Problem:

End User need to configure the Compute Node/ACI Switch port static Mapping in neutron configuration file.
Such as the following configuration:
/etc/neutron/plugins/ml2/ml2_conf_cisco_apic.ini
[apic_switch:101]
con1.qa.webex.com = 1/9

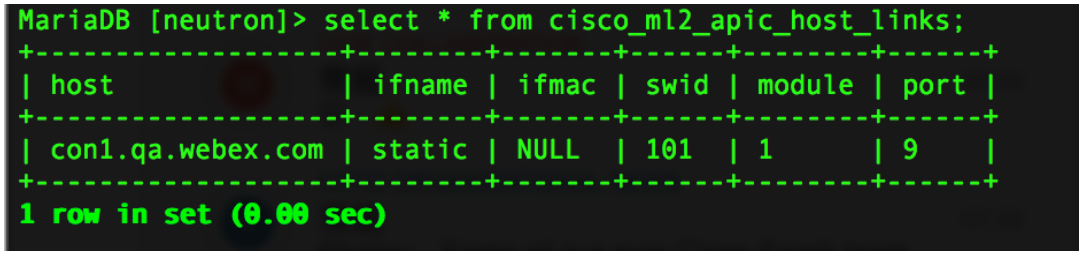
Admin need to manually configure host name / ACI switch id / ACI port in the configuration file.
When extend Compute nodes, or the physical server moved physical location.
This neutron have to update manually.
This map is hard to maintain.

Solution:

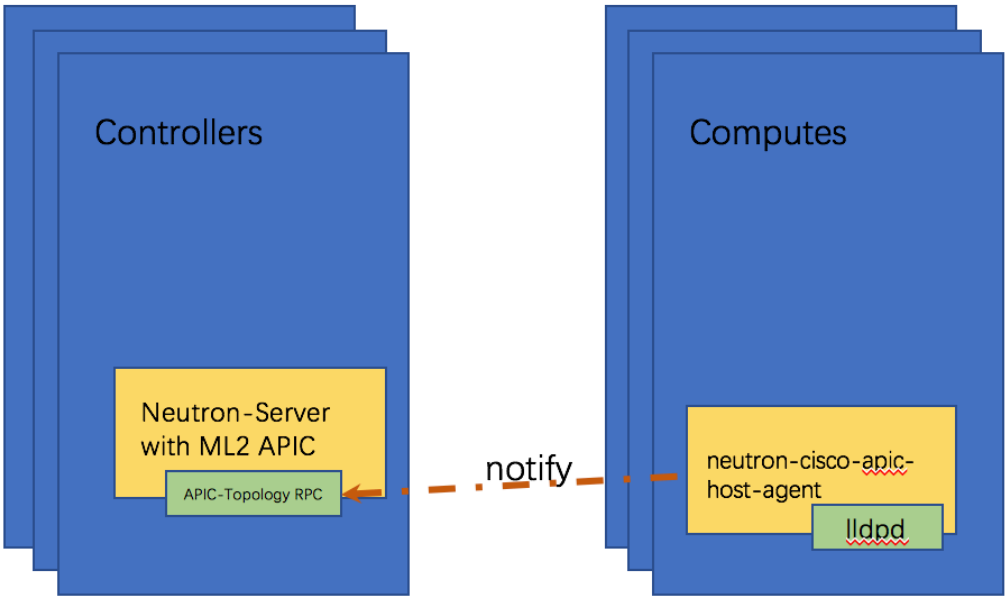
Cisco Support a solution which can dynamic detect host link, no need to static config in neutron.

When the topo is static configure in neutron, it will be loaded into neutron DB.
In case you have configuration like the following:
/etc/neutron/plugins/ml2/ml2_conf_cisco_apic.ini
[apic_switch:101]
con1.qa.webex.com = 1/9

Neutron will store this info in cisco_ml2_apic_host_links:



Cisco has a solution Dynamic detect these info. The overall solution looks like the following:



1. On compute node, lldpd will collect uplink switch informantion from LLDP. Switch will send out LLDP packet every one minute, lldpd will record the info. The info looks like following:

```
[root@con1 ~]# lldpcli show neighbor
-------------------------------------------------------------------------------
LLDP neighbors:
-------------------------------------------------------------------------------
Interface:    eno1, via: LLDP, RID: 1, Time: 15 days, 15:27:12
  Chassis:
    ChassisID:    mac a4:6c:2a:da:27:c7
    SysName:      L101
    SysDescr:     topology/pod-1/node-101
    MgmtIP:       10.225.5.142
    Capability:   Bridge, on
    Capability:   Router, on
  Port:
    PortID:       local Eth1/9
    PortDescr:    topology/pod-1/paths-101/pathep-[eth1/9]
```

2. neutron-cisco-apic-host-agent will get the info from lldp with lldpctl, and then notify these info to neutron-server.
Here is the log which can clearly show the process:
2017-09-15 08:00:55.405 32017 DEBUG neutron.agent.linux.utils [req-99cc88a9-7723-46d0-a602-b0207670c9ff - - - - -] Running command (rootwrap daemon): ['lldpctl', '-f', 'keyvalue'] execute_rootwrap_daemon /usr/lib/python2.7/site-packages/neutron/agent/linux/utils.py:106

2017-09-15 08:00:55.410 32017 DEBUG apic_ml2.neutron.plugins.ml2.drivers.cisco.apic.apic_topology [req-99cc88a9-7723-46d0-a602-b0207670c9ff - - - - -] reporting new peer: ('con1.qa.webex.com', u'eno1', '84:b2:61:2f:73:fe', u'101', u'1', u'9', u'topology/pod-1/paths-101/pathep-[eth1/9]') _check_for_new_peers /usr/lib/python2.7/site-packages/apic_ml2/neutron/plugins/ml2/drivers/cisco/apic/apic_topology.py:200
2017-09-15 08:00:55.410 32017 DEBUG oslo_messaging._drivers.amqpdriver [req-99cc88a9-7723-46d0-a602-b0207670c9ff - - - - -] CAST unique_id: e7624740f2234369aeb41f63f3d217d9 FANOUT topic 'apic-service' _send /usr/lib/python2.7/site-packages/oslo_messaging/_drivers/amqpdriver.py:443

3. neutron-server need to enable integrated_topology_service in /etc/neutron/plugins/ml2/ml2_conf_cisco_apic.ini, then the neutron-server can process the notify from neutron-cisco-apic-host-agent
# Use integrated topology service (please check docs for applicability for your use-case)
# If set to True, the apic_topology service should be disabled
# integrated_topology_service=False
integrated_topology_service=True

After enable this, neutron-server will store the link info in the following table:

```
Database changed
MariaDB [neutron]> select * from cisco_ml2_apic_host_links;
+------------------+--------+-------------------+------+--------+------+
| host             | ifname | ifmac             | swid | module | port |
+------------------+--------+-------------------+------+--------+------+
| con1.qa.webex.com | eno1   | 84:b2:61:2f:73:fe | 101  | 1      | 9    |
+------------------+--------+-------------------+------+--------+------+
1 row in set (0.00 sec)
```

In this way, openstack will auto-descovery host topology.