SCPC Return Feature Brief

Over time TDMA has proven to be the most efficient transport mode to handle complex, distributed satellite IP networks and integrate seamlessly with terrestrial communications. According to industry analysts NSR, TDMA networks are rapidly replacing an often rival technology SCPC at a rate of 15% per year in backhauling rural mobile traffic, whereas in maritime markets, COMSYS reports that SCPC systems dropped from 80 percent of implementations in 2003 to less than a third today. The reason for this migration is that SCPC is inherently inefficient as links need to be sized at a fixed throughput rates, and are typically over-dimensioned to accommodate peak traffic as well as future traffic growth.

SCPC on the other hand is the right solution to handle constant heavy traffic. Therefore most service providers run both TDMA and SCPC platforms inside their Network Operations Centers (NOCs) and are forced to invest in and manage two separate technology platforms creating unnescessary capital expenses and operational inefficiencies. Changing a customer from one technology to the other, as the network and application requirements change over time, involves costly site visits and service interruptions. And service providers don't have the ability to share satellite capacity across their entire customer base, or re-allocate excess bandwidth from over dimensioned SCPC links.

iDX 3.0 brings TDMA and SCPC together

With the launch of iDirect's new Evolution® software, iDX 3.0 this will change. Service providers will be able to operate Evolution® routers in either TDMA or SCPC Return mode depending on the current need.

A service provider with an existing infrastructure of Evolution remotes can now offer customers the efficiency of an SCPC channel on the inroute, on a temporary or permanent basis. Returning the remote to TDMA-mode is simple and is done quickly through iDirect's Network Management System iVantage. An important element of the SCPC Return offering is the introduction of iDirect's Multi-Channel Demodulator (XLC-M). While the XLC-M hardware has been available since Fall 2010 in single channel mode, iDX 3.0 introduces licenses that allows the XLC-M to be operated in multi-channel mode, which greatly enhances the network flexibility. Adding additional channels to the same card enables service providers to take advantage of up to 40 % infrastructure efficiencies due to fewer line cards and chassis space needed.

Expanded Service Flexibility

SCPC Return can be activated to support temporary heavy traffic conditions or it can be turned on permanently once traffic reaches a threshold where a dedicated SCPC connection is more economical.

This innovation will impact every market: An enterprise network can run in TDMA by default to support core voice, data and video applications. But any time the network needs to support a large file transfer, data back-up session or HD video transmission, the returnchannel can switch to SCPC mode.

iDIRECT

Luxury yacht operators and fishing vessels can support a spike in communications activity and adjust to seasonal bandwidth requirements. Military networks can be designed to handle regular intervals of large surveillance data streams or provide dedicated connectivity before an operation. And oil and gas companies can efficiently support daily communications while taking on extra bandwidth to send large files containing high-resolution images, seismic data or other information.

TDMA and SCPC Return Based on Time

TDMA and SCPC Return Based on Volume

As mobile operators extend their coverage into remote areas, TDMA is typically the most cost-effective way to backhaul data from scattered villages that have limited traffic. However, once network traffic has surpassed a designated threshold, the router can be switched to SCPC Return mode for steady, dedicated traffic. Internet Service Providers can similarly expand their bandwidth levels as they add subscribers and build their business.
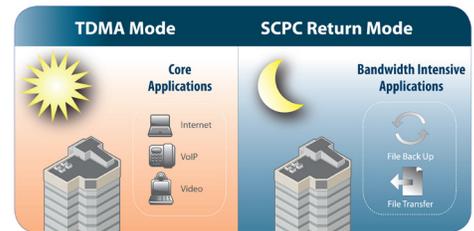
Increased Expandability and Reliability

Traditionally, SCPC links do not have the embedded intelligence of TDMA networks. Bandwidth cannot be dynamically optimized for changing traffic patterns or prioritized by local applications. With this new feature service providers can leverage iDirect's Group Quality of Service (GQoS) platform feature to establish dedicated outbound links that provide the same throughput characteristics of SCPC. However, they can be easily re-sized based on lower traffic patterns by changing QoS settings and bandwidth can be re-allocated across the entire network. On the return channel, Group QoS can prioritize SCPC bandwidth by individual applications, creating a more predictable and reliable end user experience.
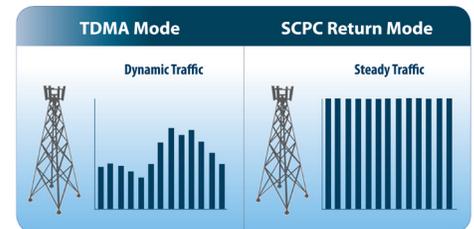
Another traditional limitation of SCPC connectivity is that it lacks a management system to provide visibility into the performance of individual links. Leveraging iVantage® and SatManage network management solutions, service providers can monitor, identify and quickly resolve SCPC link performance issues. Plus they also gain visibility into how their SCPC bandwidth might be optimized and used more economically.

With iDirect's new TDMA and SCPC Return switching capability, service providers gain the flexibility to adjust service levels to dynamic applications and changing traffic patterns, while maintaining an economical way to utilize total network capacity and optimize operational efficiencies.