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Author: Mrs. Paola Andrea Escobari Vargas  
Agencia Boliviana Espacial, Bolivia, paola.escobari@abe.bo

SATELLITE CONSTELLATION FOR 5G IN THE SOUTH AMERICAN REGION

**Abstract**

In South America there are only a few countries with more than 90 percent of mobile coverage in its national territories using 3G and 4G. In some rural areas it is almost impossible a terrestrial deployment of a backbone network for the base stations and an hybrid solution is normally proposed. This solution is composed by a satellite link with a GEO satellite and a base station, but the link delay becomes a problem in certain applications. With the development of 5G and the targeted throughput this solution is not suitable anymore. The aim of this paper is to find a solution for both problems: the coverage and the desired throughput for 5G. In this paper it is proposed a satellite constellation of LEO satellites for the South American Region and the use of already existing GEO satellites will be analysed in order to fulfill the objectives mentioned above. Aiming to design a regional coverage for South America, the cost of the project is reduced and the penetration of more mobile operators in all South American countries will be possible. Also it will provide a solution for a fast 5G mobile technology deployment in South America and the possibility of reaching every nook of South America with a 5G coverage. As the space industry is growing in South America and the existence of more Space Agencies in more South American countries, the project can be supported by not only the governments of these countries but also for private operators, universities and investors.