Circuit testing procedure

CLARA Network Engineering Group

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This document presents the procedure adopted for testing the circuits in use by RedCLARA in its backbone or to connect to other networks.

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VERSION MANAGEMENT

This document outlines the operational procedures for testing circuits. When new procedures are required or other changes made, it will be updated accordingly, and the new version release will be recorded in the table below.

Version	Modification description	Date	Reviewed by
preliminary	First draft	09-Aug-2004	Eriko Porto
1.0	Corrections and changes	06-Sep-2004	Eriko Porto
1.1	Corrections and changes	01-Oct-2004	Eriko Porto

Summary

1. Introduction

Whenever a new connector circuit comes up, it's the standard practice to do a simple layer-3 acceptance test and benchmark on it. This document outlines the procedure that will be used at RedCLARA to test the circuits provided for the connection between the nodes.

This procedure will help both to establish that the circuit works well at the IP layer, as well as verify what the normal round-trip time for the link is.

2. Procedure

The test is done by executing an extended ping between the router interfaces that are peers at the link, with two options turned on: verify, and spread sizes from a reduced packet size to a size close to the MTU for the link.

This test is expected to introduce no more than 1 lost packet in a million, or a rate of 99.9999% at least. If the circuit tested as described above does not meet this criterion, we will have to work with the carrier and/or the connectors to try to enhance it up. There can be present some circumstances where it will not be able to improve this rate but in which traffic through the router to a remote destination passes acceptably.

These are the testing parameters for a Cisco router as entered for the test.

```
router#ping
Protocol [ip]:
Target IP address: 200.0.205.22
Repeat count [5]: 22000
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]: yes
Source address or interface:
Type of service [0]:
Set DF bit in IP header? [no]:
Validate reply data? [no]: yes
Data pattern [0xABCD]:
Loose, Strict, Record, Timestamp, Verbose [none]:
Sweep range of sizes [n]: yes
Sweep min size [36]: 100
Sweep max size [18024]: 4400
Sweep interval [1]: 100
Type escape sequence to abort.
Sending 968000, [100..4400]-byte ICMP Echos to 200.0.205.22, timeout is 2 seconds:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! (and so on...)
Success rate is 100 percent (968000/968000), round-trip min/avg/max = 116/120/138 ms
```

This test will generate approximately 1.000.000 echo request packets between the routers and could extend for a period of around 24 hours (depending on the round trip time).