Broadband Steering Group

Minutes of the Meeting held on the 12th February 2020 @ 7:30 p.m. Fernaig House

1 Present and Apologies

Present: Phil Game, Georgie Grimson, Joe Grimson, Mary MacBeth, Neil MacRae

2 Approve and adopt previous minutes

The previous minutes for January, were proposed by Mary, seconded by Neil

Copies of previous minutes are on our website at:-

http://www.stromeferry-and-achmore.co.uk/index.asp?pageid=433827

3 Chairman's report

Since the last report the poor weather has made it very difficult to progress any outdoor tasks and so efforts have been concentrated elsewhere. However a brief dry spell did allow us to repair the Braeintra access point - see item 7.1.4.5 and the Achmore access point see item 7.1.4.3.

We have had problems with the new units on the Portchullin raised beach and we have discovered that the "waterproof" enclosure - isn't! - see 8.3.7.

3.1 Bandwidth

For most of January there were no issues with capacity however we began to see poor speeds on the 27th and although speeds have now improved the system is not back to full capacity. It is not clear what changed on the 27th, originally it looked like a problem with Zen and / or Openreach. The lines in Plockton and Lochcarron plus our own BT connection were all showing poor speeds. Zen checked their network and could find nothing wrong.

Zen asked us to run a speed test whilst closing the system to all subscribers and to use their windows based software. this would have meant site visits to Plockton and Lochcarron as we do not have a Windows unit on site which can be accessed remotely. We told Zen that their request raised logistics issues that would take some time to resolve and asked them if they have a MikroTik based speed test system - they do not. However we were able to find a public MikroTik based speed test site which means tests can be run from all the major nodes in the system. Unfortunately, to reduce capacity overload, the site only allows each tester one 15 minute test slot per 24 hours which of course hampers analysis. However we were able to confirm that there were no problems with the Zen lines. Further testing showed that the link from Creag Mhaol to Plockton is operating at full speed when download and upload tests are run separately. However the problem appears to be that the link to Plockton does not run at full speed when upload and download are run simultaneously. It is not clear why this should be a problem but since the link is due to be upgraded to larger dishes with a higher capacity it is unlikely to be an issue in the long term.

In the past few days we have seen the link running at full capacity for downloads (75 Mbps) and uploads (20 Mbps) but perhaps significantly not at the same time. This does suggest the slow speeds we saw at the end of January are to do with the combination of download and upload traffic.

CMNet is now showing speeds of 25+ Mbps download and 12+ Mbps upload but speeds can be lower at peak times of the day.

We have installed addition software reporting on the capacity of the link from Creag Mhaol to Plockton.

We still have the Lochcarron line as a backup to use to reduce the pressure on the Plockton line should the need arise.

Whilst checking CMNet's performance we used our BT line and discovered that its performance has deteriorated to just 11 Mbps download and just under 1.2 Mbps upload. The poor performance of our BT line was one of the factors that suggested that the problems on the 27th were with Openreach.

If you see poor performance hampering your use of the system would you please run a speed test using OOKLA and email the results (ping, download and upload) and the **exact time** of the tests to Phil. **Action: Phil**

3.2 Firmware / False RADAR

We dedicated considerable effort to research the false RADAR problems in some detail. There doesn't seem to be any logic behind the cause but by trial and error it has been possible to reconfigure devices to move them from frequencies that are causing problems.

Using this "unscientific" approach has yielded results. Since the last change was made to the Braeintra access point on the 16th January there have been no incidents in Braeintra and just one for Achmore.

We have not resolved all the problems as we are still seeing some false RADAR events on other units but the number has been greatly reduced. It is possible that more work will need to be done on the relays on the Strome side of Creag Mhaol but this is best left until all the units are in use and we can see how they interact. Nonetheless we do now seem to have an approach which will reduce incidents even if we cannot eliminate them entirely. **Action Phil**

3.3 Server Problems

There has been one incident of the server rebooting itself and again it triggered a hard disk scan and repair. In the long term the server will be replaced by a new Raspberry Pie computer hopefully there will be no more incidents until we have time to upgrade the unit. **Action Phil**

3.4 New Backhaul Installation in Achmore Hall

3.4.1 Get quote for installation

The hall now has a post box to satisfy the Post Office. **Completed**

3.4.2 Install our cabinet and internal equipment in the hall

The location of the internal cabinet has been agreed with Martin and it has been installed. **Completed**

Once the new mains sockets in the cabinet are live we will order the new line. **Action: Mary**

3.4.3 Install external equipment at the hall

3.4.4 Install new dish on CMAchmoreHigh for Plockton access

3.4.5 Switch connection from Plockton to CMAchmoreHigh

3.4.6 Install new dish on CMAchmoreLow for Achmore access

3.4.7 Get new line installed in the hall

3.4.8 Test the new line

3.4.9 Activate the new line

3.5 Subscribers

Live subscribers	- 44
Waiting for installations / activation	- 0
Waiting for subscriber's installation dates	- 0

3.5.1 Waiting for new backbone relays

Waiting for installations	- 31
Leavers since the last minutes	- 0
New joiners since the last minutes	- 0
Total	**- 75**

There have been no installations since the last minutes.

We have had a request for a connection in Lochcarron; once our existing commitments have been met we will see if this is feasible.

The remaining installations are waiting on the completion of the testing of the new relays. See 8.3 for more details

We have had an enquiry for a new connection and have been told by the subscriber that they do not have line of sight. We may review this when all other subscribers have been connected. **Action: Phil**

3.6 New MikroTik replacements for AirRouters

We will be using MikroTik routers for all the new subscribers' installations. **Action: Phil**

3.7 Terms of Reference

Deferred

4 Secretary's report

4.1 Risk register

No progress this month.

4.2 New Zen Contracts

Zen has reduced their tariff on condition we commit to a new full year contract. It was decided we would stay with Zen and opt for the reduced rate. Mary to contact Zen to commit for a further year at the reduced rate **Action: Mary**

4.3 New backhaul installation in Achmore hall

The last task before we order a new line from Zen will be to wire up the new sockets in our cabinet. **Action: Mary**

4.4 Long term support plan

Software to automate the cloning of failed devices - significant work has been done on this software since the last report and it is being used to check the configurations of all our existing equipment. So far a standard configuration has been established for AirRouters and all AirRouters that are online have had the standard configuration applied automatically using our new software. The next task will be to establish and apply a standard configuration for all AirGateways followed by subscribers' antenna. This software has been rewritten with a view to being able to automate the configuration of any unit even if we migrate from one manufacturer to another. **Action: Phil**

4.5   Terms of Reference
Deferred

5   Finance Director's Report

5.1   Monthly Statistics
Revenue for January:-

Brought forward				
Balance		**£771.76**		
Creditors			£2,818.84	
Debtors			£2,884.71	
Net				-£65.87
Bank balance				**£7,816.13**
This month				
Income	£390.28			
Expenditure	£449.80			
P&L		**-£59.52**		
Creditors			£285.52	
Debtors			£77.19	
Net			£208.33	
Adjusted P&L				**£148.81**
Carried forward				
Balance		**£712.24**		
Creditors			£3,104.36	
Debtors			£2,961.90	
Net			£142.46	
Bank balance				**£7,964.94**

Liabilities

Estimated Liabilities	-	£142.46
Estimated balance after liabilities	-	£7,822.52

Provision for replacement of Electronic equipment

Total value purchased to date	-	£16,843.29
Balance after provision	-	£-9,020.77

Phil has amended the finance spreadsheet so that estimated charges are shown separately from amounts credited by suppliers (e.g. overpaid electricity bills). This was needed in January as we were paid a refund for our overpaid electricity bill. **Completed**

We have received a refund of £144.91 for the excess paid on the December electricity bill.

Phil is to amend the finance spreadsheet to account for any cash transfers between income and expenditure. **Action: Phil**

5.2   Next year's tariff
The total number of gigabytes sold was 8,300. The break even tariff for 2 fibre lines is 81 GB per £1, and for 3 fibre lines is 54 GB per £1.

5.3   Outstanding subscribers' debt
Excluding subscribers with quota increases there is one account in arrears.

5.4   Housekeeping
Work continues to automate the reconciliation of payments; priority will be given to Zen. **Action: Phil**

5.5   Payments for installations of subscriber's equipment
All payments are up to date.

5.6   Standing orders
All subscribers' accounts are correct.

5.7   Subscriber's subscription rebates
One refund cheque is yet to be cashed; we will ask the subscriber to cash it ASAP. **Action: Georgie**

6   Internal auditor's report

It was agreed we would prepare a synopsis of our current practises, needs and areas of weakness to assist ourselves and the auditor. No progress this month. **Action: Phil**

6.1   Assets, bf, acquired, relinquished / written off, cf

No progress this month.

6.2   Liabilities

No progress this month.

6.3   Description of the Audit Trail

No progress this month.

7   Customer Relations

7.1   Production Environment

7.1.1   Problems and complaints

On the27th speeds were very poor across the system both from Plockton and Lochcarron. The stats indicated that the problem may be with Zen or Openreach and the problem was reported to Zen. Zen reported back that there were no issues at their end and recommended that we reboot the router in Plockton. It was decided to reboot all the radios that connected us to Plockton and to reboot the Plockton server, this was carried out and the system returned to full capacity.

Problems still exist with false radar detections mainly with Achmore and Braeintra although Ardaneaskan and Fernaig have also had problems. The cause of this is still under investigation.

7.1.2   Usage quotas

The monthly total for January was 3.84 TB (a new record). The daily average was 123 GB; with a peak usage of 182.6 GB on Saturday 25th.

CMNet peaks since operations started; highest daily usage - 230.8 GB, highest monthly usage - 3.84 GB.

Three customers have exceeded their quotas and have had their quota increased. **Action: Phil**

7.1.3   Possible virus infection

No new instances of the Ubiquiti virus were detected; we will continue to run scans. **Action: Phil**

7.1.4   Installation of equipment

No new installations since the last minutes.

7.1.4.1   Ardaneaskan

The LoS (line of sight) from the raised beach is to be confirmed however the LoS from Creag Mhaol has now been confirmed. **Action: Phil**

7.1.4.2   Craig

We will review the situation when we have more experience of low level links over water or other options become available. **Action: Phil**

7.1.4.3   Achmore

The Achmore access point was replaced as there had been a few problems with subscribers' antenna not connecting. Since the unit was replaced there has been one more incident and it is suspected that there may be an issue with the Ethernet cable connection. This will be replaced at the first opportunity.

7.1.4.4   North Strome

No progress this month.

7.1.4.5   Braeintra

The Braeintra access point and its Ethernet cable has been replaced which brought all Braeintra subscribers back online. It appears the problem was caused by "corrosion" of the **gold** contacts on the Ethernet plug and socket. We have managed to reduce the incidents of false RADAR detection by changing the frequency of the unit and the units that the Braeintra access point can "hear". **Completed**

7.1.4.6   Other installations

Some small tasks are outstanding on the Creag Mhaol relays. **Action: Phil**

7.1.5   Customer Contracts

Joe will check that all changes to customer contracts and charges are now correct. **Action: Joe.**

7.2   Changes for next month

7.2.1   Additional Management tools / reports

Management Reporting Software upgrades. No progress this month. **Action: Phil**

Software to check the configuration of equipment - a new version of this software is under test. **Action: Phil**

7.2.2   Potential personal safety issue

The new naming standard has been used for all the new installations. **Action: Phil, Joe**

7.2.3   Additional equipment for subscribers

No requests outstanding.

7.3   Volume trial

7.3.1   Review of the trial

No progress this month. **Action: Phil**

7.4   Terms of Reference

Deferred

7.5   Problem reporting procedure

No progress this month. **Action: Phil**

8   General topics

8.1   Documentation

8.1.1   Creag Mhaol

We have received a draft lease agreement from our solicitors; we have yet to go through this in detail. We will need to reconfirm all the GPS coordinates of the relays before we can proceed; priority will be given to completing the set up of the relays on Creag Mhaol. No progress this month. **Action: Phil**

8.2   Existing Relays

8.2.1   Plockton

8.2.1.1   Equipment and tidy up

The new dishes have arrived and will be configured and installed when traffic can be switched away from Plockton. **Action: Phil**

8.3   Backbone development

8.3.1   Plockton

No issues.

8.3.2   Lochcarron

No issues.

8.3.3   Creag Mhaol

8.3.3.1   Existing relays

No issues.

8.3.3.2   New relays

No progress since the last report due to adverse weather conditions

8.3.3.2.1   Next steps

The Achmore High relay dish that links to Strome Low needs to be replaced with a smaller unit to reduce the signal strength.

The new relay automated recovery algorithms are now ready to test with subscriber installations

Replace the leaking Portchullin raised beach enclosure

Re-align the existing Portchullin Access Point

Add an additional Portchullin Access Point

Install one subscriber's test equipment in Ardnarff

Install one subscriber's test equipment in Portchullin

Install the Strome Ferry relay in North Strome

Install one subscriber's equipment in Ardaneaskan East

Install one subscriber's test equipment in North Strome

The buried mains power cables need to be permanently marked and documented.

There is a reported short circuit on the power supply to the Portchullin backup access point which needs investigation.

Action: Phil, Mary, Joe, Georgie, Neil

8.3.4   The Glen

One access point will be upgraded to see if that will reduce the noise levels. No progress this month. **Action: Phil**

8.3.5 Ardaneaskan

We are now ready to set up one subscriber's connection as a test. **Action: Phil, Joe, Mary**

8.3.6 Leacanashie

The Leacanashie access point is under test. **Action: Phil**

8.3.7 Portchullin (raised beach)

The units have all been automatically reset to the factory default it is suspected that this is due to poor Ethernet connections. However before we replace the cables we will replace the enclosure as it is leaking. We have decided to opt for plastic enclosures in future as the metal units cannot stand up to the harsh environment. To this end we have purchased an enclosure to use as a trial but the fixing are far too weak to withstand the high winds on Creag Mhaol and the raised beach so we are fabricating stronger fixings. The Portchullin enclosure will be replaced at the first opportunity. **Action: Phil**

8.3.8 Craig

We will review the link when other work is complete. **Action: Phil**

8.3.9 North Strome

We are now ready to set up the North Strome link. **Action: Phil, Joe, Mary**
We are now ready to set up one subscriber's connection as a test. **Action: Phil, Joe, Mary**

8.3.10 Strome Ferry

The activation of the Strome Ferry access point is waiting on the installation of the North Strome link. **Action: Phil**

8.3.11 Ardnarff

We are now ready to set up one subscriber's connection as a test. **Action: Phil, Joe, Mary**

8.3.12 Reraig

We have surveyed various locations for a relay to provide an access point for Reraig. Access will almost certainly require a much higher relay than we have built so far. We will return to the relay investigation and build once the current relays are active. **Action: Phil**

8.4 Testing

8.4.1 Management & accounting software

The subscriber usage email will be enhanced to give the specific amount of data used to allow subscribers to better manage their quotas. No progress this month. **Action: Phil**

8.5 Restoring power to the old TV repeater

8.5.1 Removal of old cable

No progress this month.

8.5.2 Protection of cable on the hill

All the cable on the hill has been buried but the routes still need to be marked.

8.5.3 Backup Generator

No progress this month.

8.6 ISPs

8.6.1 ADSL Broadband installation at Plockton High School

No progress this month. **Action: Phil**

8.6.2 ADSL Broadband installation at Lochcarron

No progress this month. **Action: Phil**

8.6.3 ADSL Broadband installation at Achmore

As soon as we have a live mains socket in the internal installation we can order the new line. **Action: Mary, Joe, Phil**

8.7 Implementations

8.7.1 Phase 3 - Relays and creation of access points for the remainder of residents and connect trial subscribers.

Testing of the kit on Creag Mhaol is complete and we are now ready to trial subscriber connections. **Action: Phil**

8.8 Company Logo

No progress this month. **Action: All**

8.9 General Data Protection Regulation (Data Protection Act)

Nothing to report this month

9 Director's training session

9.1 Configuring Ubiquiti and MikroTik equipment

We will organise another training session for all directors

10 Next meeting

Date of next meeting Wednesday 11th March?
The meeting closed at 8:45 pm