NETWORK HEALTH CHECK

Project: **THE BURNTWOOD NETWORK HEALTH CHECK**

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1. Initial Overview

Integral would like to thank IT Help Desk and The Burntwood for the opportunity to conduct a network health check and witness testing at The Burntwood.

Integral is a dedicated communications services provider with many years experience and expertise in the design and installation of structured cabling solutions in existing and refurbished buildings, listed buildings, Greenfield sites and new office developments. Our client base includes major Insurance Companies, Finance Houses, blue-chip commercial organisations, Central Government, Local Government, Police, Health and Education services.

This document presents our overview on the current network design and infrastructure with recommendations to enhance any future installations within The Burntwood.

On arrival, Pat gave a complete (to the best of his knowledge) overview on the network scheme at The Burntwood. Emphasis was placed on critical areas of concern to the College's current network.

These being:

- The main fibre / copper back bone links
- Latency Issues with Club Runner
- Internet Connections

The main concern was with the Club Runner system, this system seems to work OK at times and slow at other times. There has been a swap of the Server to a powerful PC which seemed to fix the problem but when placed back on the Server the latency issues started again.

Another concern is that nothing had been documented from previous installations therefore no one really knows how the buildings are connected or indeed whether those connections are adequate for the systems and protocols that The Burntwood use.

It is assumed that the fibre or copper were never tested or labelled and this has led to some confusion on site as to where the fibres actually go from and to and if they are capable of serving gigabit across the vertical backbone. Gigabit will not necessarily be required immediately but may be required at some time in the future.

A further issue was mentioned with the private internet connection, the connection seems to work fine for some time and then users are finding it difficult to access the private internet at other times.

2. Network Documentation

The Burntwood has never received any handover documentation from the previous installations on site.

3. Hubs and Switches

There was no requirement to assess the exiting Hubs and Switches on site; however it was noted that the existing switches were capable of providing adequate bandwidth and network traffic from an initial visual inspection.

4. Fibre and Voice Backbone

Voice Backbone not applicable at this stage.

The fibre backbone was the main concern of the health check for Pat, and the following links were found whilst on site:

- Hotel Cellar to Club SPA (1 x fibre 2-cores used)
- Hotel Cellar to Club SPA (1 x fibre 2-cores used)

General Findings Throughout

The installed fibre route could not be visually inspected as the fibre cable routed above ceilings and through a duct.

The fibre is working as traffic moves between the two buildings, but it is not sure what dB losses are on the fibre as we could not test the working fibre on site. This was generally due to the way the fibre had been terminated and the testing could have actually caused further problems as the fibre directly terminates in to a switch without protective patch panels or patch leads.

A Sliding drawer fibre panel at the Spa and at the cellar would be highly recommended to reduce future potential damage to the fibres.

If the fibre panels are introduced the fibre will be down during this work. Once the fibre panels have been installed and the fibre terminated inside of the panels, it can then be tested to industry standards and standard patch leads used in the future.

Cellar to Spa – 4-core fibre

Route

The assumed fibre route is envisaged to go in to false ceilings and then route through the duct to the Spa and finally routed through false ceilings to the Spa cabinet.

Assumed measured length of fibre

100m

Type of fibre

Unsure – too delicate to move the cable to see

Fibre Presentation

ST

Sample Testing

Fibre Test results not carried out due to the delicate terminations and risk of damaging the fibre.

Bandwidth Capabilities

Gigabit can be achieved once recommendations have been implemented.

Labelling

No formal labelling on the panels was found. This is where some of the confusion still exists on site as to what goes where.

5. Horizontal Cabling (Cat 5e / 6)

At present the horizontal cabling is complicated and it is envisaged that maintenance and administration must be difficult to achieve on site as there are no test results, no drawings highlighting where the outlets are and confusion of the panel labelling.

We tried to find an outlet that was labelled as Conf Room 1 1st Floor at the panel but could not ascertain where the outlet was in Conf Room 1 as it was not labelled. We finally found one that could be tested and it tested OK. We believe that the rest of the Cat 5e will be OK but some documentation and investigating would benefit The Burntwood in the future.

6. Communications Cabinets

Cabinets were not an issue during the survey; however it may be wise to install a small lockable wall cabinet in the cellar to house and protect the fibre and associated equipment. The existing shelf is loose and everything could be knocked off by accident as lots of moving of wine boxes is carried out near this shelf.

It is also difficult to get access to the shelf as wine bottles are stacked beneath.

7. Recommendations

The following recommendations will allow The Burntwood's network backbone to increase significantly in bandwidth, speed and throughput. The recommendations can also be implemented in one scheme or over a period of time to meet any budget constraints.

The fibre recommendations assume that the installed fibres have been installed to industry guidelines. This could not be determined on the health check due to no documentation and test results.

Cellar

Fibre.

Installation of a new Communications Cabinet to house the equipment that is stacked on a shelf at present.

Re-termination of the fibre cores within a new sliding drawer fibre patch panel.

Installation of new sliding drawer patch panels to allow ease of future maintenance and administration.

Supply of new fibre patch leads.

Re-testing of fibre optic cables to achieve below dB budgets.

Copper.

The fibre in the cellar at present feeds two switch clusters, one in the cellar and one in the main Hotel Cabinet. The best option would have been to install 2 x fibres directly form and to each respective cabinet / switch cluster, this would also have allowed for some redundancy if more cores had been installed.

We could provide a quotation to re-install these fibres but it would possibly prove expensive when a fibre is already installed.

Due to the fact that the fibre for the Main Hotel Comms Cabinet stops in the Cellar, a long copper patch lead has been installed from the Cellar to the Main Hotel Comms Cabinet. It would be advantageous to test this link up as this could be a bottleneck for the connection. This link was not clearly labelled, but should be easy enough to tone out and label for future maintenance.

Internet - ADSL.

Both the private and public internet connections are presented in a distribution box in the cellar. It seems initially that one ADSL feeds up to the Main Hotel Cabinet which is in close proximity to the Cellar. The 2nd ADSL seems to route up to the Main Hotel Cabinet, then route on to an existing voice link that spans between the Main Hotel Cabinet and the Offices. We are sure why this is like this; it may be that it was easier for BT to present both lines there. An option would be for BT to relocate the 2nd ADSL directly in to the Office Cabinet so it is not being routed around site. Both ADSL's will therefore be in close proximity to their respective cabinets and reduce further problems if cables between the buildings are damaged.

Spa.

Re-termination of the fibre cores within a new sliding drawer fibre patch panel.

Installation of new sliding drawer patch panels to allow ease of future maintenance and administration.

Supply of new fibre patch leads.

Re-testing of fibre optic cables to achieve below dB budgets.

Offices.

There is assumed to be a Cat 5e link from the Main Hotel Comms Cabinet to the office cabinet but again we are uncertain due to no labelling. This Cat 5e may not be adequate for the traffic required between the two buildings. This link may also exceed the 90m that Cat 5e can be run at and again this would cause intermittent problems.
It would be beneficial to find where this link goes from and to by toning and then testing to see if it is adequate, also labelling for future maintenance.

There may be a requirement to install a further Cat 5e or even a fibre between these two buildings to improve network traffic.

Site cabling.

It would be ideal if the site cat 5e outlets were labelled so future patching and administration was easily achievable and not time consuming as it is at present. I would recommend ultimately finding all the outlets, labelling and testing them. If any faults occur, report these faults and recommendations back to The Burntwood. An "As Fitted Network Drawing" could also be provided highlighting where all the outlets actually are within the complex.

It would also be an advantage to issue designations to each cabinet so interlinks and Cat 5e cables can be identified to those cabinets. For example Cabinet "A" etc..

If the existing cabling provider is to install any future cabling it would be advisable to get them to label and test (using a level III accuracy, calibrated tester) on all future cable installations and provide full documentation.

Patch Leads.

The weakest part of any network are the patch leads. No-one has tried swapping these before and it would be advantageous to swap some of the crucial patch leads to try to improve performance. These especially being the leads that connect ADSL circuits and Servers to the network.

Overall Solution.

An overall solution cannot be made at this stage as some of the recommended works could lead to more investigation and changes. However the recommendations given above are provided to try and get a reduction of latency and speed issues across the network as well as getting a better understanding of the network and what goes where.

I trust the above meets with your requirements. However should you have any queries or require any further clarification, please do not hesitate to contact me.

Yours sincerely

Paul Taylor

Integral Network Solutions

8. Appendices

Please find attached a list of appendices to compliment this document.

1. Site Topology (assumed)
2. Copper Test Result(s)
3. Quote to allow for recommendations