

pool sourced for the project.

The following photo shows the outdoor AP on the left, and the indoor AP on the right, next to a standard business card for size comparison.



iiNet will use MAG9811 carrier grade wireless LAN controllers, each fitted with multiple 10 gigabit Ethernet interfaces and capable of supporting up to 4000 APs each. These are city-scale devices designed to cater for the roaming needs of the largest cities in China. These will be configured in a hot-standby configuration.

iiNet will deploy a unique software solution called wSight. This software pro-actively monitors the network and suggests optimal locations for AP deployment to maximize coverage and capacity. This will be used during the rollout to establish demand and assist the network planners and site acquisition manager in AP location.

**2.4.16 Operating Hours (Highly-Desirable)**

The network is to be operated and supported 24 hours a day, seven days a week. Respondents are to state how their solution meets this requirement.

#### **2.4.17 Reliability (Highly-Desirable)**

The network is expected to mitigate or eliminate single points of failure and ensure high network reliability. Respondents are to detail what reliability targets can be achieved and how this is maintained.

The core network and aggregation networks will be available for at least 99.99% of the time in any calendar month.

The individual access points will be maintained and available on a best-effort basis, to avoid overly complex agreements with site owners in Canberra. In popular areas, multiple access points will be available, allowing for continued service even with a faulty access point.

#### **2.4.18 Scalability and Technology Upgrade (Highly-Desirable)**

The network is to be easily scaled and upgraded to support increased coverage, additional users, applications and requirements. Respondents are to detail how their proposed solution meets these needs.

iiNet has Australia's best connected international network, and a long history of successful network scaling in multiple dimensions having grown from an ISP in a residential garage to the 2 largest xDSL provider in Australia.

The iiNet Wi-Fi network in Canberra will be built with 10Gb aggregation from day one. The network architecture is designed to be linearly scalable by adding additional switches and controllers.

The network will be designed to support 802.11ac, and iiNet will deploy this technology in a library site to allow users to test the new standard.

#### **2.4.19 Network Maintenance (Highly-Desirable)**

Respondents are to outline a network maintenance plan.

The proposed network will benefit from the iiNet helpdesk and support team. This team will diagnose faults and if necessary dispatch local field technicians to remedy network faults the next business day. Network software problems that cannot be resolved by the on call support team will be escalated to our dedicated Wi-Fi team the next business day. Faults that cannot be resolved by the Wi-Fi team will be escalated to the Huawei technical assistance centre for resolution.

The network will be monitored 24x7 by the iiNet in-house follow-the-sun Operations Centre, with offices in Auckland, Perth and Capetown.

#### 2.4.20 Health and Safety (Essential)

Respondents are to outline their approach to deal with any relevant health and safety issues arising from the service, including public reaction to EME impacts on health.

The World Health Organisation has not found solid evidence of health risks arising from low-power non-ionising radiation as used in Wi-Fi.

Should such evidence arise, iiNet would immediately lower the power output of the Wi-Fi antennas from its centralised management platform.

By default, iiNet will run the Wi-Fi network at a lower power than normal residential devices to prevent interference between neighbouring cells and other Wi-Fi devices, and allow the highly sensitive receivers and MIMO Multi-Ratio-Combining DSP technology to make up for the lower signal strength.

iiNet will avoid installing access points with external antennas close to places where young children gather, such as child care centres.

iiNet will consult with members of the public who express concern over radiation, and engage an independent consultant to perform testing if necessary.

#### 2.4.21 Subscription Levels (Highly-Desirable)

Respondents are to clearly identify their assumptions of the expected usage levels by retail, government and wholesale customers to support their business plan.

#### 2.4.22 Pricing Structure (Highly-Desirable)

Respondents are requested to provide the expected range of subscription and fee-based rates of services to retail users and to wholesale service providers.

The iiNet free-Wi-Fi network is provided at no cost to guest users and iiNet IP subscribers alike. Guest users will be provided with a basic service where some port blocking is undertaken (e.g. peer to peer traffic). Filtering will be applied to guest users and a time out would apply to sessions.

Interesting and innovative cost saving models are potentially available to complement the current "Peripheral Links" and fixed voice supplied from iiNet (via TransACT) to the Territory. These models could be explored by the proposed governance committee (see clause 22). iiNet wishes to add that mobile data network toll-bypass is an absolute and definable saving.

Other corporate group and M2M services will be negotiated on a case by case basis. iiNet anticipates that this will be less than equivalent LTE or 4G offerings from traditional mobile providers.

#### 2.4.23 Billing Capability (Essential)

Respondents are to clearly indicate their options for billing premium services.

iiNet will use RADIUS accounting on a horizontally scalable multi-server platform and its Infonova and Rumba billing platforms to rate and bill Wi-Fi services.

iiNet will support 802.11u Hotspot 2.0 billing for customers of International carriers with appropriate roaming agreements.

iiNet will accept credit cards for instantaneous payments, and make available its standard payment methods including direct debit for longer term arrangements.

#### 2.4.24 Contract Term (Essential)

Respondents are to indicate the contract terms that they would expect for the supply of network and services to individual users. Principal would expect that the services are to be supplied, maintained and supported for a minimum of 5 years from launch.

iiNet proposes to supply, maintain and support this network for a period of 5 years.  
iiNet welcomes discussions surrounding the ongoing support of this network beyond the 5 year period following contract commencement

#### 2.4.25 Location and Device Identification (Desirable)

Respondents are invited to provide details of their solution's capability to identify the location where a device comes into contact with the network (for example: to integrate with location-based applications) and identify the connection of a same device over time (for example: to identify usage pattern over time).

iiNet will deploy a mobility services tools which provide location information and can notify other applications.

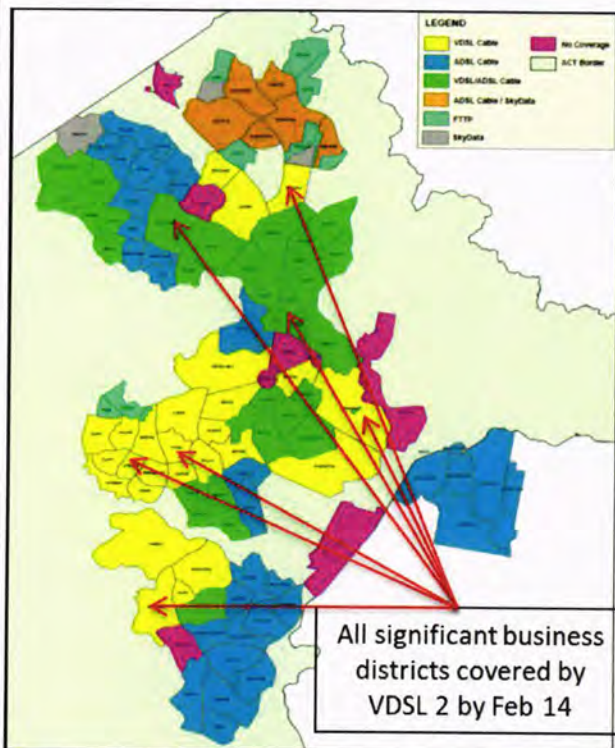
Reporting from this capability will show only aggregate information, and not specific end user devices to ensure privacy is maintained.

#### 2.4.26 Coverage (Highly-Desirable)

Ideally, coverage would encompass the town centres, public spaces and parks, busses and bus interchanges. The ACT Government recognises that commercial practicalities and technology limitations may make total coverage of the target area unattainable in the first instance.

The ACT has over 24,000+ registered businesses and more than 8,900 business shop-fronts.

Please see diagram inserted below



iiNet is pleased to advise that all significant business districts in the ACT will be covered by iiNet VDSL 2 by February 2014.

iiNet is able to immediately use this VDSL 2 network to provide Access Point connectivity back to its core fibre optical backhaul network. iiNet has included a diagram of this fibre optical backhaul network in the Appendices as **Appendix A - iiNet ACT High Speed Backhaul Map**.

iiNet will also use its wSight coverage and planning tool to optimize the coverage as the rollout progresses.

iiNet believes that capital and operational expenditure for the city wide Wi-Fi project is far better served by deploying more ubiquitous wired Wi-Fi.

iiNet will support 20 buses as an R&D project to investigate commercialisation models for buses. iiNet would prefer that these buses frequently traverse Northbourne avenue in Dickson, so that its staff have a maximised opportunity to develop the solution.

### 2.4.27 Infrastructure Access (Highly-Desirable)

Respondents are to identify the extent of potential use of government owned infrastructure required such as buildings, bridges, tunnels and poles. Details such as type of access, space, weight, wind load and power requirements, commercial fees and conditions and any other assumptions used in their proposed solution are to be clearly identified.

Respondents are to identify requirements for access to government owned or controlled telecommunications cabling infrastructure including access to fibres or conduits and pits.

Respondents should note that the ACT Government is willing to facilitate negotiations between asset owners for access to government buildings and street infrastructure for the location of communications equipment, and to government owned or controlled cabling, pit and pipe infrastructure for communications pathways, as well as other government-owned facilities.

The ACT Government cannot warrant at this time that such infrastructure will be available for any purpose envisaged by respondents with the exception of some access to powered street lighting for mounting and powering of Wi-Fi radios.

The use of infrastructure is subject to compliance with relevant Commonwealth and ACT legislation and regulation.

iiNet intend to use the extensive fibre optical cable infrastructure already reticulated in the ACT by TransACT Capital Communications Pty Ltd.

To supplement this comprehensive network, iiNet proposes to take advantage of ACT Government assets for mounting access points such as Libraries and street lights.

iiNet intends to request the use of Territory fibre (PDN), duct assets or switched ports where available and when such use provides a more efficient use of the available project CAPEX and OPEX funding.

iiNet has engaged GHD engineering to perform structural assessments of Wi-Fi access points on street lights and other structures in Adelaide. GHD will again be engaged to ensure that previous positive findings are applicable to the ACT.

iiNet will work with the principle to identify infrastructure stakeholders, and devise a

checklist that results in a certificate of compliance for each access point installed on public infrastructure.

iiNet will paint and colour match access points as directed by the ACT Government at the ACT Government's cost. This will be mandatory for heritage locations, but for other locations reasonable discretion will be required to avoid higher operational costs should an AP require replacement or augmentation.

## 2.5 Key Performance Indicators (Desirable)

Depending on the model ultimately selected the successful Respondent will be required to meet a range of minimum contract management services levels that will be measured over the term of the contract. These minimum contract management service levels will be developed in conjunction with the successful supplier and will be designed to ensure that the network functions as proposed. Respondents are invited to propose a range of key performance indicators that they see as being critical to the establishment and ongoing operation of a Canberra Wi-Fi Network and Support Services.

iiNet welcomes the development of contract management services levels with the Territory.

iiNet will use its own internal customer experience measurement systems to determine the service levels for customers, including those that use the Wi-Fi networks. Every iiNet staff member from the CEO down has their bonus tied to these metrics.

The “free” network will use the same physical infrastructure and will have a follow-on benefit from this quality-control activity.

## 2.6 Contract Management (Highly-Desirable)

The successful Respondent will appoint an Account Manager for the contract and meet with the ACT Government on a quarterly or as required basis during the term of the contract to address as minimum:

- the performance of the Supplier against the Key Performance Indicators;
- resolution of any issues raised by Customers;
- resolution of any issues that arise from the quarterly report (format of report will be developed with the successful supplier);
- opportunities for continuous improvement; and
- any other matter deemed relevant by the parties.

iiNet will supply and install a video conferencing system and connectivity in the ACT government offices for the duration of the rollout to allow fast access to effective communication with its employees, including those in Canberra.

This will be used for regular weekly progress updates, plus discussion and negotiation with stakeholders, particularly those responsible for physical assets and marketing. It will allow the principle to effectively access the combined knowledge of the iiNet group, across its professional offices in Canberra, Perth, Adelaide, Melbourne and Sydney.



## 2.7 Quality Requirements (Desirable)

The Respondent must provide an outline of any quality assurance systems in place and provide a copy of any applicable quality certification certificates attained by their organisation.

The iiNet Quality Management System (QMS) Quality Management System (QMS) is ISO 9001 certified, which means it meets international standards for ensuring quality products, continuous improvement and customer satisfaction.

ISO 9001 certification provides assurance of an organization's ability to get the job done right. It's the world's most established quality standard, currently used by 897,000 organisations in 170 countries.

The iiNet Certification details are as follows:

ISO 9001:2000 Quality Management. ISO9001: 2008 Certificate No: FS 582814

## 2.8 Experience (Highly-Desirable)

The Respondent must briefly detail their experience in the design, implementation, and operation of large scale Wi-Fi networks and related telecommunications infrastructure and support services.

iiNet is Australia's most experienced operator of public Wi-Fi networks.

### 1. Adelaide City Council and CityLan

Internode, an iiNet company, established a Wi-Fi hotspot network for the Adelaide City Council in 2004.

Internode provides a free Wi-Fi network to the public in the city of Adelaide, using access points connected to council and Internode fibre.

The council also provided significant annual funding for the expansion of this network via ADSL services.

iiNet indefinitely funds all of the ongoing maintenance and operational costs of the Wi-Fi network in this agreement.

The Adelaide network is branded "Internode". The city of Adelaide is acknowledged as a sponsor of the project in splash page advertising.

Internode is responsible for procuring hotspot sites under this agreement, usually with local cafes. Internode provides reporting on new active hotspots enabled under this agreement. Council approval is not required for the addition of new hotspots.

This agreement is still ongoing, and the Adelaide City Council is delighted with the network.

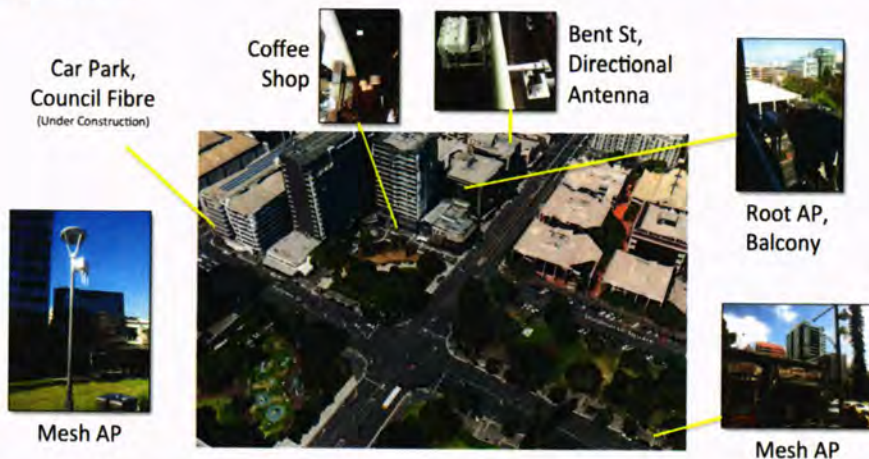
## 2. SA Government AdelaideFree Wi-Fi Network



iiNet was awarded \$1.5M in funding to build a new outdoor Wi-Fi network for Adelaide in June 2013, which is currently under construction. iiNet responded to this win by offering to upgrade its Citylan capability to be compatible with the new network.

This network will include 220 outdoor access points and 200 indoor access points. It uses the fibre networks of Internode, Adam Internet, the State of South Australia and the Adelaide City Council.

At this time, the network is approximately one third complete, and running on schedule. iiNet would welcome a visit by the principle to examine the network and demonstrate its operation.



The AdelaideFree network will be one of the most advanced and high performance metro Wi-Fi networks in the world when it is complete in 2014.

iiNet will build on this experience to create an equal or better network for the ACT. It will train additional staff in the ACT to act as a backup support team for the Adelaide network.

Image showing proposed coverage of the Adelaide Wi-Fi network, from the detailed design:



Image showing a Wi-Fi access point colour matched for mounting on a Heritage Building (Adelaide Central Markets):

