

Boosting bandwidth

Francis Nedvidek, CEO of Cube Optics AG explains how it's possible to help network operators boost access bandwidth



Francis Nedvidek is Canadian and holds a PhD in Electrical Engineering. His early career focused on technology, product and market development. He has held senior Program Management, Marketing, Sales and General Management positions with companies including Leica, Black & Decker, Von Roll Corporation and present day subsidiaries of Raytheon and SAGEM on both sides of the Atlantic Ocean. He has led new ventures and startups from conception to exit. He became CEO of Cube Optics in 2004.

eStrategies: What do your customers expect from your products?


Francis Nedvidek: Our customers expect a network capacity upgrade in the form of install-and-forget hardware that allows them to multiply the bandwidth of their presently overloaded fiber links. They require bandwidth increases from 4X to 8X or even up to 18X at a fraction of the cost of laying new cable in trenches or drawing additional fibers strands through conduits. Customers need their upgraded networks functional within hours and then continue to operate legacy ATM, TDM/TDMA, SONET/SDH or whatever topology their existing equipment embraces. The capacity upgrade should be transparent to incumbent protocols including EPON, BPON, GPON and DOCSIS. The technology platform enabling this plethora of technical and economic benefits is embodied in our 'Colour Cube' components. This basic technology is commonly referred to as Coarse Wave Division Multiplexing (CWDM). Telecom carriers, ISPs, data centre and enterprise networks and more recently Cable Television (CATV) and Hybrid Fiber Cable (HFC) operators install our passive plug-and-play modules configured around the Colour Cube components. These

network operators deploy our system modules including line cards, splice cassettes and our flagship modular rack-mountable 'Network Cube' platform.

eStrategies: What regions are you targeting?

Nedvidek: Deregulation in Europe forced incumbent and national carriers to allow competing carriers access to network infrastructure. Part of this infrastructure encompasses the Local Access Networks. The ensuing Local Loop Unbundling fueled our strong growth in Europe. The unbundling that permitted new entrant Carriers to capture customers and cost efficiencies is evolving with differences in each European country: Fiber-to-the-Building in Paris, City Carrier bandwidth extension near Frankfurt, fully new advanced fiber networks in Eastern Europe as well as various capacity upgrade projects led by utilities and 1st and 2nd tier carriers throughout Europe.

Although strong in Europe, we are investing to take advantage of evolving FTTX roll outs in North America. In North America we do not aim to deal directly with the 1st tier carriers or Multiple Systems Operators (MSOs



or essentially the cable operators). Instead, we have qualified products with the major OEMs supplying Verizon and AT&T as well as those supplying the major Hybrid Fiber Cable (HFC) players including Time Warner Inc., Cox Communications Inc., Charter Communications Inc. and Comcast Corp.

eStrategies: Where do you see yourself positioned in the market?

Nedvidek: Cube Optics makes the smallest CWDM component on the market. Cube Optics' passive CWDM fits into cramped spaces where other devices and modules cannot. We are qualified to the toughest environmental conditions – uncontrolled environments. By virtue of our proprietary injection

moulding technology, we are competitive against Asian manufacturers whatever the production volumes. Initially and quite naturally we supplied the telecom, datacom, video transport and sensor OEMs. However, in order to grow we needed to push ourselves forward in the value chain. We in fact did this but we did not vertically integrate in a way that posed ourselves in competition against our OEM customers. Rather we have positioned the company to become a Tailored Broadband Access Systems Provider supplying what other OEMs and system integrators do not.

The repositioning consists of two parts. Our first initiative in 2004 was to address the burgeoning market for bandwidth capacity for Local Loop Unbundling. We offered our miniature passive CWDM components integrated into modules, splice enclosure cassettes and other plug-and-play configurations for installation in the central offices, infrastructure and other local network access points. We focused exclusively on the passive

approach since it allowed us to offer very simple, easy to manufacture and quick to install modules. Furthermore, we could also offer very attractive price points compared with the 'managed' active systems promoted by equipment vendors and system integrators. Most customers grasped immediately how our simple and streamlined CWDM upgrades achieve low CAPEX, low OPEX and rapid uncomplicated deployment.

In contrast, OEMs and system houses offer expensive active (requiring electrical power) solutions that integrated CWDM bandwidth enhancement with sophisticated proprietary electronics and management software. This 'managed' approach, besides being expensive to buy, operate and maintain often comes loaded with features that efficiency-minded operators perceive as redundant against similar capability already included in the routers and switches. Within a year after product launch, we had landed significant contracts including some high profile projects with 1st tier carriers such as a major network expansion for Telefonica.

The second part of the repositioning grew out of the realisation that network operators must now deal with an array of issues and concerns encompassing network infrastructure, system performance and flexibility without the sovereignty or depth of knowledge that incumbents commanded. Equipment vendors typically offer a basket of products bridging relatively limited segments of a Passive Optical Network (PON). As fiber stretches ever closer to the end consumer of VoIP or Triple Play, bandwidth bottlenecks inevitably appear. Cube Optics began offering tailored solutions to customers' network access challenges including the planning, specification and supply of everything associated with increasing the bandwidth of the local access network to match present and expected demand. Cube Optics focuses on solutions constructed around our core value proposition of low cost, compact and rugged passive modules and subsystems.

eStrategies: Where has partnering been mutually beneficial?

Nedvidek: Everything from design to component fabrication to assembly and system test occurs in a single building in Mainz, Germany. We respond quickly to

custom design wishes and bring ideas into production with greatly reduced product development cycles. For example, LastMile Networks, situated near the Frankfurt airport and about 30 minutes from Cube Optics, required a special CWDM function integrated into line cards for delivery to a telecom OEM. The solution that we crafted entailed retrofitting the line card in a space limited to little more than the fiber management module already occupying the panel slot. We were able to deliver the product after labouring through several design iterations encompassing all constituents of the value chain including the end customer. Since that project, our two companies routinely collaborate on initiatives to win additional business that further refine Cube Optics' module supply capabilities.

eStrategies: Why was passing the outside plant qualification so important for you?

Nedvidek: Local Loop Unbundling required environmental qualification of components and systems only to 'Central Office' or controlled environment standards. At the outer edges of the access network, one end of the link typically terminates in an outdoor splice enclosure, a manhole, a curbside fiber distribution hub or some other form of street-

level cabinet. The outer edges are subjected to the full punishment of temperature extremes, humidity and mechanical shocks. For these reasons all components intended for outdoor deployment must pass a rigorous 'Outside Plant' or uncontrolled environment test regime. Qualification of our passive CWDM products to these uncontrolled environment standards opened the door for us to serve OEMs, system integrators and carriers addressing the access portion of the network including essentially all FTTX applications.

eStrategies: What is your strategy in both the short and long term?

Nedvidek: Our strategy short term is to continue to realise the vision of becoming a Tailored Broadband Access Systems Provider. Longer term we intend to continue evolving as PON, FTTX, and the inevitable thirst for access bandwidth grow. We shall continue to develop our core technologies and serve customers pursuing these market applications whether involving components, subsystems, access network test and measurement or end-to-end access infrastructure planning and deployment. **es**