Newsletter

This is a newsletter issue for SANSA whose main purpose is to present the progress and the up to date results of the project. SANSA is a Horizon 2020 project that aims to improve the operation of the mobile backhaul networks in order to meet the Digital Agenda 2020 for European Union growth requirements.

SANSA vision

We are living the dawn of a new era in wireless communications. New devices and applications are immerging, creating new needs for the network, such as the increase of mobile traffic in combination with the requirement of higher Quality of Service. In addition, the seamless operation between heterogeneous networks in the offering of applications must be ensured.

This is where SANSA comes into play, targeting in providing a novel solution in all these challenges by adopting a reconfigurable hybrid terrestrial-satellite network. Videlicet, SANSA architecture envisages the combination of terrestrial and satellite infrastructure for the backhauling traffic.

The suggested architecture offers many benefits. First of all, a reconfigurable network allows its adjustment according the traffic requirements, avoiding congestion by increasing the capacity without needing new network-wide management plan. In addition, satellite technology helps discharging terrestrial networks from high load. Last but not least, it is easy and not very expensive to add satellite components in a hybrid architecture.

Project facts

SANSA is a 36-month project co-funded by the European Union under the topic ICT-06-2014 of the HORIZON 2020 frame. Regarding the project, it is coordinated by CTTC, a well-balanced European consortium of 7 companies including ViaSat Antenna Systems from Switzerland, SMEs, research centers, Universities and an operator.

Objectives

The main objectives of the project are:

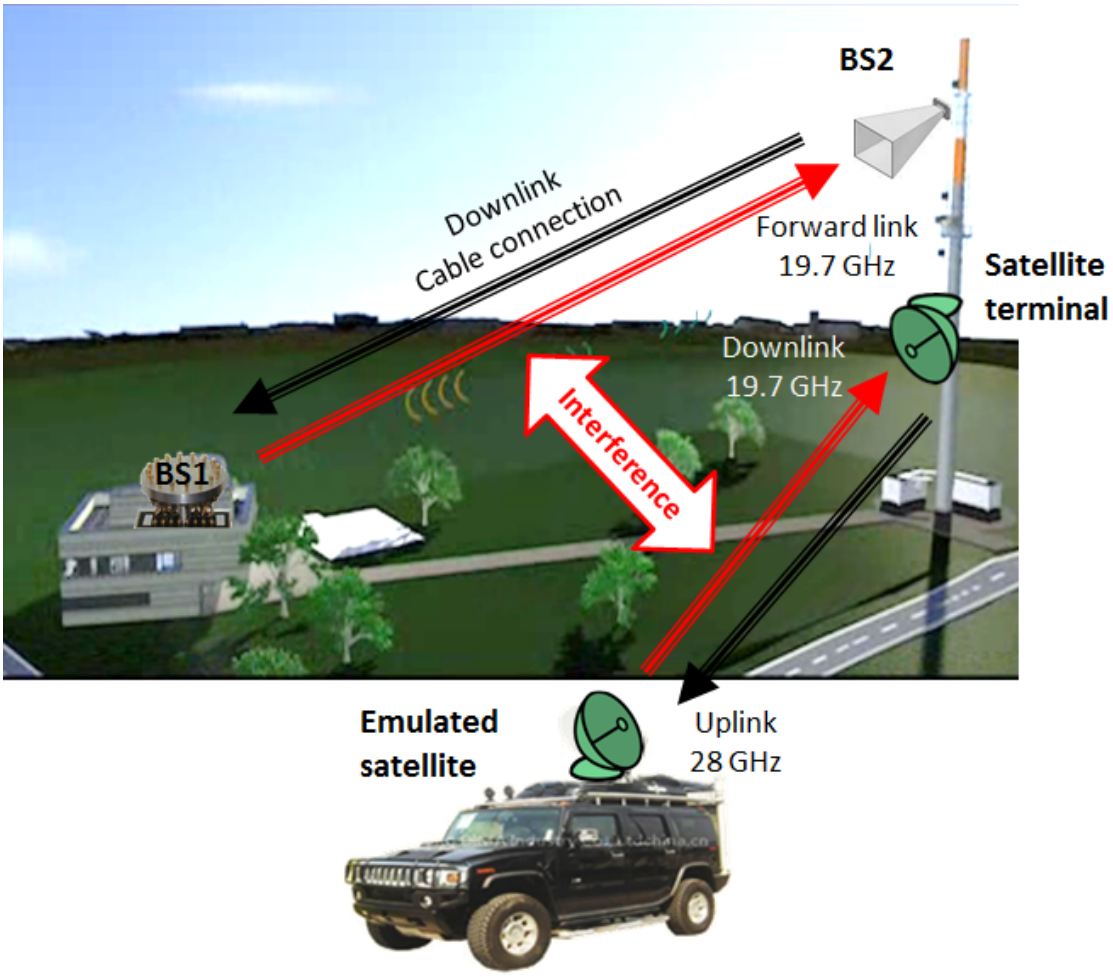
- Backhaul capacity increase: the satellite component enables data off-loading from congested terrestrial network hot spots, which can result in overall capacity increase.
- Backhaul resiliency improvement: routing the traffic to less congested links results not only in a net capacity increase, but also provides the capability of skipping failed links for an improved network resilience.
- Coverage improvement: provides easy and cost efficient network deployment in rural or remote areas.

- Spectrum efficiency improvement: implementing interference management techniques among terrestrial and satellite segments in order to improve the spectrum usage in the microwave region
- Energy consumption reduction: applying energy aware routing algorithms which are capable of reducing the overall energy consumption by setting different network nodes in sleep mode during low demand traffic periods.

Application scenarios

SANSA architecture can be used in cases where the network faces link heavy congestion or link disruption. This gives the ability to the provider to offer reliable services such as 3G/4G mobile internet access and Global Positioning System (GPS) applications avoiding service interruption.

Furthermore, in the unpleasant condition of link failure, the SANSA's proposed hybrid network architecture ensures the service operation by using smart antennas and beamforming which are able to route the data traffic through another path or the satellite link according the network traffic condition. This re-configurability of the network is very important in 3G/4G and in the up-coming 5G services where the provider must ensure the interruption-less communication of the user. A scenario depicting the synergy of satellite to terrestrial backhauling is shown in the underneath figure, where the satellite emulated link is on a car for eliminating possible interference with the terrestrial link.



General results and impact

SANSA outcomes will demonstrate that the satellite segment will become an essential part of mobile networks, and thus of future 5G networks. This will open new business opportunities for European satellite operators generating economic growth of the European satellite sector. In a similar way, SANSA will allow mobile network operators to provide better and faster services to their users which will be translated in increased revenues too. In addition, equipment manufacturers will be able to develop new product lines to address the technological challenges of the hybrid solution, which will also turn in increased revenues. The European society will beneft not only from this economic growth but also from the improved network capacities.

On the scientific side, SANSA will make a significant step forward in fields such as low cost beamforming antennas, radio resource management and network management in hybrid systems, database-assisted shared access, and traffic routing algorithms, among others.

Consortium as a whole

SANSA consortium includes partners with complementary roles based on their individual expertise and strategic goals. These are:

- Centre Tecnologic de Telecomunicacions de Cataluna – CTTC (Spain) as coordinator
- Thales Alenia Space Espana – TAS-E (Spain)
- Universite du Luxembourg – UL (Luxembourg)
- Research and Education Laboratory in Information Technologies – AIT (Greece)
- Avanti Communications LTD (United Kingdom)
- Hellenic Telecommunications Organization – OTE (Greece)
- Fraunhofer – Gesellschaft zur Foerderung der Angewandten Forschung (Germany)
- ViaSat Antenna Systems (Switzerland).

Project website

You could be informed about the project news by visiting the project website http://sansa-h2020.eu. In the website, there are details about the project vision and plan, information about the partners, as well as the work packages and the deliverables.