

Polaris comes clean on switch

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Sector Networks & Media

Report date Mon, 9 Sep 2002

Polaris Networks has unveiled its optical transport switch, aimed at toppling incumbents Tellabs and Alcatel from their perch as suppliers of digital cross-connects to larger carriers, six months after a \$52m funding round and a shift in its approach. The company has a sound strategy in place, but had hoped to announce a customer at the same time as its product.

Impact assessment

The message

The Polaris OMX collapses the function of digital cross-connects and Sonet multiplexers in a compact box that is cheaper, denser and less costly to manage than existing equipment. The switch can handle increments of bandwidth from as small as a DSL line to a DS-3 line.

Competitive landscape

Tellabs and Alcatel are vulnerable but haven't been displaced yet. Tellabs in November acquired Ocular, which followed a path similar to Polaris' – it started out as a multiservice switch and then modified its box for the digital cross-connect. The density of the Ocular box is several times smaller than its OMX, Polaris believes.

The451 assessment

Polaris is realistic about the hill it has to climb, but optimistic about its chances. There have certainly been better times to sell telecom equipment, but the company reckons it has the formula to build a business even though incumbent carriers couldn't be more leery of startups. There are two forces in Polaris' favor – as prices for private line services plunge, existing equipment is killing margins, and incumbents haven't made much progress on next-generation equipment. Still, contracts could remain elusive for some time.

Context One of the more salient points about Polaris is that has raised \$74m since June 2000, with the most recent round in March, when Advanced Technology Ventures led a \$52m second funding round. Existing investors Presidio Venture Partners, Western Technology Investment and Firsthand Capital Management also participated. Raising a substantial amount of money for a systems company in a pretty bleak environment is no mean feat. It's also an endorsement from its investors that Polaris strategy of collapsing network elements – digital cross-connects and Sonet multiplexers – to displace a vulnerable incumbent and then use its switch as a play on the demand for multiservice gear has some promise.

But being well funded is only one element in a company's survival. Polaris says it is engaged in four trials – two at small carriers, one interexchange carrier and a regional Bell operating company – but was hoping to announce a customer in conjunction with its product release.

Strategy Polaris' strategy is straightforward. It plans to create a network footprint by providing a cheap and far denser alternative to the hulking digital cross-connects (DCS) Alcatel and Tellabs have sold for more than 10 years into carriers' central offices. Because it occupies less space and consumes less power, the Polaris switch reduces operating costs by as much as \$1m a year. In addition, because management is automated, network engineers don't have to manually maintain the switch, further reducing overhead costs.

The next step is layering multiservice infrastructure to transport TDM-based Sonet, ATM, IP and Ethernet on the same infrastructure. Multiservice startups proliferated toward the middle of 2001, among them Polaris, but few have survived the downturn in telecom services. Many ran into problems by not targeting a specific division within incumbent carriers. Since voice and data networks are managed and run separately, the multiservice switch vendors had to get at least two divisions, unaccustomed to speaking to each other, to reach a consensus on equipment from an unproven startup. Polaris has wagered that once its switch is in the network, it will be easier to bridge those divides.

Tellabs has looked vulnerable for some time, and carriers have long resented the fat margins on its switches. Sales have plummeted recently at the company, but not out of line with the rest of the telecom industry. So why hasn't it tumbled from its perch? Polaris believes that the infrastructure costs have accumulated to a point where margins on revenue, particularly in private line services, have been unsustainably eroded. And among carriers, the realization is dawning that the DCS function in the underlying infrastructure has to be revisited, Polaris contends. For instance, most of the proposals out to equipment vendors from carriers for DCS infrastructure involve next-generation equipment. Not a single one includes a Titan 5500, Tellabs' legacy switch. Polaris is still realistic about the hurdles it faces in penetrating incumbent carriers. VP of marketing Bill Tucker reckons that startups can only displace incumbents if they can assure carriers that they'll reduce costs by orders of magnitude, not just by 20-30%.

To gain a foothold at carriers, Polaris has a three-pronged approach. The first is a cap-and-grow strategy. In that scenario, carriers would colocate a Polaris switch and shunt new traffic onto it, or even cut over existing traffic. The second is winning greenfield contracts. Those may seem few and far between, but Polaris reckons that regional Bell operating companies will use the switch for building networks out of region. The last is full-scale replacement. According to the company, at least one large carrier is considering replacing its Tier 1 central offices in entirety.

Technology The crux of the Polaris OMX switch is its ability to handle increments of bandwidth from as small as a DSL line to a massive DS-3 pipe. Existing equipment cannot scale to a comparable granularity. The switch has a capacity of 240Gbps, and by using internal connections based on vertical cavity surface emitting lasers (VCSELs) can scale up to 2Tbps. While no ports are used up for connections, for every four switches that are added, a fifth has to be dedicated to acting as a switch fabric. Initially, the switch will be TDM-based but will incorporate generalized multiprotocol label switching for traffic engineering and session management.

While it tends to get overlooked, the company's management software is also important. Apart from automating service provisioning and fault management, the company has also built a Corba gateway that will integrate the switch into next-generation operational support systems (OSS) software. Existing gear doesn't have that capability.

Competition Tellabs in November acquired Ocular, a multiservice switch vendor that had refocused on the DCS space. The acquisition allows Tellabs to distribute the DCS function in the network with smaller boxes, but the Ocular switch doesn't have the capacity to replace a Tellabs central office switch. Polaris reckons that would require seven or eight Ocular switches.

SWOT analysis

Strengths	Weaknesses
Polaris has the orders of magnitude in cost reduction it needs to generate interest at carriers. Rather than following the hordes of multiservice startups, the company has made an astute change in strategy.	Polaris is up against inertia at shell-shocked telcos – timing is not in its favor. The company had hoped to combine its product announcement with a customer deal. At higher capacities, rivals can charge that every four switches require a fifth dedicated to acting as the switch fabric.
Opportunities	Threats
Every large central office in carrier networks uses a digital cross-connect, so the size of the addressable market could justifiably be described as huge. Because of the capacity of the switches and declining access lines at carriers, sales in the near term will remain modest.	Taking on entrenched incumbents is no simple task. In addition, companies like Cisco and Nortel are both trying to pitch Sonet or optical switches as replacements for digital cross-connects. If carriers do start to replace legacy equipment, vendors will pile into the market.

Related analysis

- [Long-awaited Nortel switch makes entry as cross-connect \(19 Mar 2002\)](#)
Nortel's HDX has finally arrived on the scene, after much speculation that the optical switch with an electric core was doomed. Rather than compete directly with Ciena's CoreDirector, it is aimed at prosaic applications like replacing cross-connects.
- [Polaris unveils shift in strategy with second funding round \(18 Mar 2002\)](#)
Rather than push a switch for all seasons – an all-optical switch with multiservice capabilities – Polaris has taken an incremental approach to its product rollout. With \$52m in funding under its belt, the startup will focus on TDM cross-connects.
- [Startup Polaris makes bold claims for switch \(25 Jun 2001\)](#)
Emerging from stealth mode, Polaris says it has developed a single switch that bridges access, metro and long-haul networks.
- [Tellabs buys Ocular in defensive play \(30 Nov 2001\)](#)
Faced with stagnant sales for its massive digital cross-connects, Tellabs turns to Ocular for next-generation technology.
- [Ocular goes after digital cross-connects \(13 Aug 2001\)](#)
Shifting from its original multiservice provisioning model, Ocular says its new box can replace digital cross-connects.
- [Cisco recasts Cerent box as multiservice platform \(4 Jan 2002\)](#)
Company casts metro Sonet multiplexer as MSPP to keep sales buoyant and maintain a presence in the service provider market.
- [Alcatel gets a bargain with Astral Point \(23 Jan 2002\)](#)
Buys multiservice provisioning platform vendor for \$135m to boost its Sonet ambitions.
- [Turin gets boost from Motorola to go after cable operators \(7 May 2002\)](#)
OEM deal will see Motorola rebrand Turin's multiservice platform to provide the infrastructure for cable operators to launch data services for the enterprise market and deliver VOD services at lower cost.