

# Satellite4All: new technology promises cheap satellite triple-play

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Viable options for satellite rural broadband offers. © Maxim Kazmin

(PhysOrg.com) -- Technology developed by European researchers promises to dramatically lower the costs of satellite bandwidth, potentially bridging the digital divide and enabling satellites to deliver TV, internet and telephony services via satellite. The technical problems are solved, now the research team is working hard on the business case.

Service providers could start offering satellite TV, broadband and voice services for less than €50 thanks to satellite technology innovations by European researchers.

Eurostat estimates that 10% of the European population, or 30m people, are too isolated to be covered by landline broadband services and, so far, no viable solution has presented itself.

Experts hoped that wimax – a long-range version of the wifi wireless technology – would fill the gap, but large WiMax networks are expensive to deploy, and the technology is just beginning to mature.

Satellite services could fill the gap, but in this case, the bandwidth costs are very high. A basic internet service via satellite can cost €150 to €200, way out of reach for the vast majority of users.

But those costs could drop dramatically thanks to the work of European researchers from the IMOSAN project working on integrated multi-layer optimisation in broadband DVB-S2 satellite networks. IMOSAN took advantage of new standards to squeeze more bandwidth from satellite transmissions.

The team also developed components that could offer ‘triple-play’ services – TV, internet and telephony. Finally, they developed optimisation software that could help ensure the best possible service quality in bad weather or during high-demand periods.

## **Impressive technical hurdles**

The EU-funded IMOSAN solved many of the technical hurdles facing widespread satellite adoption for triple-play services. But an equally important element of their task was to prove the business case to make these services viable.

“We had to study the market and examine all possible business models to try and establish a competitive offering for satellite triple-play services,” explains Natassa Anastasiadou, a researcher at IMOSAN responsible for market studies and director of the department of funded programmes at OTEplus.

“The technical advances made by the IMOSAN project mean that

satellite bandwidth is 30% more efficient, but we had to see how that translated into real-world costs for real-world business scenarios,” she relates.

Anastasiadou and colleagues whittled the possible offerings to three scenarios for rural and remote regions.

They first covered residential users in isolated areas, served by a purely two-way satellite solution, enjoying high-end services, including high-definition TV channels. IMOSAN calls this the ‘gold scenario’.

The ‘business scenario’, meanwhile, looked towards isolated areas served by a hybrid satellite-WiFi solution, where the emphasis is put on fast internet access.

Finally, for the ‘basic scenario’ the team looked at delivery to scattered residential users, served by a hybrid satellite-WiMax solution, where a standard triple-play package is provided – similar to common packages provided in urban areas by ADSL technology

“Obviously, the lowest price the IMOSAN provider could charge the end-user for the triple-play service package provided depends strongly on the maximum number of users it can serve with a given investment,” notes Anastasiadou.

## **Going for gold**

The gold service package was designed to fulfil the requirements of residential users in isolated areas and included fast internet access of 1 Mbps download, VoIP services and 13 TV channels (10 standard and 3 high definition).

The analysis showed that this package should be priced monthly at

€147.60 (at least) for the investment to be depreciated over ten years. At that rate, the terminal had to be provided to end-users for free, whereas if the end-user paid for it, the monthly rate came down to €87.50. But an IMOSAN terminal would cost €1,500 against €350 for standard satellite terminals.

The business scenario fared better. The service package envisaged fast internet access of 2 Mbps download, VoIP services and five standard-definition TV channels. It required a monthly rate to be charged to the user/business of €181.30, again over ten years. It included the terminal, and would be competitive with existing services, especially given the very high quality and service standards, as well as the triple-play offer.

The basic package was tied into WiMax technology. WiMax is a long-range, high-speed wireless networking standard that is just beginning to experience large-scale deployment in the USA and the EU. The satellite transmits directly to the WiMax transmitter, which then delivers service to individual customers.

“It is much more cost-effective to offer the service this way,” reveals Anastasiadou. “Every single end-user does not have to get a satellite receiver, which costs over €1,000, but shares the cost of a WiMax station instead which, although currently costing about €10,000, can serve about 300 end-users effectively.”

And as they continue deployment, WiMax receiver prices will probably drop dramatically, making the basic scenario even more cost competitive over time.

## **Europe’s broadband losers**

The IMOSAN basic scenario consisted of seven standard TV channels, 1Mbs internet and VoIP targeted at the largest group still without ADSL

access: scattered residential users in rural areas.

It was the most successful scenario studied by IMOSAN, costing €57.20 with a contention ratio of 30:1. The contention ratio indicates how many users can access a single channel at one time.

At a ratio of 50:1, which is reasonable for residential services, monthly costs would drop to €37 month, which is very competitive with alternatives like standard satellite to individuals.

The work has generated considerable excitement among service providers and satellite operators, with one company currently considering a basic service deployment in Greece, and many others interested.

Through its technical advances, IMOSAN will have an impact on satellite services generally, but its greatest impact could be ensuring that all Europe's citizens have economic access to the internet – one of the most essential services of the information age.

*This is part two of a two-part feature on the IMOSAN project funded by the ICT strand of the EU's Sixth Framework Programme for research.*

*Part 1. Satellites approach the Shannon limit*

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