WTL deliver rain-proof VoIP over satellite

Telecom operators will carry more VoIP calls over satellite links even in poor weather—using WTL's Dynamic Trunk Capacity (DTC) for DVB-S2

Brussels, Belgium, August 31, 2009, WTL have today announced an improved solution for operators carrying VoIP traffic over DVB-S2 satellite links. By using major enhancements in the latest DVB-S2 terminals WTL have produced a highly efficient package for telecom operators who route multiple VoIP calls. WTL have worked closely with DVB-S2 transmission equipment to bring a new dimension to the solution by developing Dynamic Trunk Capacity (DTC) and including it in a range of VoIP SoftSwitches that react intelligently to changes in link conditions.

DVB-S2 products offer Low Density Parity Check (LDPC), a new error correction code, and also new modulation schemes: Variable Coding and Modulation (VCM), and Adaptive Coding and Modulation (ACM). All combine to increase the available throughput of a given satellite channel by up to 130%.
WTL have taken advantage of new DVB-S2 features like Newtec's implementation of "Flex ACM" which allows the satellite terminal to renegotiate the coding/modulation scheme being used "on-the-fly," according to atmospheric conditions. This means that the most effective modulation is used at any given time ensuring maximum throughput for the prevailing conditions is always achieved. Tests show that changing modulation and coding can give additional bandwidth efficiency of more than 50%.

The Problem of "Rain-Fade"

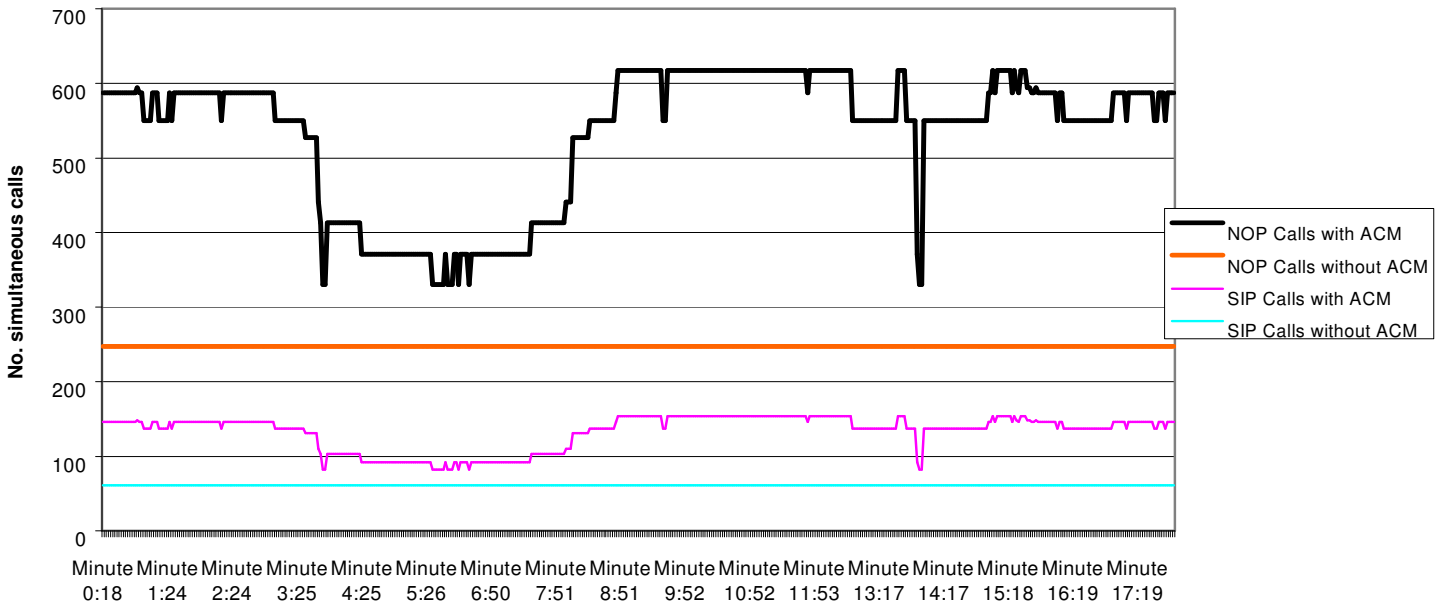
Adverse weather can affect satellite performance. For example, torrential rain in tropical regions can reduce bandwidth by 5 – 20%, depending on the frequencies and encoding involved. This leads to a difficult trade-off when setting link capacity between the clear-sky performance and the worst case.

To account for this the WTL software samples the link quality every few seconds and dynamically adapts to any changes. For example, when weather changes mean the link performance is reduced, ACM will come into operation and down-shift the modulation scheme to a lower throughput; the WTL SoftSwitch will detect this, and reduce the number of calls allowed over this route. Of course, the reverse is also true: as conditions improve and the link performance recovers, the SoftSwitch will detect this and open up the connection to more calls. WTL already help operators to use satellite trunks efficiently by using the patented NOP bandwidth saving technique. This typically saves at least half the bandwidth consumed by standard VoIP calls. NOP also protects voice quality from problems caused by packet loss and jitter in shared satellite links.

Variable bandwidth availability over satellite links can lead to quality problems for VoIP equipment, and this happens particularly in a shared link environment, where the bandwidth available for VoIP compared to data can change. If an IP link is only capable of carrying 10 VoIP calls, adding an 11th will overload the link and degrade the quality of all 11 calls: not just the extra call. On the other hand, avoiding this problem by intentionally under-provisioning the link wastes valuable bandwidth.
WTL's new development also overcomes the problem of variable bandwidth by allowing the switch to detect bandwidth saturation conditions, and to quickly adapt the capacity of the link so that the packet error rate stays under control. The capacity of the link is controlled under 2 conditions:

a) Slight link degradation. In this case there is no need for extreme measures, and a graceful reduction occurs: the WTL switch will not route new calls over the degraded link; calls complete and are not replaced by new ones until the link capacity has reduced to the desired level.
b) Severe link degradation. Rapid reduction in link usage is needed in order to preserve the quality of active calls: the WTL switch selectively closes calls and rejects new call attempts until the traffic reduces to the link's current capacity.

Call Capacity Benefits of ACM and NOP



Simon Pearson, WTL's Business Development Director, commented, "WTL NOP and DTC both offer major efficiency benefits to help customers get the most out of their satellite channels. The DVB-S2 terminals do this at the coding and transmission layer, whilst we do it at the VoIP or payload layer. It made sense that we should combine these two approaches to offer the best efficiencies in the market for telecom operators carrying VoIP over satellite."

WTL's DTC is now available following testing with pilot customers. It is suitable for fixed or mobile operators with a call capacity from 10 to 10,000 simultaneous calls.

About WTL

World Telecom Labs is a Belgium-based company which has long been a leader in the provision of VoIP switches, Pre-Paid applications, and signaling gateways for emerging carriers and telecom service operators. WTL has an installed base of 100,000s of voice ports with service providers worldwide switching billions of minutes of VoIP traffic using WTL equipment.

For more details Email: sales@wtl.dk or Check our Web Site: www.wtl.dk