Mobile Coverage Programme Discussion Paper

Submission Cover Sheet

Submission Information	
This cover sheet should be attached to submissions made to the Department of Communications in relation to the Mobile Coverage Programme Discussion Paper.	
Contact Details	
Name of respondent:	Garth Power
Name of organisation:	Personal Submission
Phone:	
Email:	
Website (if applicable):	
Date:	8/1/2014
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Submission Instructions	
Submissions are to be made by 5:00pm (AEST) Friday 28 February 2014 .	
Where possible, submissions should be lodged electronically, preferably in Microsoft Word or other text-based formats via the email address <u>mobilecoverage@communications.gov.au</u>	

Mobile Coverage Programme Discussion Paper Submission

Garth Power South West Victoria Resident.

Introduction

Thank you for inviting the community to make a submission in relation to the Federal Government Mobile expansion program. The submission is in relation to my experience based around the North West and South West Victoria and work place experience in rolling out wireless networks for various different communication applications.

This is a personal submission and by no mean is link to any business or business activity I have been involved in.

Northern Victoria has different mobile communication issues than what South West Victoria experiences mainly due to the different network topologies the two main mobile networks have rolled out in the area.

Optus/VHA network relies heavily on microwave relay which require the microwave dishes to have LOS between each tower for their back haul system. This has created a more dense network in certain circumstances specially in the hilly terrain in South West Victoria. Telstra being the incumbent fixed line operator has fibre cable spreading around the South West that links up to their tower thus not requiring as many tower to cover the same area but with more area suffering from coverage issues.

The problem is you need to have a Telstra and Optus phone to have blanket coverage and by stipulating that if an area already covered that no funding will be available leaving the tradition of requiring two phones/SIM's will continue after this program. This problem does not occur in North West Victoria as LOS issues do not occur to the same extent in the Victorian Mallee .

Questions

Would an appropriate minimum quality standard be that base stations must provide highspeed 4G LTE mobile broadband data communication services and also high quality 3G mobile voice and broadband data services? If this is not an appropriate minimum quality standard, what is?

I would not recommend placing a minimum standard on the MNO as one operator might not fulfill the criteria of the minimum standard due to spectrum shortages or other issues. It may be beneficiary to place minimum speed or quality on the MVN instead of imposing a technology. Its best to be technology agnostic when imposing standards and instead concentrate on the end users experience.

What are the most appropriate indicators that could be used to specify the minimum quality standards that should apply to the mobile services being provided through the programme? For instance, should it be a minimum received service signal indication (RSSI) in decibel-milliwatts (dBm)? A similar approach was adopted recently in the UK where a comparable programme specified a minimum RSSI for 3G voice and basic data service of 85dBm on roads and 75dBm in community areas (outside premises).

The standard imposed should be something that a technically minded end user can determine e.g. looking up the dBm on an commonly purchased Android handset. I have logged an area near Lalbert Victoria using a GSM field test app that outputs the data in a KML and locked to the 3G HSDPA on the Optus network and determined that -85dBm requires base station at very close increments. Further testing revealed that to archive adequate speed on a relative uncontested cell requires -100dBm or higher. As the network operator can not determine the building material used in the construction of dwelling ect inside data should be ignored.

Does delivery option 2 for the \$80 million Mobile Network Expansion component raise any additional issues that need to be considered?

If option 2 is selected the MNO could ask above market price for access to their infrastructure. It is therefore imperative that caps are imposed to limit price gorging from the competing networks. Option 2b is unlikely to work as the infrastructure provided by a third party will be cost prohibitive with the MNO main cost deriving from the electronic equipment such as the BTS. say if the tower lease space is \$5 000 /p.a and land lease for the equipment hut is \$5 000 /p.a. the MNO has to fork out \$10K regardless who owns the tower.

It may be worth investigating suitable size land to house equipment for two MNO or force ½ space of the equipment shelter to be leased to a competing MNO at below market value. for it to be feasible.

If a tower is leased at market value it will be cheaper for a MNO to build a new tower than to sub lease from existing towers thus will place them in a position that will not find it feasible to cover the area.

Could options 3(a) or 3(b) for the \$80 million Mobile Network Expansion Project be delivered in conjunction with options 1 or 2 to enable network infrastructure providers to compete with MNOs?

Yes, it would be the best delivery method to have one of the MNO build out the new infrastructure and force that the spectrum used to deliver the agreed services is contracted to the service and not

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the physical equipment itself therefore if the MNO decide to allocate the spectrum to a higher value use it must be opened up for other MNO to utilise the the service on an government agreed wholesale bases set in the original contract. If the contract is governed to a particular technology then the MNO is locked into maintaining a technology that could become redundant and/or voids the original contract as the technology is no longer in active service.

Should bidders be able to propose to incorporate the use of base stations owned by NBN Co as part of their bid?

Yes but the NBN towers do not add a lot of extra coverage to the MNO footprint as they are based around more populated density area that have the majority of coverage already in place.

Should a joint bid (between a specialist network infrastructure provider and a MNO) be permitted? Should it be encouraged?

Yes, Vodafone and Optus announced a joint venture in 2013 that allows Vodafone to roam onto some of the regional Optus mobile phone infrastructure. It is unlikely that Telstra will agree for a joint venture with Optus. As Vodafone are concentrating on the mass market it is unlikely that a new joint venture will form as a part of this project.

Is it realistic to expect specialist network infrastructure providers to provide backhaul (recognising that they would presumably need to contract with a third party to provide this)?

Third party infrastructure or even some of the government owned infrastructure such as VicTrack fibre cables in Victoria need to be explored. It is by my understanding that some area may be more impacted by having a lack of back-haul that increases the cost to deliver mobile services to a given area. This back haul could be aggregated to a local tower where other MNO could integrate the additional capacity into their networks. If the government support back haul infrastructure it does not only benefit mobile broadband but can give a major boost to fixed broadband as well.

Is option 3(b) suitable for Australia's regional mobile market?

The only area where option 3b would be viable is if the government through the likes of NBNco owned the towers and enough land for equipment huts ect and rented them back to the MNO at or near cost. Adding in additional parties means another company to pay.

What are the appropriate specifications for a base station to be able to accommodate at least two other MNOs?

No Comment

Will the proposed open access provisions be sufficient to encourage other MNOs to use the base stations to provide mobile services?

Unlikely, the government would need to mandate maximum lease cost for co-leased as explained above.

Should MNOs be required to pre-commit to/co-invest in the base stations for which they wish to share infrastructure?

Yes but financial terms must be set by the government for this model to be successfully.

What is the estimated additional cost of requiring all new base stations to meet the open access requirements?

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Should be minimal depending on tower design and co-located proposed equipment. A couple of big microwave antennas can add significant wind loading but if they have access to fibre then only the panel antenna and associated equipment will be required.

Should the proposed open access provisions be applicable to base stations funded under the \$20 million component, or should there be scope to exclude some base stations from these requirements?

The project scope of "**\$20 million Mobile Black Spots Project**: to improve mobile coverage in locations with unique coverage problems, such as areas with high demand for services during seasonal holiday periods." Is one of the most ridicules scopes I have ever herd. You have a program to give MNO monies to roll out more infrastructure in areas that should be already profitable. "with areas of high demand". Why is the government getting involved with a MNO that can't manage their capital roll out of their own network. If an area is congested then the MNO can find their own solution or suffer from customers leaving for other providers which has already occurring in the case of VHA and to some degree Optus. These monies would be better spent trying to cover the forest terrain in bushfire prone area.

There are other techniques and technology such as small cells that should come on the market in the next few years that will address these issues at a much cheaper cost.

What are the most appropriate models/benchmarks for establishing access and backhaul pricing, and for reflecting in that pricing the value of the public funding received by the owner of the facilities (such that access seekers receive an appropriate discount from the market price for access to the facility)?

Fibre: Some form of maximum pricing needs to be adapted in the form of back-haul. Dark fibre prices are not available at the time of writing. If there is only one fibre cable available and the owner provides the back-haul then a figure between \$20-\$100 /Mbps would be reasonable depending on location of tower. Microwave: If microwave is chosen then it should not be a requirement to share the infrastructure with any other party.

Do the proposed assessment criteria achieve the right balance to deliver the best value for money outcomes?

This is a very difficult question as it poses another question, "if you hand all contracts to incumbent fixed line and MNO will other MNO follow?" It may be in the best interest of competition to award the contract to the second or below to encourage the incumbent to build out to match the extra coverage produced by this program.

Should the proposed assessment criteria be weighted, and if so, how?

As Explained.

Is there a more effective means of assessing seasonal demand than proposed in criterion 3(c)?

As explained above, no government should get involved in capacity short falls.

To what extent would the use of the NBN fixed wireless network result in improved mobile <u>coverage</u> outcomes in regional Australia?

It is yet to be seen if these towers are suitable located to provide any benefit to the coverage footprint of the MNO. The towers should be opened up to leasing agreement for the MNO if they so with to take the offer.

How best can a greater role for NBN Co improve <u>competition and choice</u> for consumers in regional Australia?

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NBNco roll would only be if they built and leased the towers out at a rate that's cheaper than building their own tower. The 2.3GHz band is not suitable to use for mobile data in regional Victoria. NBNco back haul is not suitable for MNO for towers not serviced by fibre back haul. If fibre exist with spare paires then this should be leased as dark fibre or NBNco spices there own equipment to connect the BTS's.

In addition to base station location, design and backhaul access, what other considerations would NBN Co need to take into account if it were to also support mobile coverage and competition benefits as part of its mandate?

More land may need to be acquired when setting out the lease agreement to make it cheaper for a co leased agreement for the site hut instead of a direct lease to the farmer.

How can early engagement between NBN Co and MNOs be facilitated in the design of each base station? Is there a role here for the Australian Mobile Telecommunications Association (AMTA)?

No Comment

How can the Mobile Coverage Programme best complement any role that the NBN fixed wireless service plays in improving mobile coverage and competition?

Mandate when any new infrastructure goes in under this proposal that NBNco has the right to use 5m of tower space at say 20m from top of mask.

Additional discussion topics:

Coverage Maps:

The coverage maps from the various operators do not match the actual coverage maps for various degrees. Other issues with relying on the coverage map is they indicate where the phone looses signal and not the point the phone starts to drop packets or other information. If a MNO is to be awarded any of the coverage expansion monies they must adopted a -100dBm that a typical phone would use as a cut off point for the coverage for data application without external antenna in an outdoor environment without network congestion.

By comparison the phone used in the testing had a threshold of -113dBm but would have inadequate service at the far edge of the indicated receive power. Without knowing the details of when the phone CQI scheme used by the phone and/or BTS a 1Mbps download speed can be achieved at -100dBm but as signal degrades further this target would become unrealistic. Setting minim download speed limits can be dangerous as large events such as once off concerts could cause a network to overload with in influx of people but a minimum requirement need to be thoroughly thought out.

Identification of coverage issues:

As the mobile coverage maps are not ideal for determining the lack of coverage in a given area some of the investigation work should be handed over to the community, state government and local councils. It is a relitively simple process to download an application that test the mobile signal strength the loggs it as you travel. Attached is an example KLM file that is produced when using GSM Field Test application on an LG E405 which was forced to lock onto Optus UMTS network which would have been the 900MHz network as no 2100MHz network exist for 40Km. The demonstration log is around the Lalbert Victoria area that is known to have coverage issues.

An example line extracted out of the file :

HSDPA</description><Point>

<coordinates>143.37547863,-35.67151689</coordinates></Point></Placemark><Placemark><style Url>color_ffff0000</styleUrl><name>150</name><description>Thu Dec 26 20:06:42 AEDT 2013 -113 dBm"

That position showing minimum recorded strength before the phone displays no signal. It should be noted that other area of the data show signal lost at W143.28817208,S35.65019052 which is displayed as 85dBm but does not display network type such as HSDPA suggesting network lost This sought of information should be used in the initial staggers to determine actual coverage issue and not just look at a coverage map that is used more for marketing purposes and not performance.

Emergency Service Network

If Australia Ever wants a reliable Emergency Service network then this is an opportunity to start getting some infrastructure in place. I do not believe Australia has the financial resources to roll out a 100% tax founded Emergency service network.

It would therefore be in the best interest of Australia is this funding be used as a carrot to start to integrate an emergency mobile broadband service into the dense rural areas. QoS could be integrated into the network to enhance the emergency service in times of need so that the residents

in the area that want to look up football score or stream a YouTube clip are not interfering with the operation of critical services. Another option would be use the unsold 700MHz band 28 spectrum as part of a MNO that will force them to use that spectrum as first priority to the emergency services. By utilising the spectrum in this fashion it also allows the spectrum to be used to its highest end use as when disasters strike, it will strike in specific area not Australian wide thus you could utilise that unused spectrum in location a where there are no emergency service user and allocate the full 30MHz in the area where the unfortunate happens.

All this sharing infrastructure that is in place thus significantly reducing cost and probably having better service level due to Telstra or Optus having more resources to deal failures due to already diverse a wide area covering network. There may even be an opportunity to utilise the 450MHz band for LTE as it looks like its going to be ratified in the next 3GPP release.

Summery

Mobile networks being as complicated as they are have evolved over the years but still don't cover the landscape to the fashion that the residents of Australia demand. The approach to take is to open up all infrastructure the various level of governments own in the form of towers in the case of NBN towers/fibre, fibre in the case of Victrack. Do not expect that opening up the infrastructure will make a direct profit. The profit will be in productivity improvement and lives that are saved in the bush fire prone areas. Its also an opportunity to look at the infrastructure and combining it in with a mobile data for the emergency services and improving the coverage of the paid and volunteers that protect our nation in fighting bushfire, crime prevention and running this nation we have built around us. These may be the thoughts of just one man but I hope you take all submission into consideration before deciding on the methods used to roll out this project.