



John Ratigan, President, iGT.

Enhancing the technology

iDirect Government Technologies iGT is a new company and has only recently been launched. Helen Jameson talks to John Ratigan, President of iGT about its goals and what it can offer to the government sector.

Satellite networks increasingly play a critical role in government and defence applications – from mobile communications to global logistics and disaster recovery. iDirect's bandwidth-efficient, highly secure, IP-based platform has rapidly become the technology of choice for many mission-critical applications. In just four years, multiple US government agencies and military branches have selected iDirect to support diverse operations domestically and abroad, including:

- The Combat Service Support (CSS) VSAT network, which enables combat support personnel to transmit supply requisitions remotely in real time, eliminating the need to expose couriers to unnecessary danger;
- Command and control units, which are adopting iDirect's Communications on the Move (COTM) solution to achieve more cost-efficient use of ultra-small antennas on aircraft, maritime and land-based vehicles and establish global mobile networks;
- Emergency communications services provided by the US National Guard and the Federal Emergency Management Agency (FEMA); and
- The Morale Welfare and Recreation Programme, which allows troops overseas to communicate with family members both by phone and email.

"iDirect has achieved double-digit annual growth rate in government sales, and its technology platform is widely considered the standard for IP-based satellite communications within the US Government. It is imperative that a subsidiary be created to establish a singular focus on the specialized demands of the government market. VT Systems is committed to investing in this new venture, which will deepen our leadership position and expand iGT into new market opportunities," said Gen (Ret) John Coburn, Chairman and CEO, VT Systems, Inc.

Question: Thanks for speaking with us to-

day. Many congratulations on your appointment as President of iDirect Government Technologies. Would you please introduce yourself to our Readers.

John Ratigan: I am John Ratigan. I have been with iDirect primary group now for four and a half years. I joined in 2003 when the company was being re-invigorated with some additional financing. We re-capitalised the company and started the government group in February 2003. The fortunate part in that was that it was right at the beginning of the original Iraq conflict and we were able to secure a couple of networks quite quickly and all the good work the engineering staff had done prior to that were top notch and we were able to deploy two networks that worked very, very well and gave us a good boost moving forward as a government group.

iDirect itself is a broadband satellite communications company specialising in broadband over satellite and the extremely efficient use of the bandwidth. Personally, I have been in satellite communications for twenty years. I have worked with a lot of start-up companies and been involved with the larger, more successful companies in the satellite industry. iDirect is a natural fit for me - coming in here with great people and great technology that we continue to migrate and keep the technology moving forward. We are very happy to be in the position that we are in. In terms of the government group, this is progressing as rapidly as the rest of the company.

We have established ourselves in a fairly dominant market position in terms of VSAT and TDMA. We want to capitalise on all the hard work we have done over the last four and a half years with the team and relationships we have established.

Question: iGT is a new company and has only recently been launched. Why was the wholly owned subsidiary formed and what are the objectives of iGT?

John Ratigan: There are a couple of reasons why we formed the separate subsidiary.

About iDirect

iDirect Inc., a company of Vision Technologies Systems Inc., designs, develops, and markets satellite-based broadband access solutions targeted at the enterprise, government, carrier and educational sectors that have the need for fast, flexible, and geographically dispersed two-way internet/intranet access. The company has developed technology solutions that combine high performance, worldwide availability, and ease of installation, high reliability, and low cost to end customers. In addition, iDirect solutions offer unprecedented efficiencies, increased revenue opportunities and higher per customer gross margins to satellite network operators. iDirect operates its corporate headquarters in Herndon, Virginia and has regional offices in Europe, Asia, and covering Latin America.

iGT

iDirect announced in July that it had set up iDirect Government Technologies (iGT) Inc. as a wholly owned subsidiary to drive broader adoption of its IP-based satellite networking solutions in the government market. John Ratigan, who has served as iDirect's Vice President for US Federal Sales, was named President of iGT.



Number one, we wanted to separate that unit out so we could make additional investments specifically in order to grow it. We have lots of great ideas on how we want to grow this entity. Secondly, we created a little bit of insulation between us and the ownership through a special security arrangement. This creates a little barrier so that we can extend our business into the classified area as well.

Question: Obviously, the demand for iDirect solutions by the US government has led to the creation of iGT. iDirect has become very successful as a supplier for the US military over the last four years. Why is this? What do iDirect solutions offer that sets them apart?

John Ratigan: The thing that amazes me as a satellite guy coming in here is that iDirect has taken standard satellite technology and just enhanced it through the addition of many other technologies into one device. So, one of the big long-term costs of any network is the satellite space segment and I came from the SCPC world of satellite that is dedicated channels and the predominant user of satellite was dedicated channels. The problem with that is that most dedicated channels are not used all the time. So what iDirect's technology does is take that channel and ena-

bles more than one person to use it very efficiently. So the pipe stays full 100 percent of the time and we added additional technology to the standard dedicated pipe. We added the technology to run all the data encrypted through one device.

We added routing capability. We added the ability to operate a very complex service system but one that was operated through a very intuitive network management system. And that is probably one of the most wonderful things that iDirect has produced. And just so that you understand, one of the reasons that we had this very cohesive system was that iDirect originally was one of the worldwide network service operators and so they built this beautiful network management system to operate a worldwide network but then decided to divest of that part of the business.

But we did keep the network management system and continued to have a whole team of engineers work on that. We provide that with every system that is sold so the customer gets to take advantage of a system that has had a lot of money invested into it originally and continues to make it very easy for them to operate networks.

Question: Can you give us a brief expla-

nation of what COTM is and why it plays such an important role in the battlefield?

John Ratigan: Currently there are a couple of different versions of how the military might communicate with headquarters or back to their bases. One is the fixed antenna system that I think most of us are familiar with. The other one would be comms-on-the-pause which is a system that can either be mounted on top of a vehicle or be taken out of the back of one and we call that an auto acquisition system. These systems can be deployed when the convoy is stopped and communications can be secured. So the next step is one that while the convoy is moving full broadband communications may be enabled for voice, video and data.

It's important because it's very disconcerting to be out of touch. And it's not just voice communications – there's so much happening on the battlefield that constant information is streaming both ways. To the troops that are on the ground and from the troops that are on the ground there could be videoconferences that need to take place, video that needs to go back to headquarters, it could be large files of data, jpeg files – it could be anything. And so the idea is to keep a broadband point open, not only for certain groups but for as many people as possible



and so the next step is comms-on-the-move in the battlefield. It's the ability to run as fast as they want to run with full communications.

Question: The equipment required to enable COTM needs to be operated in very challenging environments. For the soldier in the field, how easy is the equipment to deploy and operate?

John Ratigan: It is easy to use. The idea is to make it very simple for the soldier to operate. As a matter of fact, with our comms-on-the-pause stuff the auto acquisition antenna systems the idea is the soldier has a very simple software programme that sets the system up and he doesn't really have to interface with it at all or very much to get it operational. Most of the system is set up to work automatically – to track the satellite for him and lock into the server. It does other things like cross-polarisation for him. He doesn't have to necessarily know any of this. All he needs to know is that he is logged into his servers and he is online. And we train these guys – they are all sharp guys – on how to operate this but by and large it's not going to take a scholar to operate it.

Question: Can you please tell us about the iDirect Spread Spectrum solution – how does it work and what benefits does it bring?

John Ratigan: As I said earlier, one of the biggest costs of any network, commercial or military, is the space segment. When we move into spread spectrum in comms-on-the-move we're actually doing the opposite of what iDirect has been trying to do all these years which has been to make the most efficient use of the space segment, meaning getting the most bits per hertz if you will, the most data through a particular pipe that we can. There were several reasons why we moved into spread spectrum but the main reason was predominantly for the smaller antenna systems. We are doing what the name entails – we are spreading the bandwidth out and by doing so, we are now using more space segment than we typically would use for a communications channel. We spread it out in order to meet some of the technical requirements coming off the small antenna. Small antennas tend to spray radiation around the small satellite arcs, so what we don't want to do is radiate to a satellite we're not intended to go to. So what we do is we spread that bandwidth out and we may still hit the adjacent satellite but it will be with far less energy and it won't make any difference to other carriers. But what iDirect does is have a dynamic spreadable algorithm that allows us to spread the bandwidth just enough according to link budgets which is what the engineers use to set up exactly what needs to be done to accommodate each specific satellite link.

So we spread it out just enough to meet

"iDirect is the only system that inherently, meaning within the same box, has the ability to encrypt the entire payload so all the data is encrypted by the advanced encryption standard AES-256...."

the power spectral density requirements of that satellite link. Other systems in the past for example, would spread it out to ten times what it currently was and that's okay but you don't need to spread it that far. The more you spread it, the more satellite bandwidth you're going to use and the more expensive it's going to be.

Question: Military communications are highly sensitive and prone to interception. How is the information being transmitted and received kept secure?

John Ratigan: iDirect is the only system that inherently, meaning within the same box, has the ability to encrypt the entire payload so all the data is encrypted by the advanced encryption standard AES-256. So we encrypt everything that goes over the satellite. The military also tends to use other encryptors that are even stronger called Type-1 encryptors.

In addition to that, we do something else that's called Transec which stands for Transmission Security which on TDMA systems, even though you encrypt a payload, which is the user data, there is still other data that's in the clear that tells the system who gets to transmit when and how much information is in each queue to be sent and it looks at all these different things and is constantly rearranging what we call a time plan eight times a second.

With Transec all of that is completely encrypted. There is no way to determine who is sending data and when and where. We're the only ones that have that.

Question: How does iDirect ensure QoS even in the most challenging conditions on land, at sea and in the air?

John Ratigan: With most things that we do, and also what we do with our partners as we are not the only ones involved in this – there are three critical components. There is our ability to interface with the comms-on-the-move antennas that are available for ve-

hicles and that's a challenge in itself. iDirect has been involved with communications-on-the-move for many years now through the maritime world and a lot of cruise ships use iDirect for communications but they move very slowly.

They can rock up and down on the waves but a vehicle can be blazing down the road and hit a pothole or turn a corner very quickly or go behind a building or a mountain or inside a tunnel or under a bridge – all these things present a challenge for the antenna system as well as the modem and the network that has locked into a server. These are things that we have been working on for a couple of years now, to iron out all the nuances and idiosyncrasies that need to be solved in order to make this adaptable to the battlefield.

Additionally, we do a lot of things to make it viable for airbourne platforms. Instead of vehicle and aircraft transiting multiple satellite footprints the system will know when to transition between different satellites as it traverses across the Atlantic or the Pacific and running through the footprint of one satellite and into another.

Question: What are the new and emerging trends and developments in COTM? How do you think it will evolve in the future?

John Ratigan: I think that the market has been slower to arrive than I had first imagined a couple of years ago. I think the military will be early adopters of this and I think it will become a high demand item in the military. I certainly see that happening and I see more and more programmes coming up every day relative to this and it will expand throughout the world and certainly military applications are going to be the first ones, predominantly, because of the need and the cost of it is going to be quite high. Not so much for our equipment but the real cost will be in the antenna systems which are still quite expensive. I think that, quite honestly, down the road I envision a day where many vehicles, maybe all vehicles will be equipped with some sort of comms-on-the-move capability.

Question: So you see net centricity and a completely connected battlefield becoming a reality in the near future?

John Ratigan: Yes I do. I really do. In my opinion I think in the next twelve months. Things are already deployed. They may not be the most efficient yet, but I continue to see great progress in all areas of the technology – in antenna systems, in everything involved, in video, the interface to GSM for cellular systems involved in this and for long range Wi-Fi systems that will be attached to these things. So I see this starting to pick up pace and move at a greater rate towards net centricity on the battlefield. ■