AlfredHealth

OCCUPATIONAL THERAPY DEPARTMENT

Connecting your Tablet Device to the Internet: Wi-Fi and 3G

This document outlines some of the options for connecting your tablet device to the internet. The information provided is based on our experience using Apple iPad/iPad Mini mobile Tablet devices.

Connecting the internet

The type of internet connection you will require will depend on how your department/service plans to use the Tablet device, including what applications or software may be used. Liaison with your organisation's IT department is vital, as all organisations operate uniquely. It is possible to purchase devices that are enabled for Wi Fi Wi-Fi as well as a 3G or 4G data wireless connections. During the pilot project, the Apple iPads were found to intelligently and reliably connect to Wi-Fi as a preference when on campus, and seamlessly switch to 3G data when off campus (i.e. out of Wi-Fi range).

The effect of bandwidth

Bandwidth availability can vary between organisations and can also be affected by temporal factors and link congestion, i.e. the time of the day and the number of staff members simultaneously using the internet, or the type of 'traffic' such as when downloading a large file. Bandwidth may also impact on the usability of the video conferencing (VC) software that you use. Video conferencing requires a high amount of quality bandwidth (low latency etc). and subsequently the connection and quality of the video conference may be impacted depending on the bandwidth and type of connection available.

Using the devices through a corporate Wi-Fi network generally ought to enable access to higher bandwidth and a better user experience during internal video-conferencing sessions (as it is a internal wireless network) as opposed to 3G data which connects the device to the raw internet and then into the organisation via a potentially congested hospital internet link.

Wi-Fi

Wi-Fi is the networking technology within your organisation (like wired networks, it is called "on-net"), which uses radio waves to provide a wireless internet connection. Wireless Access Points are located throughout most organisations and allow local users to video-conference each other at speeds ranging from 11 to 300 Mbps with low latency and high reliability compared to cellular services.

When using a tablet within your organisation, Wi-Fi is a relatively reliable method to connect to the corporate infrastructure and therefore gain access to the corporate internet connection.

3G/4G

3G refers to the 3rd generation of mobile cellular technology, while 4G refers to the 4th generation. This technology enables use of a Tablet device using mobile broadband services, outside of your organisation. 4G technology has a greater bandwidth and speed and is preferable when using high bandwidth applications such as video-conferencing. Whilst 4G is the latest technology it is not available on all devices, or in all areas of Victoria/Australia. When purchasing a Tablet device you will need to check whether it is 3G or 4G enabled. To enable a 3G or 4G connection, your device will require a 'SIM' card which is provided by the 'carrier' (e.g. Telstra or Optus). There are often many plans to choose from – each with varying data usage (included and excess), terms and cost.

Internal use

This refers to use of the Tablet device 'within' the walls of your organisation. It is generally preferable to connect via Wi-Fi whilst on Campus to avoid cellular internet costs, but this will require approval through your IT department. Should Wi-Fi not be available, a wireless internet access can also be achieved in your specific department/service by purchasing a Cable or ADSL internet plan to provide internet directly to your site. A wireless network can then be created via a modem, from this network, but it will NOT be linked to other devices in your hospital (the "on net" devices) and will require prior approval that generally is not provided.

Depending on the location of your organisation, it is possible to utilise a 3G or 4G connection using a SIM card. There are a variety of providers (including, but not limited to, Telstra and Optus), however signal strength will depend on location and interference. Particular providers may be more effective in different geographical areas. Signal strength should be investigated prior to setting up and purchasing the equipment that will enable a 3G or 4G connection. The benefit of a 3G or 4G connection is that the device can also be used outside your organisation e.g. Off site. There are, however, issues around signal strength, latency and traffic when using this connection. See below for further information on 3G/4G connections. You could conduct a simple test by using your Smartphone and sharing out your 3G internet connection to a Tablet and then conducting a test with an application such as Skype.

External use

This refers to the use of the Tablet device 'outside' the walls of your organisation. Typically a 3G or 4G connection is required to utilise the internet in the community. A 3G or 4G connection is connected through a provider (such as Telstra, Optus or similar) and will require your department / service to sign up to a data plan and associated contract. You will be provided with a 'SIM card' which is installed in your device, the same as Smartphone technology. Your organisation may have a preferred provider and contracts in place to reduce cost. Always liaise with your IT department at the beginning of your project to gather this information. As stated above, signal strength is dependent upon location and interference (which can vary sporadically) - therefore a strong internet connection cannot be guaranteed.

To make the 3G or 4G connection simpler to use, there are options to link the 3G/4G connection to your organisations internal network. This can be achieved through using a VPN (virtual private network) or an APN (Access Point Name). You will need to liaise with your organisation's IT department to determine whether these services are available. See below for further details on VPN and APN.

If using a 3G or 4G connection alone (i.e. Without an APN or VPN), you need to investigate the bandwidth required by your chosen video-conferencing software as this will impact on your ability to use a 3G or 4G network.

Virtual Private Network (VPN)

This provides a secure, private tunnel locked to your organisation's internal network and authenticated with a provisioned username and password each time it is used. Once activated, the device is no longer on the raw internet and can be considered "on net" with access to other internal devices and resources. Performance of the video-conferencing software is still dependent on the quality of the 3G/4G access with a further reduction (~10%) due to the overhead of the VPN encryption.
This requires your organisation to have a VPN concentrator/system to be able to be used.

Access Point Name (APN)

As per the VPN, the APN provides a secure, private cellular data internet connection which is locked to the organisation. However, once set up, there is no requirement to enter a username or password each time. It also disables a raw internet connection and generally will provide better performance. This provides improved usability and acceptance (ensures there is one less step – no VPN login) as well as negating issues arising from raw internet access such as malware/virus downloads and a lack content filtering. It requires additional services from your carrier (e.g. Telstra GWIP and VPN).

With thanks to the Australian Centre for Health Innovation

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This project was possible due to funding made available by Health Workforce Australia and the Department of Health, Victoria.

HealthWorkforce AUSTRALIA | An Australian Government Initiative | State Government Victoria Department of Health