

# Attachment B - Measurement Procedures of KPI's Network Infrastructure

ABHS FY 2018 Category 2 Request for Solutions

This document is part of the complete request for solutions. Please read all four documents and any addendums that have been posted.

## Speed

### Tools Used

1. Speedtest.net
2. Windows laptop
3. Three Chromebooks

### Overview

The goal of this test is to determine if any delay is introduced by the network infrastructure. The upload and download speed in Mbs will be measured at the output port of the firewall and then compared to the speed at the same time, recorded at three locations in the school. The speed of the upload and download will be compared separately. The speed at the three locations will be measured while the Chromebooks are connected wirelessly.

### Test Parameters

Then three tests will be taken by a wireless chromebooks in the following locations:

1. Classroom on the third floor, southwest corner of the building.
2. In the second floor courtroom
3. In the first floor indaba.

## Test Procedure

1. Attach a Windows laptop wired to the output port of the firewall.
2. Take ten (10) speed readings at one minute intervals
3. Record both upload and download speeds.
4. Calculate the arithmetic average of the two speeds separately.
5. .At the same time connect three Chromebooks at the three locations wirelessly to speedtest.net
6. Take ten (10) speed readings at one minute intervals
7. Record both upload and download speeds.
8. Calculate the arithmetic average of the two speeds separately..

## Required Results

The average upload speed at the three locations cannot be less than 90% of the upload speed at the firewall AND the average download speed at the three locations cannot be less than 90% of the download speed at the firewall. Both conditions must be met for the terms of the contract to be met.

## Capacity

### Tools used

1. SBA testing admin website - capacity tester
2. Windows laptop with Chrome browser
3. Wireless network

## Overview

The SBA is a state sponsored online assessment that is required for all juniors. The test does not have a local cache. As part of the admin website for the test there is a capacity tester. After entering the number of concurrent users the test is run from a typical student device. Based on the connection the tester will determine if there is enough capacity to test the number of users proposed. While based primarily on the Internet connection the test takes into considerations the network infrastructure between the Internet point of entry and the user's device.

## Test Parameters

We will conduct four tests at three different locations in the building. Then three tests will be taken by a wireless laptop in the following locations:

1. Classroom on the third floor, southwest corner of the building
2. In the second floor courtroom
3. In the first floor indaba.

The concurrent users will be set to 100 and the test ran.

## Test Procedure

1. The capacity checker is ran three times. For the location to pass all three checks must pass.
2. The test is repeated at the all locations.

## Required results

All nine capacity tests, three at each location must pass for the terms of the contract to be met.

## Redundancy

### Tools Used

1. Management dashboard for network
2. TBA

## Overview

The network is designed to have two connections to the Internet. One at the main building and a second at the Simm's Annex. During normal operations each building will be served by the Internet connection in its building. However in case of the failure of one Internet connection the two building will share the remaining Internet connection via a point to point wireless connection that is currently in operation. The required specifications do not require a manual or automatic failover process. It is up to the vendor to choose they method they see as best.

## Test Parameters

None

## Test Procedure

1. With no prior preparation the Internet connection at the main building will be disconnected.
2. The time to establish a connection to the Internet at the Simm's Annex will be recorded.
3. The process will be repeated five time to determine and average time.
4. With no prior preparation the Internet connection at the Simm's Annex will be disconnected.
5. The time to establish a connection to the Internet at the Main Building will be recorded.
6. The process will be repeated five time to determine and average time.
7. The times will all be averaged into one time,

## Required Results

Depending on the method used to initiate the failover process the average time must meet or exceed one of these results.

1. If the process is automatic the average time must be less than one minute.
2. If the process is manual the average time must be less than five minutes.

If either of these requirements are met, the terms of the contract has been met.

## Reliability

### Tools used

None

## Overview

We cannot determine the reliability of they system before the system is used. Instead we require that following guarantee be included in the contract. If the guarantee is not met financial penalties will be assessed

## Test Parameters

The time will begin when the school notifies the vendor or their designated representative that the equipment has failed..

## Test Procedure

None

## Required Results

The vendor must repair or replace any failed equipment by the end of the next business day (8am-5pm) that school is in session, not including Saturdays. For example if the school contacts the vendor at 3pm on a Monday, the vendor must have the system running by 5pm on Tuesday.