

Int Tec Solutions

5G and the Future of Connectivity



Toward the end of 2018, Telstra made the news by making Australia's first 5G to 5G video call between Sydney and the Gold Coast, ushering in the new era of 5G connectivity in the country.

Though telecommunications companies have been testing 5G for years, the first commercial services in Australia will go live in 2019. As a relatively new concept to most users, 5G has left many people wondering what its implications, benefits and uses are.



What is 5G?

5G is the next iteration of connectivity, following 4G, and its name reflects that it is the 5th generation for connectivity standards. It was designed to address the growing demand for ubiquitous wireless connectivity and serve the emerging applications that rely on high-speed, reliable wireless connections, such as artificial intelligence and virtual reality applications. In Australia, most phones currently operate on 4G networks, although 3G still remains in use in some areas or for some high-data quota plans. 2G networks were turned off by 2018. 5G networks focus on mobile data and the changes that present serve to enhance service over 4G.

As with past iterations of mobile networks, 5G will not replace 4G and the two will coexist simultaneously for the time being. Even 3G networks will be present until at least 2020.ⁱ 5G connectivity will theoretically be able to provide speeds of 20Gpbs, although individual users won't be likely to see this speed for time being and actual network performance can be influenced by many factors.

What are the benefits of 5G?

5G networks improve upon past network technologies and it is very likely that 5G will enable a new era of disruptive communications technologies to exist and be used more reliably. For most users, there are benefits that will be experienced quickly once transitioned to 5G. While the biggest benefit cited is often speed, 5G is actually a culmination of technologies that will optimize the entire user experience.

These include:

Faster Speed

The biggest benefit to 5G networks lies in their ability to provide far faster speeds than have been available in the past. The download speed can reach up to 20Gpbs, although actual speed will be dependent upon a combination of factors, including the network architecture and configuration, the amount of traffic on the network and the device used to connect. Despite this, the minimum download speed will be 100Mbps, which is currently the fastest NBN speed.ⁱⁱ

Greater Connectivity

In addition to an increase in speed, 5G will allow more devices to use the network simultaneously. This is especially important as there has been rapid growth in the Internet of Things (IoT) and average households have more devices connected than ever before. 5G allows for mass scale device connectivity, meaning that congestion during peak times will be much less of an issue than it has been with 4G networks.

Lower Latency

5G has a huge advantage over 4G in terms of latency. While the typical latency (or the time it takes for information to go from your device to the internet and then return) with 4G networks is around 60 milliseconds, with 5G this is decreased to as low as 1 millisecond. This difference might not be very perceptible to end users, but for devices that rely on artificial intelligence, such as autonomous vehicles, the lower latency will prove to be incredibly beneficial.



Will 5G impact my business operations?

As with personal use, 5G can greatly enhance business operations. The core premise of 5G is that it offers access to high-speed connections much more cost-effectively. This means that commercial businesses will be able to handle more traffic and data without suffering a huge increase in the cost.

In addition to the cost benefits, many organisations can envision a much more connected future with 5G networks, allowing them to leverage technology on a scale that has not been possible historically. This can range from the implementation of IoT devices such as wireless sensors, that can enhance production or provide real-time feedback on almost any type of business operation. With this, the integration of automation and artificial intelligence can also become easier. When mundane and repetitive tasks are automated, there are often substantial financial benefits while owners and employees are freed up to focus on more cognitive functions, such as reaching out to new customers and focusing on long-term strategies.

Ultimately, 5G networks enable business owners to implement many different types of devices that can enhance and improve business operations, providing them with a key competitive advantage in the marketplace of tomorrow. Forward-thinking organisations will embrace the capabilities of 5G and incorporate innovative technologies into their daily operations – and 5G will make it possible to do so successfully.

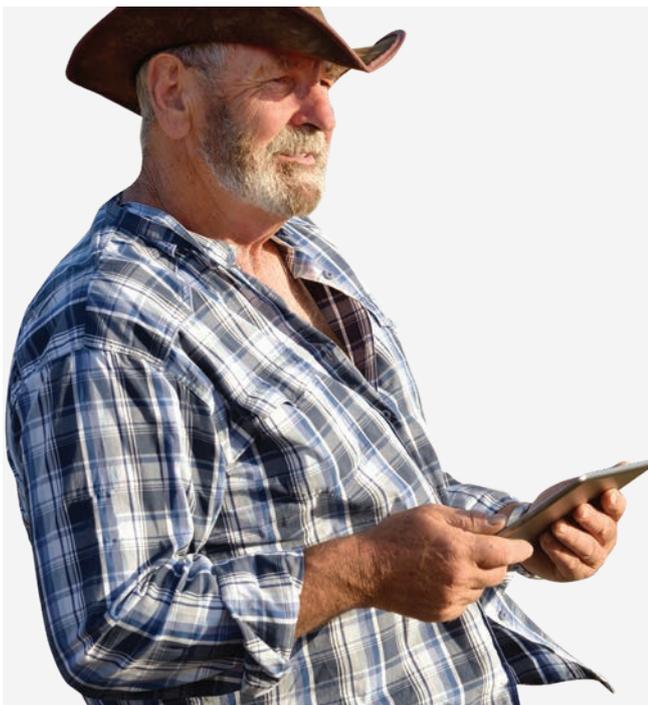
When will it be available?

5G networks will see an increase in their rollout in 2019 and will likely be even more widespread in 2020. Telstra and Optus are slated to begin building networks in 2019 and Vodafone will begin in 2020.

Since most other network operators buy access from one of these three operators, although the timeline for when it will be offered in this way is much less certain. The increase in availability of 5G network access does not automatically mean that users will be on a 5G network. In order to access this network, users will need a device that is 5G-enabled.

Currently, these are not available in Australia, however some manufacturers will begin selling them this year, with many more following in 2020.ⁱⁱⁱ Similar to the evolution of 4G-compatible devices, 5G will eventually become a standard feature when the network becomes widely available.

Initially, access will be concentrated within the capital cities and major metropolitan areas. Despite this, both Telstra and Optus have indicated that they want to expand to regional and rural areas as quickly as possible.^{iv}



What will 5G look like in rural areas?

5G networks will perform optimally in major urban centers, but that doesn't mean that the benefits of it will not reach rural Australia. The top speeds achievable with 5G require a high density of towers, which isn't financially practical in most rural areas. However, as 5G technology begins to creep outside of the major cities, it will likely look like a version of 4G with enhancements. However, as with every other network iteration, 5G will eventually become ubiquitous. At this time, it will become transformational for rural manufacturing and the agricultural industry since it will allow widespread, reliable use of sensors and automation.

What does this mean for the future of communications?

With the widespread rollout of 5G, we will bring in a new era marked by having a fully mobile and connected society. It will empower individuals and organisations to use data in ways that have never before been practical or achievable. Combined with the rise in availability of AI, VR and automation, the use cases and potential technologies are endless. 5G networks will support a wider variety of applications as well as higher demand to meet the growing need for an increasingly connected world.

While 5G connectivity and devices are of limited availability currently, it's not too soon for organisations to begin assessing their 5G readiness and planning for the future of connectivity. The professionals at Int Tec Solutions can assist with the initial assessment and planning for 5G as well as the transition itself when the networks become available to ensure that you are maximizing your potential and using the best resources possible to meet your personal and professional goals.



i Choros, A. (2018, November 5). *5G in Australia: Everything you need to know.* whistleOut.

ii Choros, A. (2018, November 5). *5G in Australia: Everything you need to know.* whistleOut.

iii Dent, J. (2018, November 1). *When can you get 5G in Australia?* whistleOut.

39 Ninth Street, Mildura VIC 3500
Tel 1300 885 847 | (03) 5022 0000
Email support@inttec.com.au
Web inttec.com.au



Int Tec
Solutions