PACNET UPGRADES TO AN INTELLIGENT TRANSPORT NETWORK™ ACROSS LAND AND SEA

IMAGINE YOU’RE A TRADER
on the Tokyo stock exchange, you are on the phone and an earthquake rattles your building. The lights flicker, your PC reboots and you can’t tell if your phone call is still active, and after a few minutes you ask yourself ‘Is my network still up?’.

This scenario is not uncommon, and is a familiar concern for many in the financial, business and telecom markets across the Asian market.

In fact, Asia is one of the most challenging markets when it comes to delivering high capacity, feature rich and carrier class network services. This market is home for Pacnet, a service provider that operates a resilient, state of the art fiber optic submarine network that delivers mission critical services to both network operators and enterprises. Pacnet has recently upgraded to an Intelligent Transport Network from Infinera to deliver a unified terrestrial and subsea network with massive DWDM capacity. The building block of this network is the ultra-reliable DTN-X platform that also incorporates multi-failure 50ms protection via an OTN mesh and intelligent control software. Infinera’s Intelligent Transport Network is an ideal way to provide peace of mind to Pacnet’s customers.

Who is Pacnet?

Pacnet is a major Asia-Pacific provider of integrated network and technology solutions for enterprise and carrier customers. Asia-Pacific is a region with many of the world’s fastest growing economies, populations and broadband internet demands.

Headquartered in Hong Kong and Singapore, Pacnet owns and operates a leading pan-Asian submarine cable network with 19 cable landing stations, and points of presence from India to the USA. The network’s core comprises EAC-C2C, a state-of-the-art fiber optic submarine cable network spanning 36,800 km between Hong Kong, China, Korea, Japan, Taiwan, the Philippines and Singapore well as EAC-Pacific, a 9,620km Trans-Pacific network linking Asia to the United States. These networks are the lifeline for mission critical operations that span the globe.

Delivering More for Less, Especially in Subsea Markets

Since subsea networks sit in demanding environments not easily accessible, the networks

“Pacnet’s unique position is its ability to offer a true long haul submarine mesh architecture on its core network within the APAC region. Infinera’s DTN-X, with its hardware accelerated FastSMP, will give Pacnet a clear advantage in offering fully protected services and restoration capability for our customers.”

—Andy Lumsden, CTO, Pacnet
PACNET

Infinera’s DTN-X platform is at the center of simplifying and integrating Pacnet’s subsea and terrestrial backhaul routes into a new parallel optical mesh network, built upon a 100 Gbps optical core.

are built, tested and re-tested to exacting specifications entailing significant capital and operational expenditures. However, in today’s cost sensitive business environments this model is not sustainable. Customers want more speed and capacity and lower prices, and operators, like Pacnet, must prove viable ‘Return on Investment’ (ROI) focusing on three key areas:

• Lower cost of capacity on a Price per Gb/s
• Shrink annual operational costs
• Reduce cost and complexity of subsea/terrestrial handoff

After a detailed review of vendor offerings, we believe Pacnet chose Infinera’s DTN-X platform and its Intelligent Transport Network architecture as a major contributor to achieving these ROI objectives.

Infinera’s technological leadership in large scale photonic integrated circuits (PICs), which enables Pacnet to clearly differentiate service offerings from those in the market, was a key factor in Pacnet’s decision to choose Infinera. For example, miniaturization using PIC technology means that multiple coherent modulators/receivers, HD/SD-FEC and complex optical transmitters can all be combined into a single programmable line card that delivers up to 500 Gb/s super-channels today, scaling to 1 Tb/s super-channels in the future.

Infinera’s PICs not only has a more compact form factor, but also consumes up to 50% less power per Gb/s compared to a discrete component design.

Pacnet also found another key operational advantage of the Infinera DTN-X thanks to the integration of subsea and terrestrial transponders deployed in cable landing points. This meant simpler, more reliable connections at each of the cable landing stations. In the past, the ‘wet’ and ‘dry’ plants were interconnected using back to back transponders using more space, creating additional failure points and complex troubleshooting procedures. Further, through the use of intelligent GMPLS control plane technology services can now be provisioned from a terrestrial location anywhere on the network to a terrestrial location anywhere else, even while crossing a long reach subsea network.

Infinera’s DTN-X platform means that Pacnet can simplify and integrate their subsea and terrestrial backhaul routes into a new parallel optical mesh network, built upon a super-channel core.

Reach and Scale Without Sacrificing Flexibility

Unlike competing transponder based subsea network solutions, which are built upon fixed circuit sizes with point to point connections only, the Infinera DTN-X offers integrated switching within Pacnet’s Submarine Line Terminal Equipment (SLTE) locations enabling them to rapidly add, move and change any connection to any destination on-demand. All the while, the network continues to operate at optimum capacity at all times. This is enabled using Infinera’s ‘Bandwidth Virtualization’ feature which allows on-demand, hitless reconfiguration of any customer circuit from 1Gb/s to 100Gb/s while maintaining maximum network capacity and flexibility. The result is that the DTN-X’s integrated switch functionality allows Pacnet to switch and groom multiple client services whenever and wherever needed onto a single network circuit without ever sacrificing network efficiency.
Automated and Shared Mesh Protection

Damage to subsea fiber networks in the geographically dispersed Asia-Pacific region is well-known cost of doing business. However, thanks to the FastSMP™ processor integrated by Infinera into every DTN-X platform for hardware acceleration, Pacnet is able to offer its customers a highly efficient solution that can survive multiple fiber cuts with sub-50ms restoration time.

What that means to end users is that in the event of catastrophic failure, their mission critical applications will almost always keep running.

Time as a Weapon

In today’s environment of instant gratification, customers often want network services as quickly as possible. In a market where high-speed services typically take anywhere from 45-90 days to deliver, time can be a powerful competitive weapon. In fact, using the Intelligent Transport Network, Infinera has proven the ability to deliver entire networks in a few weeks, as well as network capacity upgrades in a few seconds using Instant Bandwidth™.

The ability to respond in such short timeframes is in dramatic contrast to many traditional SLTE DWDM equipment providers, who typically take many months to deliver.

Further, with its unique architecture, Infinera simplifies customer client interface modules (e.g. 10, 40, and 100 GbE services) with programmable and rapid ship modules. This means, even if a customer needs new service, it can be re-programmed in seconds, or in a worst case scenario, be shipped to the customer site usually within 10 days, thanks to Infinera’s QuickShip rapid shipment programs.

Results Beyond Expectations

In one of the largest regional deployment of 100 Gbps technology to date, Infinera helped Pacnet build out their new optical network infrastructure on the DTN-X platform within a nine week timeframe that included both the Christmas and Chinese New Year periods.

And with the arrival of the Terabit Age, we believe Pacnet’s ability to meet current and future client interface requirements without hardware forklift upgrades is a major competitive advantage.

Looking further ahead, Pacnet’s deployment of the Infinera DTN-X offers tremendous scale. For example, FlexCoherent 500G super-channels can be selected with or without SD-FEC, and these can be upgraded to flexible grid and to 1 Tb/s in the future.

“The ability to deliver and commission the DTN-X rapidly meant that our network upgrade was fully deployed within nine weeks, allowing us to deliver services to customers with a high level of confidence and resilience. The Infinera solution greatly advances our Layer 3 to Optical convergence and builds the foundation for our newly launched Pacnet Enabled Network, powered by our innovative Network-as-a-Service model.”

—Andy Lumsden, CTO, Pacnet