



## Outcome report

### Emerging Space technology for connectivity

Wednesday 7 July 2021 (15:00 – 16:00 CEST)

Moderator: Irene Sewankambo, Acting Executive Director of the Uganda Communications Commission

Speakers:

- Sergio Bovelli, Head of Spectrum Management Aero-Connectivity, Airbus
- Sergy A. Mummert, Senior Vice President, Global Cloud Sales & Strategic Partnerships, SES Networks
- Ruth Pritchard-Kelly, Senior Advisor for Regulatory Affairs, OneWeb
- Daniel LOSADA, Vice President, International Division, Hughes Network Systems

**Session summary:** This session discussed the challenges and opportunities of space emerging technology for connectivity such as LEO constellations, HAPS and other emerging satellites technology. Panellists discussed how the space emerging technology can contribute to achieving affordable and sustainable Internet connectivity and promote digital transformation of LDCS, LLDCS and SIDS.

#### 1. Main outcomes highlighting the following:

- Daniel Losada discussed a hybrid connectivity solution, where the connectivity is provided to a village or location using satellite and distributed to the population over Wi-Fi. The solution provides low cost service with improvement in throughput compared to previous technologies due to the new advances in the satellite technology both in the ground segment and satellite segment.
- Sergy A. Mummert highlighted that the cloud has been evolving from data centers with powerful computing storage and networking capabilities, to the edge, with small capability of computing and storage to enable applications close to the end user for improved experience. Having the satellite overlay to reach underserved communities is a key strategy.
- Ruth Pritchard-Kelly highlighted that the newest LEOs will require hundreds of satellites because they are much closer to Earth, but that closeness brings low latency (like fibre) and provided a 4G quality connection. They provide alternatives to GEO stationary satellites, which have a large coverage (a single GEO satellite can cover one-third of the globe, e.g., all the Americas) and is efficient for certain kinds of applications and very affordable. However, it does

not necessarily have the fastest two-way connectivity or the broadband needed for the newest Internet applications. For those applications requiring low latency, the LEOs, or maybe balloons or drones or high-altitude platforms in air space, are ideal technologies. LEOs can cover every spot on the globe with services that will be price-competitive with existing services.

- Sergio Bovelli highlighted that HAPS combines the persistence of a satellite with the possibility to fly in a persistent way and keep its position; and provides the flexibility of manned or drone with the possibility to being redeployed, scaled, or adapt to the demand over time. It can be also updated over time to adapt to the needs of the market and the application. HAPS technology does not aim to replace the satellite technology has a market segment where it provides the best mix of performance, cost and flexibility. One of the advantages of HAPS is the possibility to have a flexibility and scalability of the platform for different missions, from relying the networking and providing connectivity to the device directly with base station installed on board the HAPS.

## **2. Main conclusions reached during the discussion:**

- Regulators and Governments around the world have several technologies and can choose the best one or more likely the best combination of several different technologies.
- The number of technologies which are available, to the regulators and administrations, to deploy connectivity infrastructure in the countries is increasing. This gives the possibility to choose the right technology for the right application. There is no perfect technology. Every application or deployment needs a specific technology. In any one country or situation, multiple technologies might be used in tandem: regulators should maintain flexibility that allows for updated technology to be put to good use.
- The network must adapt to be more dynamic in the bandwidth allocation and more consumption-based, with lower latency and higher reliability.
- It is unlikely that the world needs nine or 10 LEO constellations. It is more likely the world will settle on perhaps three.
- Regulations should be designed not tied to a specific technology but with quality of the service as criteria, such as reliability of the connection. Then there are choices from a multitude of technologies to solve the identified problems.
- There are big investments in new satellite technologies and many efforts to bring the cost of services down for connectivity solutions with the new generation of satellites.
- The new technology available on the market, will unlock applications and capabilities which were not possible before. The complementarity of the solutions and the possibility to combine them in order to provide the right set of technology to address connectivity issues is key.

## **3. Panellists contributions to the outcome reports:**

- *Takeaway: please provide one key word and one sentence that most fit the session topic*
  - Diversity of space connectivity solutions
  - Affordability of new space connectivity solutions
  - Affordable: LEOs offer high-speed connections to any spot on the globe, no matter how remote or isolated