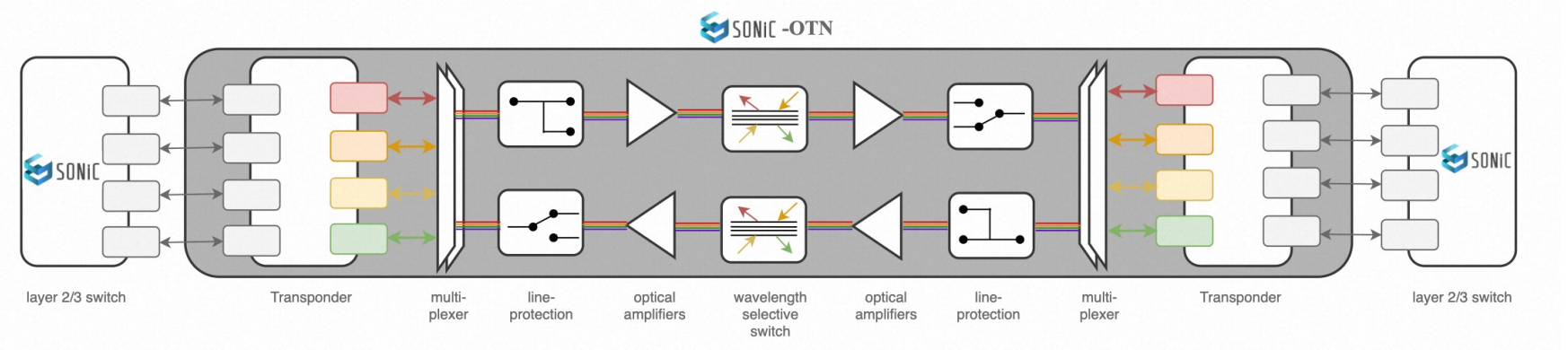
SONiC-OTN workgroup update

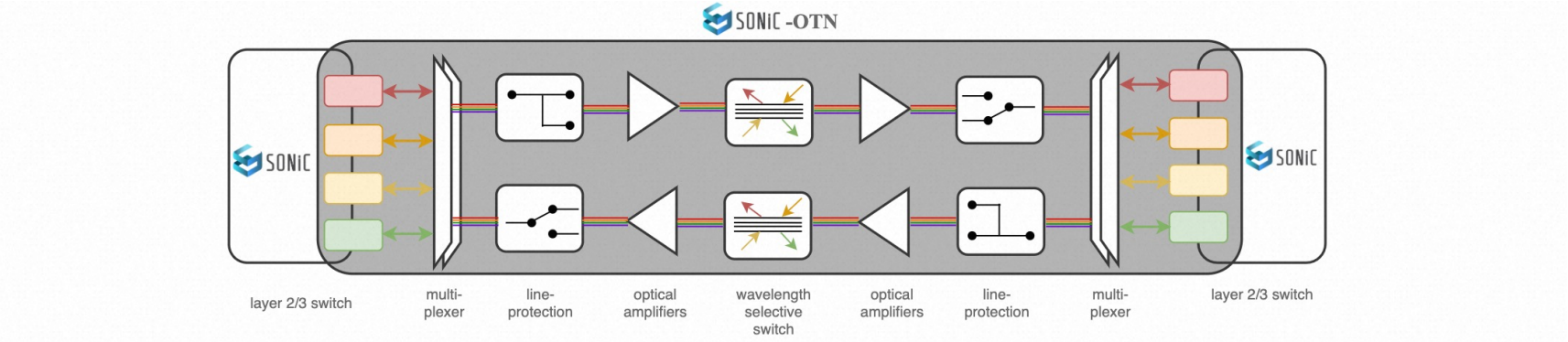
SONiC-OTN group
2023-12-01

Workgroup Chart

Enabling SONiC to support optical transport equipment

- Optical transponders/muxponders
- Optical line equipment, optical amplifiers, wavelength selective switches
- Optical DWDM/Grey pluggable modules on switching/routing equipment





Workgroup Info

Chongjin Xie

Yawei Yin

Chairs

Members
(157)

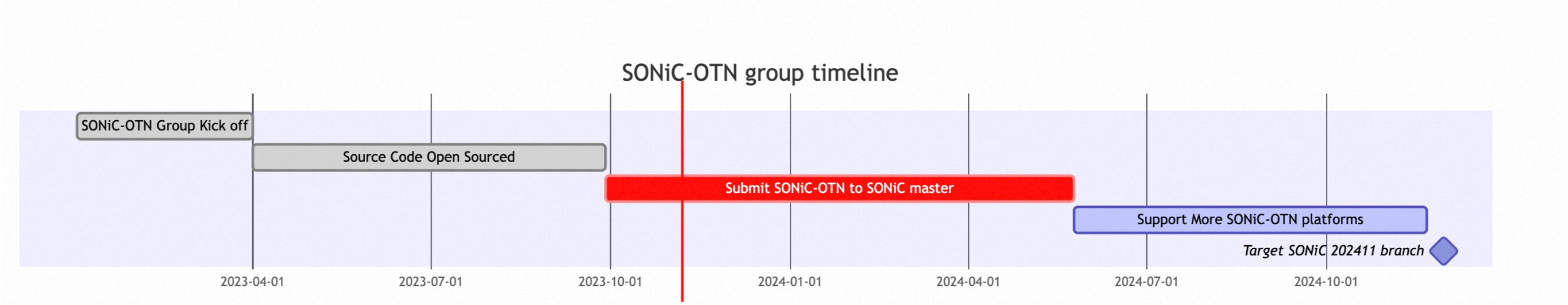
- Homepage
- Mailing list
- Github

https://github.com/sonic-otn

Workspaces

Timeline

1. In 2023-02， SONiC TSC approved the SONiC-OTN workgroup， kick it off
2. Alibaba & Accelink open soured source code； rounds of introduction and discussions
3. Merge OTN to SONiC， HLD, support virtual optical device first
4. Target 202411 branch， support 3 real optical platform devices



SONiC Deliverables

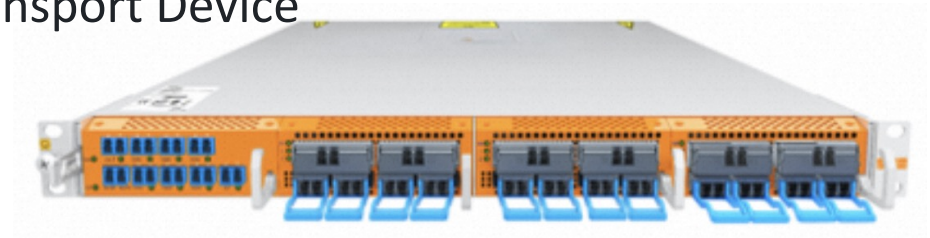
Switch/Router/...

```
make configure PLATFORM=[ASIC_VENDOR] PLATFORM_ARCH=arm64

ASIC_VENDOR = [barefoot, broadcom, marvell, mellanox, ..., vs]

make target/sonic-ASIC_VENDOR.bin
```

Optical Transport Device

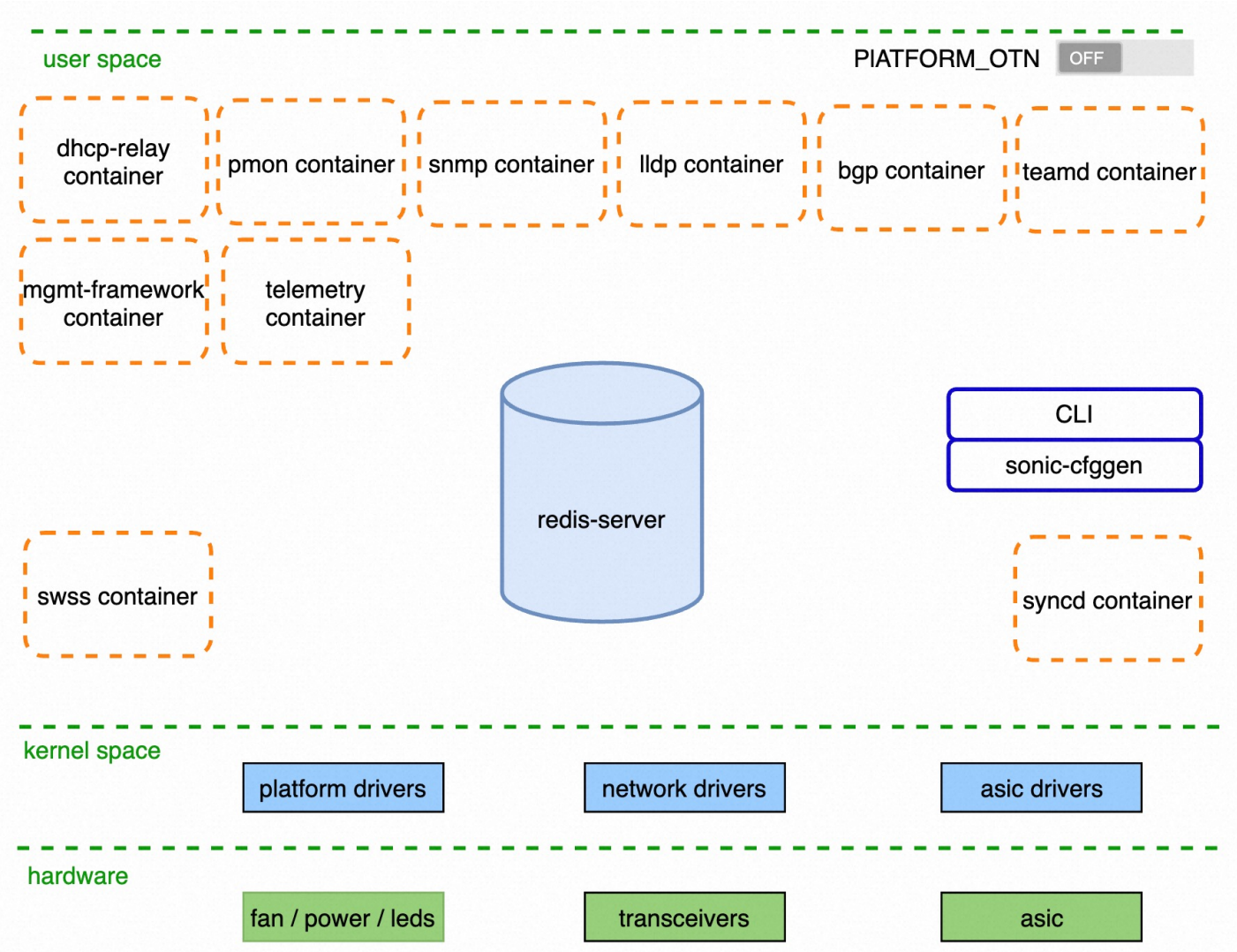


```
make configure PLATFORM=[OTN_VENDOR] PLATFORM_ARCH=arm64

OTN_VENDOR = [ot-accelink, ot-molex, ot-infinera, ot-vs]

make target/sonic-OTN_VENDOR.bin
```

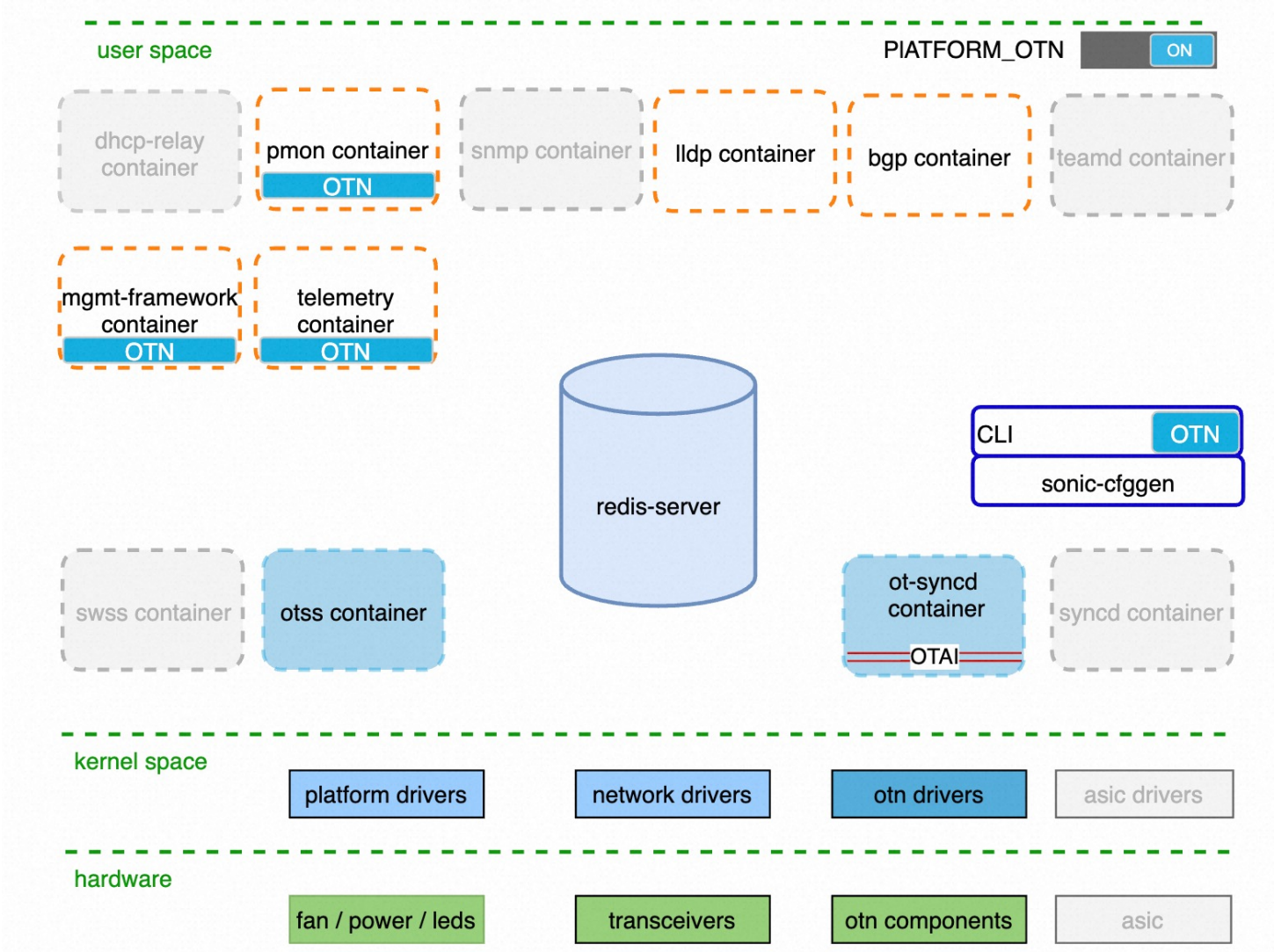
SONiC Architecture




```
make configure PLATFORM=[ASIC_VENDOR]
```

- OTN features are disabled by default
- Native SONiC for Switch and Router

SONiC Architecture



`make configure PLATFORM=[OTN_VENDOR]`

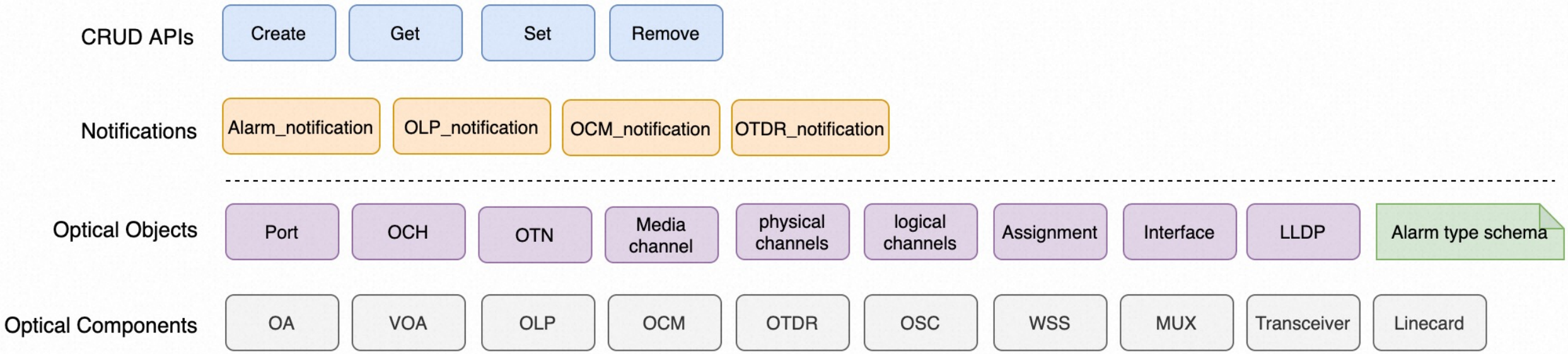
OTN Feature Toggle: ON

- OTN features and enhancement are Enabled
- Some SONiC IP features are disabled

OTAI

Optical Transport Abstraction Interface (OTAI) provides standard APIs to manage Optical components and objects.

- CRUD APIs for all OTN components and objects
- Notifications for OTN status change and data reporting
- All Optical objects and components
- Compatible with Openconfig



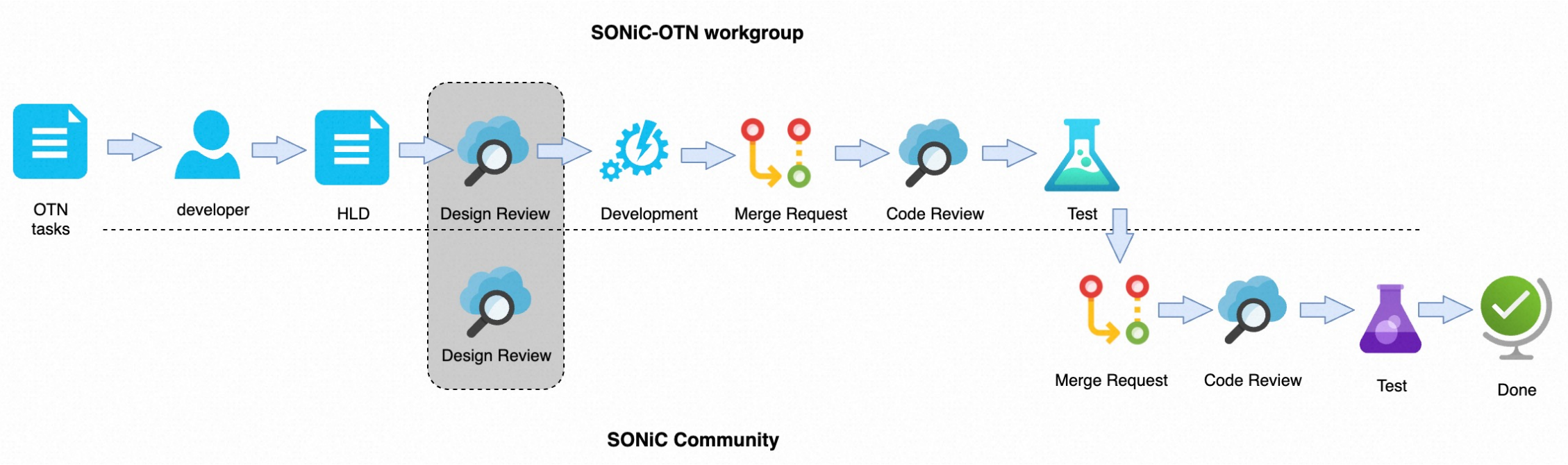
OTN Modifications

Expands SONiC from IP layer 2/3 to Optical Transport Network

- Introduce optical platforms and optical devices in SONiC.
  ot-vs, ot-accelink, ot-molex, ot-Infinera, …
- Introduce OTAI
- Introduce OTSS and Syncd-ot to manage optical components
- Enhance CLI, PMON, mgmt-framework and Telemetry to support OTN devices
- Add OTN feature toggle and config file to turn on/off IP and optical features

Workflow

- SONiC **community** and SONiC-OTN **workgroup** review the OTN HLD at early stage
- SONiC-OTN **workgroup** implements and tests it first
- Merge to SONiC upstream in the end



Challenges

- How to gracefully embed OTN features into SONiC with feature toggles
- Efficient Cooperation with broad SONiC community
-

Summary

- SONiC-OTN chart and group information
- SONiC-OTN Timeline and Architecture
- OTAI and SONiC-OTN modifications
- SONiC-OTN workflow and challenges