

What is Wireless Broadband?

Wireless access is a very hot topic in the market, and it can be confusing because of the different types of wireless services that are available. In Australia today, there are four main types of wireless broadband services: **Fixed** (including **Satellite Broadband**), **Roaming** (including **3G Mobile Broadband**), **Nomadic**, and **Hotspots**. This gives a wide and differing range of wireless options to choose from, but each has their place and suitability depending on the application. Buyers are advised to do their research carefully.

Fixed Wireless

Fixed Wireless offers broadband network access via an exterior antenna usually mounted on the roof at an end-users site. Antennas require direct line-of-sight to communicate with a network tower, which is in turn connected to a Service Providers core network.

Fixed Wireless can be an ideal alternative to fixed line networks if it is true business grade. Not all fixed wireless is the same. Fixed Wireless can be delivered on low, medium or high-end platforms. Low/medium-end platforms generally suit ADSL type performance. For medium to large size businesses that require high-speed Internet/network access to run mission-critical business applications or services, a high-end platform is essential. Fixed Wireless is cost effective, quick to install and deploy service.

Fixed Wireless networks generally have a Service Level Guarantee and some providers guarantee access speeds as opposed to roaming or nomadic services which generally don't. As the name implies, Fixed Wireless is a fixed location service that is not mobile. Unaffected by weather, backhoe fibre/copper breakages fixed wireless technology is one of today's most secure and reliable ways to communicate.

Another form of Fixed Wireless is **Satellite Broadband**, which targets users in locations where broadband access is not available or is limited, such as rural areas. Satellite links have a large propagation delay due to the roughly 23,000-mile distance to the geosynchronous satellites in space. This latency imposes a huge performance penalty on two-way interactive applications, regardless of bandwidth speed. For this reason Satellite is not usually suitable for business broadband applications.

Roaming/Mobile Broadband

Roaming Broadband is a new mobile service offered by Service Providers such as iBurst. It provides DSL-like speeds giving access to the Internet and email using personal devices, such as a laptop computer or PDA while moving about from one place to another within the Service Provider's coverage area.

Roaming Broadband is targeted for personal users that are constantly on the move. There is no guarantee of connection (services come with little or no Service Level Guarantee), access speeds cannot be guaranteed and network coverage is limited. Contention ratios are typically 50:1 and while this type of roaming is able to support static IP it can only be assigned to a fixed location, which means mobility is lost. Excess data charges are generally very high.

3G Mobile Broadband is another type of Roaming Broadband offered by Mobile Telephone Providers, allows access to the Internet or email via a operators 3G network. Some operators also provide an additional Wireless Hotspot option. This type of service also targets personal users and is best suited for limited Internet or email access as connection speeds are lower than DSL and there is little or no Service Level Guarantee. Data charges are also generally very high.

Nomadic/Portable Broadband

Nomadic Broadband is also new to the Australian market and is offered by Service Providers such as Unwired. Like Roaming Broadband, it offers DSL-like speeds for access to the Internet and email at home generally using a PC or laptop computer.

The service is portable and allows you to move from place to place within a Service Provider's coverage area, however the service cannot handle sending or receiving data while on the move, so you must be stationary to receive access.

Nomadic broadband is primarily a residential service and targets personal users that move location. There is no guarantee of connection (services come with little or no Service Level Guarantee), contracted access speeds cannot be guaranteed and network coverage is limited. Contention ratios are typically 50:1 and unlikely to support static IP, further limiting its business use. Excess data charges are generally very high.

Wireless Hotspots

Wireless Hotspots have been around for a few years now and are provided by Wireless Hotspots Operators such as Azure and Mobile Operators Telstra and Optus. These 'Hotspots' provide high-speed wireless Internet access from public venues such as hotels, convention centres, airports, cafes or a University campus. You need an account with the Wireless Hotspot Operator and a wireless (WiFi, 802.11b or wLAN) enabled laptop, PDA or phone to access the service. As with Roaming and Nomadic, Wireless Hotspots are targeted towards personal users.

Hotspots have a very limited range; typically 10 to 50 metres and interference can pose a problem in high-density areas where many different users are operating wireless access points. Security of public Hotspots is a major issue! There is concern for corporate users of the ability for someone to steal information transmitted to and from public Hotspot users. Services also have limited or no Service Level Guarantees.

| Wireless Method | Range | Typical throughput | Service Level Guarantee |
|--------------------------|------------|--|-------------------------|
| Fixed Wireless Broadband | Up to 15km | 10Mbps/10Mbps (symmetrical) | Up to 99.95% |
| Roaming Broadband | Up to 13km | 1Mbps/384Kbps (shared, asymmetrical) | Limited or none |
| Nomadic Broadband | Up to 10km | 1Mbps/256Kbps (shared, asymmetrical) | Limited or none |
| Wireless Hotspot | Up to 50m | Up to 11Mbps (shared) | Limited or none |
| 3G Mobile Broadband | Up to 30km | Up to 384Kbps (shared) | Limited or none |
| Satellite Broadband | Global | 1Mbps to 13Mbps download 56Kbps to 128Kbps upload (most services are typically asymmetrical) | Up to 99.95% |

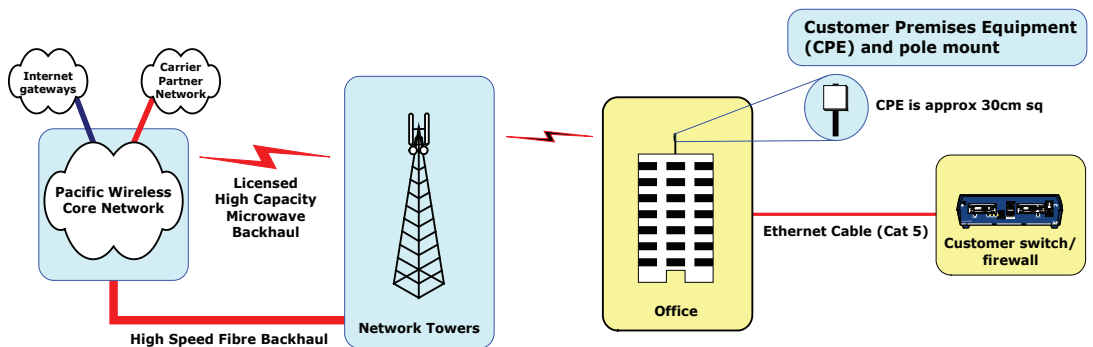
Which type of Wireless service does Pacific Wireless offer?

How is the PW Network designed?

What are the advantages of Pacific Wireless Fixed Wireless over other providers?

Pacific Wireless provides a **high-end fixed wireless** service, which means that our installations are situated in fixed locations such as on office buildings or warehouses, as opposed to mobile devices.

As a high-end fixed Wireless Service Provider, Pacific Wireless selects strategic points across the metropolitan area to deploy wireless network towers. These sites are usually high atop a building (i.e. 120 Collins Street) or on telecommunications towers. At these towers, high capacity backhaul links using both fibre and high capacity licensed wireless trunks are used in conjunction with network switching to connect into the tower's wireless system. From here, the wireless "last mile" connectivity goes directly into the customer premises equipment (CPE) at the end customer's specific location. The CPE needs to have clear Line-of-Sight (LoS) to one of our many wireless network towers in our network coverage area.



Pacific Wireless is generally able to offer customers a service up to 10km away, and in some circumstances up to 15km from one of our wireless network towers.

For the last mile, Pacific Wireless manages a mix of licensed and class-licensed links (depending on customer needs). Commonly we utilise proprietary 5.8Ghz equipment in line with IEEE standard 802.16, but are not bound to any particular technology. This allows us to take advantage of new developments such as WiMax, without being limited by certification or interoperability issues.

The data transmission on these fixed wireless connections is highly secure and transmissions of this type have been utilised by the Military and Government Agencies for decades.

The advantages of Pacific Wireless are many, including **97% coverage** of Greater Melbourne business areas, ownership of it's own fully-redundant mature network, its years of experience and a comprehensive suite of productised services.

Pacific Wireless Fixed Wireless is a true **business grade** service that is backed by a **24/7 99.95% Service Level Guarantee** that includes guarantees against packet loss and latency. Services are guaranteed at the contracted rate providing fibre-like **symmetrical** data speeds and are suited to **medium/large sized businesses** that rely on performance critical applications and services.

Pacific Wireless provides the optimum balance of **quality, affordability and scalability** from 512Kbs to 10Mbps built around a best of breed core network that is fully meshed providing **1+1 redundancy** for **high availability**. All tower network points have fully redundant power and dual backbone links either by way of fibre optic or high capacity microwave backhaul, meaning Pacific Wireless can guarantee your service **uptime**.

The network is **multi-service capable** providing Internet, Voice, VLAN and VPN all on the same wireless access which means you don't have to rely on multiple providers for services.

Our high standards of technical excellence will ensure the continued **reliability** and **performance** of our network infrastructure both now and in the future. Each customer link is designed from the ground up, we will not just 'stick it up and see if it works'. Our network management systems and our highly experienced RF engineers as well as helpdesk staff proactively monitor your service and we guarantee to answer your calls 24x7.

We provide all our customers and partners with visibility of their service via our **C.O.N.S.O.L.E** system which comprehensively reports on the link's performance. It provides detailed **real-time** and **historical statistics** by port and protocol of your Internet and data usage as well as online reporting of voice calls. This gives you more control of your service as well as showing how the service is performing. It also means you will be able to plan your future data needs as you can see how you are using the service during the course of your contracted term.

About us:

Pacific Wireless is a leading provider of fixed wireless broadband solutions for the medium and large enterprise market. We deliver high-speed Internet access, voice & data services using wireless technologies instead of the more traditional fibre optic cable. As a licensed telecommunications carrier, Pacific Wireless operates a wholly owned microwave network and is progressively building out national coverage.

We provide 'Carrier Grade' solutions for organisations requiring high reliability and high bandwidth. The service is ideal in situations where fibre optic cable is either not available or is prohibitively expensive. We offer a range of value added services, including Voice Connect, DSL Connect, Internet, VLAN, VPN, Managed Firewall and Fail-Over Connect.

Pacific Wireless pursues a policy of continuous development of its products and services. This document is for guidance only and does not form part of any contract. It is subject to change without notice. 09/05/06

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