

The communications world is rapidly moving to optical networking –
What are the implications for Resellers?

*A white paper
of 'first mile' technology by
PAV Data Systems Ltd.*

“The future,” it is often said in the world of communications, “is optical.” But why has this become the flavour of the month within the industry and how is this impacting the reseller’s place in the market?

There are several major market forces taking place to shape the future, one is the globalisation of the market caused by the mass adoption of the Internet. This in turn has resulted in huge increases in data traffic flowing between consumers and businesses over the last 10 years. In volume terms, it is predicted that data traffic carried over backbone telecommunications networks will soon overtake voice traffic. Therefore there has been an insatiable hunger by the network operators for higher capacity networks and with dramatic reduction in capital costs. Internet Protocol, or IP, is the packet switched transport language used by these so-called ‘Next Generation Networks.’

How have the telecommunications suppliers responded to this challenge? Firstly, the advent of high-capacity fibre optic cables has meant that backbone network capacity is now measured in terabytes and probably soon petabytes. In nearly every continent the race is on to provide fibre optic cable networks linking every major city in the world. The pace of development in this type of broadband transmission has meant that nearly every day there is a new announcement about record-breaking capacity, or distance covered without the need to regenerate digital signals.

Another race is running in the development of pure optical switches. These will negate the need to convert from optical to electrical signals for switching purposes. Hundreds of millions of dollars are currently being invested to crack this problem and many new start-up companies have been formed to research and develop high-speed optical switches. It is confidently expected that within 2 to 3 years this technical challenge will be met and commercially viable solutions will become available.

If we look outwards from this core network towards the enterprise customer, then the story is more confused and resellers must study the technology options carefully to avoid offering solutions that disappoint customers. Large corporates can often justify the cost of having fibre optic brought into their premises and are moving to fibre optic Local Area Networks (LANs) within their office buildings. This means that the vertical backbone in the building is often running at Gigabit Ethernet speeds, whilst the horizontal distribution more usually runs at 100 MB/s over twisted copper pair cabling to the desktop PCs.

But what about the smaller and medium sized companies? Well here we see a trend towards installing LANs, usually running at 10MB/s Ethernet or 100MB/s Fast Ethernet. However, when we look out towards the backbone network, these companies cannot justify the high cost of fibre optic cables into their buildings. This means that up to now, they have had to suffer the much slower speed, dial-up Internet services on offer from the telecommunications carriers. Even if they adopt the new Digital Subscriber Line (DSL) technology, the speed of data transmission will usually be measured in hundreds of Kilobits, rather than Megabits per second. Also, there is a huge amount of work involved in upgrading the copper phone networks to handle DSL, which means the mass take-up of DSL is likely to be delayed from its predicted Summer 2001 availability date. The geographically limited roll-out plans of BT and the shortage of quality copper across the country mean DSL will never actually be available nationwide.

How about wireless as a means of connecting these small and medium sized companies to the backbone network? The major telecommunications suppliers have all been spending money on developing broadband radio based solutions. The generic name is Wireless Local Loop or WLL systems. These operate at very high radio frequencies over relatively short range and can provide high-speed data transmission. However, like most radio-based technology there is a catch – the spectrum that they must occupy falls within bands that are controlled by national governments. This means that the network operator must purchase a license to operate these systems, which can be a time consuming and expensive process.

Against this background it is no surprise to hear that there is a huge pent up demand for broadband services at a price that the small and medium company can afford to pay. Happily, there is an alternative to cable and radio based systems and one that is wireless and totally license-free. It is called Broadband Optical Wireless Access and the technology has been developing over the last 10 years, to a stage where it is now mature and field hardened. In fact, there are thousands of these systems installed in private and public networks around the world, but still the technology is either largely unheard of or misunderstood.

These systems operate like fibre optic cable, in the sense that they use infrared signals, generated by laser diode transmitters. But instead of conducting by glass fibre in a cable, they use free-space to transmit by line of sight. Broadband Optical Wireless has none of the bandwidth constraints of DSL or WLL; 622 MB/s systems are already commercially available, satisfying both today's and tomorrow's capacity demands.

What opportunities does this 'new kid on the block' provide to resellers? In the world of computer network resellers the emphasis is on the much-used term 'value added'. The systems integrator approach has been incorporated into many resellers' marketing strategies. But how can the reseller differentiate its network solution from those of the competitors, when they are invariably built from the same or very similar building blocks, produced by the global giants of the IT and telecommunications manufacturing industry?

One of the approaches is for the reseller to build a knowledge or skill set around a new technology, in this case Broadband Optical Wireless Access that can deliver an effective and unique solution to a problem – the shortage of high-bandwidth, low cost Internet technology for small businesses – now! This immediately brings a strong differentiator into the portfolio and allows the reseller to move up the value chain in the eyes of the end customer. The reseller is immediately seen as an innovator, a company keen to explore the full spectrum of technologies available to meet the demands of its customers. This becomes the entry ticket into new accounts and often brings with it much higher value turnkey network installation projects.

It's no wonder that manufacturers of broadband optical wireless access systems have reseller networks that are growing rapidly in both size and profitability. There is a great business opportunity to be seized by the leading resellers, particularly in the developing and emerging markets.

(1,100 words)