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Media release

World-first: 100 gigabit technology demonstrated on live nbn network

- **World-first:** NBN Co and Nokia have successfully achieved a maximum wholesale download speed of 83 Gbps on the live **nbn**[®] fibre access network using Nokia's prototype 100 gigabit technology.
- **Future ready:** the results demonstrate capabilities of **nbn**'s world-class Fibre to the Premises (FTTP) network infrastructure.
- **Faster and smarter:** the successful demonstrations reflect the potential capability to provide faster **nbn** broadband in the future.

NBN Co and Nokia have demonstrated a world-first by achieving wholesale download speeds of 83 Gbps on the live **nbn** full fibre¹ access network^{2, 3}.

The successful demonstration utilised Nokia's prototype 100 gigabit technology and showcases the world-class capabilities of **nbn** full fibre to support the next generation of broadband services.

This is the first time the prototype technology has been employed in the 'real world' outside of a lab setting.

The demonstration is an important part of the Company's long term network roadmap, which includes exploring next generation technology to support services to homes, businesses and new developments across the country in the future.

The demonstration also showed that the **nbn** FTTP network can support the co-existence of multiple Passive Optical Network (PON) technologies on the same fibre, offering a potential future where newer technologies can work simultaneously with current-day FTTP technologies and services. This could support the evolution to multi-gigabit technologies without any need to change **nbn**'s existing laid cable.

The demonstration comes as **nbn** is progressively deploying Nokia's MF-14 optical line terminal (OLT) onto the FTTP network, which supports higher capacity fibre optic broadband technologies.

nbn was the first in the southern hemisphere to deploy Nokia's MF series OLT.

Dion Ljubanovic, nbn Chief Network Officer, said:

"This is an incredible result and demonstrates the fibre we continue to upgrade the network with today, is only limited by the capabilities of the equipment that will connect to it into the future.

“Fibre offers a faster, reliable and more energy-efficient connection. This is a key driver that propels us to continue to replace copper with fibre across the country and also work closely with Australia's property development industry to support the creation of vibrant new communities equipped with fibre connectivity.

“The average Aussie home is forecast to download around one terabyte per month within the next decade and technologies, like augmented reality and generative artificial intelligence, will place even greater demand on the network.

“We are always looking for ways to push the capabilities – in both speed and reliability – of the entire **nbn** network. This successful demonstration shows we have the potential to deliver a step change in next-generation speeds over our network in the long term.”

Geert Heyninck, Vice President of Broadband Networks at Nokia, said:

“There is a huge opportunity for operators to leverage their existing fibre broadband networks to efficiently add advanced services which goes way beyond consumer services.

“Think enterprise, mobile backhaul, Smart City, industry 4.0. It’s important for service providers to have choices to match the right speed and cost points to meet the different use cases and market requirements they may have.

“As the industry’s first and only solution capable of supporting the full range of PON technologies from 10G to 25G, 50G, and even 100G, we can give operators the freedom and flexibility they need to meet their business needs while also helping to optimise network performance and reduce costs.”

ENDS

Notes to Editors

- The demonstrations showed that the fibre deployed on the **nbn** network has the capability to support the co-existence of multiple next generation broadband technologies, including XGSPON, 25GS PON, 50G PON, and 100G PON².
- These technologies have the potential to both increase broadband speeds and capacity across the **nbn** FTTP network and can offer a range of benefits including smoother video calls, a better streaming experience, faster response times for gaming, faster data downloads and back-ups and the ability to support more devices at the same time³.
- Two demonstrations were run on a single **nbn** fibre:
 - XGSPON, 25GS PON and 50G PON signals combined to achieve an aggregate Layer 1 PON speed of 85 Gbps (downstream), or Layer 2 download speeds of 71 Gbps (8 Gbps, 21 Gbps and 42 Gbps, respectively) after accounting for protocol overheads.
 - XGSPON, 25GS PON and 100 gigabit signals combined to achieve an aggregate Layer 1 PON speed of 135 Gbps (downstream), or Layer 2 download speeds of 112 Gbps (8 Gbps, 21 Gbps and 83 Gbps, respectively) after accounting for protocol overheads.
- The demonstration was held at a FTTP exchange station in Sydney and involved researchers from Nokia’s Bell Labs. Representatives from the University of Technology Sydney and the Technology Council of Australia also attended to observe the demonstration.
- **nbn** and Nokia previously achieved symmetrical speeds of 21 Gbps in live field demonstrations in October 2023. This was a new Australian record for a passive optical network².

- The existing **nbn** fibre network consists of 300,000 kilometres (km) of optic cable, and the company is rolling out around 500km of optic fibre per week, replacing copper-based services across Australia with full fibre connections, with the intention to increase the availability of close to 1 Gbps services for 90 per cent of the Fixed Line network by the end of 2025.

Disclaimers

1. nbn full fibre network is also referred to as nbn Fibre to the Premises (FTTP).
2. NBN Co provides wholesale services to retail service providers and any reference to speeds in this media release are not end-user speeds. They represent the capabilities of potential future FTTP technologies and were obtained during a technical demonstration carried out in conjunction with Nokia. They have not been subject to tests with retail service providers.
3. In relation to nbn's existing services, a customer's experience, including the speeds actually achieved over the nbn network, depends on a range of factors (some of which are outside nbn's control, like equipment quality, software, and how the retail service provider designs its network), including the nbn technology used for the connection.

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