - With minimal or no human intervention

- Offers significant OPEX savings and vendor independence for network operators

- Offers vendors faster integration of their products into operator's networks
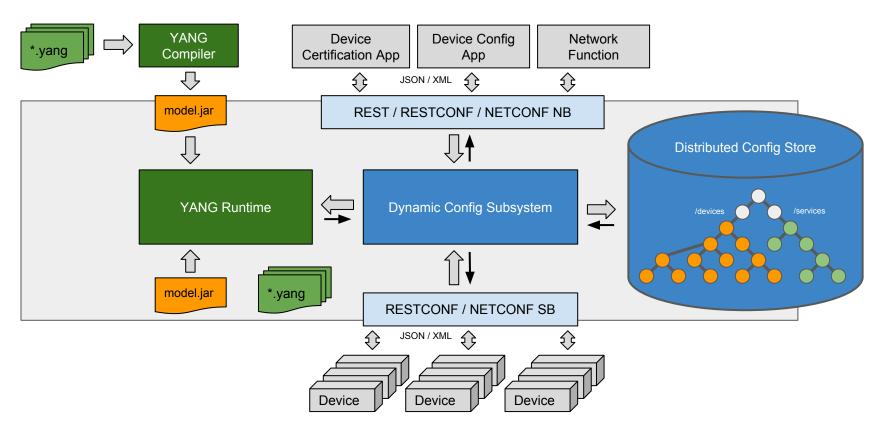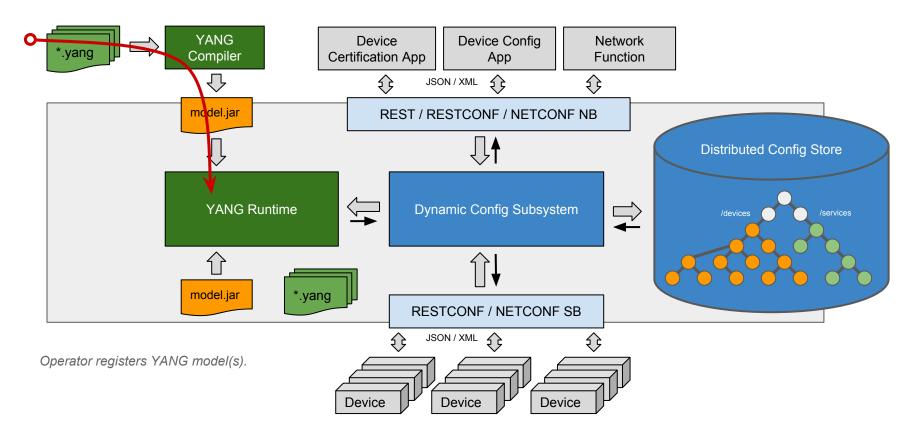
YANG Tool Chain

✓ Independent of ONOS API
✓ Supports model-agnostic data traversal
✓ Generates schema for run-time validation and encoding/decoding
✓ Generates model-specific rich data types

Configuration of Devices

Configuration of Devices

Operator registers YANG model(s).

Configuration of Devices

Configuration of Devices

*.yang

YANG Compiler

model.jar

YANG Runtime

model.jar

*.yang

Device Certification App

Device Config App

Network Function

JSON / XML

REST / RESTCONF / NETCONF NB

Dynamic Config Subsystem

RESTCONF / NETCONF SB

JSON / XML

Device

Device

Device

Distributed Config Store

/devices

/services

First, ONOS NB receives device config data as JSON or XML, decodes it and stores it in the distributed store.

Afterwards, ONOS SB receives change notifications and encodes the data to JSON or XML and conveys it to the device.
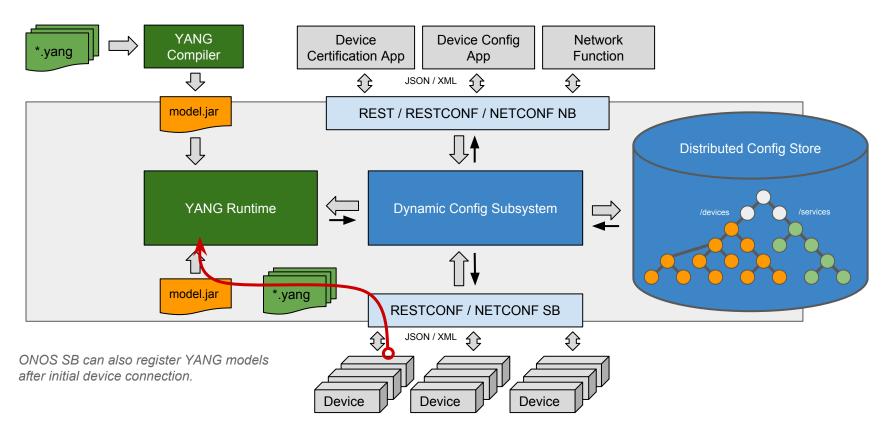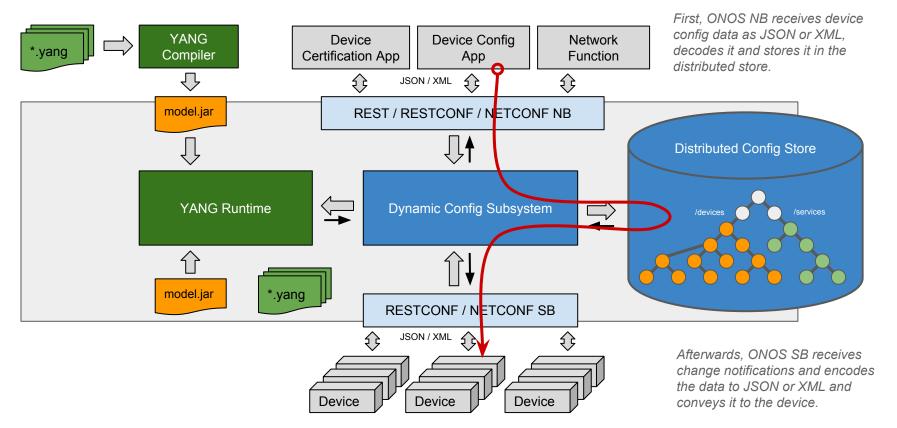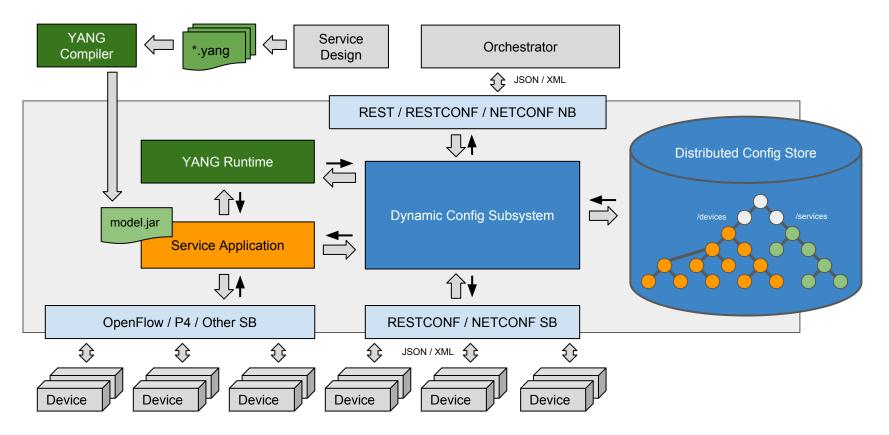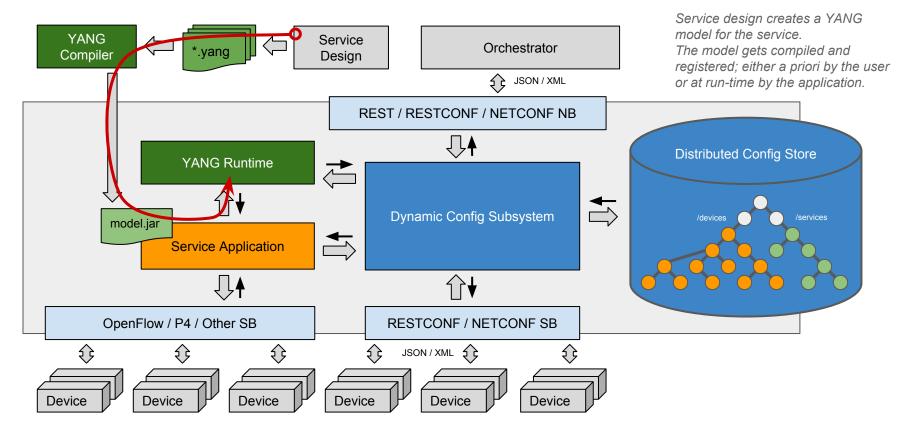
Configuration of Services

- Goal is to enable a network operator to seamlessly configure and provision a service on the network comprising many devices from many vendors
  - With minimal or no human intervention

- Provides network operators with agility to deploy new services with reduced OPEX

- Offers vendors opportunity to support many services on their devices

Configuration of Services

Configuration of Services

Service design creates a YANG model for the service.
The model gets compiled and registered; either a priori by the user or at run-time by the application.

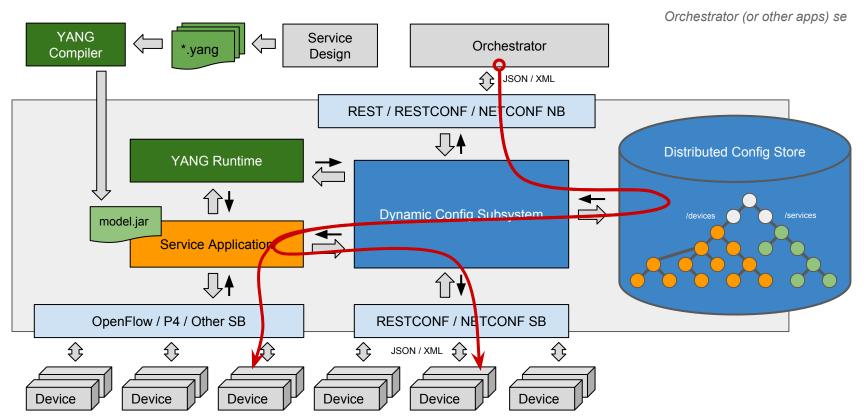# Configuration of Services

ONOS

Open Network Operating System

Software Defined Transformation of Service Provider Networks

Join the journey @ onosproject.org