IETF Hackathon

ALTO O&M Driven by YANG Data Model

IETF 116
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I E T F

Hackathon Plan

- Provide a reference implementation of YANG-driven O&M in OpenALTO framework
- Provide a set of vendor extended YANG modules for current OpenALTO implementation

- Documents:
  - https://datatracker.ietf.org/oc/draft-ietf-alto-oam-yang/

What got done

- Use *yangson* to parse YANG data instance to OpenALTO configuration system
  - Use *yang-library* to manage all the YANG modules: https://github.com/openalto/alto/blob/main/src/alto/model/yang/yang-library-ietf-alto.json
- Define a set of vender-specific modules for data sources and algorithms
  - https://github.com/openalto/alto/blob/main/src/alto/model/yang/openalto-data-source.yang
  - https://github.com/openalto/alto/blob/main/src/alto/model/yang/openalto-algorithm.yang

```
→ bin/openalto --yang-config etc/yang-config.json
[+] Running 1/6
✓ Network alto_default                    Created
⠿ Container alto-alto-frontend-1          Creating
⠿ Container alto-zoo2-1                    Creating
⠿ Container alto-zoo1-1                    Creating
⠿ Container alto-zoo3-1                    Creating
⠿ Container alto-gateway-1                 Creating
```

A demo server will be running and accessible at NRP cluster (https://alto.nrp-nautilus.io/) during Hackdemo Happy Hour

What we learned

- Need a lot effort to full support `ietf-http-server` and `ietf-tls-server` module for some state-of-the-art web framework (e.g., Django)
- Some implementation-specific configurations still need to be set externally (current YANG modules do not cover them)
  - e.g.,
    - Web framework configuration (e.g., Django server settings)
    - Persistent database configuration (e.g., Redis, Zookeeper)
    - Deployment related config: container scaling / autoscaling
  - Our current solution is to simply put them into metadata

Wrap Up

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Open Issues of OpenALTO project:
https://github.com/openalto/alto/issues