WIFI PROJECT ST MATTHEWS HIGH SCHOOL OCTOBER 2018

We have installed equipment in the following establishments:

1. Hall
2. Literacy Centre
3. St Chad's House
4. Staff House 1
5. Staff House 2
6. Hostel 1- (4 access points)
7. Hostel 2 -(6 access points)
8. Elyonweni Staff house 5
9. Elyonweni Staff house 1
10. Elyonweni Staff house 3
11. Sifunda Kunye House
12. Computer Lab
13. Media Centre
14. Admin Block

We installed plugs in the ceilings to power the equipment for all the above mentioned areas, this allowed us to place the cabinets with the switches and UPS's in a safe space. All the cables are also run in the ceiling, thus allowing us to only have the access points mounted on the exteriors of the buildings. This is not only a good solution against theft, but it also prevents plugs being taken out or equipment being tampered with.

We have allowed for one access point per house, and multiple points for the hostels. The signal has been tested thoroughly and spreads across the entire campus (even walk ways between School and Hostels).

The Network Diagram

As seen in the picture above, all the yellow highlighted buildings have equipment installed. The pink arrows are showing how the point to multipoint access points bridge the signal from our tower up on the hill.

WIFI Coverage Map

As seen in the picture above, the pink outline shows where the WIFI signal is present.

Remote Monitoring and Configuration

As seen in the screenshots above, I am able to monitor and make settings at any stage remotely. I use winbox as seen above for the network and teamviewer to login to our servers remotely. Together they give me the best remote access possible. The picture above shows how we have 1500 devices connected, running at 8.2Mbps. To put in in perspective for you, before we had our own tower, we were lucky to be running at 1mbps in the computer lab alone.
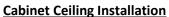
Exterior Access Points

As seen in the picture above, we installed exterior AP's to bridge the signal across the campus. Each highlighted building has an exterior AP as well as interior Aps.

Interior Access Points

As seen in the picture above, each building has one or multiple Aps to ensure proper coverage.

Cabinet Ceiling Installation

As seen in the picture above, all the cabinets were installed in the ceilings for safety. Since there were no servers in these cabinets, we used high temp graded switches in the ceilings. We also used outdoor network cables with a higher UV index rating. These cables also include an earth cable to protect against lightning.

Ceiling Plugs

As seen in the picture above, we pre-installed plugs into the ceilings to provide power to all the cabinets. These plugs were routed back to the main DB board. They were labelled and installed with a trip switch. A COC certificate was provided.

Main Tower

As seen in the picture above, our main signal is coming from our tower we had put up at the beginning of the year. The signal gets sent down to the computer lab. It is from the computer lab where the signal then gets bridged across the campus using the exterior access points.

Hotspot Setup

As seen in the picture above, we are using a custom hotspot login for the WIFI. The username is either staff or student and the password is the same for both. Once the device is logged in, the IP address gets recorded. Our controller then starts to cap the user, allowing for 500mb per day for each user. Once the device has reached its cap, it will be disconnected. Certain sites are also blocked and our network is protected by our anti-virus and firewall. The hotspot gets shutdown automatically at 9pm. We currently have a 10meg line at St Matthew's. We have allocated 5meg to the WIFI and 5meg to the computer labs. They both run independently, ensuring the speed in the labs never get effected by the WIFI or visa-versa. After hours, the WIFI gets the full 10meg. Since the labs will be closed.

Installation
The installation and configuration was done by Wesley from St Andrew's College. Zander Hampson Programm Manager of Sifunda Kunye assisted in all the processes.

Perspective

It is very exiting if we think back to last year this time. We were using satellite internet at St Matthew's which cost a fortune. The internet gave us 1mbps speeds (when working). We were told it is impossible to get signal for any alternative service providers, let alone have WIFI across the entire campus. Since then we installed our own tower up on the hill which is powered by solar and batteries. We got permission from the Chief to use the land and he promised to look after the equipment. We have better speeds than any of our schools and we have spread the WIFI over the entire campus. All at R4000 cheaper per month than before. Not bad for a rural Eastern Cape School.

Future Plans

If approved, we would like to install the following in the Literacy Centre:

1. Cameras
2. Projectors
3. PC

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Official Launch

We are planning a formal launch of the WIFi project.

SIFUNDA KUNYE
TOGETHER IN LEARNING

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