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How South American network operators can gain a competitive edge with C-band capacity on Telesat's Anik G1 Satellite

by Telesat Systems Engineering
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Advances in network performance on the terrestrial side require that satellite networks continue to do even more in terms of increasing capacity available to end users and reducing cost per Mbits.

The powerful 36MHz C-band transponders on Telesat's new Anik G1 satellite offer the coverage and capabilities to deliver real performance advantages today – advantages that can give South American network operators a competitive edge.

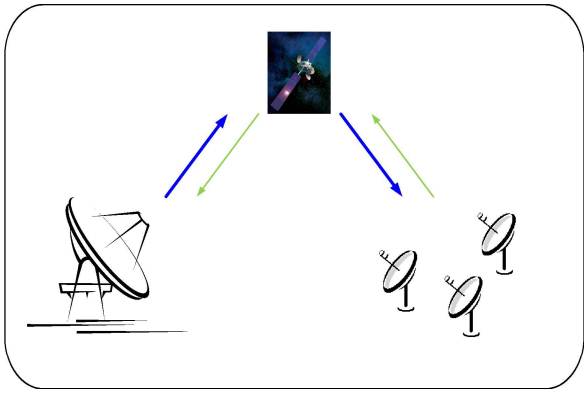
Anik G1 C-band – Good News for South American Satellite Networks
Located at 107.3° West, Anik G1 C-band capacity can support numerous network and point-to-point topologies with superior performance across South America.

Three Typical Network designs are shown below:

Hub Network

A typical star network design, incorporating hub-to-remote topology supporting internet, voice and data.

Applications may include Enterprise Networks, Oil & Gas, Mineral and Natural Resources, Digital Divide, etc



For this example, VSAT terminals are limited to 1.8m / 2.4m with 8W BUC. DVB-S2 forward (Hub>Remote) and LDPC (Remote>Hub) carrier configurations are used.

Hub Network				
Option	**Modulation**	**FEC**	**Symbol Rate (Msym)**	**Burstable Total Data Rate (Mbps)**
Hub > Remote Forward service	DVB-S2 8PSK	3/4	21.3	**48**
Remote > Hub Return services	VersaFec 8QAM	7/9	0.43	**1**

From the above results **it is possible to operate 16x returns and one forward service on a standard multicarrier configured Anik G1 transponder.**

A multipoint-to-multipoint mesh network design is shown on the next page.

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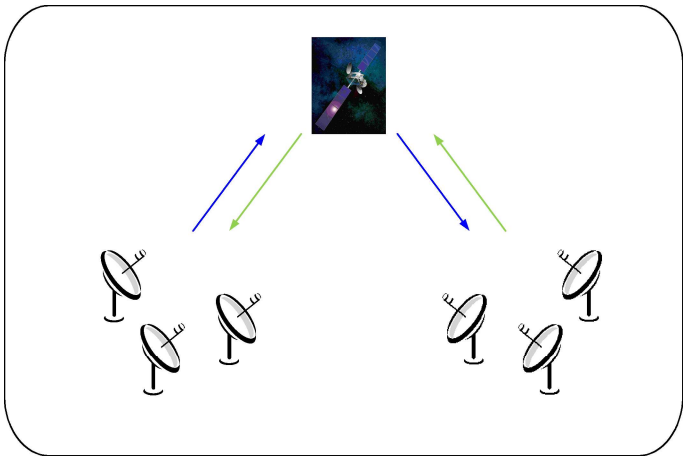
Mesh Network



A multipoint-to-multipoint network design enabling low latency services between remote VSAT locations.

Well suited for applications such as border control, banking and finance, government services.

For this example, VSAT terminals are limited to 1.8m/2.4m with 16W BUC. From the above results **it is possible to operate 30x 2Mb channels on a standard multicarrier configured Anik G1 transponder.**

Mesh Network				
Option	**Modulation**	**FEC**	**Symbol Rate (Msym)**	**Burstable Total Data Rate (Mbps)**
Remote > Remote service	LDPC 8QAM	3/4	1	**2**

Trunk Service

A high throughput service between point-to-point locations.

Providing services such as fibre backup, primary ISP connectivity, etc.

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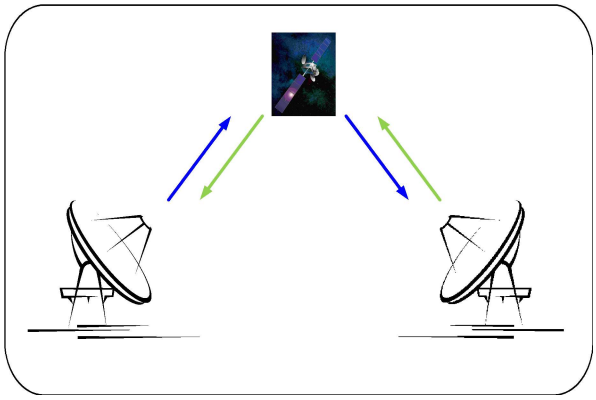

For example, the following table shows a single saturated carrier (one direction/transponder) Vs duplex carrier-in-carrier operation, both in guaranteed availability (99.9%) and clear sky conditions assuming ACM operation.

DVB-S2, Normal Block, Pilot ON, QEF (PER 10e-7)				
Option	**Modulation**	**FEC**	**Symbol Rate (Msym)**	**Total Data Rate (Mbps)**
Single saturated carrier	16APSK	5/6	30	**96.6**
Duplex carrier-in-carrier	8PSK	2/3	30	**116.1***
Single saturated carrier Clear Sky	16APSK	8/9	30	**103.2**
Duplex carrier-in-carrier Clear Sky	8PSK	3/4	30	**130.6***

*combined carrier-in-carrier throughput

From the above results **it is possible to operate more than 130Mb throughput on a saturated configured Anik G1 transponder***

Industry analysts continue to forecast strong and sustained growth across South America for cell backhaul and other VSAT applications.

Please contact your sales representative if you would like to learn more about the advantages Anik G1 can offer for South American services, or to discuss other ways Telesat can improve the efficiency and performance of your satellite network.