@ **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.

==
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 574 bytes 96317 (96.3 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 594 bytes 71551 (71.5 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 333573 bytes 346036222 (346.0 MB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 315336 bytes 337443200 (337.4 MB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
        device interrupt 16 memory 0xb1400000-b1420000

eth0.448: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.22.79 netmask 255.255.255.0 broadcast 192.168.22.255
        inet6 fe80::669d:99ff:feff:f512 prefixlen 64 scopeid 0x20<link>
        ether 64:9d:99:ff:f5:12 txqueuelen 1000 (Ethernet)
        RX packets 427 bytes 75979 (75.9 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 427 bytes 42447 (42.4 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 8347 bytes 652171 (652.1 KB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 8347 bytes 652171 (652.1 KB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

===
DHCP Status
===

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 Thu 2022-11-24 17:16:36 IST; 4min 7s ago

   Docs: man:dhcpd(8)

 Main PID: 6647 (dhcpd)

   Tasks: 1 (limit: 4915)

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

   cpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/dhcpd.conf eth0.448

Nov 24 17:16:37 vvdn sh[6647]: Listening on LPF/eth0.448/64:9d:99:ff:f5:12/192.168.22.0/24

Nov 24 17:16:37 vvdn sh[6647]: Sending on   LPF/eth0.448/64:9d:99:ff:f5:12/192.168.22.0/24

Nov 24 17:16:37 vvdn sh[6647]: Sending on   Socket/fallback/fallback-net

Nov 24 17:16:37 vvdn dhcpd[6647]: Sending on   LPF/eth0.448/64:9d:99:ff:f5:12/192.168.22.0/24

Nov 24 17:16:37 vvdn dhcpd[6647]: Sending on   Socket/fallback/fallback-net

Nov 24 17:16:37 vvdn dhcpd[6647]: Server starting service.

Nov 24 17:16:53 vvdn dhcpd[6647]: DHCPDISCOVER from 98:ae:71:00:8a:c2 via eth0.448

Nov 24 17:16:54 vvdn dhcpd[6647]: DHCPOFFER on 192.168.22.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.448

Nov 24 17:16:55 vvdn dhcpd[6647]: DHCPREQUEST for 192.168.22.37 (192.168.22.79) from 98:ae:71:00:8a:c2 (mcb1) via eth0.448

Nov 24 17:16:55 vvdn dhcpd[6647]: DHCPACK on 192.168.22.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.448

===
Pinging
===

PING 192.168.22.37 (192.168.22.37) 56(84) bytes of data.

64 bytes from 192.168.22.37: icmp_seq=1 ttl=64 time=0.139 ms

64 bytes from 192.168.22.37: icmp_seq=2 ttl=64 time=0.136 ms

64 bytes from 192.168.22.37: icmp_seq=3 ttl=64 time=0.186 ms

64 bytes from 192.168.22.37: icmp_seq=4 ttl=64 time=0.200 ms

64 bytes from 192.168.22.37: icmp_seq=5 ttl=64 time=0.206 ms

--- 192.168.22.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4093ms

rtt min/avg/max/mdev = 0.136/0.173/0.206/0.032 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:192.168.22.37' 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 #############
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Oct 29 23:07:11 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:11 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:12 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:12 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:13 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:13 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fw_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/nw_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/operations_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/pm_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/um_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sys_monitor

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fault_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/file_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/supervision

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sync_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/ald_controller

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/log_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/radio_manager

Oct 29 23:07:14 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/cli_manager

Oct 29 23:07:14 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:14 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:15 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:15 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:16 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:16 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:07:17 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:17 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.22.79:4334 over IPv4.

Oct 29 23:07:17 mcb1 daemon.info netopeer2-server[980]: Session 92 (user "root", CID 1) created.

Oct 29 23:07:18 mcb1 daemon.err netopeer2-server[980]: Communication SSH socket unexpectedly closed.

Oct 29 23:07:19 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:19 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.22.79:4334 over IPv4.

Oct 29 23:07:19 mcb1 daemon.info netopeer2-server[980]: Session 93 (user "root", CID 1) created.

Oct 29 23:07:19 mcb1 daemon.err netopeer2-server[980]: Communication SSH socket unexpectedly closed.

Oct 29 23:07:20 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:20 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.22.79:4334 over IPv4.

Oct 29 23:07:20 mcb1 daemon.info netopeer2-server[980]: Session 94 (user "root", CID 1) created.

Oct 29 23:07:20 mcb1 daemon.err netopeer2-server[980]: Communication SSH socket unexpectedly closed.

Oct 29 23:07:21 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:21 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.22.79:4334 over IPv4.

Oct 29 23:07:21 mcb1 daemon.info netopeer2-server[980]: Session 95 (user "root", CID 1) created.

Oct 29 23:07:21 mcb1 daemon.err netopeer2-server[980]: Communication SSH socket unexpectedly closed.

Oct 29 23:07:22 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.22.79:4334.

Oct 29 23:07:22 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.22.79:4334 over IPv4.

Oct 29 23:07:22 mcb1 daemon.info netopeer2-server[980]: Session 96 (user "root", CID 1) created.

Oct 29 23:07:22 mcb1 daemon.err netopeer2-server[980]: Communication SSH socket unexpectedly closed.

Oct 29 23:07:22 mcb1 auth.info sshd[5028]: Accepted password for operator from 192.168.22.79 port 33886 ssh2

Oct 29 23:07:22 mcb1 authpriv.info sshd[5028]: 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.

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

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