

IETF Hackathon: YANG Modules Tool Automation

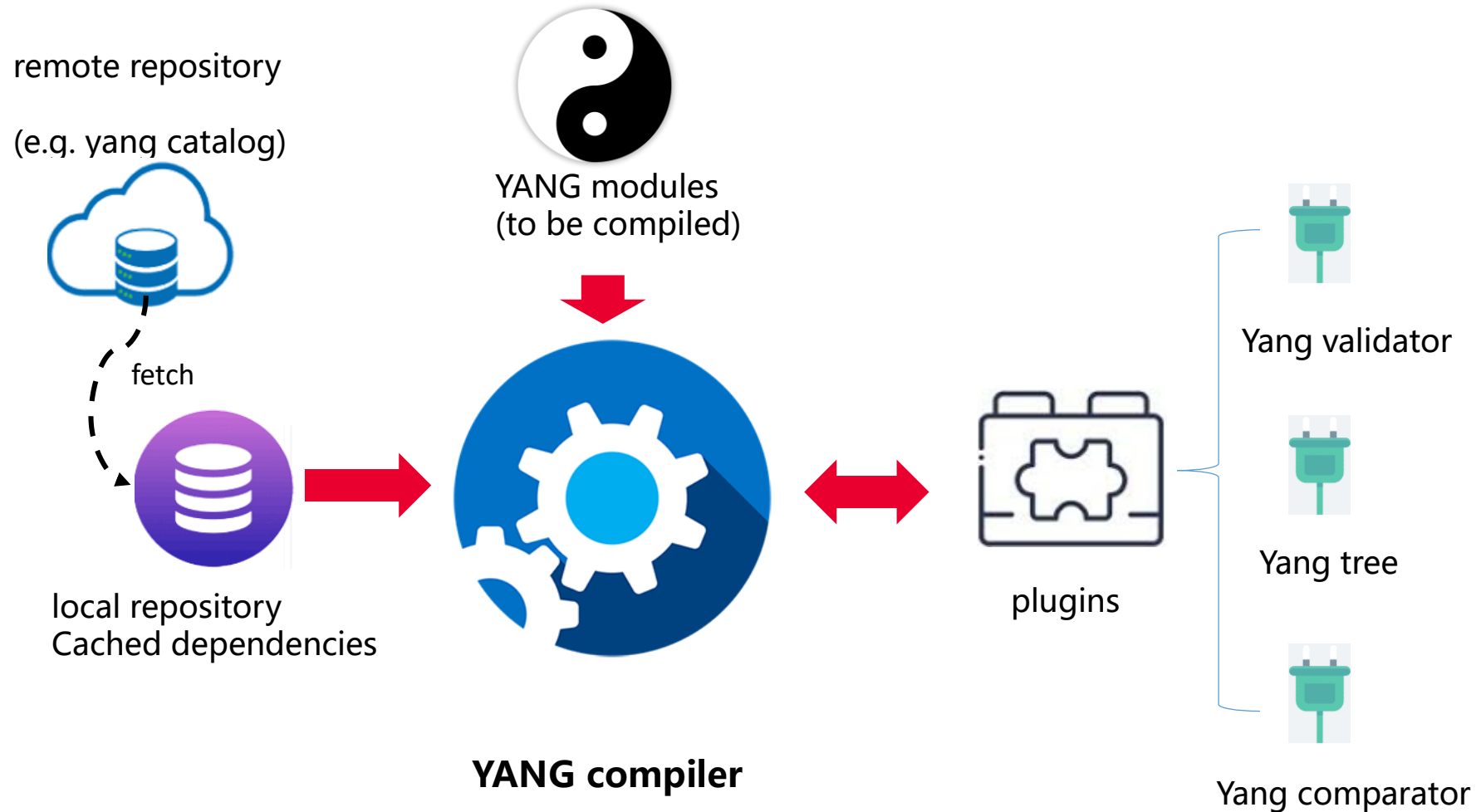
**IETF 115
5-11 November 2022**



Hackathon Plan

- Motivation
 - YANG catalog provides an online YANG schema validation tool which can validate YANG modules regardless dependencies, but there is no offline tool can do it.
 - YANG catalog only provides some query interfaces, it is difficult to fully meet the requirements of YANG module automation. E.g. performing some customized functions.
 - No tool is available to compare two revisions of YANG module according to customized comparison rules.
- Goal
 - YANG automation tool to compile YANG modules by resolving dependencies automatically
 - provide plugin system to support customized functions (e.g. support YANG schema comparison according customized comparison rules).
- Related drafts/RFCs
 - <https://datatracker.ietf.org/doc/html/rfc7950>
 - <https://datatracker.ietf.org/doc/html/rfc8407>
 - <https://datatracker.ietf.org/doc/html/draft-ietf-netmod-yang-schema-comparison-01>
 - <https://datatracker.ietf.org/doc/html/draft-ietf-netmod-yang-packages-03>

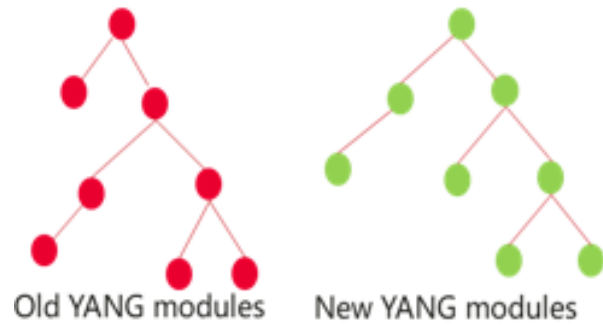
What got done——YANG compiler



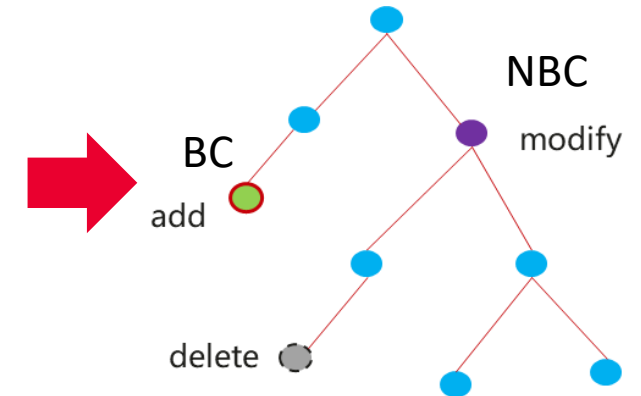
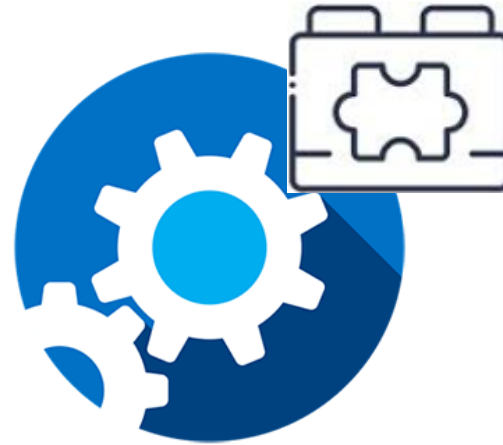
What got done——YANG schema comparison plugin

```
+-rw rules
+-rw rule* [rule-id]
+-rw rule-id? yang:yang-identifier
+-rw statements
| +-rw statement* string
+-rw condition? match-condition
+-rw except-condition* match-condition
+-rw compatible? enumeration
+-rw description? string
```

Customized comparison rules



YANG modules to be compared



comparison result

What we learned

- YANG compiler can improve YANG modules automation.
- Customized compatibility rules can adapt different scenarios.
- Next Step (missed in yang catalog)
 - Support YANG package as dependency.
 - Generate YANG package instance information from YANG modules
 - Export full YANG release including target and import-only YANG modules.
 - Yangcatalog.org support users to upload YANG packages.
 - Support YANG extensions(backwards-compatible,renamed-from, etc. defined in [draft-ietf-netmod-yang-schema-comparison-01](#)).

Thanks to...

- Hackathon Team

- Chong Feng
- Xiang Ren
- Qin Wu
- Qiufang Ma
- Bo Wu

- Resources

- Open Source Project repos

- <https://github.com/yang-central/yang-compiler>
 - <https://github.com/HuaweiDatacomm/yang-comparator>

- contributions are welcome! 😊