

# BACKHAUL BLACKSPOTS INITIATIVE

## SUBMISSION BY YLESS4U.

Yless4u provides this submission with the view of stimulating thought, and contributing to discussion on alternatives and options to the provision of backhaul in the more sparsely populated rural areas of Australia.

By way of background, Yless4u has designed, built, maintained and operated an extensive carrier grade network for some four years. The network provides high speed broadband services over an area of approximately 6,000 square kilometres in rugged, rural and remote terrain.

The backhaul and interconnect issues being canvassed in this stakeholder consultation round can be examined by looking at the reality of the Yless4u experience. Yless4u has commissioned all backhaul, wireless local loop and customer premises network equipment

Yless4u believes that intrinsic in any network design, are the following features - which have been incorporated in our current network - it should:-

- Be scalable
- Provide end customer bursting speeds which meets or exceeds 12mbps. The Yless4u local loop is currently capable of 14mbps bursting speed, with sustained speeds of 7mpbs. The local loop uses currently available carrier grade point to multipoint technology
- Backhaul bearer capability of =>300mbps on major trunk routes, with =>45mbps on feeder trunk backhaul routes

It is disappointing to note, that despite repeated invitations over the past four years, departmental staff have not inspected, reviewed or travelled the 20kms from the National Capital – Canberra to gain a real and working perspective of a working fixed wireless network in a truly rural and remote area.

In raising these matters it is hoped that due consideration be given to what has been achieved and to reflect on how this practical working model may be applicable to other regional/rural and remote areas of Australia.

## A WORKING RURAL AND REMOTE NETWORK

The image below (a part of the Yless4u network) provides context by way of location, terrain and population. It provides a three dimensional view of the immediate area surrounding the Australian Capital Territory.



Many parts of our network challenge wireless transmission at any frequency, and require multiple transmission sits with interconnecting backhaul to reach the majority of dwellings. It is not a viable case for fibre.

### State Government Imposts and Fees

As a small company, major barriers are the constraints and fees that have been set in place by state and local jurisdictions, presumably at a time when Australia basically had one dominant national carrier. Given that it is local companies that have a real interest in the community - where other big carriers have not – no assistance is given nor distinction made in fees and charges by state and local authorities, for example to co-locate a base station on a trig site. For wireless providers high points and hilltops are important for infrastructure.

Micro (local) companies face the same fee scale as national major companies. For example, Yless4u base sites have had to be located on privately owned land as a direct result of the high annual fees charged by the NSW State Government for co-location on Crown Land (e.g. disused trig stations), which are often the highest points in a sub-region.

This has impacted on Yless4u coverage. However, because of the costs, we have found friendly land owners with sufficiently high hills. Regardless of the benefit we may offer to the community (we provide free services to several community groups/associations, rural fire brigades and state emergency services), the fact that we are a private company means that we will attract a fee for location on a remote Crown Land parcel.

It is particularly disappointing when considering the isolation of these sites, the low population density being served, and the community work undertaken by YLESS4U. This situation is compounded by the significant costs incurred for fuel and vehicle maintenance, as the

distances covered are extensive and on sub standard rural gravel roads.

### **The locations at which points of interconnect should be sited to enable secure and ready access by access seekers**

For the purposes of this discussion, it is assumed that a Point of Interconnect by definition provides Backhaul capability through a take off of backhaul feed. However – the provision of backhaul does not necessarily imply a point of interconnect. For example- within our network of 50 PTP backhaul links, we use only one point of interconnect. While some of our PTP bearers terminate within 50 metres of major interstate backhaul fibre routes and major interstate microwave bearers, there is no business case for us to access these existing services.

In the immediate future (<12-24months), regional points of interconnect are considered to be of the highest priority. e.g.: in the Monaro region, -Canberra, Goulburn, Wagga, Cooma. While a higher number of interconnect points than currently available is desirable, it is unlikely that this will be achievable in early stage NBN development.

However, through the provision of more regional interconnect points, smaller Telecommunication Carriers would be able to cross connect into their respective backhaul links & facilities.

Within a region, the wholesale pricing method of an interconnect point is more important than the placement and number of interconnect points. The next considerations are then the facilities, features, physical location and security.

### **Interconnect Fees**

The major limiting factor preventing an immediate upgrade of the majority of Yless4u customers to 12mbps end speeds, is the cost of Interconnect at Yless4u gateways. Yless4u noted this factor and has been reported in the recently tabled NSW Government standing committee report on regional and rural Telecommunications “Beyond the Bush Telegraph”.

It is suggested that price reduction on Interconnect data streams, using existing capacity at regional interconnect points would be a relatively simple and easily implemented consideration. This would provide an early/overnight regional stimulus to re-engage genuine rural and remote providers. Under this initiative, existing backhaul providers would be encouraged to bring on sufficient capacity to meet demand - without Government intervention at the physical build layer.

#### **Recommendation**

The backhaul blackspots initiative fully investigates ways to lower the cost of interconnection for providers in regional, rural and remote areas.

### **The relative merits of deploying links that provide an alternate route to existing backhaul infrastructure**

#### **Current Infrastructure in Australia**

Current fibre infrastructure and to a lesser extent cellular base station infrastructure has closely traced the main interstate, intrastate and regional road infrastructure. In particular, the cellular infrastructure outside of regional centres and towns has been targeted towards highway coverage with assistance from previous Federal Government funding programs.

Transmitter base sites deployed by the major incumbent wireless cellular providers are, by virtue of location, generally inappropriate for high speed, wide area coverage. An alternative

deployment model of strategically placed 'mini sites' is more appropriate and efficient.

That larger businesses/carriers are not interested in rural and remote areas, is evidenced by the lack of uptake of the Mobile Connect program offered by BCDE in 2008. Of \$8million on offer to extend terrestrial mobile phone coverage to priority location without coverage, no carriers applied for funding under the program, *“despite extensive discussions with a number of mobile phone companies, and the availability of subsidies of up to 100 per cent of the capital costs. This indicates that mobile phone carriers are at (or very close to) the limits of their commercial interest in further mobile phone coverage. This is particularly the case for locations with no accessible backhaul.”* (Extract from DCBDE website 12/5/09)

In the more remote areas it becomes a question of the most cost effective and efficient solutions for the greatest coverage, scalability and the ability to deploy, in an innovative and cost efficient manner.

Our experience shows that innovative low cost solutions, coupled with generous community support for locating of base station locations, are essential elements in addressing the barriers faced - low density population coupled with challenging terrain (hills/valleys/distance) and climatic conditions (gale force winds on mountain tops, snow in winter), and lack of electricity grid facilities (solar and/or wind generation systems required).

### **The timeframes and costs associated with the planning, construction and commissioning of backhaul infrastructure in various terrains and locations**

Wireless backhaul equipment cost price-points have been steadily declining while at the same time, the capacity/capability has increased. Indicative price-points for 150mbps through to 800mbps full duplex microwave wireless bearers are in the order of sub \$30,000.

Yless4u's objectives from the start of operations in 2005, was to provide high speed broadband to underserved areas that were actively ignored by the commercially focused major telecommunication carrier incumbent(s).

The Yless4u network was built with a view to developing an Australian rural and remote model that could be adopted over time by other providers. In the absence of backhaul facilities –a characteristic of underserved areas- Yless4u invested heavily in backhaul infrastructure, between base sites, back to the points of interconnect in the major regional centre (Canberra, ACT). The topography, geography and climatic conditions in the area are some of the toughest in Australia, with subfreezing conditions and snow blizzards in winter, gale force winds in spring and the constant threat of bushfires and electrical storms in the summer.

While it is arguably one of the most extensive contiguous wireless networks in the country, and attracts significant international interest, there is little to no credit or recognition of the 'model' in the Australian domestic environment.

From our experience, and for regional operators, uncertainty in previous government policy has been detrimental to any forward infrastructure planning. Yless4u received no assistance or grants for infrastructure from Federal, State or Local Government agencies for the design and build of its own backhaul and wireless local loop infrastructure. Where certainty prevails, similar networks can be built within a short time frame.