



— CASE STUDY

Southern Cross builds subsea networks for island nations across the Pacific

It's hard to overstate the importance of subsea networks to our modern world. "People think it's all in the air," says Dean Veverka, CTO and VP of Operations at Southern Cross Cable Network. "The cloud is actually under the sea!" In a sense, he's exactly right – 99% of transoceanic data travels through undersea cables¹. While satellite networks dominated long-distance communications from the 1960s through 1980s, the possibilities of fiber-optic networks expanded considerably in the latter part of the century. Eventually the utility of subsea fiber communications surpassed that of satellites for overseas data.

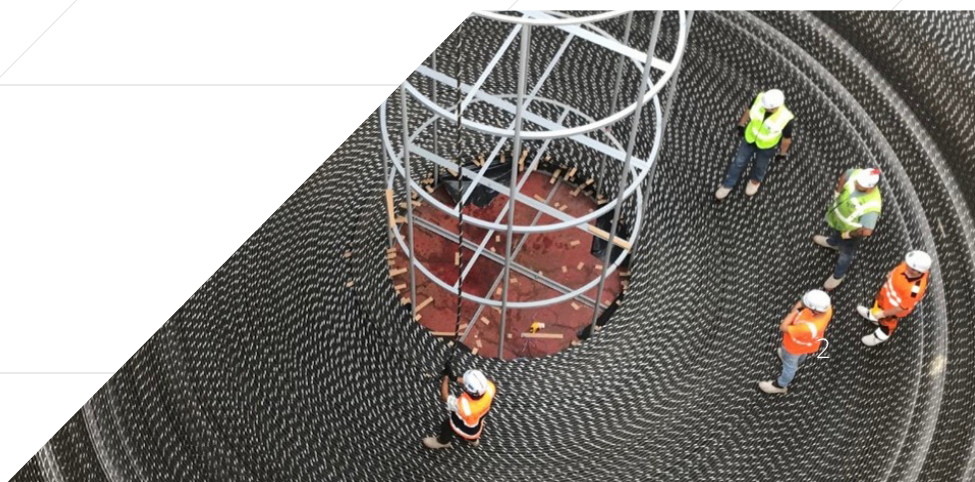
Southern Cross' position as the primary provider of subsea communications from the US to Australia and its neighbors makes them economically vital to commerce, finance, and even governmental operations across the Pacific. "When you start carrying government traffic, you instantly become critical infrastructure," says Veverka.

Southern Cross carries about 100 terabits of traffic per second over 45,000 kilometers of undersea cable. For scale, that amount of cable could wrap around the circumference of the Earth with a few thousand kilometers left over! To ensure performance across the long distances their sparse island region requires, Southern Cross must keep latency creep to a minimum. Their network provides essential connections from mainland Australia, New Zealand, Fiji, Hawaii and two island nations of Tokelau and Kiribati to the US Pacific coast. On the 7th of July 2022, Southern Cross NEXT became ready for service, the newest submarine cable in the Southern Cross network. Southern Cross NEXT has provided life changing opportunities for many as the first international submarine fiber connections to Tokelau and Kiribati. "There are about 1,500 people in the country across three atolls," says Veverka describing Tokelau. "Without NEXT they wouldn't have a high-speed internet connection."



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The Ask

22 years ago, when Southern Cross built their first trans-Pacific network, the total capacity was 240 gigabits per second across two cables. 240 gigabits was a lot for the time, but that bandwidth can get eaten up quickly today. Additionally, undersea cables have a limited lifespan — about 25 years in the case of their Southern Cross Network. The cable is due to be retired in 2030 and would therefore need a new cable crossing to support existing and future demand. So seven years ago, they started planning Southern Cross NEXT.

NEXT would run 15,840 km with a capacity of 72 terabits per second. At \$350 million, the project cost is steep, but still a good value as Veverka sees it. “The original crossing cost us \$1.6 billion,” he notes, “and all we got was 240 gigabits.” The new project provides over 300 times that capacity.

NEXT would also need to be reliable. For a subsea network like Southern Cross, reliability is especially important as building subsea route diversity is considerably more expensive than it is on land.

Another key component of the NEXT project is what would happen on the terrestrial side of the cable. “We need people in all the different countries we deal with to manage the terrestrial side of our networks,” Veverka explains. Veverka and the Southern Cross team particularly needed to ensure a robust connection to the US.

The specifics were clear — they needed a gateway to the States. A partner that could provide:

- Solid connections to West coast PoPs
- Scalability
- Flexibility
- A broad US network
- Resilience
- Support
- Maintenance
- Ongoing governance

They connected with Vimal Andrews, Zayo’s account director for International Carriers. After working with Veverka to understand Southern Cross’ needs for NEXT, Andrews and his team had a real challenge on their hands. Andrews explains: “Southern Cross are experts at doing the subsea portion of it. However, when it lands here in the States, they have to rely on someone else to build the backhaul. I would need to provide diversity and a 100 percent resilient connection. They had gone through the trouble to connect islands and continents, but if our link in the chain goes down, it’s for nothing.”

The two teams got to work.

	ORIGINAL NETWORK	SOUTHERN CROSS NEXT
TOTAL CAPACITY	240 gigabits/second	72 terabits/second
COST	\$1.6 billion	\$350 million

The Work

Three years ago, Zayo began deploying new capacity near what would be Southern Cross's three landfall points: Hillsboro, OR, San Jose, CA and Los Angeles, CA. "We were getting those sites ready, getting the fiber ready, coordinating with Southern Cross to install their equipment in our inline amplifier huts," Andrews explains. "We were being proactive about hardening our network to meet their requirements." His team also drew up some flexible commercial terms to suit Southern Cross's business needs.

What began as a request for service, quickly became a symbiotic partnership. As Veverka puts it, "in the long run, Zayo rising to meet our needs helps them develop their products as well." Veverka particularly appreciated the overlaps between the two teams: "We're like-minded cultures of people who are willing to listen and to go the extra mile to make things work. That's how long-term partnerships are built."

The Result

Veverka and the Southern Cross team credit reliability and availability as key success drivers in the partnership with Zayo. The vital resource their link across the Pacific provides the world needs to stay live. "It's hard to imagine, but there's a lot of work that goes into keeping these networks up," he remarks. For NEXT, they couldn't compromise on quality.

Southern Cross and Zayo are now strategic partners — for the long haul. "We look for strong business partners that are there with us for the whole journey," he says. "It's not just a two or three-year lease deal — we're in it for 15 to 20 years."

Andrews sums the importance of the work that Zayo and Pacific Carrier are doing: "We have a huge role in keeping the world online. At Zayo, we think of ourselves as the carriers' carrier. It helps me to remember: if we don't do our job, islands across the Pacific go dark — they lose their connection to the outside world."

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— Dean Veverka, CTO and VP of Operations at Southern Cross Cable Network





Zayo supports networks across the globe.

Learn more about Zayo: zayo.com

Learn more about Southern Cross: southerncrosscables.com

About Zayo

Zayo Group Holdings, Inc. provides mission-critical bandwidth to the world's most impactful companies, fueling the innovations that are transforming our society. Zayo's 126,000-mile network in North America and Europe includes extensive metro connectivity to thousands of buildings and datacenters. Zayo's communications infrastructure solutions include dark fiber, private data networks, wavelengths, Ethernet, dedicated internet access and datacenter connectivity solutions. Zayo owns and operates a Tier 1 IP backbone and through its CloudLink service, Zayo provides low-latency private connectivity that attaches enterprises to their public cloud environments. Zayo serves wireless and wireline carriers, media, tech, content, finance, healthcare and other large enterprises. For more information, visit **zayo.com**.