

RETN SCALES NETWORK CAPACITY AND INCREASES SERVICE AGILITY WITH INFINERA XT SERIES

CUSTOMER RETN

CHALLENGE

Scale network to multiple Tb/s per site to meet capacity demand

Enhance service agility and accelerate turn-up without complex operating processes to meet unpredictable service demand

Manage CapEx and OpEx for low TCO

Set network infrastructure for next-generation services

SOLUTION

Infinera XT-3300 and XT-3600 meshponders, built on the Infinite Capacity Engine (ICE)

Instant Bandwidth solutions for maximum service agility and accelerated time to revenue

Sliceable super-channels, enabling flexible, optimized capacity allocation at the optical layer

FlexILS for open, future-proof optical infrastructure

RESULTS

Plug-and-play network upgrade and service operations

Enhanced service delivery agility and accelerated service turn-up without truck rolls

Reduced capital and operating costs for lower TCO

Maximized ROI and return on existing assets through FlexILS migration and interoperability with Infinera's previous generation of optical engines

Broadened addressable market and gained competitive edge through faster time to market



RETN is an international network service provider operating a backbone network spanning 42,000 kilometers of fiber and connecting 36 countries across Europe, Asia and North America, providing a wide range of connectivity services to more than 1,700 customers. Its network is a hotbed of international traffic exchange in Europe and Asia, providing connectivity between carriers, data centers and internet exchange providers.

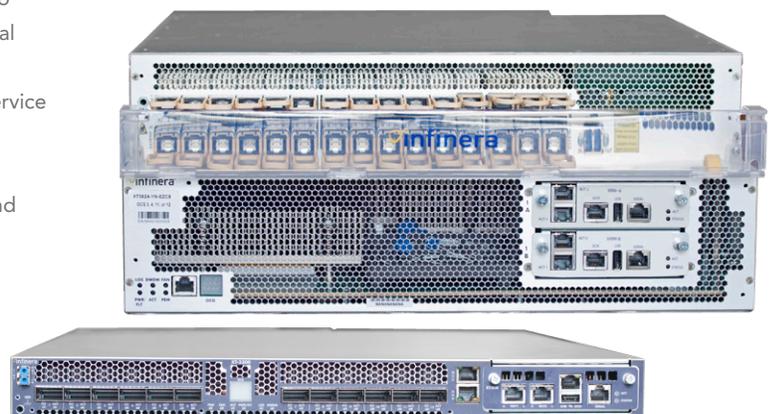
RETN's positive market momentum and its key location at the heart of the European continent have fueled constant demand to increase network capacity and expand geographical coverage into new areas. The carrier market is quite competitive and comes with year-over-year price erosion, so RETN needed to scale its network while significantly reducing capital expenditures (CapEx) and operational expenditures (OpEx), as well as total cost of ownership (TCO). This network scaling needed to be performed seamlessly and without service interruption, while maximizing the utilization of existing assets and ensuring that network equipment from various vendors was able to operate on the same optical infrastructure. In addition, RETN needed to ensure service agility and high capacity in order to serve internet content providers (ICPs) and

enterprises, with their constantly changing, unpredictable service requests driven by the ever-increasing demand for content and inter-data center connectivity. Another challenge was to further accelerate the deployment and turn-up of high-capacity services, such as multiple terabits per second (Tb/s), while providing the flexibility to dynamically move and reassign such services across network end points as needed.

To overcome these challenges, RETN turned to Infinera's XT-3300 and XT-3600 meshponders, powered by the fourth-generation Infinite

Capacity Engine (ICE4), as well as the FlexILS flexible grid open line system, providing the scalability and network flexibility needed to maintain its positive market momentum, all in a plug-and-play mode of operation. It also deployed the latest enhancements to Infinera's Instant Bandwidth solution, such as transferable licenses to significantly enhance service agility and accelerate turn-up. RETN's solutions to its challenges can be summarized as follows:

Deploy the XT-3300 and XT-3600 to increase network capacity and reach: The XT-3300 and XT-3600 meshponders, part of the



“Our long-lasting and successful cooperation with Infinera is an essential part of our strategic plan, and facilitates our network and business growth. Infinera’s intelligent transport solutions enable us to seamlessly upgrade our backbone, save costs and, most importantly, quickly deliver a premium experience to our customers. We are committed to partnering with Infinera in the future, improving our customers’ connectivity across Europe and beyond with the help of Infinera’s innovative technology.”

— Ilya Nikishin,
CTO at RETN

XT Series and powered by ICE4, allow RETN to more than triple its fiber capacity while reducing capital and operating costs. The XT-3300 offers 1.2 Tb/s in a compact 1 rack unit (1RU) footprint, while the XT-3600 offers 2.4 Tb/s in 4RU, and both platforms feature low power consumption and a rich set of optical networking features and capabilities. Through flexible modulation schemes that ensure optimized capacity-reach, the XT-3300 and XT-3600 allow RETN to easily and cost-effectively connect west to east across its main backbone routes in Europe. Infinera’s XT Series meshponders are designed to allow operators like RETN to increase service agility and lower TCO by:

- Reducing space and power costs with a compact, disaggregated system offering high density and low power consumption.
- Improving capacity-reach to reduce the cost per bit with Infinera’s Advanced Coherent Toolkit (ACT) technologies, including Nyquist subcarriers, soft-decision forward error correction (SD-FEC) gain sharing and tight channel spacing.
- Leveraging sliceable super-channels and Instant Bandwidth, Infinera’s unique dynamic software defined

capacity offering, so capacity can be activated when and where needed to match demand, reducing capital expenditures and aligning them to revenues.

- Increasing network agility with sliceable optics by allowing the slicing of any super-channel, so each 100 gigabits per second (Gb/s) or N x 100 Gb/s wavelength can be tuned across the C-band, modulated and routed independently to the appropriate destination over any open optical line system. The ability to “slice and dice” super-channels significantly reduces the need for modules such as transponders and lowers TCO, all while elevating the network to a new level of agility and flexibility.
- Enabling open operation over existing line systems via Open ICE, extending the ICE4-powered capabilities of the XT-3300 and XT-3600 across the entire network and supporting consistent end-to-end service delivery.

Deploy open FlexILS to maximize spectrum utilization:

New fiber pairs are expensive to acquire, especially on traffic-heavy routes. Deploying Infinera’s FlexILS allows RETN to maximize spectrum utilization and increase network capacity while paving the way for next-generation, high-capacity, higher-baud-rate wavelengths such as 600 Gb/s and beyond. Moreover, FlexILS is an open line system that allows foreign wavelengths to

be deployed in concert with Infinera wavelengths and super-channels, thus allowing RETN to maximize the utilization of existing networking assets, such as legacy or third-party optical transport equipment.

Leverage the latest features of Infinera’s Instant Bandwidth solutions:

The latest addition to Infinera’s Instant Bandwidth software defined capacity solutions, Instant Network, allows RETN to significantly enhance service agility and velocity. Transferable licenses elevate RETN’s service offering to a whole new level, especially for bandwidth-hungry ICPs and enterprises, by allowing license activation and mobility within minutes and without truck rolls. For example, transferable licenses allow bandwidth licenses to be moved across the network without restrictions as traffic demands change, whether planned or unplanned, or fiber cuts occur, thus allowing capacity to be deployed in minutes, at the same time as a revenue-generating service is activated.

Benefits

RETN saw numerous business and operations benefits from deploying the XT-3300 and XT-3600 and upgrading to the FlexILS open line system, including:

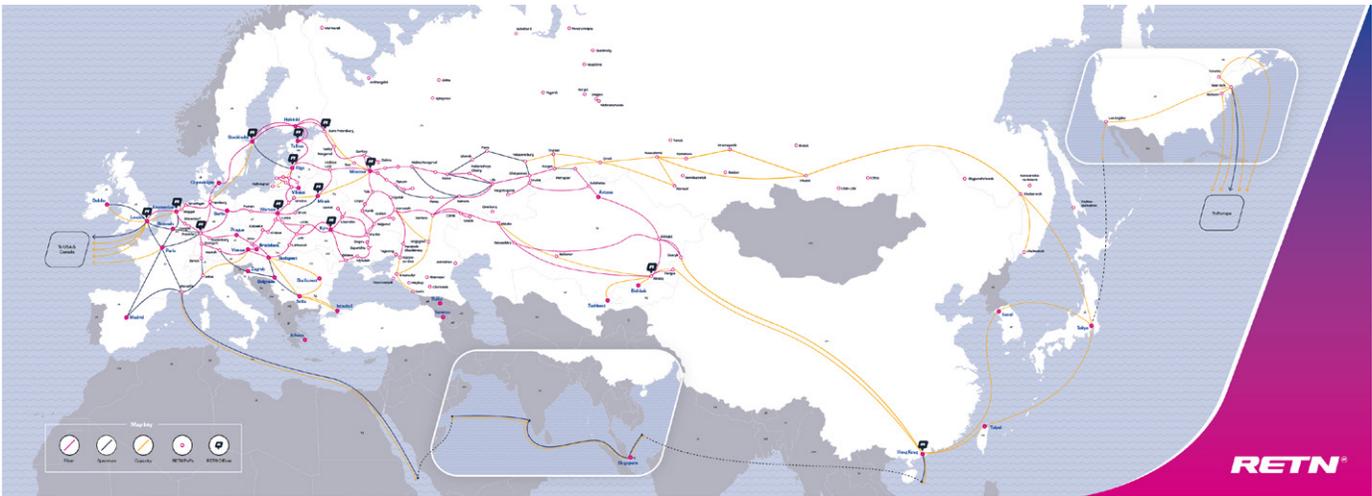


Figure 2: RETN's Network

Increased network capacity: The seamless and easy deployment of the XT-3300 and XT-3600 allowed RETN to more than triple its current network capacity and thus accelerate its market momentum in serving more than 1,700 customers across Europe. Moreover, by elevating its network capacity to a whole new level, RETN can easily keep up with relentless bandwidth demand from ICPs and internet exchange providers while reducing the cost of optical transport and enhancing business margins.

Maximized ROI and a future-proofed network: By upgrading its optical photonic line to Infinera FlexILS, RETN is able to maximize spectrum utilization through migration to flexible grid and transport more capacity on its existing network. As a result, RETN increases return on investment

(ROI) and maximizes return on network assets. Moreover, the migration to FlexILS paves the way for the smooth and seamless deployment of next-generation services, such as 400 Gigabit Ethernet, that require a higher bit rate per wavelength and higher baud rates, as well as higher modulation orders. Infinera's FlexILS is scalable and flexible and supports open concepts to underpin RETN's current and future services without service disruption or complex operating procedures, thereby future-proofing its network. Infinera's FlexILS open line system also allows RETN to deploy alien wavelengths on its photonic line with ease, and as a result, defer any capital expenditure and network disruption associated with interoperability between legacy and new platforms from different optical vendors. Ensuring smooth and seamless interoperability maximizes ROI and positively impacts RETN's bottom line.

Reduced operating costs: The XT-3300 and XT-3600's high density, compact footprint and lower power consumption reduce RETN's operating costs, which translates into a positive impact on its bottom line. As a result, RETN can overcome price erosion with better cost structures and a leaner operating model and win in a fierce and highly competitive market

Accelerated service turn-up and time to market: Traditionally, activating a service required a cumbersome process of forecasting traffic demands, calculating the spectral allocation and expansion potential of deployed systems, purchasing new equipment, installing and testing the new gear and finally activating the

new capacity. Such a process is complicated, requires truck rolls, is prone to human error and takes months and months to complete. RETN leverages Infinera technology innovations like super-channels and Instant Bandwidth to automate this process and reduce its length from weeks to minutes. Super-channels provide “service-ready” capacity that can be activated instantly and without truck rolls, in contrast to conventional methods that require sending a truck to each site. Faster service activation leads to earlier collection of service revenue, increasing

RETN’s top line with faster time to market. Moreover, the automated aspect of service activation allows RETN to significantly reduce operating costs by eliminating truck rolls and on-site provisioning visits.

Broadened addressable market:

Deploying Infinera’s ICE4-powered platforms enables RETN to unlock significant additional capacity and reach a new level of network flexibility and performance, resulting in enhanced competitive edge and a broadened addressable market. RETN can now grow its base of customers that require higher bit rates, enhanced network agility and stringent service requirements, such as ICPs, Fortune 500 companies, government institutions and many others.

Conclusion

Infinera’s technology innovations were the driving force behind RETN’s ability

to maintain and fuel its positive market momentum by elevating network capacity to an unprecedented level, maximizing ROI and return on existing assets through seamless upgrade to FlexILS, reducing operating costs and increasing service velocity and time to revenue. This translates into a positive impact on RETN’s business and operations and paves the way for next-generation services and architectures.

Infinera’s Intelligent Transport Networks enable network operators to scale network bandwidth, accelerate service innovation and simplify network operations. For more information on Intelligent Transport Networks, please visit us at www.infinera.com or click on this link to contact us.

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