

Special Report: TSIC uses DTN-X to Differentiate

Infinera DTN-X Supports TSIC's Wholesale Business Strategy

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SUMMARY

In a nutshell

TeliaSonera International Carrier (TSIC), the wholesale arm of TeliaSonera Group, provides a good case study of how global carriers are using 100G-optimized optical infrastructure to support new or expanded business models. Using Infinera's 500G-based DTN-X to underpin its business strategy, TSIC is equipped to attack its long-term goal to become the global leader in wholesale services. TSIC's business helped Infinera ascend to and strengthen its position as the leader in annualized 100G sales in North America.

Ovum view

A well-thought-out network infrastructure strategy can provide crucial support to a communications service provider's (CSP's) business strategy. TSIC is a focused CSP: it provides wholesale services to other carriers, content providers, and large-scale enterprises that function as service providers; it does not compete with its carrier customers for enterprise services. It aspires to grow past its principal competitor Level 3 and ultimately become the number one global wholesale carrier. To achieve this goal, it must increase its addressable market and differentiate itself in the market for high-bandwidth services.

TSIC sees increased opportunities to serve cloud and content providers, to provide high-capacity services across the Atlantic, and to offer managed service options. A higher-capacity, more flexible network is central to capturing all three of these opportunities. To differentiate in what can be a commodity world of vanilla transport services, the company launched a network upgrade RFP in 2012. It subsequently upgraded its North American network footprint with the Infinera DTN-X, which is based on 500G super-channels with integrated OTN switching. Its ability to offer very quick RFS (ready-for-service) commitment dates is an infrastructure-related dimension of TSIC's differentiation strategy. The DTN-X, critically, couples 500G bandwidth chunks with its Instant Bandwidth remote charging and provisioning capability, which lets TSIC pay only for what it uses and add capacity with very little operations overhead. The DTN-X, in conjunction with a TSIC initiative to streamline ordering for multiple high-capacity transport services, has allowed the company to compete on delivery time rather than purely on price.

With traffic growth increasingly hard to forecast, time to service is becoming a valuable competitive factor. Based on the success of its initial DTN-X deployments in North America, TSIC expanded its partnership with Infinera in June 2013 to include part of its European footprint as well.

Key messages

- TSIC is well known in its European HQ region, but it needs to raise its profile in the Americas to grow and achieve its goal of global wholesale leadership.
- TSIC credits the Infinera DTN-X as providing the best mix of scalability, flexibility, capex, and opex to further its Americas growth strategy through a network-based approach. Key elements of the RFP decision included the ability to install 500G super-channels but pay for each 100G sub-channel only when a customer order is received (what Infinera calls Instant Bandwidth) and Infinera's proven ability to provide TSIC in North America with a variety of support services.
- TSIC's results since its network refresh have included exposure to a wider array of revenue opportunities, including trans-Atlantic and cloud-based services and managed services growth opportunities; flat network-related opex despite scaling its network over 4x; and several industry innovation awards.
- Infinera, meanwhile, in part due to its TSIC win, is climbing the 100G market ranks, strengthening its number one position in North America, and advancing from fourth to second in European 100G sales for the year ending 2Q13.

TSIC'S BUSINESS CHALLENGES AND OPPORTUNITIES

Main business goal: become the global leader in backbone capacity

TSIC, like all communications service providers (CSPs), is both faced with challenges and exposed to opportunities stemming from the move to an always-on, hyper-connected world. Time to market is crucial when competing in this world. TSIC's stated strategic goal is to be the leader in backbone capacity globally. TSIC is now one of the few carriers in the world solely focused on the wholesale and mobile services market. It credits this focus as critical to its core strength in transit wavelength services and selling to large customers, including nine of the top 10 global IP providers. It also provides network outsource services to Facebook and Rostelecom. TSIC acknowledges that becoming a global leader will require a strengthened presence in North America.

Key business challenge: flexibly scale bandwidth

Peak traffic: the bane (and potential boon) of carriers everywhere

The always on, hyper-connected world makes peak traffic much harder for CSPs to predict and manage than in the past. TSIC notes how something as simple as a Bruce Springsteen concert in an urban market can create a significant traffic spike. It has also seen the effect of a video-based service like Netflix entering a new market: soon after entry, wholesale customers have urgently requested multiple 10Gs at once, a level of demand that TSIC had never seen before and now sees regularly. While the growth provides welcome opportunity, TSIC has increasingly needed to handle traffic with huge and

unpredictable peaks as its global business expands from telcos to content delivery and application providers. In 2012, company analysis determined that DWDM systems optimized for 100G services would best provide the needed flexibility. TSIC's need coincided with availability of 100G-optimized products from multiple vendors: by Ovum's count, the number of vendors shipping systems for revenue rose from five at the end of 2011 to 18 at the end of 2012.

TSIC'S NORTH AMERICA EXPANSION: GOALS AND RESULTS

North American strategic goals: expand awareness, grow the business

Part of the \$16.3bn (2012 revenues) TeliaSonera Group and headquartered in Stockholm, Sweden, TSIC is a global company and is very well known in Europe. However, its brand is not as strong in North America as TSIC would like, despite being a player in the market since 2006. In fact, before it did a major network upgrade based on the Infinera DTN in 2009, the company had essentially exited the wavelength/high-capacity transport services business in the US: its mid-1990s-vintage DWDM equipment simply couldn't cost-effectively scale to accommodate these services any more.

Since this 2009 upgrade cycle, TSIC has been back in North America and growing to the point that by 2012 another upgrade was needed. It sees a healthy opportunity to expand in North America and take advantage of a gap in the long-distance market, where its key competitors (Level 3 and XO) also sell to the corporate and mobile markets.

Network expansion a necessary ingredient of the business strategy

TSIC needed higher scale and more flexible capacity in North America to support both its IP backbone needs and its IPX and high-capacity wholesale services. The company doesn't have as many fiber pairs in the US as it has in Europe, and although dark fiber is available for purchase in regional and metro pockets, it is in short supply across the continent. After reviewing its technical and financial options, it decided to do a network-wide build based on the results of an RFP. Adding more capacity on existing routes would improve its ability to sell capacity and IP services without the expense of buying new fiber.

Goal of the network expansion: more capacity, minimized opex growth

The desire to keep operations and maintenance costs as low as possible was central to TSIC's North American expansion plans: expanding the capacity of its footprint by a factor of more than 4x (from 1.8Tbps to 8Tbps) should not require a proportional increase in opex. TSIC wanted to maintain first-, second-, and third-level technical support and management of its network operations center (NOC) as a key part to its value proposition, but it wanted to outsource operations and maintenance, including spares and repairs, to a partner. Its total cost of ownership (TCO) analysis indicated that this mix of in-house and outsourced support would best maximize quality and minimize expense.

TSIC's North American expansion RFP

What did the RFP comprise?

TSIC's RFP covered equipment and related operations and maintenance support services for its optical transport network, which included 35 PoPs spread across 24 markets, plus associated optical line amplifier sites. (Note: TSIC has added PoPs in Washington, Toronto, and Boston since the RFP closed. Ovum anticipates further expansion in the coming months.)

How were suppliers assessed?

TSIC believes it has a very robust technology selection process. It invited a number of suppliers to participate and went through the standard process of discussing submissions and selecting a short list of vendors with which to do field trials. Although price is always a factor in projects of this size, TSIC observed that vendor prices were clustered. The carrier did a TCO analysis over a two-to-five-year horizon based on forecasted demand for chassis and transponders, but it did not base its selection on the lowest price.

Why did TSIC choose Infinera?

Infinera had been TSIC's incumbent vendor in North America since 2009. It had established a very positive record of product and service quality and proactive engagement; relationship trust was a highly valued parameter in the decision. The carrier was pleased with the Infinera DTN's usability and found the company's next-gen DTN-X to be familiar and similarly easy to use. TSIC also considered what it sees as Infinera's leading-edge innovation as a strength. (Note: In Ovum's April report, *Driving Innovation in the Optical Core, Part 1*, we named Infinera as one of only five "drivers of 100G innovation" out of 18 vendors that generated revenue from 100G DWDM products by year-end 2012. We further singled out Infinera as a leader in OTN in our *Driving Innovation in the Optical Core, Part 2* report released in September. See the "Further Reading" section of this report for more information on those reports.) TSIC characterizes its approach to the RFP as "vendor-neutral" and notes that it was prepared to go with a new vendor. In TSIC's words, Infinera "had to fight for the business."

How was the North American overbuild accomplished?

Infinera was able to demonstrate that a DTN-to-DTN-X swap-out would be easier for TSIC than a completely new installation, and that it could be accomplished with minimal disruption of live traffic. Route by route, region by region, Infinera installed a new DTN-X beside each working DTN and did the cutovers at night across the 35 PoPs and related amplifier sites. The full overbuild took less than a year to complete. TSIC could tap the new bandwidth on parts of its network within six months of its decision to deploy the DTN-X, which is lightning speed in overbuilds of this magnitude.

TSIC reused the original DTNs by moving them to the network edge after cutting over the core nodes to the DTN-Xs. This also figured positively into the TCO calculation.

Instant Bandwidth: "time as a weapon" in increments of 500G

Fundamentally, Infinera's DTN-X improved TSIC's ability to flexibly scale bandwidth in North America. The DTN-X provides 500G "super-channels" of bandwidth (five wavelengths of 100G), which in effect lets TSIC pre-provision bandwidth in 500G blocks. This has allowed the company to use "time as a weapon" in competitive situations. Using the DTN-X's Instant Bandwidth feature, TSIC has installed and pre-provisioned more 500G increments of capacity than it needs while paying for each 100G of capacity only when traffic goes live. TSIC believes this gives it a big advantage in North America: if a customer calls today and wants "capacity by Friday," TSIC can deliver it much more readily than competitors. Hence, the dialog moves beyond price to delivery time. Additionally, it can upgrade the backbone capacity on its global IP network quickly to deal with unpredictable growth and peaks.

Instant Bandwidth lets TSIC operate more effectively in the prevailing "just in time" market dynamic. For example, customers are increasingly asking for five or more 10Gs or 100G service on a route. Having 500G installed on a route simplifies the provisioning and streamlines the carrier's ability to deliver. TSIC reports that "How fast can you deliver? I need it now" is often a critical question today, whereas just a few years ago the customer would solicit RFQs, compare responses, and plan on 6–8 weeks to get the service connected. In addition, TSIC's internal IP traffic management is simpler now: it can upgrade and expand its backbone more efficiently and cost-effectively, so there's a dual benefit to the company.

Without providing specific customer names, TSIC asserts that it has won business because it can deliver faster and provide a better customer experience than its competitors. A committed RFS date is part of standard wholesale product offerings. This delivery SLA requires TSIC to pay a penalty if the service isn't ready by the deadline. TSIC says it can offer better RFS dates and meet delivery SLAs better than its competitors. Ovum's 2013 Wholesale Customer Survey backs up the importance of quick delivery times as a competitive differentiator.

Integrated OTN provides better wavelength utilization

The DTN-X also provides 5Tbps of OTN-based integrated sub-wavelength switching capacity. This allows TSIC to manage its overall network more efficiently. Not all customers want the same thing, for example, and the integrated switching lets TSIC efficiently mix 10G, 100G, and other services without stranding bandwidth.

What results has TSIC had so far?

TSIC has expanded its revenues and opportunities

TSIC reports that its revenues in North America have doubled over the past two years, crediting its focus and customer experience in addition to its infrastructure assets. As it looks to capitalize on its newly scaled, 100G-optimized network infrastructure, capturing several opportunities is paramount.

High-capacity services on both sides of the Atlantic

Although more carriers are upgrading their infrastructure to optimize for 100G, TSIC has a good lead in ubiquitous coverage in Europe and North America. Unlike its competitors, TSIC makes 100G services

available across its entire North American and European footprint, not just on a route here and there. As a result, it reports access to business that its competitors do not have.

In June 2013, TSIC announced it had also deployed the DTN-X in its European network on the Stockholm-to-Hamburg route, which "carries much of the traffic coming from Russia, Finland, and the Nordic data centers," according to CTO Mattias Fridström. Ivo Pascucci, director of sales and marketing in the Americas, further notes that the DTN-X was deployed in Europe in 2012 "for a large Internet company customer of ours."

The companies continue to cooperate in pushing capacity limits: in September, Fridström reported that the DTN-X's newly available SD-FEC (soft decision forward-error correction) feature had been tested by TSIC and was able to "double the capacity of key routes on our network."

Cloud-based services benefit from scale and route diversity

TSIC notes that its technology strategy is aligned to industry trends toward cloud-based services. As Ovum research has noted, the growth of cloud-based delivery models is increasing the concentration of two sets of data centers, one that relies on low latency and proximity to users and another set of "super-sized" data centers requiring inexpensive land and power, typically located in remote locations such as the US Pacific Northwest and northern Scandinavia. Both types of data center require high-quality, secure, and resilient connections. TSIC notes that in addition to scale advantages from its 100G-optimized network, having its own fiber and rights-of-way is becoming a significant competitive differentiator: it can easily verify that paths are diverse compared with those of competitors that have done lots of route swapping and sharing. This is important for all types of wholesale demands, including data center-related connections.

Managed services opportunities are expanding

A third type of opportunity enabled by 100G is TSIC's ability to bid for, and win, more managed network deals. The company announced one example of this in May 2012 when it landed a pan-European managed services deal with Facebook. While it has not yet announced any North American deals, Ovum expects TSIC to pursue these opportunities on the strength of its expanded footprint.

In selling its managed services capabilities to other carriers, TSIC focuses on its 15 years of experience doing just this for the TeliaSonera operating companies: TSIC is the "in-house" wholesaler for TeliaSonera and will increasingly look to productize this capability for external consumption.

TSIC has contained opex costs and increased flexibility

Better scale, 500G super-channels cut operations cost per bit

TSIC is committed to operating as lean an organization as possible in North America. It reports that it hasn't had to add personnel in North America other than a few salespeople to chase down the expanded opportunities due to the upgrade. For this result, the company credits both the 500G super-channels and related Instant Bandwidth capabilities, which provide the flexible bandwidth inventory, and streamlining of its own processes, which have been improved to let customers easily order multiple 10G ports in a single transaction.

Easier traffic engineering increases flexibility

Improved traffic engineering and access to larger bandwidth pools have provided TSIC with an important side benefit: the ability to easily sell services of 100G or more to its customers.

TSIC has received industry recognition

Named Best Next Generation Optical Service Provider

At the 15th Annual WDM & Next Generation Optical Networking Conference (June 2013), a panel of industry analyst judges, including two Ovum analysts, voted TSIC the Best Next Generation Optical Service Provider award for being the first carrier to enable 100G across its North American and European networks.

Renesys ranks TSIC the number two global player in public IP

TSIC notes that Renesys, an analyst firm that ranks carriers based on data compiled from actual routing tables attached to the public IP AS, or autonomous system, networks that comprise the Internet, ranks the carrier in 2013 as the number two public IP provider globally. Renesys ascribes this result to TSIC's pure wholesale business model coupled with its recent network upgrades.

Ovum's Wholesale practice cites TSIC for DTN-X-based innovation

Ovum's Wholesale practice gave TSIC its 2012 technology/service wholesale innovation award for its "100GB bandwidth on demand" service based on the company's use of the DTN-X in North America, noting that "this technical innovation provides a more flexible option for TSIC's customers and a faster upgrade path from multiple 10G and 40G services."

What's next for TSIC in North America?

TSIC notes the importance of tier-1 CSPs to its revenue base today and wants to increase its ability to serve the top content service providers in the coming 5–10 years. Although predicting the leaders of tomorrow is difficult, TSIC is sure that having a good reputation and network in the US will be important to securing their business. Aspiring to be the biggest backbone supplier in the world requires a significant presence in North America.

To foster that goal, TSIC is adding more routes within the region so it can provide the same level of diversity across its network in North America that it provides in Europe. In May 2013 it connected a new PoP in Toronto, its 36th, with links to New York City and Chicago. Ovum expects it to add new routes and PoPs throughout North America in the next few years.

While it has not yet upgraded its trans-Atlantic capacity to 100G links, TSIC expects to need that capacity within the next few years to meet rising demand from content providers. TSIC has over 500G of capacity across the ocean today, all on cable systems based on 10G waves. It foresees the need to add the same level of flexibility undersea that it now enjoys on land. Although none of its customers today has enough traffic crossing the Atlantic to justify a 100GE service end to end, it won't be long before they do.

Source: TSIC

APPENDIX

Methodology

Ovum speaks to TSIC and Infinera regularly and conducted three interviews with TSIC principal managers and several interviews with Infinera as part of our research for this report.

Note: This is a special Infinera excerpt report based on a longer TSIC case study report noted in the "Further Reading" section. The full case study includes details of TSIC's opportunities and challenges and provides an overview of the carrier's key metrics and product offerings, while this excerpt focuses on the RFP that Infinera won in 2012 with its DTN-X.

Further reading

TSIC Case Study: Network Defines Business Strategy, TE008-001384 (October 2013)

Wholesale Innovation Analyzer 2012, TE012-000455 (May 2013)

TeliaSonera International Carrier, TE012-000422 (July 2012)

Driving Innovation in the Optical Core, Part 1, TE008-001317 (April 2013)

Driving Innovation in the Optical Core, Part 2, TE008-001376 (September 2013)

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