# Fiber Optic Backbone – The Catalyst for Digital Innovation and a Connected Pacific

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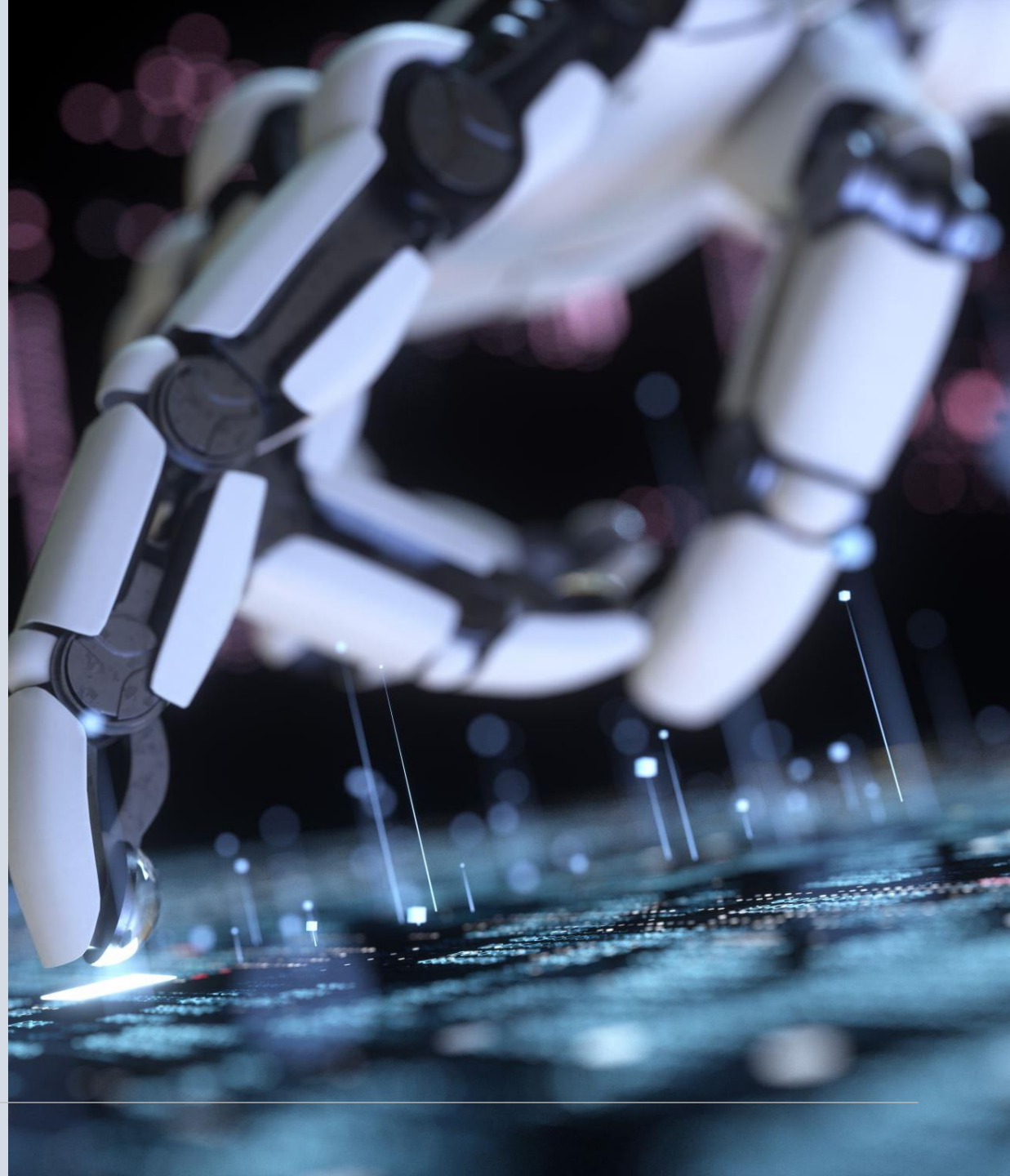


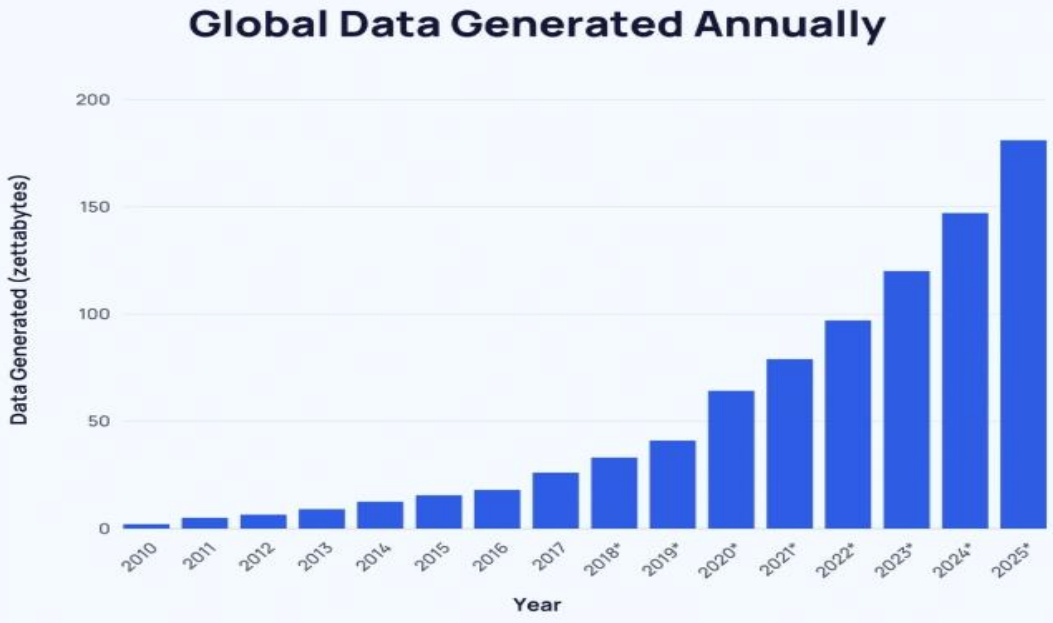
# Key Drivers For The  Digital Infrastructure

•**Explosive Data Growth** – Rising demand from cloud, video streaming, social media, and digital applications. More demanding apps , richer content ,high bandwidth application ,smarter devices.

•**Accelerating Adoption of AI, IoT & Smart Technologies** – Massive device connections and machine-to-machine traffic need reliable, high-capacity infrastructure.

•**5G/6G & Mobile Expansion** – Mobile networks require high-capacity, low-latency backhaul that only fiber can provide.

•**Cloud & Data Center Connectivity** – Direct, high-speed connections to regional and global data centers for faster digital services.

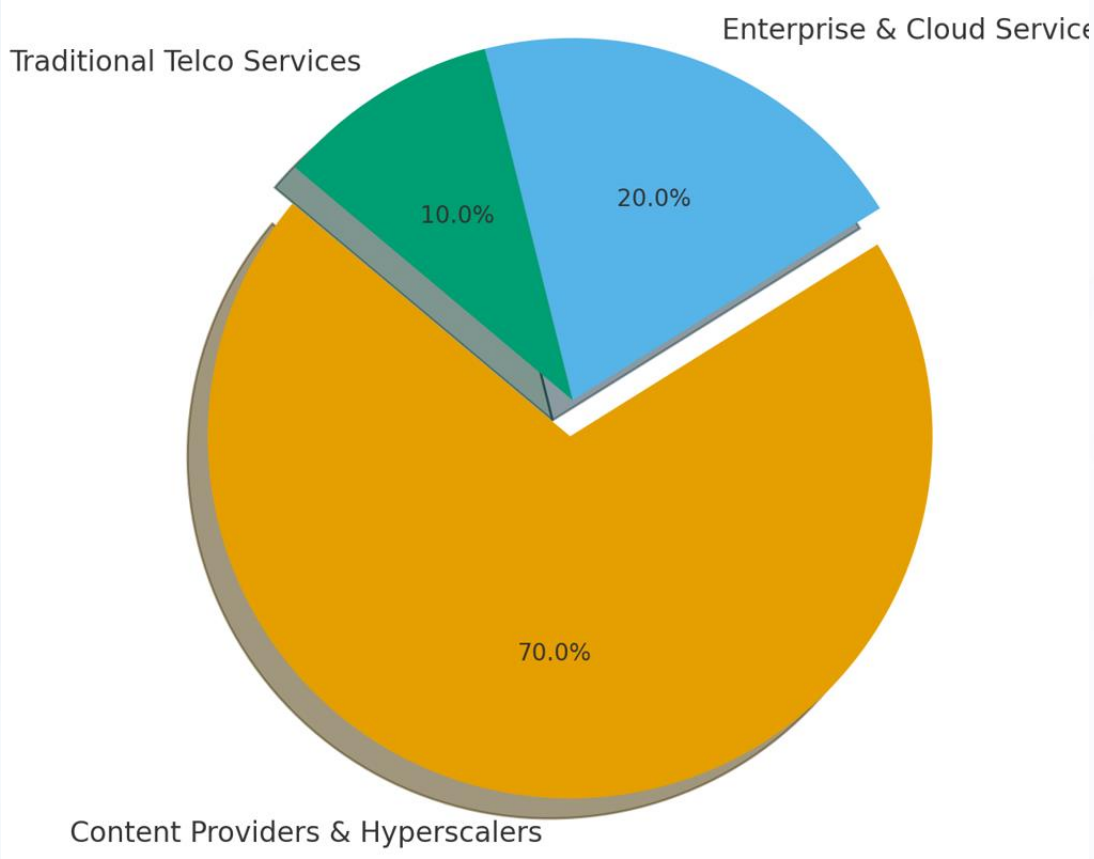



Source: Amount of Data Created Daily (2025)

- **In the space of 13 years, this figure has increased by an estimated 74x from just 2 zettabytes in 2010.**
- **The 120 zettabytes generated in 2023 are expected to increase by over 150% in 2025, hitting 181 zettabytes.**

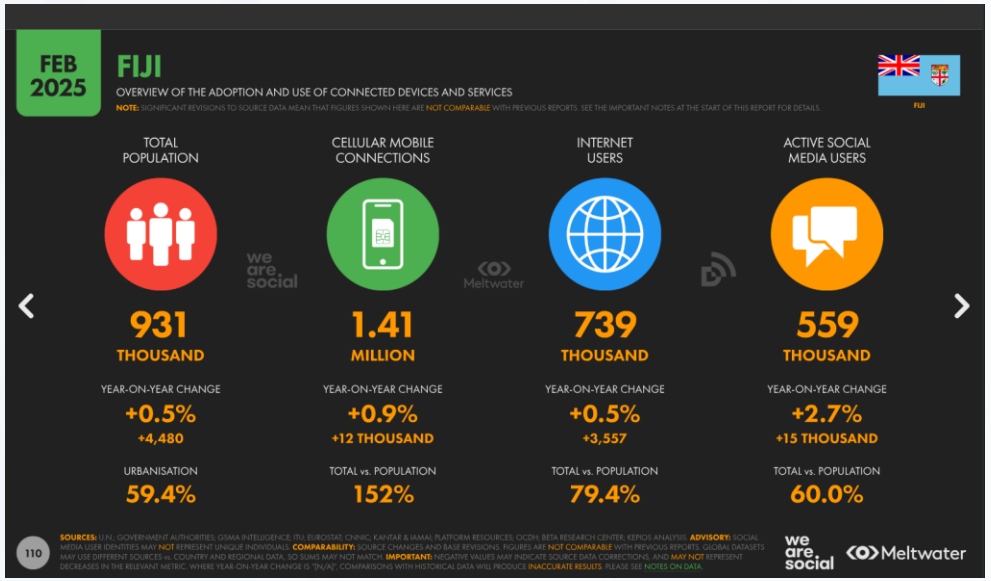
# How the Shift In  Traffic Distribution

- The majority of traffic across the network is increasingly dominated by **content providers and hyperscalers**, such as Google, Meta, Microsoft, Amazon, Netflix, and TikTok.
- These big major Tech players are the largest share of international and domestic data flows.
- **Traditional telco traffic** (voice, messaging, and managed services) now represents only a small fraction of the overall load.



# Internet Penetration for Pacific Islands

| Country | Area | Population | Percentage of Population Online | GDP (USD Million) |
|---|---|---|---|---|
| Cook Islands | 236 km² | 17,100 | 53.86% | 280 |
| Federated States of Micronesia | 701.9 km² | 115,800 | 40.50% | 330 |
| Fiji | 18,274 km² | 939,700 | 85.22% | 5,200 |
| French Polynesia | 4,167 km² | 310,200 | 72.70% | 10,200 |
| Kiribati | 811.2 km² | 134,600 | 54.46% | 200 |
| Marshall Islands | 181.43 km² | 42,200 | 73.22% | 230 |
| Nauru | 21 km² | 12,800 | 82.81% | 180 |
| New Caledonia | 18,576 km² | 294,500 | 82.00% | 12,500 |
| Niue | 261.5 km² | 1,934 | 79.58% | 14 |
| Palau | 458.4 km² | 18,100 | 67.96% | 270 |
| Papua New Guinea | 462,840 km² | 10,420,000 | 26.97% | 35,000 |
| Samoa | 2,831 km² | 227,300 | 75.27% | 1,200 |
| Solomon Islands | 28,896 km² | 748,500 | 44.96% | 2,000 |
| Tonga | 748 km² | 108,200 | 57.49% | 500 |
| Tuvalu | 26 km² | 11,400 | 81.45% | 16 |
| Vanuatu | 12,189 km² | 338,400 | 69.89% | 900 |




**As of early 2025, both Australia and New Zealand exhibit high internet penetration rates above 95% , reflecting their advanced digital infrastructures and widespread connectivity.**

Source: Data Reportal, Digital 2024 Reports. Available https://datareportal.com/

# AI Readiness in the Pacific

## AI Index Criteria

- A nation's AI index is measured by its talent, research, **infrastructure**, policies, industry adoption, and societal impact.

- **Infrastructure & Data Readiness**
  - Computing power availability (GPUs, HPC, cloud resources)
  - Data availability and governance frameworks
  - **Fiber connectivity** and cloud/data center capacity

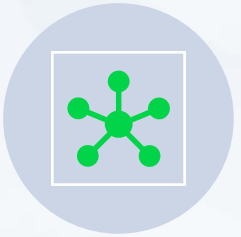
| Global Ranking (193 Total) | Country | Total Score | Government Pillar | Technology Sector Pillar | Data & Infrastructure Pillar |
|---|---|---|---|---|---|
| 12 | Australia | 73.89 | 83.34 | 52.57 | 85.75 |
| 49 | New Zealand | 60.18 | 51.85 | 47.05 | 81.66 |
| 79 | Nauru | 46.75 | 38.19 | 38.54 | 63.50 |
| 96 | Fiji | 41.57 | 37.78 | 35.12 | 51.80 |
| 108 | Tonga | 39.01 | 35.37 | 33.52 | 48.14 |
| 113 | Tuvalu | 37.45 | 29.27 | 34.01 | 49.08 |
| 122 | Marshall Islands | 35.70 | 30.25 | 32.26 | 44.60 |
| 144 | Vanuatu | 31.91 | 26.19 | 25.23 | 44.32 |
| 147 | Samoa | 31.66 | 27.52 | 22.85 | 44.61 |
| 161 | Solomon Islands | 29.09 | 23.72 | 23.41 | 40.14 |

Source: Government AI Readiness Index 2023 (Oxford Insights). Available at: https://oxfordinsights.com/ai-readiness/ai-readiness-index/

# Why Nation Implement Fiber Optic Backbone

HIGH CAPACITY AND SPEED

RELIABILITY AND RESILIENCE



FUTURE –PROOF INFRASTRUCTURE

SUPPORT FOR INNOVATION AND ECONOMY

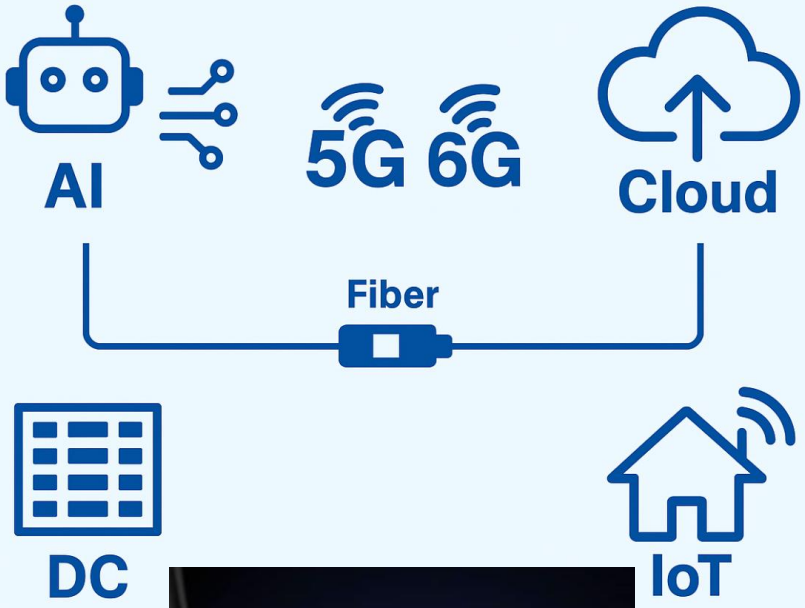
ATTRACTING INVESTMENT

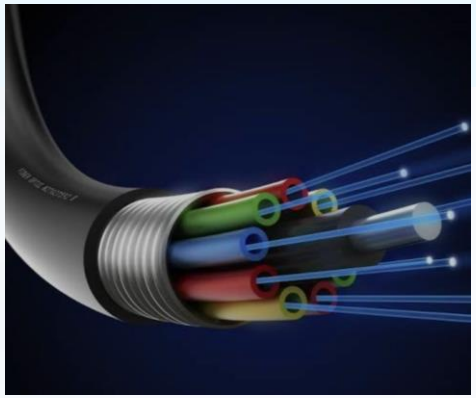
NATIONAL SECURITY & SOVEREIGNTY

# What is  Fiber Optic Technology

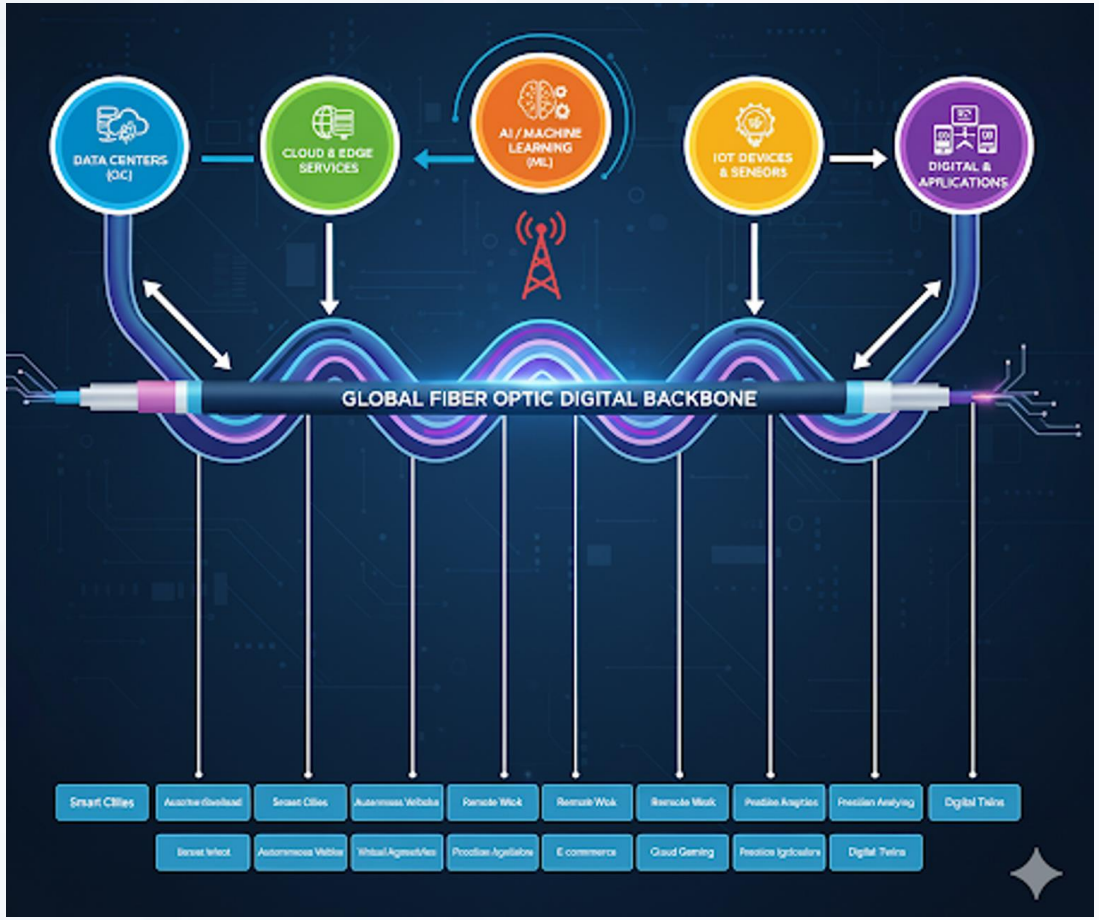
- **Optical Fiber is** a transmission medium that uses glass fibers to transmit data in the form of light and it  work based on the principle of total internal reflection.
- **How Fiber Optics Works**
  - **Light Source**
    Data is encoded into light signals using lasers or LEDs.
  - **Transmission Through the Core**
    The light travels through the glass core. The cladding reflects the light continuously, keeping it inside the fiber (principle of *total internal reflection*).
  - **Data Decoding**
    At the receiving end, the light signals are converted back into electronic data that devices can understand.



# Fiber Optic for the Digital Services Ecosystem

- AI needs Data. Data needs Data Centers. And Data Centers need Fiber Optic Connectivity.
- Fiber Optic as the invisible superhighway that carries your data — from streaming videos and cloud apps to online banking etc



# Philippines National Fiber Optic Backbone

## Unmatched Domestic Connectivity

**PLDT Domestic Optic Network (DFON)**

**DFON - 89 Tbps**

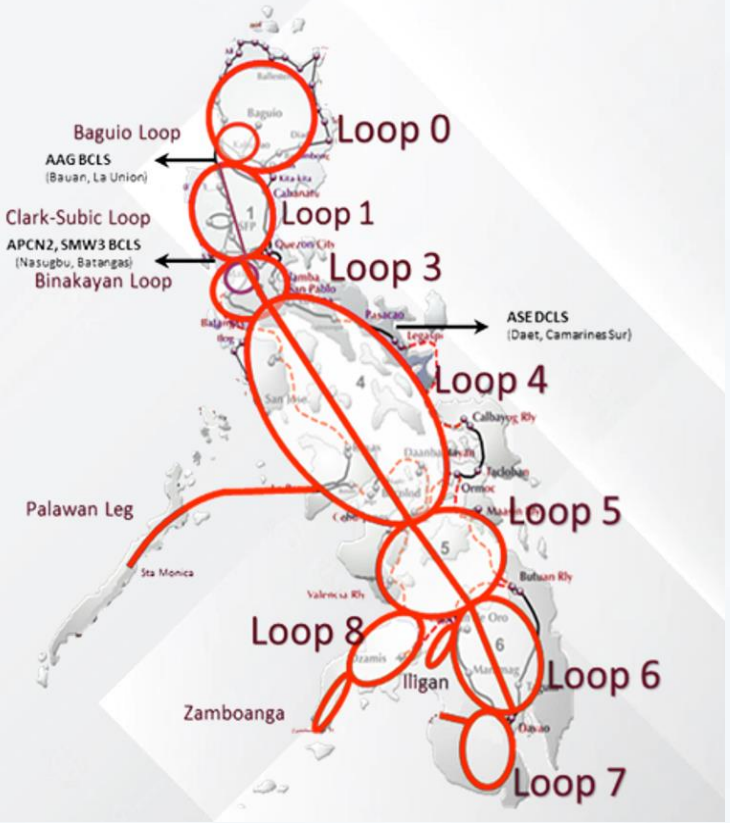
**Most Robust**
Aggregate operating capacity

**TOTAL CABLE KM 1.2 Million**

**Nation Widest**
Total FOC cable length

**11 Loops**

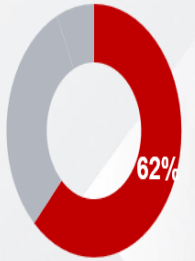
**Most Resilient**
Ring protection for resiliency
**8** major loops
**3** sub-tending loops
* with several third routes within loops for greater resiliency




**Largest Data Center Operator With Densest Interconnection**

VITRO DATA CENTER

**DC Market Share**




Network of 10 Purpose-built Data Centers

Biggest Local Peering Platform in PH

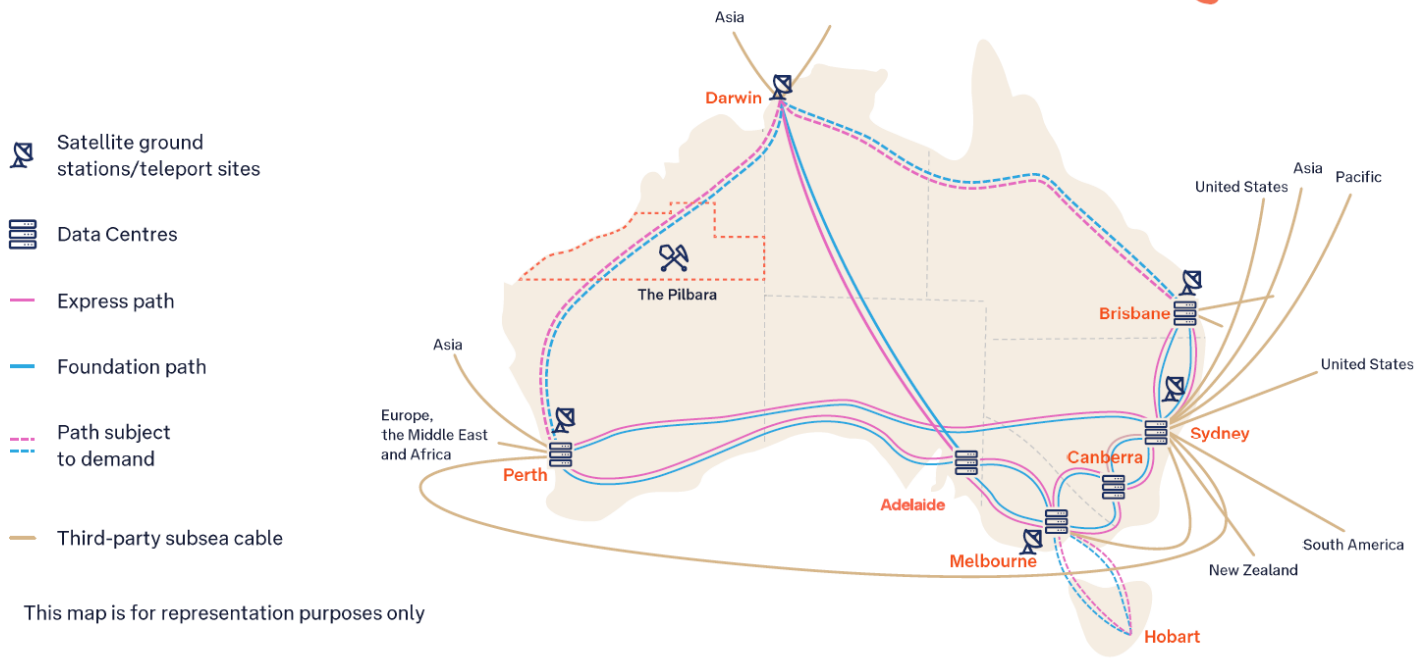
- 396 Gbps total subscription from 30 local and international telcos
- 697 Gbps total subscription from 20 Content Providers

# New Zealand's National Fiber Optic Backbone

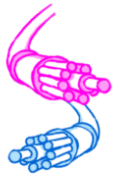
# Australia's National Fiber Optic Backbone

Telstra InfraCo




## Our Intercity investment

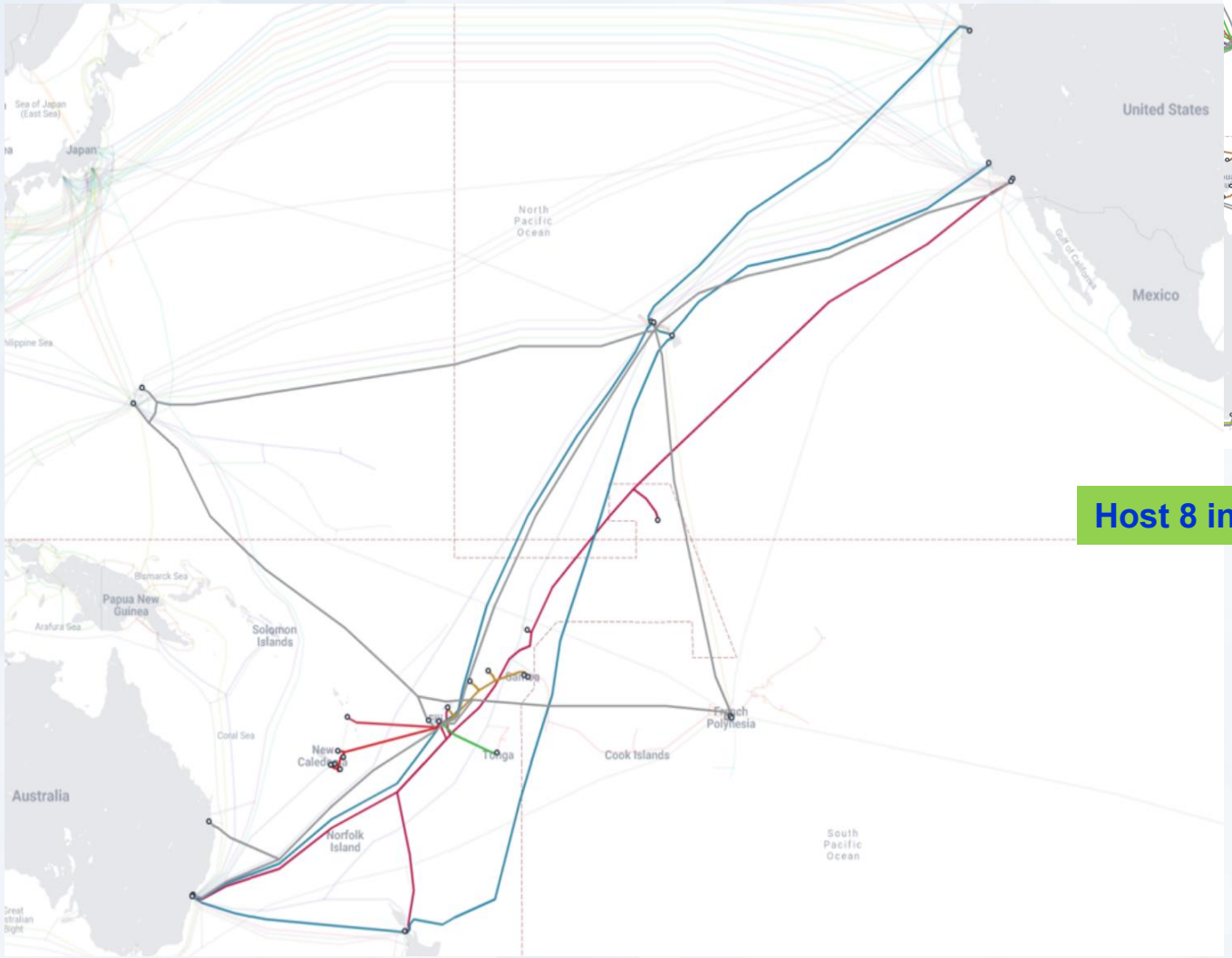
- **Only national terrestrial project** of its type in Australia
- **Fully funded** with construction underway
- High performance fibre technology will significantly **uplift terrestrial fibre capacity** across Australia.

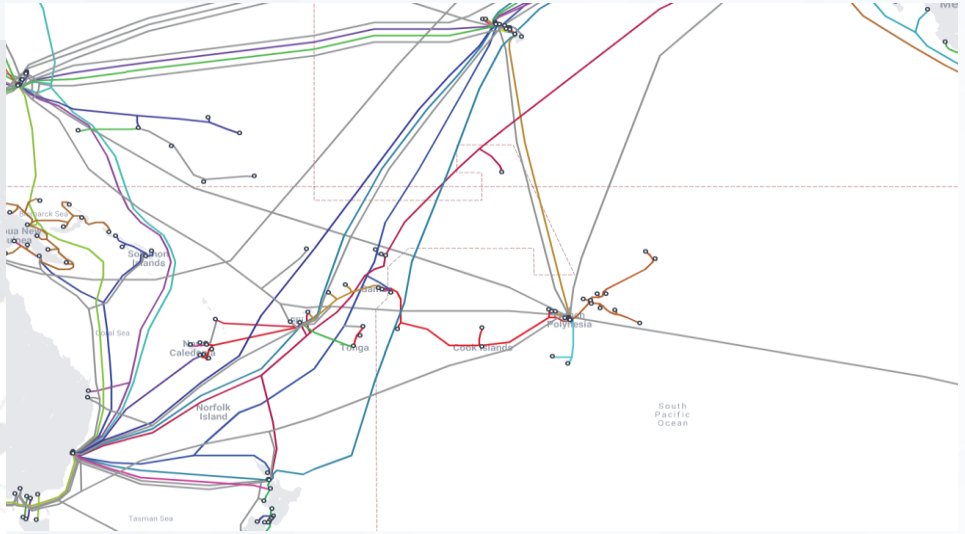


## Dual cable architecture to connect mainland capital cities

- **Express Path** Ultra-Fast Ultra-low loss fibre
- **Foundation Path** Low loss fibre with regional access points
- On and off ramp infrastructure for regional access and remote connectivity
- Transmission rates of up to 650 Gbps. Express connectivity between capital cities of up to 55 Tbps per fibre pair (subject to customer equipment and route)

# Subsea Fiber Optic Cables Connecting the Pacific & Fiji



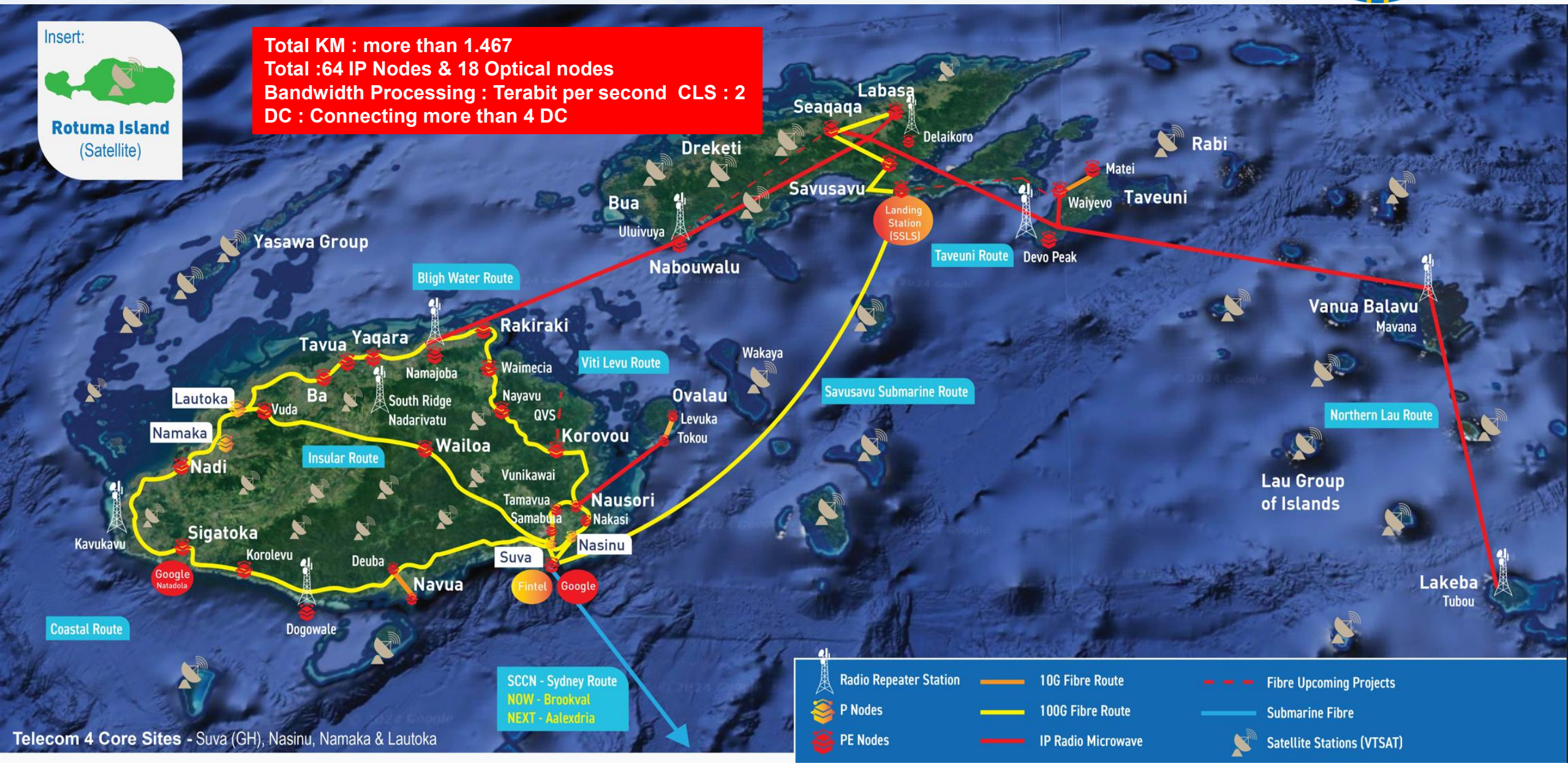



**Host 8 international Subsea Cables ( 6 existing + 2 in construction)**

1. Bulikula (2026)
2. Gondwana-2/Picot-2
3. Interchange Cable network(ICN1)
4. Southern Cross Cable Network(SCCN)
5. Southern Cross NEXT
6. Tabua(2026)
7. Tonga Cable
8. Tui-Samoa

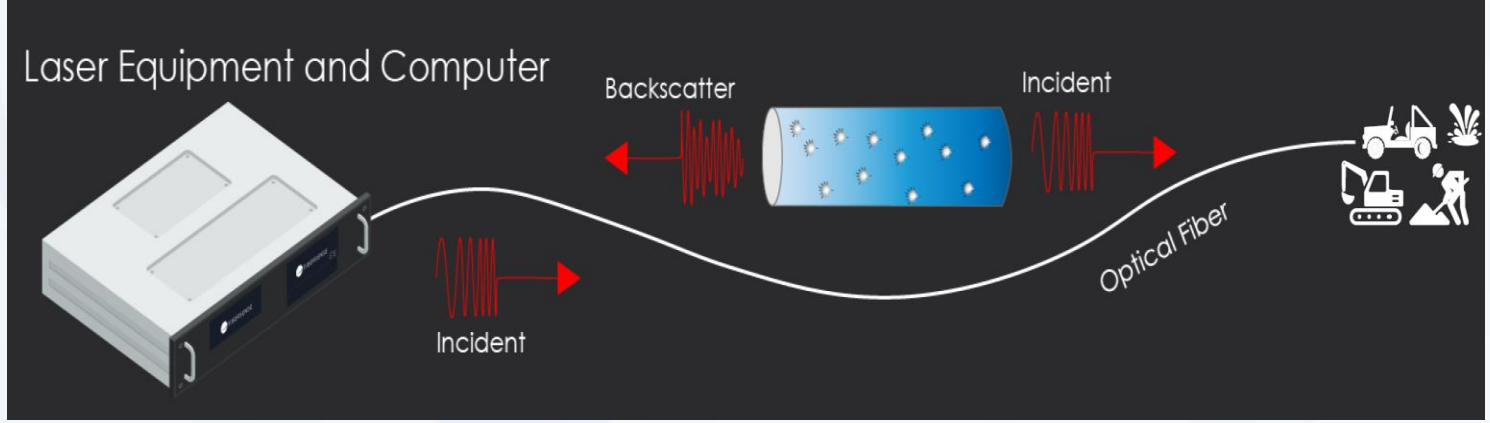
Source : Submarine Cable Map By TeleGeography

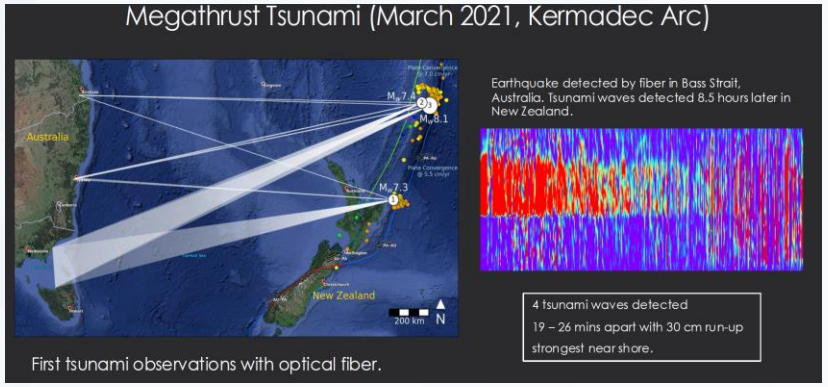
# Fiber Optic Backbone for Fiji Digital Services

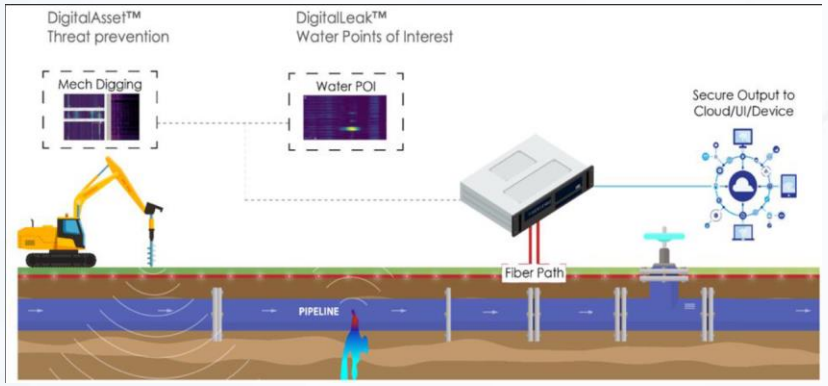


# Innovation for the Fiber Optic Sensing

| Linear asset protection | Marine cable protection | Vehicle tracking | Seismic energy mapping | Water leak detection |
|---|---|---|---|---|
| Real time detection of excavation or tampering | Ship detection and activity tracking<br>Anchor drop and drag detection<br>Submarine cable condition monitoring | Real time traffic monitoring<br>AV navigation<br>Road condition monitoring<br>Incident data | Geotechnical survey data<br>Real time peak ground acceleration earthquake data<br>Early warning event data | Passive leak detection<br>Reducing environmental and financial costs<br>Contribute to the reduction of CO2 emissions |
| *Proven reduction in outages when FiberSense is deployed* | *Reduce operational cost on subsea assets* | *Contribute to safer environments for the general public*<br>*Keep traffic flowing through real time detection of accidents* | *Save lives by providing critical information to first responders*<br>*Assist cities in building more resilient infrastructure* | *Drive savings for the general public*<br>*Keep roads open via detecting growing leaks* |



# Conclusion

- The **fiber optic backbone** remains the most powerful enabler of digital transformation — delivering **high speed, reliability, and future-proof scalability.**
- For the Pacific, adopting a **fiber-first strategy** is not just about technology — it is about building the **invisible highway of the digital economy,** one that will drive **growth, innovation, and true connectivity** for our people and our region.

# Thank You