



@ FILE NAME: M_CTC_ID_002.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for LPRU: v1.1.0

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

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.95.65 netmask 255.255.240.0 broadcast 172.17.95.255

inet6 fe80::5fdb:64ba:ee9e:366c prefixlen 64 scopeid 0x20<link>

ether 4c:d9:8f:69:23:2b txqueuelen 1000 (Ethernet)

RX packets 3772531 bytes 1651795383 (1.6 GB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 2438432 bytes 954603788 (954.6 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

device interrupt 17

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.4.15 netmask 255.255.255.0 broadcast 192.168.4.255

inet6 3ffe:501:cafe::a001:1012 prefixlen 64 scopeid 0x0<global>

inet6 fe80::5bb2:44e5:874e:988a prefixlen 64 scopeid 0x20<link>

ether 64:9d:99:b1:7e:62 txqueuelen 1000 (Ethernet)

RX packets 49063 bytes 35275074 (35.2 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 160497 bytes 216636776 (216.6 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

ether 4c:d9:8f:69:23:2c 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

device interrupt 18

eth3: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

ether 64:9d:99:b1:7e:63 txqueuelen 1000 (Ethernet)

RX packets 60993 bytes 8041981 (8.0 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 46530 bytes 3063427 (3.0 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1.6: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.214.234 netmask 255.255.255.0 broadcast 192.168.214.255

inet6 fe80::669d:99ff:feb1:7e62 prefixlen 64 scopeid 0x20<link>

ether 64:9d:99:b1:7e:62 txqueuelen 1000 (Ethernet)

RX packets 7889 bytes 28521860 (28.5 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 4169 bytes 341688 (341.6 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 588632 bytes 55865856 (55.8 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 588632 bytes 55865856 (55.8 MB)
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 Fri 2022-11-18 21:50:27 IST; 3min 36s ago

Docs: man:dhcpcd(8)

Main PID: 8261 (dhcpcd)

Tasks: 1 (limit: 4915)

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

└─8261 dhcpcd -user dhcpcd -group dhcpcd -f -4 -pf /run/dhcp-server/dhcpcd.pid -cf /etc/dhcp/dhcpcd.conf eth1.6

Nov 18 21:50:27 vvdn-PowerEdge-T440 sh[8261]: Sending on Socket/fallback/fallback-net

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Sending on LPF/eth1.6/64:9d:99:b1:7e:62/192.168.214.0/24

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Sending on Socket/fallback/fallback-net

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Server starting service.

Nov 18 21:50:41 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.252.37 from 78:7d:f3:01:13:bb via eth1.6: ignored (not authoritative).

Nov 18 21:50:46 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.252.37 from 78:7d:f3:01:13:bb via eth1.6: ignored (not authoritative).

Nov 18 21:50:56 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPDISCOVER from 78:7d:f3:01:13:bb via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPOFFER on 192.168.214.37 to 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.214.37 (192.168.214.234) from 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPACK on 192.168.214.37 to 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Pinging

PING 192.168.214.37 (192.168.214.37) 56(84) bytes of data.

64 bytes from 192.168.214.37: icmp_seq=1 ttl=64 time=0.135 ms

64 bytes from 192.168.214.37: icmp_seq=2 ttl=64 time=0.133 ms

64 bytes from 192.168.214.37: icmp_seq=3 ttl=64 time=0.168 ms

64 bytes from 192.168.214.37: icmp_seq=4 ttl=64 time=0.136 ms

64 bytes from 192.168.214.37: icmp_seq=5 ttl=64 time=0.116 ms

--- 192.168.214.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4092ms

rtt min/avg/max/mdev = 0.116/0.137/0.168/0.021 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:192.168.214.37' 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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Nov 4 00:04:07 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:07 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:08 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:08 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:09 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:09 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:10 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:10 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:11 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:11 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:12 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:12 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:13 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:13 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).
Nov 4 00:04:14 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:14 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.
Nov 4 00:04:14 vvdn_lpru daemon.info netopeer2-server[859]: Session 89 (user "root", CID 1) created.
Nov 4 00:04:14 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.
Nov 4 00:04:15 vvdn_lpru user.notice SYNCMNGR[1175]: Received message from S-Plane
Nov 4 00:04:15 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:15 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.
Nov 4 00:04:15 vvdn_lpru daemon.info netopeer2-server[859]: Session 90 (user "root", CID 1) created.
Nov 4 00:04:15 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.
Nov 4 00:04:16 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:16 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.
Nov 4 00:04:16 vvdn_lpru daemon.info netopeer2-server[859]: Session 91 (user "root", CID 1) created.
Nov 4 00:04:16 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.
Nov 4 00:04:17 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:17 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.
Nov 4 00:04:17 vvdn_lpru daemon.info netopeer2-server[859]: Session 92 (user "root", CID 1) created.
Nov 4 00:04:17 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.
Nov 4 00:04:18 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.
Nov 4 00:04:18 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.
Nov 4 00:04:18 vvdn_lpru daemon.info netopeer2-server[859]: Session 93 (user "root", CID 1) created.
Nov 4 00:04:18 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.
Nov 4 00:04:18 vvdn_lpru authpriv.debug sshd[4533]: pam_unix(sshd:account): account operator has password changed in future
Nov 4 00:04:18 vvdn_lpru authpriv.info sshd[4533]: Accepted password for operator from 192.168.214.234 port 35922 ssh2
Nov 4 00:04:18 vvdn_lpru authpriv.info sshd[4533]: 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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Transport and Handshake in IPv4 Environment (negative case: refuse SSH Connection) =

SUCCESS

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