Will OPEX overtake CAPEX in the VSAT market?

VSAT networks have become a critical component in communications networks, whether they be for communications on the move, or to serve remote or underserved regions. With the growth in popularity of VSATs, the costs have fallen dramatically, making the initial purchase and installation much more affordable. However, operational costs have remained stable. Alvaro Sanchez, Sales & Marketing Director at Integrasys, reviews the CAPEX vs OPEX fundamentals for VSAT units, and explains how OPEX might be brought back below CAPEX in future.

There is no denying that the introduction of High Throughput Satellites (HTS) has been a real game changer in the Very Small Aperture Terminal (VSAT) market. As well as the obvious technology improvements, the increased bandwidth and spot beam technology has brought about a significant drop in capital expenditure (CAPEX) for VSAT operators, and it's still falling. HTS has enabled VSATs to get both smaller and cheaper to produce. There are also some less obvious expense reductions, such as cheaper shipping costs, and, as they are smaller, lighter, and easier to position and move about, they can be installed by fewer people.

This has led to an exponential growth of VSATs. Remote places on the earth, which were too expensive to connect 10 years ago, now have VSATs popping up all over the place. The obvious users are on the move, but they provide much needed communication to areas such oil and gas, environmental monitoring, e-learning, disaster recovery, and cellular backhaul, to name just a few.

CAPEX vs OPEX
As the cost of the units has come down, the operations expenses (OPEX) have remained constant. VSAT networks will soon have a 50/50 split in terms of CAPEX vs OPEX expenditure. It is likely that CAPEX will continue to fall, but the savings are still not being made by most when it comes to operating costs, therefore before long it will likely cost more to deploy and maintain a VSAT than to buy one.

So, why such high operating costs?
Partly it is about the high demand for VSATs; the rapid expansion means that operators are having to put in more and more networks to cope with the extra demand, and networks are being stretched to accommodate the demand for bandwidth.

Bad installation can of course also increase operating costs, by more than 200 percent of the typical cost. VSATs are more often than not being installed by under-skilled operators, and often the installation is rushed due to time pressures. Of course, this haphazard approach to installation often leads to errors, which other than potentially disrupting other satellite users, costs a lot of money to correct. Having just set up your VSAT, the last thing you want to do is travel all the way back to the
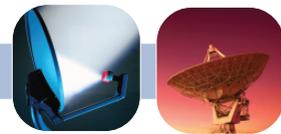
Alvaro Sanchez, Sales & Marketing Director at Integrasys

middle of nowhere because an error during the installation is causing wide spread interference across the whole network, or not functioning correctly, for example.

However, a lot of VSATs are remote, un-monitored, without due diligence or regular maintenance. Additionally, extreme weather conditions severely affect the outdoor unit, so they can and will fail, and only if they are lucky, they won't bring down the entire network when they do. Sadly, though, the first time many operators realise that there is an issue is often once a problem has occurred. Someone will need to travel to multiple sites and correct the problem, adding to the expense of this operation.

Getting smarter

Clearly, the industry needs to get smarter to bring the OPEX down! We need to, first of all, make sure that the installation is carried out properly to avoid any initial errors that then need to be resolved. Secondly, we need to continue to monitor the installation to make sure it's still performing as expected throughout its life, as efficiently and cost-effectively as possible. After all, there will always be elements out of anyone's control like extreme weather conditions, that can alter the telemetry of even the best installed VSATs.

Another thing to take into account is that many VSATs are mobile. The installation may have been perfect, but over time, with the continual movement and satellite switching, you run the risk of misalignments or power

misconfiguration. Personnel that travel with the unit may not have the training to continually realign or reconfigure the unit, but if they do, is it a good use of man power to spend their time re-configuring the VSAT?

As VSAT networks continue to grow, we need to make the jobs of installers and maintainers easier to manage, and ultimately bring down the OPEX; this is even more important with new applications such as the Internet of Things (IoT) and new vehicles being connected. Small, relatively low cost portable devices that can ensure that installation is carried out correctly will, and have, improved the problems caused by bad installations. Our Satmotion Pocket tool has become widely used by the industry to ensure fast, accurate, and efficient installation of VSATs. This goes a long way to eradicating errors at that initial stage and is already having a major impact because preventing is the key.

To really reduce OPEX, however, we need constant monitoring from the Network Operation Centres (NOCs). If the health of all VSATs on the network, regardless of location, is being continually monitored in one central location, the operator can be alerted to any anomalies and can take the necessary steps to resolve. This need is what led us to introduce our Alusat tool, which automatically monitors all VSATs on the network, proactively checking the uplink and downlink health of the units. Operators can determine different thresholds for RX and TX, and the system can act automatically in different circumstances. In, addition, measured values of co-polar power, cross polar isolation, adjacent satellite interference and 1dB compression point for networks with adaptive power adjustment capability can be critically important. Because it is all handled at the NOC, it is really cost-efficient for the service providers.

The smarter we get with monitoring and maintaining VSAT networks, the more we can reduce running costs. It would be great if we could return to a situation where the OPEX is much lower than the CAPEX, with capital savings being matched by operational savings thanks to smarter tools. ∎

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