

Vodacom wins customers using PAV

PAV SkyCell E1 2 Mb/s systems (more than 200 over a 3-year period)

As Vodacom grew into South Africa's leading mobile Telecoms operator, its network demands spiralled dramatically. To meet its aggressive roll out schedules, Vodacom turned to Free Space Optical (FSO) technology from UK firm, PAV Data Systems. Since then, the relationship between the two has flourished. How did that happen?

Think of the mobile phone industry and the phrase 'deeply competitive' immediately springs to mind. In few markets worldwide is the struggle to attract subscribers and roll out networks more intense than in South Africa. For the last few years, the battle for market supremacy has been fought head-to-head between two network operators, Vodacom and MTN.

Alongside skilful sales and marketing and aggressive pricing, Vodacom quickly appreciated that to win customers - and maintain their loyalty - it needed to deliver the most extensive, highest-quality cellular coverage in South Africa. Of all the obstacles to overcome, this was perhaps the most difficult. As more and more customers subscribed, the need for greater network coverage, to maintain quality standards, became acute.

Vodacom rolled out more radio cell sites. But that was only half the solution. The cell sites needed connections back into the fixed network via 2 Mb/s lines running over distances often less than 4Km. Vodacom studied the options. Obtaining a leased line circuit could take anything from one day to eighteen months. But with the pace of its market expansion, uncertain, long-winded delivery times were unacceptable.

So what about Microwave technology? Microwave systems are competitive when transmitting over long distances (up to 60Km) but lose their cost-effectiveness over short links, which is what Vodacom required. But most damaging was the protracted installation time anticipated. The installation of microwave systems (due to frequency spectrum allocation), is strictly controlled by the Government (this is the case in most major countries worldwide) and obtaining licenses can take months.

Henry Stephan, Head of the Gauteng Region for Vodacom, takes up the story: "Vodacom already understood the principles of FSO technology. We appreciated that it was the only situation able to keep pace with the company's expansion. In the summer of 1996 I met PAV Data Systems by chance in South Africa. I was immediately interested in the expertise that PAV possessed in the development of FSO technology. Since then, the partnership between us has been extremely profitable."



Back in the mid 1980's, one of the founding members, Mike Turner was among the first to realise that Infra Red technology, hitherto restricted to remote control products, could be used as a low cost, reliable means of transmitting data. Mike formed a research team to explore the technical frontiers of Infra Red and after successful field trials, PAV tasted worldwide commercial success with several data products in the mid 1990s. The product range expanded and now includes equipment that can connect computer networks and telecommunications systems (at speeds of up to 622 Mb/s).

PAV originally supplied Vodacom with 25 SkyCell E1 products, providing 2 Mb/s point-to-point connectivity between cell sites and network lines. The PAV SkyCell systems basically work in the same way as fibre optic cable except that the beam is transmitted through open space rather than glass. Operating within Infra Red bandwidth, PAV's SkyCell products are free from Government licensing. As a result, Vodacom had the vital, 'last mile' links it required up and running in days, rather than months or years.

"It's difficult to quantify exactly how much revenue PAV's technology has saved Vodacom but the figure is undoubtedly considerable," explains Stephan. "The FSO systems allow us to make dramatic increases in our subscriber base but maintain the rigorous service quality on which Vodacom's success is based. If we'd been forced to wait for our last mile links, quality may have slipped. I believe Vodacom recouped its investment on the PAV SkyCell products in under a month."

Vodacom now has more than 200 PAV SkyCell connections running across its network. While the original PAV SkyCell systems were installed as a short-term expedient, they have since displayed several long-term benefits and the size of the contract has mushroomed as a result. Most importantly, FSO technology has proved to be an extremely cost-effective solution.

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Unlike leased lines, which carry expensive rental costs, Vodacom has bought the PAV SkyCell systems outright. Because of the profitability of the equipment - the products can be relocated and reinstalled at minimal cost, within hours - Vodacom has been able to move the PAV SkyCell systems to wherever they are most needed on the network. Buying PAV's SkyCell has been like owning a rapid reaction network that can be rolled out anywhere, anytime.

In many cases, the PAV SkyCell systems are also being used to deliver backup links to leased line connections. The leased line market in South Africa can be unstable, with fibre being dug up by thieves, hoping it's copper. For this reason, FSO technology has an important role to play as a redundancy solution. Since installation, the PAV SkyCell systems have delivered a performance and availability level equivalent to that achieved by leased lines.

"As a one-off purchase, PAV's SkyCell systems have become a really important asset for Vodacom. Our own engineers handle all the maintenance for the products but they've reported very few problems," adds Stephan. "Basically, once the systems have been installed, they look after themselves. On average, the lenses need cleaning only once a year. And because there are no protocols or date settings involved in the way that FSO works, we've got no millennium bug concerns."

But the benefits of Free Space Optical are not just monetary. Vodacom is the proud owner of ISO 14001 accreditation, which confers on it a commitment to protect and maintain the environment. Reconciling this commitment with the demands for rapid network deployment is not always easy. However, using PAV FSO systems is akin to rolling out a network transparent to the public eye. The systems are barely visible, slotted on the top of tall buildings. And to anyone who does see them, they just look like security cameras.

So if PAV has played a vital part in Vodacom's past and present successes, what role will it have in the future? South Africa is currently readying itself for a new standard in mobile Telecoms, UMTS (Universal Mobile Telecommunications Systems). UMTS will take the functionality of the mobile phone to another level, allowing users to videoconference, surf the net, and receive TV images via the handset. Naturally, this requires extra bandwidth and Vodacom will need to 'soup up' its network accordingly. Fortunately, there is a raft of products in the PAV SkyCell family that can be introduced to deliver greater bandwidth (up to 155 Mb/s) and greater distance (up to 4kms) at minimal cost.

And what about the future of PAV? The UK-based company is currently expanding a distribution network that already reaches more than 40 countries across Europe, the Middle East, the Far East, Australia and North and South America. Since it was founded in 1994, PAV has enjoyed quarter on quarter sales growth. By replicating the success of the Vodacom deal and other contracts worldwide, PAV expects to increase the pace of its expansion even further.

Achieving more aggressive expansion targets is well with PAV's reach. It has opened regional sales offices in Dubai and Kuala Lumpur and has supplied companies such as Motorola (for use in North Africa) and Siemens (for use in Malaysia) with large quantities of FSO equipment.

"When the benefits of FSO are so immediate and tangible, I'm confident that the technology will proliferate among corporate enterprises and telecom operators worldwide. But at the moment, I'm not sure that people really appreciate what FSO has to offer. It's still a developing market," concludes Vodacom's Henry Stephan. "At present, PAV is in a unique position. There's no other supplier able to offer the same breadth of FSO technologies. And PAV's customer service has always been excellent."