

Explainer: Comparing LEO Satellites, 5G, Fiber Broadband, and Hybrid Networks

21 October 2024



DAVID KENNEDY

david.kennedy@ventureinsights.com.au

Contents

Explainer: Key Connectivity Technologies in Australia.....	2
1. Low Earth Orbit (LEO) Satellite Networks (e.g. Starlink).....	2
2. 5G Networks and Fixed Wireless Access.....	2
3. Fibre Optic Broadband Expansion.....	2
4. Hybrid Models (LEO + Traditional Networks).....	2
Conclusion.....	3

Abstract: As connectivity becomes critical for business growth in remote and underserved markets, understanding the key technologies driving this change is essential. This explainer summarises the latest advances in Low Earth Orbit (LEO) satellite networks, 5G Fixed Wireless Access (FWA), fibre optic broadband, and hybrid models that combine multiple technologies. Learn how global players like Starlink and Amazon's Project Kuiper are transforming rural Australia alongside Telstra, Optus, and NBN Co.

Explainer: Key Connectivity Technologies in Australia

1. Low Earth Orbit (LEO) Satellite Networks (e.g. Starlink)

LEO satellites, like those deployed by Starlink (SpaceX) and soon Project Kuiper (Amazon), are revolutionising internet connectivity, especially in remote regions. Unlike traditional geostationary satellites, which orbit far from Earth and suffer from high latency, LEO satellites operate much closer, reducing latency and increasing speed. This makes them ideal for rural Australia, where fixed-line broadband is often impractical or too costly.

Starlink has already gained over 200,000 Australian users (see [Advanced Television](#)), offering speeds around 100-150 Mbps with low latency (around 40ms) (see [Canstar Blue](#)). Other players like OneWeb are also preparing to offer competitive LEO services in collaboration with local providers like Optus.

2. 5G Networks and Fixed Wireless Access

5G networks promise faster speeds, higher capacity, and lower latency than 4G, and they are especially useful in densely populated urban areas. However, 5G also extends to Fixed Wireless Access (FWA), allowing providers to offer broadband services in rural areas where laying fibre is not feasible.

Telstra, Optus, and TPG Telecom are all rolling out 5G services across Australia, with Telstra being the most significant player in the market (see [ACCC](#)). Fixed wireless has been critical for many regional areas where traditional broadband is scarce, but it's still limited by distance and network congestion.

3. Fibre Optic Broadband Expansion

Fibre optic broadband, such as the National Broadband Network's (NBN) Fibre to the Premises (FTTP) or Fibre to the Node (FTTN) services, provides high-speed, reliable internet by transmitting data as light through glass fibres. While fibre is the gold standard for internet speed and reliability, it's expensive and challenging to deploy in Australia's vast rural and remote regions.

NBN Co continues to upgrade parts of the network to full fibre in urban and suburban areas, with speeds of up to 1 Gbps. However, NBN's Sky Muster satellite and Fixed Wireless options are the fallbacks for remote areas, with speeds significantly lower than fibre (see [ACCC](#), [Canstar Blue](#)).

4. Hybrid Models (LEO + Traditional Networks)

Hybrid models, combining the strengths of LEO satellites with traditional broadband (fibre or fixed wireless), are becoming increasingly popular. This model provides a more resilient network, where satellite connections complement existing infrastructure.

Companies like Telstra are starting to offer such hybrid solutions. Telstra's partnership with Starlink allows it to bundle satellite services with its existing fixed-line and 4G networks, offering reliable connectivity even in Australia's most remote areas (see [Information Age](#), [Canstar Blue](#)).

Conclusion

Each of these technologies has a role to play in improving connectivity in Australia. LEO satellites are the most transformative for remote areas, while 5G and fixed wireless are critical for suburban and semi-rural locations. Fibre expansion remains the best option for urban centres. Hybrid models are also gaining traction as they combine the best of both worlds, offering flexibility and reliability across varied landscapes.

About Venture Insights

Venture Insights is an independent company providing research services to companies across the media, telco and tech sectors in Australia, New Zealand, and Europe.

For more information go to ventureinsights.com.au or contact us at contact@ventureinsights.com.au.

Important notice: By accepting this research note, the recipient agrees to be bound by the following terms of use. This research note has been prepared by Venture Insights Pty Ltd and published solely for guidance and general informational purposes to authorised users under the terms of a licence agreement between Venture Insights Pty Ltd and its subscriber. You need to be expressly authorised to use it, and it may only be used for your internal business purposes and no part of this note may be reproduced or distributed in any manner including, but not limited to, via the internet, without the prior permission of Venture Insights Pty Ltd. If you have not received this note directly from Venture Insights Pty Ltd, your receipt is unauthorised. If so, or you have any doubt as to your authority to use it, please return this note to Venture Insights immediately.

This research note may contain the personal opinions of research analysts based on research undertaken. This note has no regard to any specific recipient, including but not limited to any specific investment objectives, and should not be relied on by any recipient for investment or any other purposes. Venture Insights Pty Ltd gives no undertaking to provide the recipient with access to any additional information or to update or keep current any information or opinions contained herein. The information and any opinions contained herein are based on sources believed to be reliable, but the information relied on has not been independently verified. Neither Venture Insights Pty Ltd nor its officers, employees and agents make any warranties or representations, express or implied, as to the accuracy or completeness of information and opinions contained herein and exclude all liability to the fullest extent permitted by law for any direct or indirect loss or damage or any other costs or expenses of any kind which may arise directly or indirectly out of the use of this note, including but not limited to anything caused by any viruses or any failures in computer transmission.

Any trade marks, copyright works, logos or devices used in this report are the property of their respective owners and are used for illustrative purposes only. Unless otherwise disclosed, Venture Insights has no affiliation or connection with any organisations mentioned in this report. However, the information contained in this report has been obtained from a variety of sources, including in some cases the organisations themselves. In addition, organisations mentioned in this report may be clients of Venture Insights.

The recipient hereby indemnifies Venture Insights Pty Ltd and its officers, employees and agents and their related entities against any direct or indirect loss or damage or any other costs or expenses of any kind which they may incur directly or indirectly as a result of the recipient's use of this note.

© 2024 Venture Insights Pty Ltd. All rights reserved.

David Kennedy, Managing Director
david.kennedy@ventureinsights.com.au

Venture Insights
Level 3, 461 Bourke Street, Melbourne, VIC 3000