Creating and Enabling Connected Communities

Slide 1 (title)

Communities in remote areas deal with the toughest challenges of the digital divide.

Outside the mobile coverage footprint, few people have direct access to the internet.

Those without employment or the capacity to contract with a satellite service provider rely on public connectivity services at community hubs such as the Community Resource Centre, or perhaps Women's Centres in WA, or single Wi-Fi enabled public phones where available, for access to the world-wide web and their internet banking, MyGov, Centrelink, email and social media accounts.

These internet services are not free. The public WiFi enabled phones funded by the Commonwealth are transitioning to a user pays model. Where centres sell internet sessions to the public, access is confined to the centre's opening hours and few computers are available for use.

There is need for a convenient, sustainable and affordable model for digital connectivity across an entire community.

Slide 2 (map)

Tjuntjuntjara is an Aboriginal community of around 200 residents located 650 kilometres north east of Kalgoorlie towards the South Australian border. It has a vibrant arts business and a culture of entrepreneurship. At some times of the year, the population may swell to up to 600 people.

Ilkurkla is a much smaller community of under 10 people located 135 kms north of Tjuntjuntjara although again, the population swells dramatically at some times of the year.

Slide 3 (census data)

Here's a summary of the 2016 Census data.

In March 2016, the Western Australian Government partnered with Australian Private Networks to pilot a community WiFi solution for Tjuntjuntjara. APN installed three WiFi repeaters on rooftops around the community, linked to two Sky Muster satellite dishes. It also installed three smart antennas for indoor use in three of the staff houses, associated management systems and provided 140GB of bandwidth per month, as well as a whitelisting capability.

The service was offered on a pay as you go basis over the nbn that allows people to purchase data credits valid for 28 days. The system incorporates a PABX function that supports voice over WiFi and also allocates a permanent number to each smart device authenticated on the network.

Whereas residents previously relied on one public telephone at the Community Resource Centre, they can now make calls from anywhere within the service footprint at any time using a mobile application like WhatsApp. Calls between devices on the network are free, requiring no data credits. This has enabled community members to phone one another within Tjuntjuntjara for the first time. It also allows callers from outside the community to contact people directly.

Slide 4 (antennas galore)

Here's a picture of the CRC.

Data credits can be purchased over the internet by credit card, and merchant arrangements are in place at the CRC and general store, where those without a credit card can pay cash.

The cost of internet access dropped substantially, from around $45 per GB to $15, reflecting the public subsidy embedded in the nbn Sky Muster product.

APN introduced a range of price points: 200MB for $5, 500 MB for $10, 1GB for $15, 3GB for $20, 5GB for $25 and $10GB for $35.

The network provides outdoor coverage across the community however a smart antenna is required for indoor coverage due the metal materials common in building construction block the signal. Only the three houses equipped with a smart antenna have strong indoor coverage as well.

The community has driven evolution of the network over time. The CRC now has a dedicated server connected to the network that enables sharing of content for free.

In late 2016, the service was registered under nbnco's Public Interest Premise policy which doubled the bandwidth and removed the time limitations on data usage.

After a slow start, usage now routinely exceeds 280GB per month but has not been shaped.

Slide 5 (redevelopment slide)

The WA Government is currently considering a proposal to expand and upgrade the network to improve the density of outdoor coverage over the entire community and newly established campground, convert the power supply for all repeaters to solar with battery storage, install smart antennas for indoor service in every building, and increase the bandwidth to 1,000 GB per month.

The solar arrays to power the repeaters are designed with excess capacity and the community has put forward an innovative suggestion to create free USB charging stations at the campground and CRC.

The expanded network will also link to the school to allow staff and students to access their education accounts from home. This will remove the need for authorised users to spend data credits to access the internet for study purposes outside the school premises.

We hope that this work can be done in the next couple of months to take advantage of various tradespeople on site who are delivering a Commonwealth-funded $17 million redevelopment project to replace 13 of the residences, which is due for completion in August 2018.

Slide 6 (Optus)

In addition to the community WiFi product, Optus established a 3G small cell satellite mobile service in Tjuntjuntjara in March 2018 under Round 2 of the national Mobile Black Spot Program. This is a complementary initiative and provides a second connectivity option within the community, primarily targeting contractors and tourists, to ease demand on the Sky Muster service.

A second small cell Optus satellite service has been installed at IlKurlka Roadhouse, 135 kilometres north of Tjuntjuntjara, which is intended to provide connectivity to visitors and support tourism development.

Optus is unable to provide whitelisting at present but will be able to do so in the next few months. It's also looking at upgrade pathways to 4G, with a trial about to take place at Oodnadatta in South Australia.

From a government perspective, there is no simple answer to bridging the digital divide in remote areas. Solutions must be tailored to fit particular circumstances in consultation with the community. The Tjuntjuntjara community WiFi model provides ubiquitous, sustainable and more affordable internet access, but there's still a cost to consumers. It doesn't deal directly with disadvantage for those who don't have a suitable device, or have no capacity to pay anything at all. Nor does it tackle the myriad issues surrounding digital literacy and digital identity.

Nevertheless it's a stepping stone that can be built upon. I'll leave it to Graham to explain how the community plans to leverage these services to promote social cohesion and support learning and economic development opportunities.