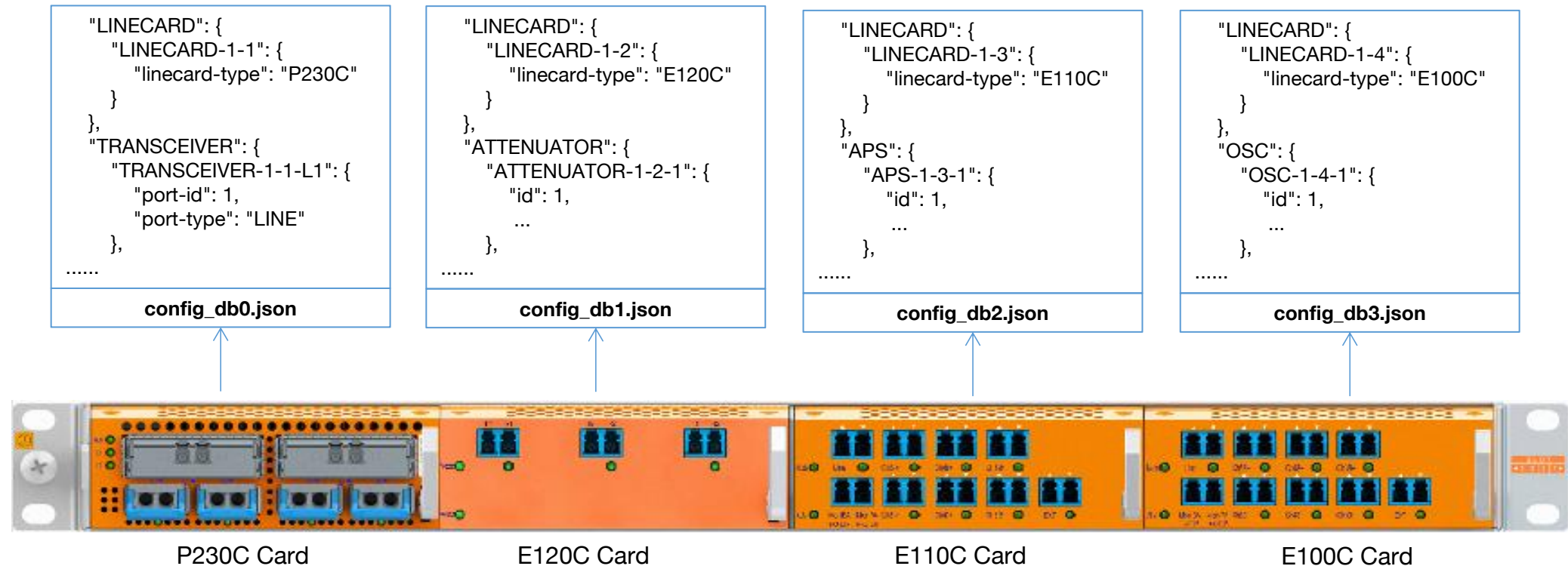# Line-card Configuration Management

Alibaba Cloud

Xiaodong Gui  (guixiaodong.gxd@alibaba-inc.com)
Weitang Zheng (zhengweitang.zwt@alibaba-inc.com)

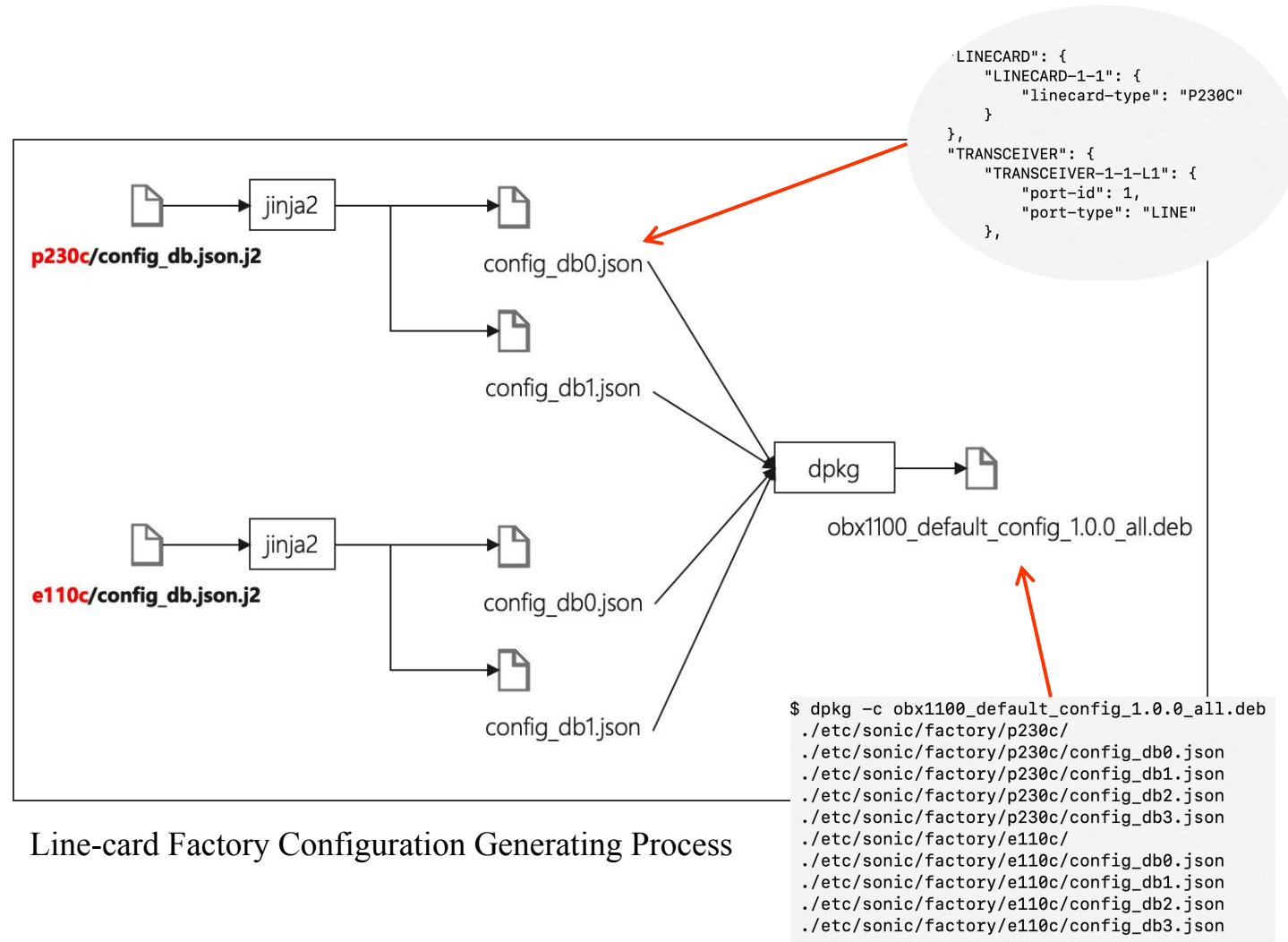2023. 4

# Line-card Configuration

- Each line-card configuration is kept in **config_dbx.json**.
- The objects on each line-card are fixed and pre-defined in **config_dbx.json**.

```
"LINECARD": {
    "LINECARD-1-1": {
        "linecard-type": "P230C"
    }
},
"TRANSCEIVER": {
    "TRANSCEIVER-1-1-L1": {
        "port-id": 1,
        "port-type": "LINE"
    },
......
```
**config_db0.json**

```
"LINECARD": {
    "LINECARD-1-2": {
        "linecard-type": "E120C"
    }
},
"ATTENUATOR": {
    "ATTENUATOR-1-2-1": {
        "id": 1,
        ...
    },
......
```
**config_db1.json**

```
"LINECARD": {
    "LINECARD-1-3": {
        "linecard-type": "E110C"
    }
},
"APS": {
    "APS-1-3-1": {
        "id": 1,
        ...
    },
......
```
**config_db2.json**

```
"LINECARD": {
    "LINECARD-1-4": {
        "linecard-type": "E100C"
    }
},
"OSC": {
    "OSC-1-4-1": {
        "id": 1,
        ...
    },
......
```
**config_db3.json**



P230C Card        E120C Card        E110C Card        E100C Card

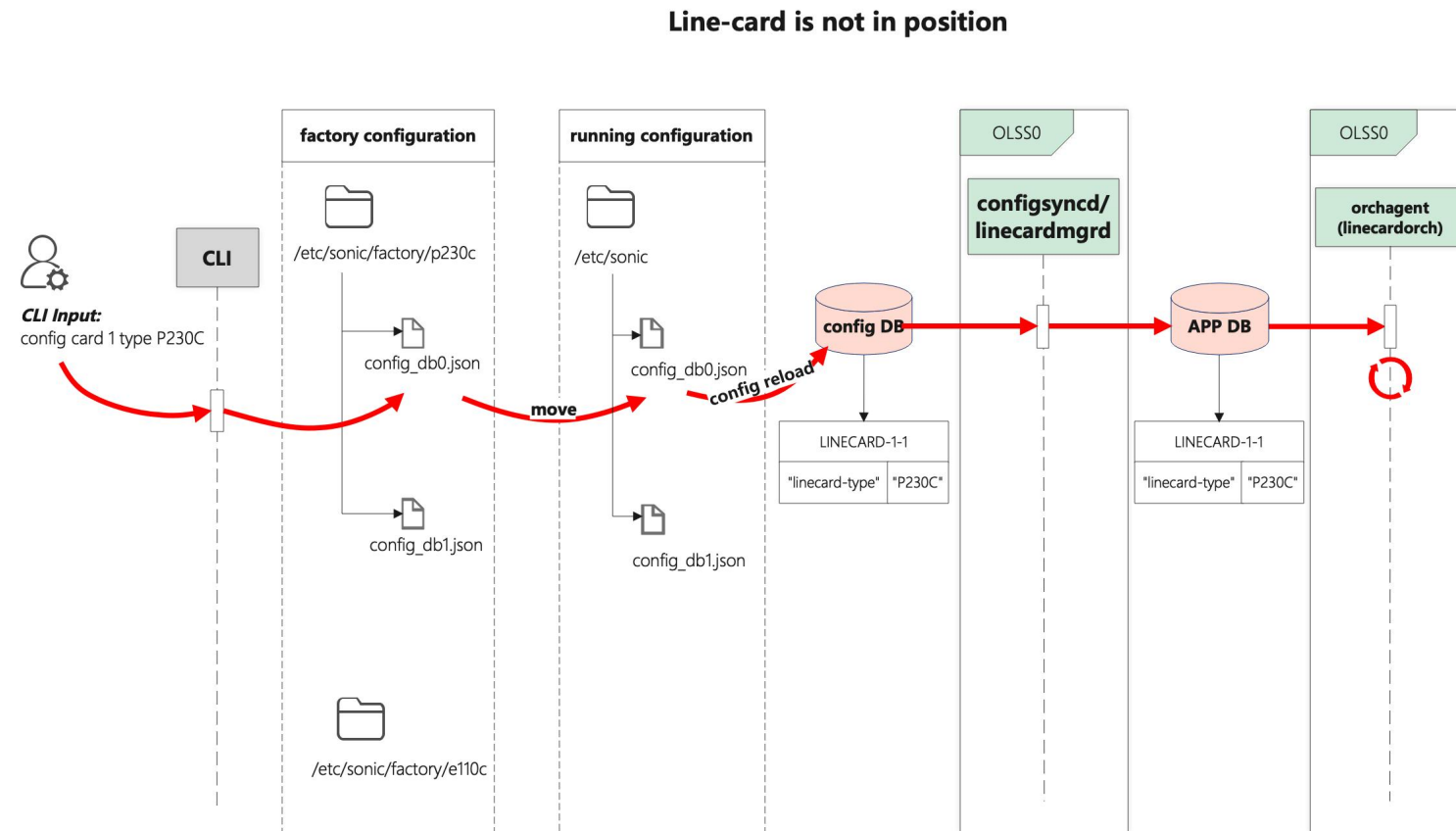A whitebox optical transport equipment

# To Generate Line-card Factory Configuration

- **Factory Configuration**
  - initial configuration
  - all objects with mandatory attributes

- **Running Configuration**
  - derives from factory configuration
  - be updated by CLI/Restconf

- Factory Configuration is generated by **jinja2** and packed by **dpkg** during the compilation phase.



Line-card Factory Configuration Generating Process

```
"LINECARD": {
    "LINECARD-1-1": {
        "linecard-type": "P230C"
    }
},
"TRANSCEIVER": {
    "TRANSCEIVER-1-1-L1": {
        "port-id": 1,
        "port-type": "LINE"
    },
```

```
$ dpkg -c obx1100_default_config_1.0.0_all.deb
./etc/sonic/factory/p230c/
./etc/sonic/factory/p230c/config_db0.json
./etc/sonic/factory/p230c/config_db1.json
./etc/sonic/factory/p230c/config_db2.json
./etc/sonic/factory/p230c/config_db3.json
./etc/sonic/factory/e110c/
./etc/sonic/factory/e110c/config_db0.json
./etc/sonic/factory/e110c/config_db1.json
./etc/sonic/factory/e110c/config_db2.json
./etc/sonic/factory/e110c/config_db3.json
```
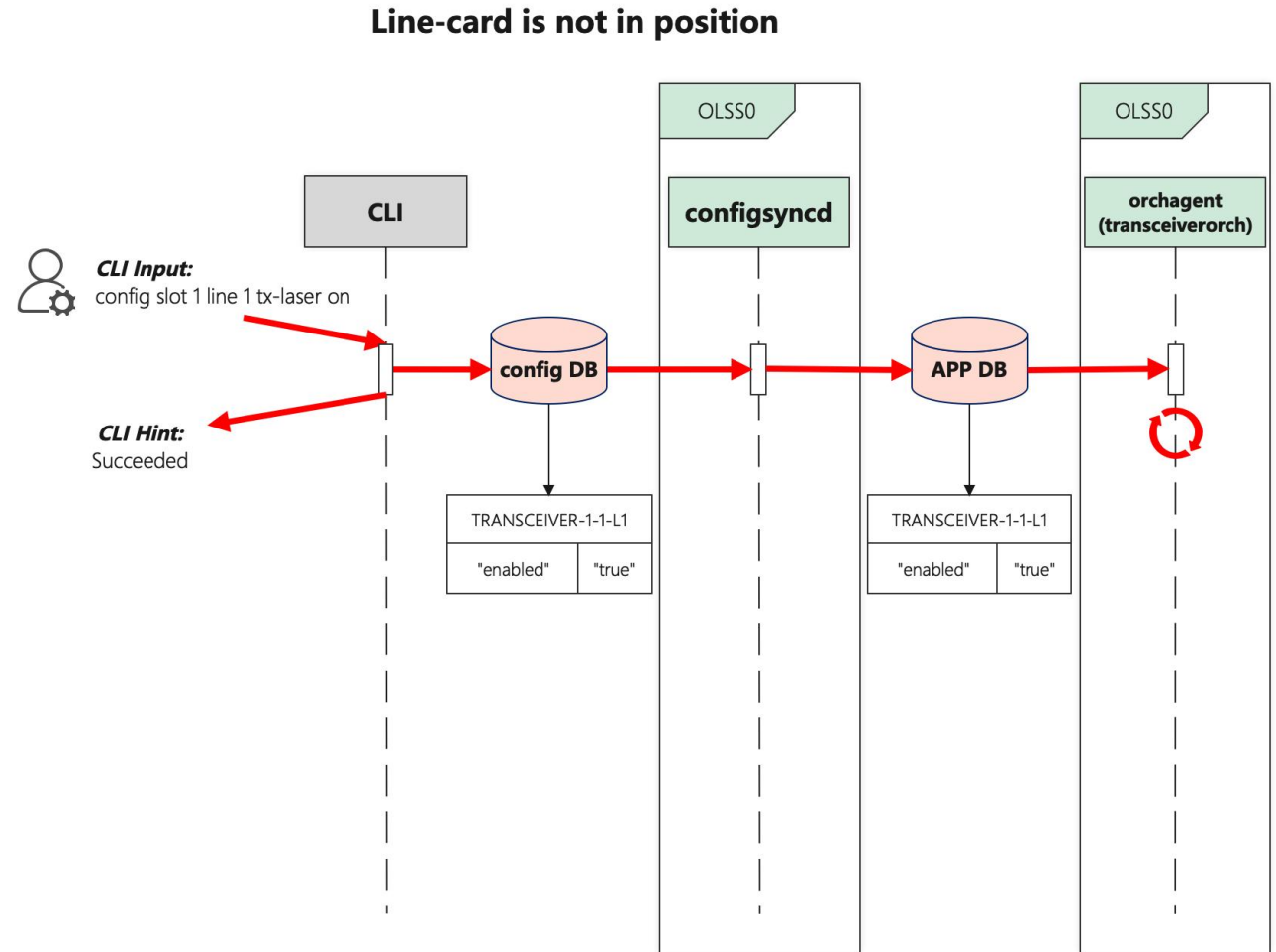
# To Pre-configure Line-card Type

- Line-card is configurable when it is absent.

- The expected card-type is the first configuration for a pre-configuration process.

- The command 'config card type' takes following actions:
  - copying a factory configuration file
  - loading configuration file into config-db
  - restarting OLSS and SyncD dockers.

- When line-card is not in position, the configuration will be kept by orchagent.



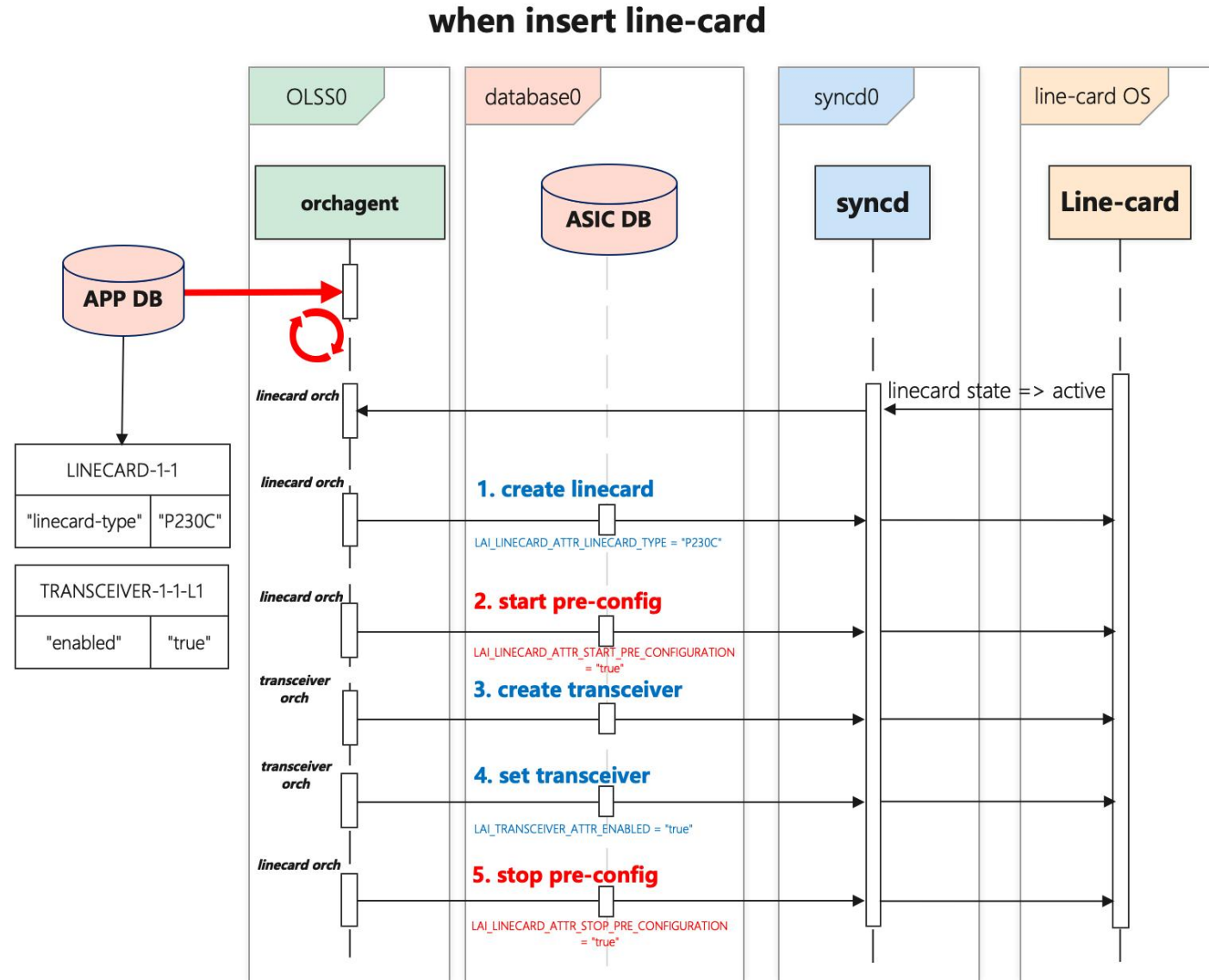**Line-card is not in position**

# To Pre-configure Transceiver

- Transceiver is also configurable when line-card is absent.

- The command 'config slot 1 line1 tx-laser on' will modify config table and return successfully.

- Orchagent will keep the configuration untill a line-card is inserted.



**Line-card is not in position**

# To Issue a Batch of Pre-configuration

- When line-card is inserted, SyncD will notify orchagent.

- Orchagent will create a LAI line-card object at frist.

- Next, orchagent will call set API to start a pre-configuration process.

- All objects will be created afterwards, and all configuration will be issued by calling LAI set API one by one.

- At last, orchagent will call set API to end this pre-configuration process.



when insert line-card

# Q & A