

Interactive Presentations (IP)
Topic 11 - Interactive Presentations (11)

Author: Mr. Silver Lodi
SpaceIT, Estonia, silver.lodi@spaceit.eu

MISSION CONTROL AS A SERVICE

Abstract

A crucial part of space missions is efficient and reliable mission control – a set of applications and activities for satellite operations from the point of launch until landing or the end of the mission.

Since the end-to-end solutions which would combine different software applications and human tasks are not widely used, satellite operators still face difficulties in that part of the spacecraft operations today.

Dedicated tailor-made command and control software makes the mission more expensive, limits the coverage of a ground station and does not enable efficient learning and exchange of know-how between different missions, resulting in lower reliability and risk tolerance. The following market gaps have been identified regarding mission controls currently:

- one-off solutions with little scalability (currently the MCS's are developed for each mission from scratch, unsuitable for constellations);
- limited radio coverage (1 ground station enables approx. 1 hour of communication time per day in LEO);
- lack of experience to operate satellites;
- underutilized ground station resource – ground station equipment often spends a larger portion of time unused than actively tracking and communicating with satellites (the utilisation rate is approx. 5-10%).

At the same time, ground stations have:

- unutilized radio communication resource available;
- limited number of customers.

What if to offer Mission Control as a Service? Missions would benefit from its:

- up-to-date technology – MCS runs on a cloud, does not require any special hardware;
- scalability – enabling simultaneous control of multiple satellites and missions;
- wide radio coverage – up to 24/7 by using different ground stations worldwide;
- reliability and security – constantly improved and tested system with 24/7 support;
- efficient budgeting – decrease approx. 40%, mainly on ground control and radio communication costs by outsourcing different activities.

Ground stations would have an open marketplace, including:

- access to a customer base;
- efficient use of resources;

- monetised operations.

Ground communication and operations has not received enough attention so far. There are too many one-off solutions around, not satisfying the needs of space missions. By using Mission Control as a Service, an access to space becomes easier, affordable and more secure.