

iDirect iDX 3.2 and X7 Solution Overview



Advancing a Connected World

Pushing the Boundaries

The visionary team at iDirect is dedicated to transforming how the world gets and stays connected. Since its establishment in 1994, the company has achieved a long list of notable 'firsts' in the satellite industry, including the development of the iDirect Series 15000 Universal Satellite Hub, which was the first of its kind to point to five different satellites and combine multiple topologies in a single hub. Since then, it has continued to spearhead continuous innovation.

iDirect's commitment to Research and Development has elevated the company to its impressive status within the satellite industry, with a reputation that is second to none. The company's IP communications technology and Intelligent Platform enables constant connectivity for voice, video and data applications in any environment. Through its network of global partners, customers can find broadband access solutions to meet their specific needs. iDirect caters to the full range of market sectors from telecommunications carriers to enterprise customers to military and government organisations. iDirect's partners can utilise its Intelligent Platform to provide high-speed broadband access anywhere in the world, supporting both fixed and mobile connectivity across land, sea and air.

Market Sectors

iDirect has noted an increase in bandwidth use across all of the company's market segments. The demand for video content in enterprise and media markets has grown significantly. In the cellular backhaul market, demand for data per cellphone is rising exponentially, as people use their mobile devices to connect to the Internet. In the military, bandwidth demand is soaring due to increased use of UAVs and ISR solutions. The mining and oil and gas sectors also require increased throughput to utilise more sophisticated applications, and to connect no matter where in the world they happen to be. In addition, the maritime sector is using satellite onboard all types of vessels, from container ships to luxury cruise liners. iDirect is dedicated to serving all of these markets and more, with a highly flexible approach that ensures that each customer's unique needs are met.

Industry Trends

Today, there are more demands being placed on satellite ground systems with the emergence of High Throughput Satellites (HTS). Though there is still growth in the 'traditional' satellite market, there are new architectures emerging with these new satellite systems such as Global Xpress, EPIC and O3b Networks.

The HTS model is making faster data rates more affordable, delivering capacity at a lower cost per Megabyte. However, even with the lowering of costs, the successful and profitable delivery of a satellite service comes down to efficiency and the ability to distribute satellite capacity as widely and economically as possible, with no negative effect to customers.

The latest innovations from iDirect: The X7 Remote and iDX 3.2 Software

Given the current market dynamics and the challenges they bring, iDirect has introduced the X7 satellite router. This is the first product in a new line of high-performance remotes. Coupled with the iDX 3.2 software, these new solutions deliver breakthrough achievements in performance and efficiency.

The X7 can reach up to 100Mbps of combined inbound and outbound throughput with more than 20Mbps on the return channel alone. These speeds are being achieved on a TDMA platform that, until now, have only been possible on a dedicated SCPC link.

iDX 3.2 expands on these performance gains, delivering several major efficiency enhancements across the iDirect Platform. The most significant of these is Adaptive TDMA, which improves return channel performance and increases network availability under rainfade and satellite link degradation.

In this digital brochure, learn more about the X7 remote, the iDX 3.2 software, its unique capabilities and the many benefits that can be gained from its integration into your network.





Higher Demands, Higher Performance

The VSAT industry is surging. In nearly every vertical market and geography, end users are relying on satellite communications to do more – to run higher bandwidth applications, scale to thousands of locations and play a more integral role in their global operations.

Take the maritime industry. Vessel operators – from commercial shipping to cruise lines – are demanding more from satellite service providers than just basic voice and data connectivity. They want to run business applications that dramatically increase information exchange and visibility between ship and shore. And they need to provide crew and passenger amenities like high-speed connectivity to access the Internet, view streaming video and stay in touch with family and friends.

In the mobile telecom market, the story is similar. Demand for mobile data is expanding exponentially worldwide. Cisco projects that mobile data traffic will increase 26-fold globally by 2015 from 2010 levels, with the population of mobile-only Internet users surging from 14 million to 788 million. For many developing nations, mobile service represents the most affordable, and sometime the only access to high-speed Internet connectivity. This sets the stage for a greater use of satellite backhaul services, especially when combined with increasingly popular small-cell mobile infrastructure.

Fortunately, High Throughput Satellite (HTS) technology is making faster data rates more affordable, delivering satellite capacity at a lower cost per MB. With HTS, markets

that are developing strongly today will hit new levels of growth. And markets that have remained out of reach to service providers will now be open to what satellite can deliver.

Yet even with HTS set to transform space segment economics, delivering satellite service still comes down to efficiency. Running a profitable service business means distributing satellite capacity as widely and economically as possible – while ensuring your customers get the service quality they expect, for any application, and under any weather or network condition.

Next-Generation Ground Infrastructure

In response to these challenges, iDirect has introduced the first product in a new line of high-performance remotes, the X7, as well as an upgrade to its platform operating software, iDX 3.2. These new solutions deliver breakthrough achievements in performance and efficiency.

iDX 3.2 and X7 Deliver Next-Generation Performance

- High performance TDMA remote to support bandwidth heavy applications
- Adaptive TDMA on the return channel to lower bandwidth costs and increase reliability
- Improved acquisition, roll-off factor and waveform enhancements to drive greater efficiency and availability

High Performance X7 Remote

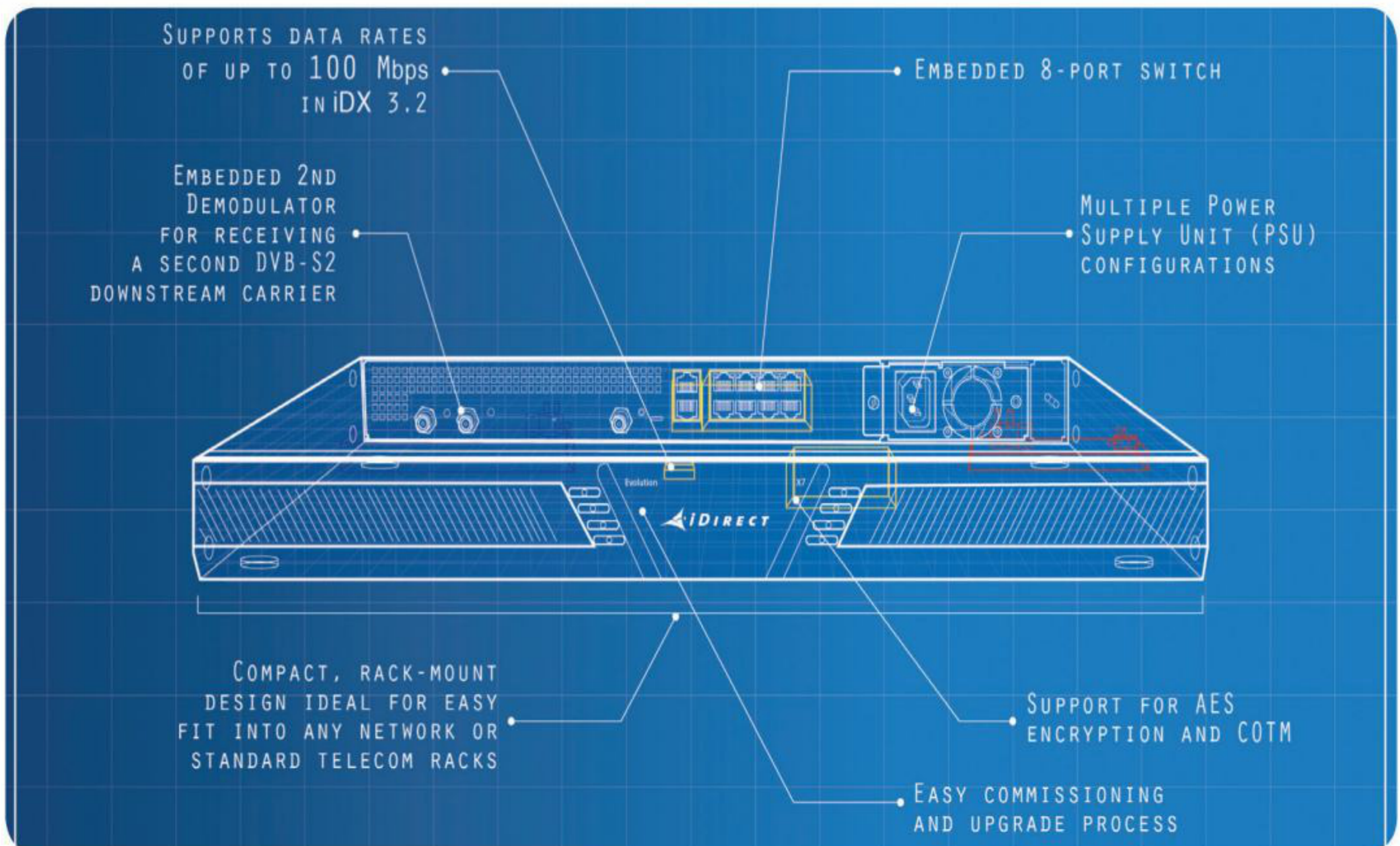
The X7 is built on a new multi-core hardware system. It is optimized to deliver best-in-class TDMA performance and operate with High Throughput Satellites and all frequency bands.

The X7 has four key features:

- The first of these is increased throughput. Built on an entirely new multi-core hardware system, the X7 is able to reach 100Mbps of combined outbound and inbound throughput. This enables service providers to deliver the data rates needed for bandwidth-heavy business applications and multicast services like IP TV, distance learning, HD broadcast, digital signage and video.
- The second key feature of the X7 is embedded GQoS with a VLAN-aware 8-port switch. Service providers can physically segregate multiple end user traffic

- groups based on VLAN tags and customize SLAs for each unique user group.
- The third key feature of the X7 is the choice of embedded AC/DC power supply. Some configurations can even power up to a 16W BUC. This is very relevant for cellular backhaul networks where an embedded -48VDC power supply is ideal for telco equipment supporting large 3G/4G networks.
- The fourth key feature of the X7 is dual DVB-S2 demodulators with fully independent RF chains. With this unique feature, service providers can support voice and data services while receiving up to 12 shared, High-Definition multicast channels over a transponder or satellite. The dual demodulator will also make it very easy to transition from traditional broad beam to high-throughput spot beam satellites.

The X7 Remote



Adaptive TDMA

iDirect's new operating system, iDX 3.2, expands on the platform's performance gains. iDX 3.2 will deliver several major efficiency enhancements across the iDirect Platform. The most significant of these is Adaptive TDMA, which improves return channel performance and increases network availability under rain fade and satellite link degradation.

Adaptive TDMA enables an inroute group to support carriers with different symbol rates and MODCODs. The network dynamically adjusts to changing uplink conditions based on each remote's demand and the system's Quality of Service configuration.

With Adaptive TDMA, service providers are able to boost their network throughput, increase network availability and reduce bandwidth and terminal costs or combine these benefits to fit their business needs. A typical fixed VSAT system can boost by 20-40% on the return channels. A typical mobile network can gain about twice as much with improvements, while handling different beam contours in addition to rain fade.

Superburst

With the introduction of Adaptive TDMA comes also greatly improved acquisition, enabling up to five times faster remote acquisitions than current software releases. The

introduction of this feature, called superburst, leads to significantly improved network entry times due to easier burst detection in lower C/N environments, as well as very high frequency offset tolerance.

Superburst is ideal for mobility applications, such as maritime or train applications, where the signal is frequently obscured and where frequent beam switching is an issue. It also allows for faster recovery when switching between networks in a geo-redundant hub configuration.

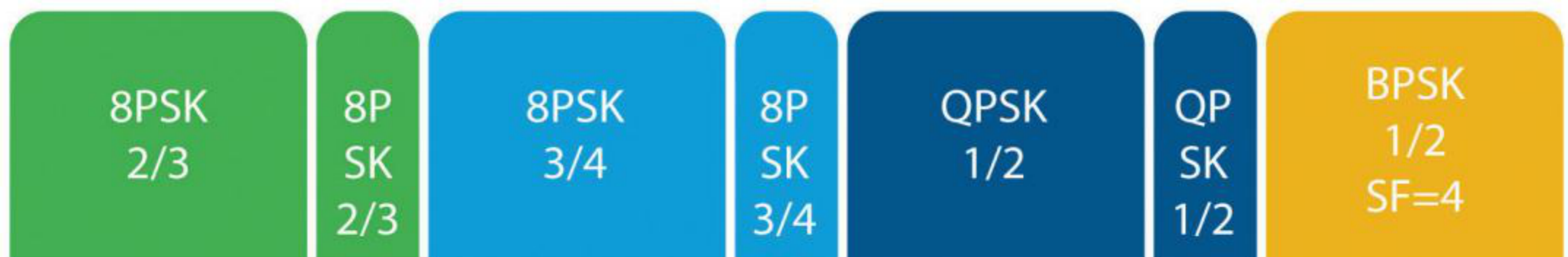
Improved Roll-Off Factor

On the outbound channel, iDX 3.2 adds new roll-off factor options for DVB-S2 carriers. Beyond the 20% roll off that customers can choose today, 15%, 10% or 5% are now available. Reducing the roll-off factor from 20% to 5% for a carrier in a full 36MHz transponder yields 10Mbps gain in IP throughput. For carriers occupying less than a full transponder this can result in throughput gains of up to 13%.

Waveform Enhancements

With iDX 3.2, iDirect has enhanced the frequency and phase tracking of waveforms on inbound channels. More efficient MODCODs enables lower Signal-to-Noise Ratio for all MODCODs while also allows for the introduction of new MODCODs. These two factors combined result in up to 40% bandwidth efficiency.

Adaptive TDMA Carrier Selection



Adaptive TDMA delivers major efficiency gains on the return channel, enabling inroute groups to support carriers with different symbol rates and MODCODs.



5 Ways to Gain

The significant performance and efficiency gains delivered by the X7 and iDX 3.2 give service providers greater versatility in how they support their business strategy and meet customer needs.

1. Maximize Throughput. Service providers gain up to an 80% increase in throughput for fixed VSAT, and even more for mobile networks. As a result, they can deliver higher data rates to end users eager to run bandwidth-intensive applications and critical operations over satellite.

2. Maximize Revenue. Service providers can also sell more bandwidth to customers using their existing satellite capacity, which creates new revenue streams. For example, service providers in the oil & gas market can serve an increasing number of end users who need access to satellite coverage – from maintenance crew on oil rigs to numerous service vessels and even onshore staff.

3. Maximize Savings. Adaptive TDMA and waveform optimizations combine to deliver up to 80% improvement in bandwidth efficiency for fixed remotes, and even more for mobile remotes. Service providers can lower capacity costs while meeting existing customer Service Level Agreements (SLAs). And they can realize additional capex savings by deploying smaller terminals.

4. Maximize Network Availability. Service providers can choose to leverage performance gains to provide customers with higher levels of availability without designing the entire link budget around worst-case conditions. They can ensure greater protection against rainfade and adjust for spectrum degradation, especially for maritime and aviation applications. In addition, faster remote acquisition and dual image support mean less time out of network for customers in any market.

5. Enhance Service Differentiation. With throughput gains and enhanced availability, service providers will be able to fulfill SLAs with confidence. All existing iDirect GQoS features are fully supported with Adaptive TDMA, and hence all existing traffic prioritization is supported. Furthermore, service providers can configure how far a particular remote under fade will be allowed to influence the system adaptivity, allowing for another way to offer service tiers.

With the X7, service providers can also support different user communities by securely segregating traffic with VLANs to specific switch ports and customizing SLAs for each unique user group. They can offer faster two-way services through a single remote, simultaneously supporting core voice, data and video applications, while offering multicast services such as IPTV and remote training.

XPECT *more* *from your network*[™]

Building on the power of the industry-leading Evolution[®] platform, iDX 3.2 software from VT iDirect takes efficiency to a new level starting with Adaptive TDMA to boost network throughput and availability, while cutting bandwidth and terminal costs. And the new X7 remote is made to deliver best-in-class throughput performance.

A winning combination setting a new performance standard to keep you in the lead.

Learn more at iDirect.net/Xpectmore



Call to action, to find out more please visit idirect.net/X7



13865 Sunrise Valley Drive Herndon, VA 20171 +1 703.648.8000 +1 866.345.0983
www.idirect.net