

SANET, A EUROPEAN NREN, DEPLOYS CLOUD XPRESS FOR CLOUD SCALE NETWORK BACKBONE

CUSTOMER SANET

CHALLENGE

SANET needed to upgrade its Ethernet-based network backbone to dramatically increase transmission speeds and advance national research and education

SANET needed an easy to use solution to support 100 Gb/s services, with future growth of up to 8 Tb/s per fiber pair to serve increasing bandwidth requirements

SOLUTION

Cloud Xpress provides high density (500 Gb/s in 2RU) with low power (<1 W/Gb/s)

Cloud Xpress enables “pay-as-you-grow” 100 Gb/s bandwidth increments with Instant Bandwidth, a simple point-and-click approach

Cloud Xpress provides easy 1-2-3 provisioning and rack-and-stack capacity scaling

RESULTS

Interconnection of numerous data centers and key research facilities benefiting from highly scalable WDM

Significant increase in capacity, scalable bandwidth and improved performance deployed simply and quickly for research and education (R&E) users



SANET (SLOVAK ACADEMIC NETWORK), a national research and education network (NREN), needed to upgrade its Ethernet-based transport network backbone to 100 Gb/s in order to support the significant bandwidth demanded by scientific experiments and other academic projects. SANET is a nonprofit organization supported by Slovakia’s Ministry of Education.

SANET operates a dark fiber infrastructure consisting of leased fibers in the national backbone and its own fiber in metro area networks. It provides multi-gigabit Layer 2 and Layer 3 services for academic, research and educational organizations. SANET was interested in building a robust and resilient network that provided 2x 100 gigabits per second (Gb/s) at the onset, with a path toward terabit speeds in the future.

Customer Challenge

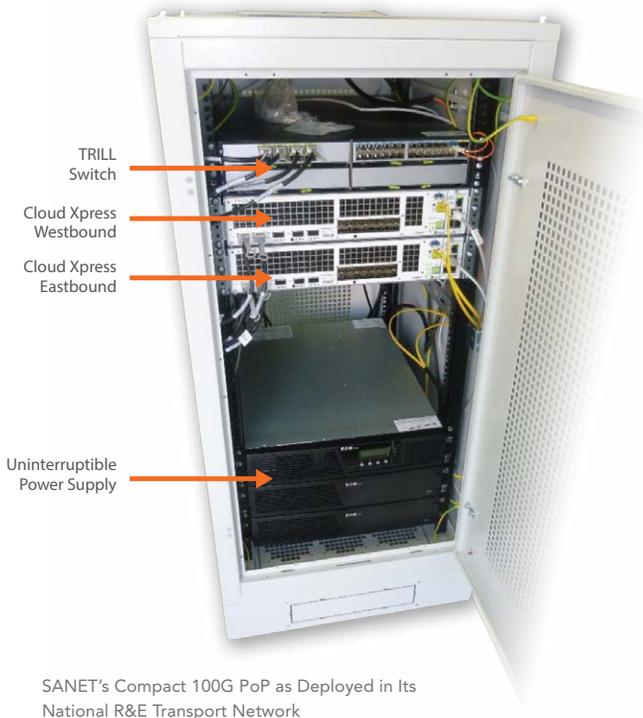
SANET’s scientific and academic community needed more network bandwidth for their increasingly sophisticated projects. As a result, SANET wanted to define the optimum network architecture to enable more capacity and transport packet-based services between various research sites. It wanted a solution that used state-of-the-art technology yet was simple and straightforward, enabling ease-of-use while being cost-effective. SANET needed a scalable solution to carry both add/drop packet services and express (transit)

SANET—Slovak Academic Network



“The backbone of our R&E network was previously built on Ethernet technology with low transmission speeds, causing us challenges in supporting the significant bandwidth demanded by scientific experiments and other academic projects. The Cloud Xpress provided the best transport technology to upgrade our network, with ease of use and scalable bandwidth to deliver 100 Gb/s services and enable future growth up to 8 Tb/s per fiber pair.”

Marian Ďurkovič
Network Architect
SANET



SANET's Compact 100G PoP as Deployed in Its National R&E Transport Network

traffic, and was interested in optimizing network bandwidth.

The NREN wanted cloud scale technology, purpose-built hardware with optimized functionality to support Ethernet everywhere, and a simple-to-deploy point-to-point wavelength-division multiplexing (WDM) approach supporting multiple 100 Gb/s capacity. In addition, the NREN wanted a green solution that was compact in size.

SANET needed a flexible architecture with the ability to turn up very high capacity over its fibers. In addition, the

network needed to have very low latency and to be cost-effective.

Infinera Selection

SANET selected the Cloud Xpress for its hyperscale density, operational simplicity and low power consumption.

Benefits of the Infinera Cloud Xpress systems selected by SANET include:

- 500 Gb/s super-channel of WDM bandwidth on one fiber pair in just 2RU
- Support for 10 Gigabit Ethernet (GbE) and 100 GbE client interfaces
- By racking and stacking the Cloud Xpress, capacity can be easily scaled with no service interruption, delivering up to 8 terabits per second (Tb/s) on a single fiber pair

- Instant Bandwidth allows the activation of WDM bandwidth in 100 Gb/s increments with a click of a mouse, enabling capacity scaling to be aligned precisely to SANET's bandwidth demands

- The Cloud Xpress enables efficient scaling with simple provisioning and open interfaces to plug into existing cloud provisioning systems using open software-defined networking application programming interfaces. Provisioning and turn up is as simple as 1-2-3
- The Cloud Xpress is very power-efficient, requiring less than 1 watt (W) per Gb/s, keeping power-driven operational costs low

Since SANET deployed the Cloud Xpress, Infinera has introduced the second generation of Cloud Xpress, the Cloud Xpress 2, offering the same simplicity and scalability advantages with even greater density (1.2 Tb/s super-channel in 1 RU), capacity (27.6 Tb/s per fiber pair) and power efficiency (less than 0.6 W per Gb/s).

SANET deployed Infinera Cloud Xpress platforms to interconnect numerous network points of presence (POPs) and key research facilities across its network.

With the Cloud Xpress, the NREN benefits from highly scalable WDM delivered in a compact, low-power appliance that is extremely simple to use.

Results

SANET deployed an architecture that enabled both backbone capacity and packet switching at a low cost, replacing legacy routers with cloud scale devices.

“As R&E users continue to expand their use of information technology, R&E networks are challenged to manage rapid growth and provide scalable, cost-effective interconnection. We were pleased to work closely with SANET and Infinera to deploy the Cloud Xpress to deliver an extremely high-performance, highly resilient and high-functionality national backbone, with state-of-the-art service provisioning.”

Jan Bojtos
Presales Team Leader
DATALAN

Infinera Partner DATALAN

The selection of the Cloud Xpress for SANET's network backbone was led by Infinera's partner, DATALAN. DATALAN is a leading provider of complex IT services in Slovakia, including software and information solutions, IT outsourcing and IT advisory services.

DATALAN

The network POP design includes two Infinera Cloud Xpress platforms, connected by a scalable Transparent Interconnection of Lots of Links (TRILL) switch platform to carry both add/drop packet services and express (transit) traffic. The Cloud Xpress enables SANET to turn up very high capacity over its fiber ring backbone network, a cost-effective solution that has very low latency and enables single-direction or multi-direction transport.

With the Cloud Xpress, SANET extended coverage of 100 Gb/s backbone to 17 POPs, thereby delivering 100 Gb/s services to users and improving the resiliency of the network.

The benefits resulting from SANET's deployment of the Infinera Cloud Xpress include:

- Dramatically increased available capacity, enabling SANET to quickly respond to surges in network traffic
- The ability to expand capacity on backbone links with Infinera's Instant Bandwidth, eliminating the need to install new hardware
- The ability to scale capacity efficiently by limiting space and power costs

By combining the Cloud Xpress for efficient scaling with TRILL switches, rather than an external optical transport network switch or classic router, SANET built a robust and resilient transport network. This network backbone was simple and straightforward

to build yet provided a path toward terabit speeds in the future, helping SANET further science and academic projects in Slovakia.

For more information about the *Infinera Cloud Xpress Family*, please contact us.

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