@ **FILE NAME:**   **M_CTC_ID_002.txt**

@ **TEST SCOPE:**   **M PLANE O-RAN CONFORMANCE**

@ **Software Release for MCB1:**   **v1.0.1**

This scenario validates that the O-RU properly executes the session establishment procedure with VLANs and a DHCPv4 server. This test is applicable to IPv4 environments. Two negative flows are included in this test:

The TER NETCONF Client does not trigger a SSH session establishment in reaction to Call Home initiated by THE O-RU NETCONF Server.

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Interfaces Present in DU Side
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```
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        ether 64:9d:99:ff:f5:12 txqueuelen 1000 (Ethernet)
        RX packets 3443 bytes 830837 (830.8 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 2103 bytes 230661 (230.6 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
        ether 64:9d:99:ff:f5:13 txqueuelen 1000 (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 172.25.96.163 netmask 255.255.254.0 broadcast 172.25.97.255
        inet6 fe80::a7de:bea9:9091:a5f0 prefixlen 64 scopeid 0x20<link>
        ether b4:2e:99:60:73:8c txqueuelen 1000 (Ethernet)
        RX packets 106886 bytes 121630027 (121.6 MB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 73122 bytes 51835130 (51.8 MB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
        device interrupt 16 memory 0xb1400000-b1420000

eth0.458: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.156.187 netmask 255.255.255.0 broadcast 192.168.156.255
        inet6 fe80::669d:99ff:feff:f512 prefixlen 64 scopeid 0x20<link>
        ether 64:9d:99:ff:f5:12 txqueuelen 1000 (Ethernet)
        RX packets 2139 bytes 554023 (554.0 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 2051 bytes 218301 (218.3 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
        loop txqueuelen 1000 (Local Loopback)
        RX packets 8417 bytes 670295 (670.2 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 8417 bytes 670295 (670.2 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

==================================================================================
## DHCP Status
==================================================================================

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==================================================================================

isc-dhcp-server.service - ISC DHCP IPv4 server

Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)

Active: active (running) since Mon 2022-11-28 10:32:22 IST; 15min ago

Docs: man:dhcpd(8)

Main PID: 7017 (dhcpd)

Tasks: 1 (limit: 4915)

CGroup: /system.slice/isc-dhcp-server.service

d -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/dhcpd.conf eth0.458


Nov 28 10:32:22 vvdn sh[7017]: Listening on LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn sh[7017]: Sending on   LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn sh[7017]: Sending on   Socket/fallback/fallback-net

Nov 28 10:32:22 vvdn dhcpd[7017]: Sending on   LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn dhcpd[7017]: Sending on   Socket/fallback/fallback-net

Nov 28 10:32:22 vvdn dhcpd[7017]: Server starting service.

Nov 28 10:32:39 vvdn dhcpd[7017]: DHCPDISCOVER from 98:ae:71:00:8a:c2 via eth0.458

Nov 28 10:32:40 vvdn dhcpd[7017]: DHCPOFFER on 192.168.156.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.458

Nov 28 10:32:40 vvdn dhcpd[7017]: DHCPREQUEST for 192.168.156.37 (192.168.156.187) from 98:ae:71:00:8a:c2 (mcb1) via eth0.458

Nov 28 10:32:40 vvdn dhcpd[7017]: DHCPACK on 192.168.156.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.458

==================================================================================
## ############ Pinging ############
==================================================================================

PING 192.168.156.37 (192.168.156.37) 56(84) bytes of data.

64 bytes from 192.168.156.37: icmp_seq=1 ttl=64 time=0.127 ms

64 bytes from 192.168.156.37: icmp_seq=2 ttl=64 time=0.186 ms

64 bytes from 192.168.156.37: icmp_seq=3 ttl=64 time=0.194 ms

64 bytes from 192.168.156.37: icmp_seq=4 ttl=64 time=0.183 ms

64 bytes from 192.168.156.37: icmp_seq=5 ttl=64 time=0.200 ms


--- 192.168.156.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4080ms

rtt min/avg/max/mdev = 0.127/0.178/0.200/0.026 ms

========================================================================
**The O-RU NETCONF Serve  establishes TCP connection and performs a Call Home procedure towards the NETCONF Client and not establishes a SSH.**
========================================================================

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.156.37' cannot be established.

    ssh-rsa key fingerprint is 59:9e:90:48:f1:d7:6e:35:e8:d1:f6:1e:90:aa:a3:83:a0:6b:98:5a.

    Are you sure you want to continue connecting (yes/no)? no

    nc ERROR: Checking the host key failed.

    cmd_listen: Receiving SSH Call Home on port 4334 as user "operator" failed.

------------------------------------------------------------------------------------------------

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=============================================================================
  ############ SYSTEM LOGS #############
=============================================================================
```

Oct 30 00:03:40 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:40 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:41 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:41 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:42 mcb1 user.notice SYNCMNGR[1310]: Received message from S-Plane

Oct 30 00:03:42 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:42 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:43 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:43 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:44 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:44 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:45 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:45 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:46 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:46 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).

Oct 30 00:03:47 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:47 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.

Oct 30 00:03:47 mcb1 daemon.info netopeer2-server[981]: Session 176 (user "root", CID 1) created.

Oct 30 00:03:47 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.

Oct 30 00:03:48 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:48 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.

Oct 30 00:03:48 mcb1 daemon.info netopeer2-server[981]: Session 177 (user "root", CID 1) created.

Oct 30 00:03:48 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fw_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/nw_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/operations_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/pm_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/um_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sys_monitor

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fault_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/file_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/supervision

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sync_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/ald_controller

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/log_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/radio_manager

Oct 30 00:03:48 mcb1 user.notice wd_manager[1442]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/cli_manager

Oct 30 00:03:49 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:49 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.

Oct 30 00:03:49 mcb1 daemon.info netopeer2-server[981]: Session 178 (user "root", CID 1) created.

Oct 30 00:03:49 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.

Oct 30 00:03:50 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:50 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.

Oct 30 00:03:50 mcb1 daemon.info netopeer2-server[981]: Session 179 (user "root", CID 1) created.

Oct 30 00:03:50 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.

Oct 30 00:03:51 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.

Oct 30 00:03:51 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.

Oct 30 00:03:51 mcb1 daemon.info netopeer2-server[981]: Session 180 (user "root", CID 1) created.

Oct 30 00:03:51 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.

Oct 30 00:03:51 mcb1 auth.info sshd[13916]: Accepted password for operator from 192.168.156.187 port 43256 ssh2

Oct 30 00:03:51 mcb1 authpriv.info sshd[13916]: pam_unix(sshd:session): session opened for user operator by (uid=0)

Expected Result : The TER NETCONF Client and O-RU NETCONF Server exchange capabilities through NETCONF <hello> messages.

==
  **************** Actual Result ****************
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Transport and Handshake in IPv4 Environment (negative case: refuse SSH Connection)   = SUCCESS

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