UKNOF14
Internet as a utility

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Meeting the challenge

What do people expect from a utility service?

General availability
Standardisation
Reliability

Reliable Broadband service

How can we provide a reliable broadband service to home and business customers?

You cannot rely on one provider

AAISP have used BT exclusively for 9 years.

We have always treated the *last mile* as the risk and provided multiple lines to customers or recommended two ISPs (both via BT).

With 21CN that has changed – we see outages and exchange, BRAS, metro-node, and WBMC levels. Even planned outages hours long.

Are BT really that bad?

Tue 8th Sep, whilst at BT tower, I had to contend with 7 separate major outages on BT.

Some WBC, some WMBC, some IPSC on WBMC, but all at BRAS level so affecting both lines where customers have redundancy.

Most a few minutes, some (159 customers) lasted 7 hours.

When a day has no outages we wonder what has happened.

Using a second provider

AAISP started using BE as a second provider.

Interconnect
Commercial
Coverage
Router configuration
MTU issues
Bonding lines BE+BT
DLM
Are BE reliable?

Interconnect

BT use WES circuits with 30 to 60 day lead times and corresponding installation cost and term.

BE have a presence in several data centres so simply needed Cat5 cables on a few days lead time.

First end user order placed within hours of signing.

Commercial

BT have relatively low line/monthly cost but have very high back-haul bandwidth costs.

With BE we have slightly higher line/monthly costs but much lower usage costs.

This poses a challenge for tariffs. Especially where we have BE and BT lines as fall-back.

Coverage

We believe BE have around 80% population coverage, and because of the simple economics of LLU will probably never have the same national coverage of BT.

So we will always have places that are only BT supplied. You can't completely get rid of BT...

Router Configuration

Different router configuration!

Means we cannot simply change a line and expect it to work. We can have same login, but have to talk end user through changes. Makes mass migration impractical.

BT: PPPoA VC mux 0/38 MTU 1500
BE: PPPoE LLC mux 0/101 MTU 1492

MTU issues

We have always worked with clean 1500 MTU
for all lines where possible.
PPPoE (on the line or bridged) is rare.

All BE lines are (currently) 1492 MTU

We have set TCP MSS clamping on our routers,
but have to do 1492 on all lines in a bonded set.

It works, and so does native IPv6.

Bonding BE+BT

We have customers bonding BE and BT lines.
e.g. 3xBT and 2xBE

BE lines getting twice the upload and download sync to BT 21CN ADSL2+

Bonding just working, no problems.

This is per packet load balanced based on line speed using FireBrick FB6000 not MLPPP.

DLM

BT have a DLM constantly assessing errors and re-syncs and changing margin and settings for the line. Good idea? Lots of complaints on 21CN

BE have a profile selection we control and it stays. We give end users direct access.

Takes us out of the loop. Allows customer choice

Are BE reliable?

We have not been using BE long enough to say. So far, yes, but the whole idea of offering end users a means to have two (or more) lines mixing BE and BT means we do not have to worry about whether BE or BT are reliable any more.

The whole point is that they will not both break at the same time (one hopes).

Summary

After 9 years exclusively using BT for broadband links AAISP have been forced to considering alternatives..

Offering two suppliers to customers gives choice and allows us to offer **high availability broadband** to businesses.

Technical, operational and commercial differences can be overcome and make our service better over all.