RELIANCE GLOBALCOM NETWORK

First Asian in-service 40G upgrade using Ciena's Coherent WaveLogic™ Technology

About the Client

Reliance Globalcom spearheads the global telecom operations of India's largest integrated telecom service provider. Reliance Globalcom brings together the synergies of Reliance Communications Global Business encompassing enterprise services, capacity sales, managed services and a highly successful bouquet of retail products and services comprising of global voice, Internet solutions and value-added services. The company serves over 5000 enterprises, 200 carriers and 2.5 million retail customers in 163 countries across six continents.

Reliance Globalcom owns one of the world's largest private undersea cable systems, spanning 73,000 kilometers. When combined with the 190,000 kilometers of domestic fiber of its parent company, Reliance Communications, the global network connects 40 key business markets across India, the Middle East, Asia, Europe, and the U.S. The Southeast Asian economies continue to grow annually, with Reliance Globalcom providing cost-effective and reliable telecommunications services to help fuel regional growth.

Challenges

According to TeleGeography, a leading telecommunications market research and consulting firm, bandwidth growth in the Asia-Pacific region is expected to grow at a CAGR of approximately 45 percent out to 2017. For Reliance Globalcom, this increasing demand required capacity upgrades on their Flag North Asian Loop (FNAL) network, as shown in Figure 1. Two key routes in the FNAL submarine network, each spanning approximately 5,000 kilometers, required immediate capacity increases to better serve Japan, Taiwan, South Korea, and Hong Kong. Reliance Globalcom wanted a cost-effective solution to augment the capacity of the FNAL

Figure 1. Reliance Globalcom FNAL network

undersea network assets while lowering overall network operating costs. Reliance Globalcom was also seeking a solution for lower latency and added wavelength routing flexibility between certain undersea cable landing sites.

Customer Commitment

Reliance Globalcom is committed to upgrading their wet plant assets on an ongoing basis to best leverage the latest transmission technologies and provide increased capacities at a lower operating cost. This strategy ensures that their customers' needs are properly addressed in a timely manner, such that mission-critical traffic is carried on the best technology available to the industry. To meet growing undersea bandwidth requirements in the Asia-Pacific region served by the FNAL submarine networks, the technology path to the future was to increase channel capacities from 10 Gb/s to 40 Gb/s today, and 100 Gb/s in the future.

Reliance Globalcom was also seeking a cost-effective solution to route traffic in the FNAL network based on evolving customer traffic demand patterns. To minimize latency, Reliance Globalcom wanted to keep the routing of traffic within the FNAL network in the optical domain—all optical wavelength routing. By keeping the routing of traffic in the optical domain, not only would the company increase flexibility and minimize incurred latency, but they would also reduce power and space requirements.

Of primary importance, the chosen upgrade technology had to be field-proven to ensure reliable and trouble-free enhancements to the important FNAL network serving booming regional economies.

Solution

To cost-effectively increase the capacity of the FNAL submarine network, Reliance Globalcom chose Ciena's award-winning 6500 Packet-Optical Platform, as shown in Figure 2. The 6500, by virtue of its industry-leading WaveLogic™ Coherent Optical Processors, allows for swapping out of line cards at the Submarine Line Terminating Equipment (SLTE) sites for simple and rapid capacity upgrades with no changes to the existing wet plant. Reliance Globalcom also chose the 6500 to add increased wavelength routing flexibility and lower latency by avoiding unnecessary optical-electrical-optical conversions using Reconfigurable Optical Add-Drop Multiplexer (ROADM) technology. Wavelengths can now be routed actively within the FNAL network and achieve lower latency, while reducing power and space requirements due to all-optical routing.

Figure 2. Ciena's 6500 Packet-Optical Platform

Available bandwidth is a scarce resource in most submarine cables, so optimizing spectral efficiency is always a prime objective for undersea cable operators. Ciena's 40G/100G WaveLogic technology provides unmatched spectral efficiency, enabling rapid capacity increases over the previous generation's 10G-based networks, without any changes to the existing undersea cable assets. Rather than deploying costly, time-consuming, and financially risky new undersea cables builds, performing simple channel upgrades at the landing stations is a far more economically feasible and risk-averse solution. ROADMs enable significant operational benefits by keeping routed traffic within the cost-effective optical domain.

Benefits

Ciena's 6500 brings clear and immediate benefits for Reliance Globalcom:

- Significant channel capacity increase, from 10G to 40G, performed in-service
- Seamless and rapid migration path to 100G, as required by future regional bandwidth demands
- Immediate quadruple channel capacity increases without re-engineering the existing network
- Lower latency and increased wavelength routing using intelligent ROADM technology

Ready for the Future

Reliance Globalcom owns and operates a critical communications link between South Korea, Japan, Taiwan, mainland China, and Hong Kong. As these regional economies continue to increase, subsequent capacity demands will also increase. Ciena's 6500 allows Reliance Globalcom to meet these growing demands by deploying Asia's first in-service 40G capacity upgrade. Flexible ROADM-based wavelength routing allows for rapid redeployment of bandwidth based on changing customer demands, while lowering latency for customers running time-sensitive applications. By using the latest award-winning Ciena 6500 packet-optical technology within the FNAL network, Reliance Globalcom is positioned to better serve its customers across Southeast Asia.

Summary

Challenges

- Supporting growing bandwidth demands between South Korea, Japan, mainland China, Taiwan, and Hong Kong
- Delivering network scalability, flexibility, and availability to meet diverse customer needs over the long term
- Increase network capacity rapidly on segments showing particularly large bandwidth demand increases

Solution

- Ciena's 6500 Packet-Optical Platform, providing 40G transport that leverages industry-leading WaveLogic Coherent Optical Processors
- 6500 ROADM, to enable optical wavelength routing and significantly reduce transmission latency

Benefits

- Massive scalability, flexibility, and improved availability to meet diverse customer needs over the long term
- In-service migration path to 100G channel upgrades, as required by future bandwidth demand increases
- Ability to cost-effectively change routing of traffic in the optical domain, yielding lower latency

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