



Changing the Way the World Communicates

ESA Funded VoIP over Satellite Development Helps African Telecoms

16th June 2008: World Telecom Labs NV (WTL), a Brussels-based pioneer in VoIP equipment for telecom operators, is using technology developed under ESA's Artes 4 program to assist a number of projects across Africa and the Middle East.

WTL has an excellent track record in providing equipment for voice services using satellite trunking and has over 100 systems deployed around the world. The company's key strength in this area has always been the superior bandwidth-saving capability of WTL's patented NOP (Network Optimisation Protocol).

The Artes 4 contract provided joint funding for a series of developments designed to make WTL equipment perform an even better job for telecom operators wishing to use these emerging low cost satellite services. One aspect of the ESA project was to modify NOP to operate efficiently over DVB-RCS services. The lower price point of DVB-RCS equipment and space segment means that this is of great interest to operators, particularly in the developing world.

For many telecom operators in Africa and the Middle East the largest operational cost is the monthly bill for satellite bandwidth. Using WTL's NOP bandwidth saving technology will typically cut this bill in half without sacrificing quality. Simply put, this technique packs multiple VoIP voice samples into a single IP packet. Because the samples are not modified, quality is unaffected but, on multi-call links, significant savings are made on the packet overhead. Also, since single samples are taken from each active call rather than queuing multiple samples from the same call, delay is not increased.

NOP is available either within WTL's SoIP gateways (a combined SS7-VoIP media and signaling gateway) or the PVx (a server-based network appliance). Because of WTL's switching background, these products can be configured in point to point, star or mesh topologies, and work with SIP or H.323 equipment from most vendors.

Real World Validation

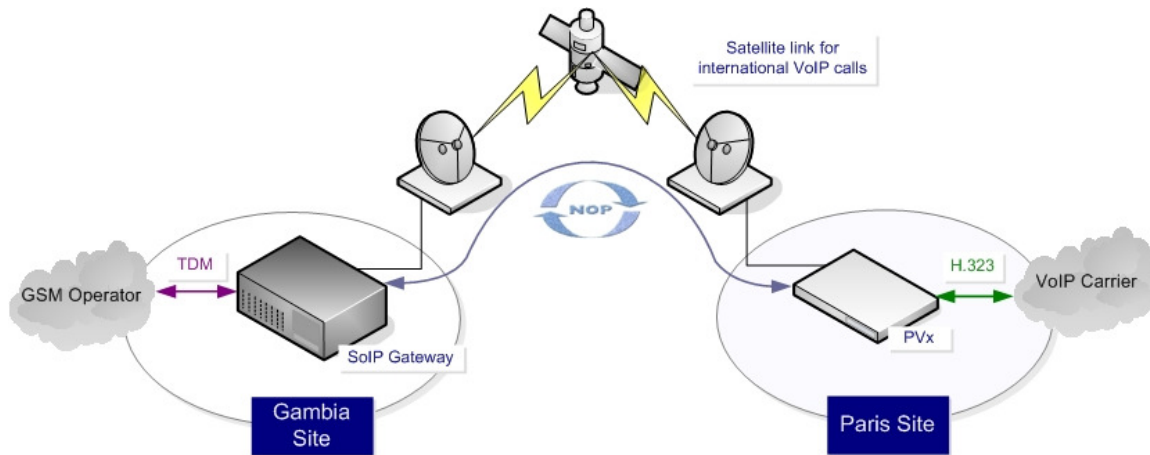
Both ESA and WTL were determined that the Artes 4 project should be clearly focussed on creating commercial benefits. For this reason part of the project involved installing the improved technology in a live customer network.

The client chosen for the pilot was one of the biggest international wholesale VoIP carriers, with a presence in Europe, the Americas, the Middle East and Africa. One of the company's specialities is carrying the international traffic of GSM operators. In a number of locations the traffic is carried via satellite and this has given rise to concerns about the voice quality and the efficiency of transmission.

The first operational link to be used for the pilot was between Gambia and the client's NOC in Paris with a capacity for 360 optimised VoIP calls (equivalent to 12 E1s). The trial was totally successful: the WTL technology demonstrated high voice quality and confirmed that significant bandwidth savings were actually achieved. As a result the pilot was soon followed by deployments in a number of other African locations, with the traffic again being sent to the Paris hub.

Marketing Information

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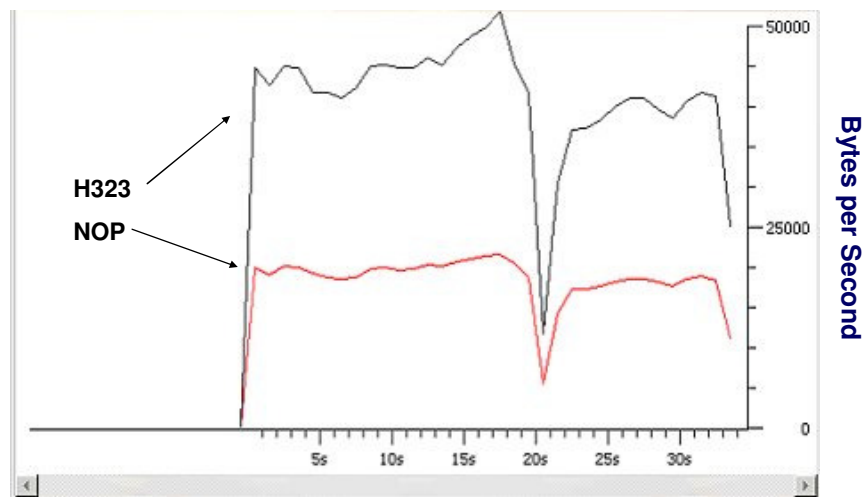
Voice Quality vs. Bandwidth Used

The client's Technical Director commented, "We have tried a number of types of equipment for backhauling traffic, but none has all the elements in the same package like WTL. We have already deployed this solution in many different countries without a problem and the bandwidth savings we are seeing on the satellite capacity are very impressive."

In fact, the NOP not only gives double the capacity of standard VoIP but it also protects the voice quality of the traffic from any underlying problems with the satellite link such as lengthy delay, high jitter or packet loss. Simon Pearson, WTL's Business Development Director explains, "For this installation

we have been able to draw on the improvements that we made to NOP in a recent European Space Agency (ESA) funded project. This allows us almost to do the impossible – in some cases we can save bandwidth and improve the voice quality of VoIP over satellite. We have added features specifically to counteract the common problems of satellite transmission of VoIP, namely variable delay or jitter, long delay and packet loss in busy

NOP uses 50% less bandwidth than H323



Graph of 18 calls, mixed G729 and G723



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contended services. Independent laboratory testing has shown that this can lead to better MOS scores for our NOP than for standard SIP in a satellite environment.”

VoIP in Tough Locations

This client’s business takes them to some difficult locations, so the equipment that they use has to be easy to set up, highly remotely manageable, and reliable in service. WTL products have satisfied these requirements fully. A web-based set up utility, SW Config, is supplied and requires minimal training before an engineer can use it to install the products. Even the usually difficult task of configuring SS7 interfaces for interconnect with local operators in Africa can be achieved relatively simply. “My engineers love the simple set-up of the WTL gear. We did the install and configuration in Gambia on our own, including the SS7 set up,” added the client’s Technical Director, “but if we do need help, the WTL support has always been first class,” he added. All WTL equipment is designed to be totally remotely manageable using a highly optimised, secure, IP-based in-band management channel.

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 signalling 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 information about WTL and its products, please visit www.wtl.be or email sales@wtl.be