



Request for Proposal

Mobile & Web Application for Speed/Bitrate Test

Appendix B

Upload & Download Speedtest Calculation (TCP)

Version 1.1

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Document Control

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1 INTRODUCTION

As part of the application there is Upload & Download test measurements shall be conducted. Company is requesting to use Linux “iPerf3” tool (<https://iperf.fr>) to be used for this purpose as it is supported both Android & IOS platforms. On Table-1 below, Bidder can find brief information about iperf3 tool and required options as part of application.

SYNOPSIS

```
iperf3 -c <test-server-address-fqdn> -b 0 -P 20 -R -M 1400 -t 12 -w 340k
```

DESCRIPTION

iPerf3 is a tool for active measurements of the maximum achievable bandwidth on IP networks. It supports tuning of various parameters related to timing, buffers and protocols (TCP, UDP, SCTP with IPv4 and IPv6). For each test it reports the bandwidth, loss, and other parameters. This is a new implementation that shares no code with the original iPerf and also is not backwards compatible. iPerf was originally developed by [NLNR/DAST](#). iPerf3 is principally developed by [ESnet](#) / [Lawrence Berkeley National Laboratory](#). It is released under a three-clause [BSD license](#).

OPTIONS

Tag	Description	Value
-c	Run iPerf in client mode, connecting to an iPerf server running on <i>host</i> .	-
-b n[KM]	Set target bandwidth to n bits/sec (default 1 Mbit/sec for UDP, unlimited for TCP). If there are multiple streams (-P flag), the bandwidth limit is applied separately to each stream. You can also add a '/' and a number to the bandwidth specifier. This is called "burst mode". It will send the given number of packets without pausing, even if that temporarily exceeds the specified bandwidth limit.	0
-P n	The number of simultaneous connections to make to the server. Default is 1.	20
-R --reverse	Run in reverse mode (server sends, client receives).	For Download only
-M --set MSS n	Attempt to set the TCP maximum segment size (MSS). The MSS is usually the MTU - 40 bytes for the TCP/IP header. For ethernet, the MSS is 1460 bytes (1500 byte MTU).	1400
-t --time n	The time in seconds to transmit for. iPerf normally works by repeatedly sending an array of len bytes for time seconds. Default is 10 seconds. See also the -l, -k and -n options.	12
-w --window n[KM]	Sets the socket buffer sizes to the specified value. For TCP, this sets the TCP window size. (this gets sent to the server and used on that side too)	30K for Upload Not defined for Download

Table – 1: iPerf3 Tool & Required Options

2 CALCULATION METHODS FOR THE TEST

2.1 Upload

- Application should run the iperf3 command (with exchanged parameters)
 - Application should animate the results every seconds based on the reading of iPerf as gauge (speed tachometer) and/or line graph diagram.
 - Application should show the iPerf final results as final result to customer.
 - Example;
iperf3 -c test1.speedtest.ileritech.com -b 0 -P 10 -M 1400 -t 12 -w 30

2.2 Download

- Application should run the iperf3 command (with exchanged parameters)
 - Application should animate the results every seconds based on the reading of iPerf as gauge (speed tachometer) and/or line graph diagram.
 - Application should show the iPerf final results as final result to customer.
 - Example;
iperf3 -c test1.speedtest.ileritech.com -b 0 -P 10 -M 1400 -t 12 -R

3 PARAMETER EXCHANGE WITH CENTRAL SERVER

Application will exchange the test parameters as part of Initialization of application on mobile handset. Aim is to provide flexibility of changing test parameters without updating the application on the client handset.

Parameter	Value Type	Description
Server FQDN	String	The address of test server to be used during test. Example: tests1.speedtest.ileritech.com
bandwidth	Integer	Target bandwidth. Example: 0 (unlimited)
parallel-upload	Integer	The number of simultaneous connections during upload test. Example: 10
parallel-download	Integer	The number of simultaneous connections during download test. Example: 20
mss-upload	Integer	TCP Maximum Segment Size for upload. Example : 1400
mss-download	Integer	TCP Maximum Segment Size for download. Example : 1400
time-upload	Integer	The Time in seconds as a duration of upload test. Example: 12
time-download	Integer	The Time in seconds as a duration of download test. Example: 12
wsiz-upload	Integer	TCP Window Size: Example: 30K
wsiz-download	Integer	TCP Window Size: Example: 340K

Bidder shall propose a mechanism for exchanging these parameters.