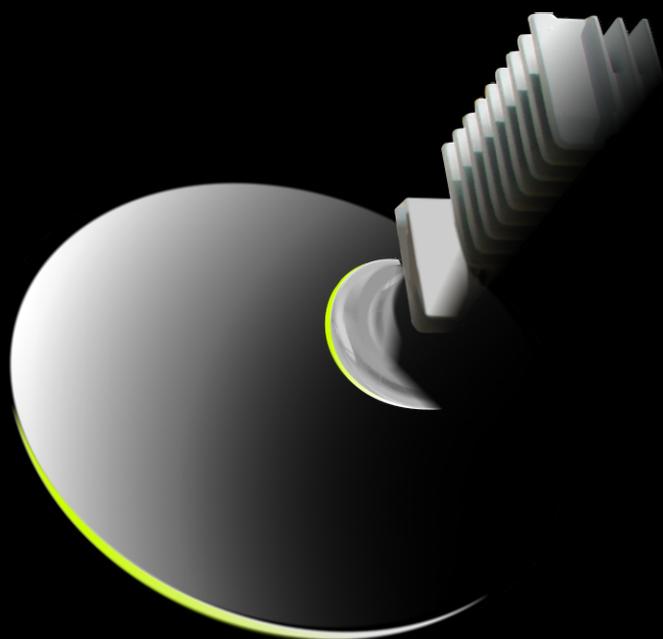


The **comsys** VSAT Report

11th edition

iDirect Profile & Summary

This report has
been prepared for:



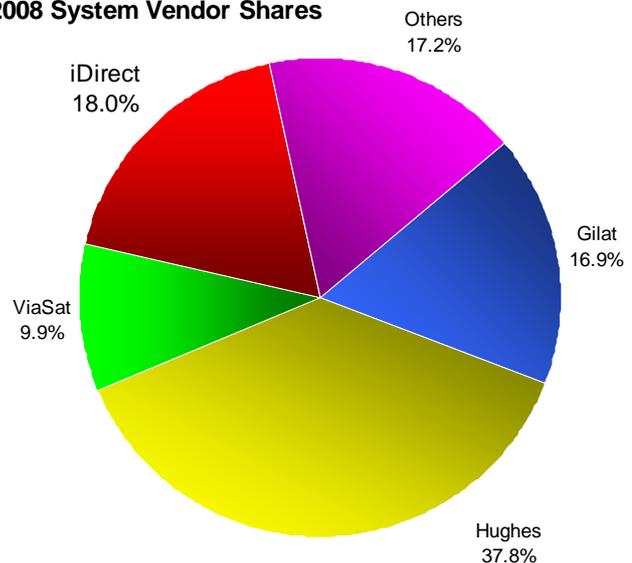
1. Summary

iDirect's success over the past few years has been nothing short of phenomenal, not least because it has been achieved by growing the market and exploiting a hitherto under-served need. After making an estimated \$155 million in revenues in 2008 and turning in another highly profitable year, the iDirect fairytale has almost entered into industry folklore. iDirect has built a following in the VSAT market that can be compared with Apple's brand in the PC industry. iDirect has been very active in bringing new products and capabilities to its customers, delivering operational, networking and management features that have enabled new market opportunities to be opened. The level of information given to customers on its plans for future releases on its platforms – something that is highly valued by its users – brought a refreshing change to the industry whilst, at the same time, the company established a reputation as a highly supportive vendor. iDirect continues to lead in terms of a feature-rich set of IP capabilities and, despite being chased hard by the other vendors, seems determined to maintain its advantage in this area.

The past two years showed the company consolidating its presence across the world where it now plays strongly in all of the major regions. 2008 saw the company burst through to become the second largest TDMA systems manufacturer in total revenues, finally overtaking both Gilat and ViaSat. The company is understood to have grown its top and bottom line by about 10 percent – a great performance for a business that, we suspect, enjoys possibly the best margins of any of the VSAT manufacturers. In terms of hub sales, iDirect took almost half of all hubs sold in 2008.

At the same time, step by step, iDirect has added major carriers to its already impressive list of customers – Reach, PCCW and TataNet have joined the likes of BT, Telefónica, Verizon, SingTel, Cable & Wireless, France Télécom and Orange, while many specialised VSAT service providers, such as Schlumberger, Stratos, Vizada, Gateway, MTN and CapRock also make extensive use of the system. The government arm of the business, iGT, continues to perform and has plenty of space in which to diversify as the demand for satellite bandwidth from the US military is forecast to outstrip supply for the foreseeable future.

**Enterprise TDMA Hardware Revenues
2008 System Vendor Shares**



2. Market Statistics

Data Sources & Methodology

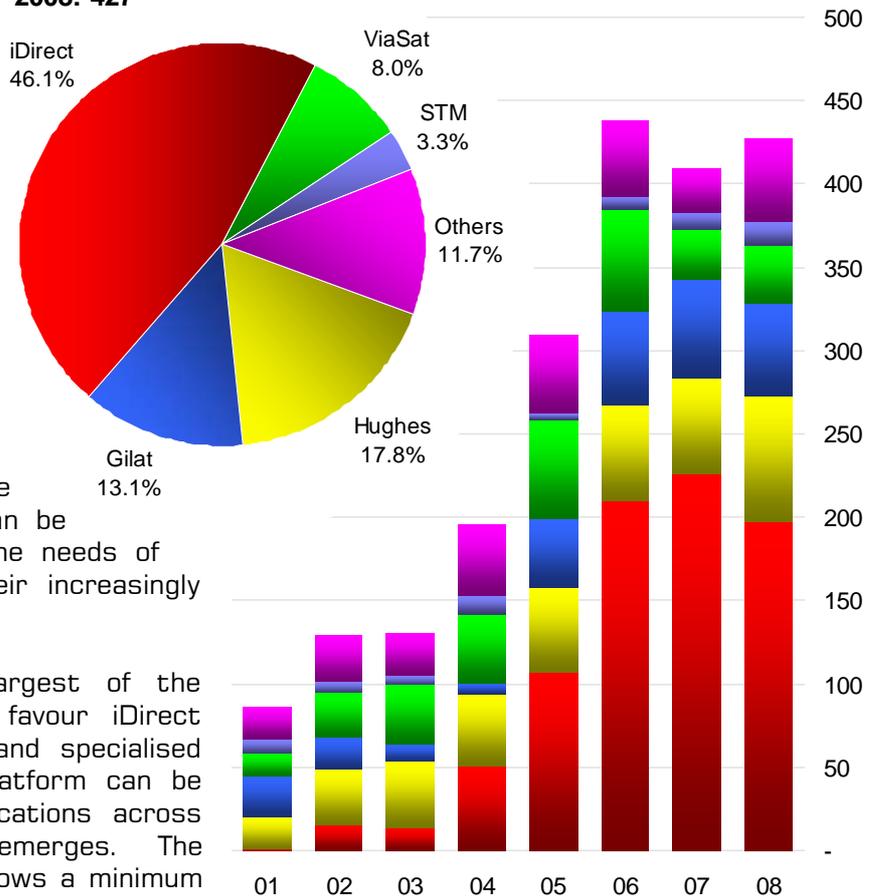
The information in this Executive Briefing was compiled from the latest 11th Edition of the COMSYS VSAT Report, unless expressly indicated otherwise. Apart from information and product data already held in our library, direct contact was made with almost all of the organisations in the report to gather up-to-date information. Visits have been made to a large number of existing and potential suppliers and service providers in Europe, Asia/Pacific, Latin America and North America. COMSYS maintains extensive databases on both the interactive star and mesh DAMA VSAT markets and tracks a wide variety of information for all individual networks. These databases form the basis of most of the statistical analysis in this report.

iDirect Dominates Hub Sales

iDirect's strategy can clearly be seen in its rapidly expanding share of hub sales between 2003 and 2008. iDirect took over half of all hub sales in 2007 and nearly half in 2008. It was iDirect in the early 2000s which really changed the hub product package with its flexible architecture. iDirect positioned the product as a low-cost entry for specialised operators to serve highly functional, IP-centric, high bandwidth segments of the market with solutions that can be individually tailored to meet the needs of demanding end users and their increasingly sophisticated applications.

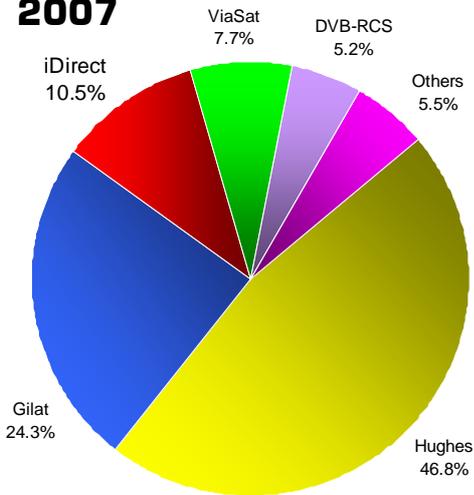
The vast majority of the largest of the specialised service providers favour iDirect today because the effective and specialised features supported by the platform can be widely deployed in multiple locations across different regions as demand emerges. The flexibility of the hub system allows a minimum initial capital outlay, yet carries no penalties when greater expansion is required; this enables operators to grow quickly and effectively whilst minimising their investment risk. Previous to this, less efficient individual SCPC links represented the preferred solution, but iDirect's more functional and more bandwidth efficient system has now effectively replaced this in many operators and end-users mind sets.

**Shipped TDMA Hubs
2008: 427**

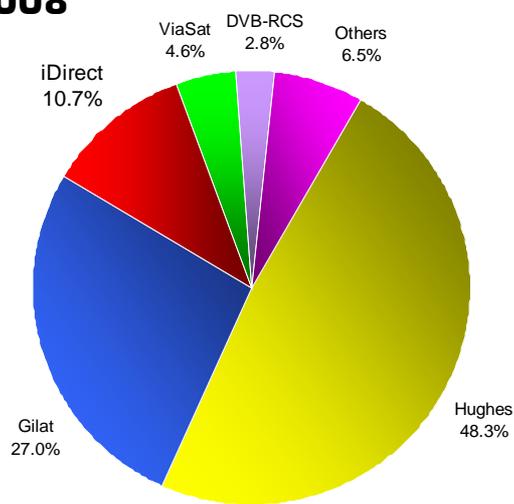


iDirect Grows Terminal and Revenue Market Share

2007



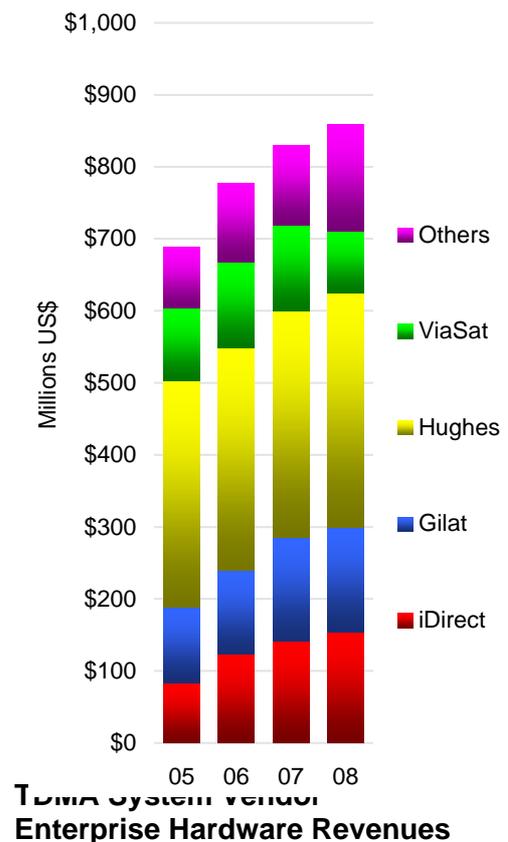
2008



Vendor Enterprise VSAT Orders World Market Share 2007 and 2008

iDirect reached an estimated \$155 million in revenues after turning in another highly profitable year in 2008. The company has seen its share of a fast growing market double from five per cent in 2004 to over 10 per cent in 2008 when it became the second largest enterprise VSAT systems vendor in the world in terms of revenues and third largest when measured by VSATs booked.

In 2007 and 2008, iDirect accounted for more than 10 per cent of enterprise market shipments, outselling DVB-RCS systems by three to one. Its combination of flexibility of platform, richness of IP features, continuous development, market strategy and professional and pervasive sales and marketing has maintained the company's momentum.



3. The iDirect Platform

iDirect Evolution

In 2008 iDirect introduced its third generation platform – Evolution. This added DVB-S2 ACM bandwidth efficiencies to the outbound channel. Alongside the new outroute came a new, lower cost remote terminal – the X3 – and the company has since launched the X5 and e8350 remotes that are backwards compatible with the iNFINITI platform. Evolution retains all of the solid hallmarks that have made iDirect such a strong player in the high-value segment of the market and the flexibility of its 5IF hub continues to outpace every other alternative. Evolution was an important release for the company because, as its customers had grown their installed base, the need for greater bandwidth efficiency had grown disproportionately as a result of rising space segment costs and issues even finding capacity at all in some instances. By mid-2009 over 10,000 Evolution remotes were shipped, running in over 80 different networks with customers reporting the system to be extremely stable and performing as iDirect had promised it would.

Platform Features

iDirect began its business with a dual service and hardware strategy before focusing exclusively on product development and sales. The experience gained in the service business was not lost because the company's products are undoubtedly stronger and more operator friendly as a result. In its range of products, iDirect has attempted to meet the different requirements demanded by a wide range of applications and services with as much flexibility built into the hardware as possible, often enabled by software licence upgrades. The iDirect platform is designed to be an easily deployable, highly functional, fully encrypted solution that allows operators to offer a sophisticated suite of services efficiently and profitably.

Bandwidth Efficiency: iDirect's initial design of its VSAT platform focused on bandwidth efficiency and it consequently developed an IP-based system with its own proprietary outbound and inbound TDM/TDMA access scheme. The system uses an inbound access scheme known as Deterministic Multi-Frequency TDMA which, unlike most conventional TDMA systems, does not make use of contention. Because the platform was designed to support enterprise IP services, its approach is to allocate a certain amount of bandwidth continuously to each remote station. This allocation is then dynamically changed several times a second depending on the queue depth, the CIR configuration, the QoS and prioritisation settings and the rate limiting at each remote. This allows the system to both react quickly to changing traffic demands within the network and provide CIR and EIR service levels.

With the development of Evolution, the inbound channel was upgraded to support DVB-S2/ACM. Both the X3 and X5 support larger maximum inbound IP data rates – 5 Mbps and 6.5 Mbps respectively depending on the modulation and coding. The company introduced a new inbound coding technology option – 2D 16-State – which, it claims, is the latest generation of inbound technology that can be easily mapped from existing Turbo Product Codes bringing up to 15 per cent efficiency. This is supported on Evolution remote terminals where the DVB-S2 outbound channel is in use and, the company tells us, it is the first to bring this new technology to market.

Platform Flexibility: The company emphasises the ability of its inbound and outbound channels to be lit up anywhere across five different transponders and five different satellites, allowing an operator to grow its capacity when it needs it with whatever bandwidth is available and in different frequencies if business demands it. By contrast, a DVB-based system requires contiguous bandwidth and needs to grow in this fashion as well, thus demanding premium service from a spacecraft operator. With the Evolution and iNFINITI system options, iDirect is now able to offer high-efficiency contiguous forward channels with DVB-S2/ACM as well as smaller, tailored outbound channels if required by an operator.

Operators who have purchased iDirect's systems have informed us that they have done so because it offers them a highly flexible and functional platform, yet does not require them to make a huge investment in a hub system. However, operators like BT, Schlumberger, CapRock, Orange, Stratos and Gateway with whom we have talked, inform us that it is the feature set which iDirect's product supports as much as the low entry cost which has driven their decision to purchase the platform. It has been this flexibility, running from the basic architecture to IP functionality, that has allowed the system to adapt so effectively to almost all of the high-value niche vertical markets that operators serve.

VNO Model: The iDirect platform can also support what iDirect refers to as a "Virtual Network". A Virtual Network Operator (VNO) literally buys the capacity of a channel card in the hub chassis of a Host Network Operator (HNO). This allows VNOs to offer highly competitive broadband IP service, without a significant upfront investment. This capability illustrates why iDirect's system has been so well received – it is not simply, as some think, the fact that the system offers a low cost hub. An operator is able to start a service and select from a range of hub products, unmatched by any other vendor, and cost-effectively support independent networks of between 15 and several thousand sites. The additional VNO capability can be employed either as an expansion option – many operators extend their service to different satellites uplinked from a different continent this way – or as a standalone business model in its own right. Expansion onto other satellites, different frequencies or simply another transponder is possible by adding another two cards (one each for inbound and outbound carriers) into the 5IF chassis, although it is not unusual for an operator to simply buy another 5IF chassis for an important customer.

Hub Options: iDirect offers four main hub options: a non-redundant Mini-Hub limited to a maximum of 30 remotes in a network; a 4 slot chassis that can support up to 4IF connections which replaced the previous private hub model adding better redundancy and expansion capabilities (the Industrial 4IF is a ruggedized version of this product); a 20 slot iSCPC concentrator that only supports M1D1 iSCPC cards; and, the full 20 slot 5IF chassis that can operate with five different transponders on five different satellites in different frequencies and that incorporates full automated redundancy in a 1:n configuration.

Terminal Options: The X3/3000 terminals are iDirect's cost-effective models and neither carry all of the various options that the platform supports. The X5/5000 models support many of the major options – iSCPC mode and encryption for example – whilst the 7000 and e8350 are rack-mountable units that are only sold into very specialised applications, such as those demanded by military customers or major carriers and carry almost all features.

Group QoS – Advanced Bandwidth Allocation: Group QoS (GQoS) is another differentiating feature that iDirect highlights. This is a complex tool for an iDirect network operator that, in essence, allows traffic types to be prioritised, based on a variety of different parameters, within the allocated bandwidth. iDirect developed Group QoS so that a higher level of granularity can be imposed on an operator's network to enable the most efficient use of the available bandwidth. GQoS can provide different users, terminals and applications with specific QoS levels in a hierarchical structure across the entire system. iDirect believes that GQoS brings substantially greater levels of management functionality and enables both more efficiency in the use of the available bandwidth and a significant increase in a network operator's ability to support complex applications, customer deployments and service profiles. With respect to QoS as applied to voice traffic, the company holds that competing VSAT systems only prioritise voice bits over data bits as they are transmitted by a remote terminal, whereas the iDirect system can specifically siphon data capacity from one remote to feed voice capacity requirements at a completely different remote.

IP Routing: The iNFINITI and Evolution platforms also support a range of additional TCP/IP support capabilities which essentially incorporate all of the features of a high end router. These include BGP, RIPv2 and Static Routes, IGMPv2 IP multicast, DHCP/NAT, TCP acceleration in both directions, 3-way handshake acceleration and local DNS caching. These are all features that a network operator would have to add in the form of a separate unit to some other systems.

Adaptive Coding and Modulation (ACM): The need for this level of bandwidth management is heightened with the introduction of Adaptive Coding and Modulation (ACM) in the Evolution platform. ACM offers the ability for the hub to step modcodes up and down to suit changing weather patterns and maintain availability, allowing the elimination of a costly link margin buffer of capacity which has to be calculated based on worst case conditions. The benefits of ACM are widely known and can bring up to 50 per cent efficiencies whilst increasing availability, but the downside is that any customer will find their link speed degrades as attenuation builds and the system compensates with more robust FEC and modulation. In some cases, priority services might then suffer while less demanding (and lower priced) sites are favoured by better weather. As a consequence, iDirect has integrated its ACM feature with GQoS, allowing operators to set an Extended Information Rate (EIR) that guarantees throughput under virtually any weather condition, taking bandwidth from less disadvantaged links and redistributing it to higher rate services. This allows an operator to provide a higher quality service to those customers prepared to pay for it, but it can also be used to ensure that all sites within a network receive the same level of service, however bad the prevailing conditions are at just a few of the locations. GQoS also generates reports which allow an operator to record how much network resource a customer required to achieve a set EIR and bill accordingly.

Integration with Terrestrial Carriers: A major area of development for the company has come as a result of its growing carrier customer base. The likes of Verizon, BT and Orange all have core business strategies focused on the deployment of large, extensive and pervasive MPLS network deployments. Satellite business divisions often face being left behind in these companies due to their inability to contribute on a level playing field, despite the strategic advantage and diversity that comes as standard with a satellite service. However, those carriers that do make use of VSAT are increasingly looking towards systems to be able to extend the reach of their networks and obviate the need to use unreliable terrestrial partners in some areas. iDirect has developed support for features, such as BGP routing, in a general move towards greater integration with MPLS, pushed by some of its larger carrier and enterprise customers.

4. Vertical Applications

iDirect's cost effective and innovative hub solutions coupled with high levels of functionality and ease of use has made it almost a *de facto* standard within many of the most valuable vertical markets.

Advancing Mobile Communications: Mobility has emerged as a large area of interest for many of the leading specialist VSAT operators. Following adoption of the system by several of the larger providers in this segment, iDirect has essentially managed to position its product as the system of choice in this area. Through a combination of an extremely professional, well thought-out sales strategy and the integration of high level features such as a Global Network Management System (Global NMS), Communications-on-the-Move and an enhanced mobility capability that automatically switches satellites when a user moves from one footprint to another, known as Automatic Beam Switching, iDirect technology is now often seen by the end-users themselves as the optimum solution and it is they who are sometimes demanding it of their operators. This has persuaded almost every single operator in this segment to implement the iDirect platform. Intelsat selected iDirect for its new maritime offering, incorporating the company's Global NMS with Automatic Beam Switching technology, as have the vast majority of others specialising in the area. The addition of spread spectrum capability provided in the X5 and e8350 remotes has further helped to consolidate its position in this area and open the possibilities to serve some Communications-on-the-Move (COTM) projects. Rather than creating a different access scheme, iDirect's approach spreads the carrier whilst retaining its standard Deterministic MF-TDMA access, allowing customers to purchase a system, construct networks and configure only the terminals required with Spread Spectrum through use of the X5 or e8350 remotes and appropriate hub cards. In effect, everything stays the same except that a sub-group of remotes obtain the mobility advantages conferred by Spread Spectrum.

Meeting Government Demands: The huge demand for satellite connectivity from defence agencies everywhere, in particular the US Department of Defense and the way in which services are procured under the small and disadvantaged business programmes in the U.S. government have been extremely beneficial for iDirect. Small operators looking for a system with a low initial capital outlay capable of allowing incremental expansion to give greater coverage from new locations or on different satellites have adopted the iDirect platform almost wholesale. The US Department of Defense endorsed iDirect as one of its standard platforms not least because of the system's strong encryption capabilities that include advanced FIPS 140-2 certified TRANSEC security, but also because it offers the data rates, CIR and QoS features – essential for a military mission-critical application. In early 2007, iDirect formed a separate entity, iDirect Government Technologies (iGT), to focus on the segment and, in 2009, iGT became a wholly owned subsidiary of iDirect with the intent to gain appropriate high level security clearance to secure its ability to continue to serve and grow its presence in the defence/intelligence community.

GSM Backhaul: This market is a huge area of interest for all of the vendors with each claiming some form of real advantage. iDirect has many small networks deployed through operators and integrators on a far wider geographic basis than any other. Whilst SCPC retains a core role in many operators' portfolios, TDMA platforms have increasingly become the norm for focused operators as network management features have been added, bandwidth efficiency has become a necessity and integration with mainstream service products has grown. iDirect has worked closely with GSM infrastructure vendors and there has been a concerted effort to convince GSM operators that this is the strategic direction of the future. In particular, iDirect and Ericsson have integrated their products so that GSM operators can take advantage of iDirect's advanced QoS and IP routing, allowing guaranteed service level agreements and customized SLAs. Real time traffic management, priority queuing and compression results in low latency and high quality, low jitter voice and, along with the hub's IF flexibility, the company claims up to 80 per cent efficiency gains.

5. Future Direction

There are many areas in which iDirect believes it can continue to enhance and improve its platform. On a macro level, the company plans to continue to develop its software licence approach, building in features and allowing operators to upgrade, expand or enhance their platforms quickly and painlessly. Another big area of focus for the company is through alliances with third parties. Its partnership with Ericsson to address the potential for thinner route GSM backhaul services by integrating an iDirect satellite router into Ericsson's "Minisite" GSM IP base station is an illustration of what it hopes to achieve in this area. Forging closer ties with third parties is enabled on a hardware front – best shown by the e850mp remote terminal card that has been designed to be small, rugged and environmentally tolerant specifically for integration in all types of mobile terminal. At the same time, iDirect also offers application interfaces for its system so that other software and hardware providers are able to tie new applications and devices into the management and operation of the system.

In the future, we expect to see iDirect bring out increasingly sophisticated capabilities to continue to increase bandwidth efficiency and the performance of the network. Ultimately the company is moving towards an inbound access scheme design that automatically changes carrier sizes to adapt to changing weather conditions whilst also being able to switch seamlessly between a TDMA mode of operation and SCPC, depending on application or bandwidth requirements.

iDirect's focus has always been on the development of its platform's abilities to support sophisticated customer applications whilst allowing networks to be operated as efficiently and reliably as possible. It constantly expands the boundaries of the technology, empowering its service provider customers to maximise their margins and grow their businesses into established and potential new areas of the market. The company's future development roadmap builds on an established and well-proven history of enabling exactly that.