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FROM APOLLO TO AMAZON – GROUND CONTROL CHANGING

Abstract

The recent announcement of Amazon Web Services Ground Station, a novel service of the enterprise that aims at easy and cost-effective data download from Earth orbiting satellites into its global cloud computing infrastructure by a fully managed network of ground antennas located around the world, has raised major attention in the space community. However, it only marks the latest, logical move of the still emerging New Space industrial branch, which, after capturing the space and transfer segments of astronautics, has shown increasing interest in entering the ground segment. Where established mission operation centers tend to be mired in layers of licensing, regulatory processes, standardization and mission-by-mission operations, new players equipped with self-defined and flexible degrees of freedom could turn out to become real game changers. This especially holds true, if paired with strong motivation and supported by gigantic financial Background. In our paper we focus on ground control, investigating the evolution of spaceflight from the Apollo era to cloud based computing. We find that technological leadership is seemingly not the main element driving disruptive changes in this area. Instead, a solid business model outside the box of classic astronautics and a strong focus on the users of space-borne products might be the key to success. We show the pros and cons of such an approach, also displaying possibilities for classic mission operations and ground control style. On this backdrop, we suggest a change of paradigm towards the de-centralized control of spacecraft to keep abreast of the societal digital transition.