

REMOTE ETHERNET TESTING

Challenges

Fault diagnosis time can be			
dependant upon speed of			
response by Ethernet			
providers FMC or the ability			
to arrange downtime to test			
with the customer			

Efficient despatching of engineers to install CPE depend on circuits being delivered right

Service assurance requires customer end visibility driving a 'book ended' service or despatch engineers for No Fault Found reports <u>Site access</u> for testing poses additional challenges during COVID 19 restrictions



Benefits of VMB remote loopbacks

Faults can be tested centrally & sectionalised faster, enabling <u>faster fault diagnosis</u> <u>& fix</u>	Test for faults sooner without customer downtime, <u>diagnose faster</u>	Lower opex costs, identify any delivery errors before despatching engineers	"One of the biggest challenges in troubleshooting reported bandwidth issues is arranging end to end testing that eliminates the customers own equipment as this often requires planned downtime and customer involvement. This feature allows us to perform this end to end testing as soon as the customer reports a problem and more importantly without the need for the customer to arrange downtime. This will massively reduce our resolution times and the time our engineers spend investigating"
Enable on-site engineers- Engineers can connect equipment locally and test back to the Service Provider site	<u>Continuous monitoring-</u> low level test traffic could be run over the always-on loopback without impacting customer traffic	Cost saving Use VMB's NTU as the demarcation and remote test instead of deploying CPE	David George – Core infrastructure Team Leader Aspire



Key points



It is a non service affecting loop that is permanently on and requires no process or portal to turn it on/off.

Customer integration simply involves configuring test equipment with a unique destination mac address provided by VMB

Can be operated through direct connection to NTU or remotely through your own network



Can be operated on Port presented (UNI) services and VLAN based (E-NNI) services



Loopbacks applied

- 1. Each NTU has 2 x <u>directional</u> loopbacks, one returns traffic from the local customer connected port (UNI) and the other on the Network connected port (NNI) returns traffic from the remote end.
- 2. UNI loopback returns traffic sent to 2c:fa:a2:87:ce:b0
- 3. NNI Loopback return traffic sent to 2c:fa:a2:6b:f2:da





Ethernet Circuit loopback operation

- 1. Traffic flows in both directions as normal, unaffected by the loopback.
- 2. Test traffic with a unique destination address will be returned with source & destination address swapped.
- 3. Centralised test equipment at a Service Providers Interconnect site can remotely test without needing far end test equipment or access to the site.





Tester setup





NTU compatibility

All the NTU's installed now are installed with the new firmware code and loopback feature.

Compatible NTU's on older firmware will require a firmware update to use loopbacks. This incurs approximately 5 mins downtime and will be performed during fault diagnosis and during a bandwidth upgrade.

Non compatible NTU's don't have loopbacks but will pass test traffic destined for a compatible NTU.

NTU compatibility

	NTU	Notes
Compatible NTU's	Alcatel 6250-8M	Standard since 2012
	Alcatel 6250-24M	Standard since 2018
	Alcatel 6450	Standard since 2013
Non compatible NTU's	E-NNI (no NTU)	Preferred Interconnect
	WWP LE 46/311 etc	Last deployed 2012
	Accedian EDU5	Non-standard
	ALU 6850	Last deployed 2017







Your questions

- How will we know if a particular circuit is enabled with the loopback?
 - If your loopback test fails it could be due to a fault or there being not loop configured. If you believe there is a fault then log it with the FMC who will upgrade & apply loopback as part of their fault process
- Can the loopback be applied to older circuits?
 - Yes on compatible NTU's, it will require an NTU reboot therefore will be treated as an in-life circuit change and require an order
- How does the test engineer select the right circuit to test?
 - ✓ Through connecting the UNI port or configuration of Service Provider test equipment to a service VLAN
- Can this run tests or just enable tests?
 - ✓ The loopback enables a service providers own equipment to run tests, testing is not provided by VMB
- Can the firmware update & loopback config be applied during a fault scenario logged with FMC ?
 - Yes- the standard fault response is to ensure every NTU is running the latest firmware and any action performed on the NTU will result in the loopbacks being applied
- An A end test does not check there service bandwidth, why not ?
 - A test run over the interconnect to the A end NTU is looped back before reaching the MPLS PE router where the bandwidth control is, therefore the A end test is to be used to confirm interconnect integrity and correct function of test equipment before testing to the B end



