SPACE SYSTEMS SYMPOSIUM (D1)
Cooperative and Robotic Space Systems (6)

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AIRBUS NEW PAYLOAD HOSTING AND END-TO-END MISSION CONCEPTS

Abstract

Airbus develops payload hosting concepts which can be a cost-efficient and fast-track solution to fly payloads on space systems operating in low Earth orbits. One hosting solution is based on the International Space Station (ISS), the Bartolomeo external payload platform, the other on a satellite platform derived from the OneWeb bus customized for plug-and-play accommodation of payloads. Both options become available in early 2019 to commercial and institutional end users. The Bartolomeo facility which will be operated in partnership with ESA and NASA will offer 12 external payload sites on ISS. Through its various payload interfaces Bartolomeo provides a versatile hosting solution for all payloads of 50kg up to 599kg with power up to 800W. Bartolomeo complements ISS with unique features: best viewing in nadir, zenith, limb directions, unpressurized or pressurized launch to ISS, sample return option, and enhanced data downlink capability of 3.75 Terabyte per day. With standardized interfaces definition Bartolomeo offers end-to-end mission integration within 18 months. Payloads benefit directly from the partnership with the ISS program providing frequent access to space with its resupply vehicles. The Smallsat Hosting based on a "Platform as a service" concept enables hosting of standardized nano payloads in the 1U to 27 U range. This project relies on a 180kg class platform of the OneWeb program customized to provide versatile and "last minute" hosting capacities with up to 30x3U "racks" where nano payloads can be plugged in. The satellite offers high power (200W), communication data rates (150 Mbps), lifetime (up to 5yrs) and availability (¿95In both concepts payloads are monitored and controlled from a user ground terminal through convenient software tooling, including a smart gateway with user-defined onboard intelligence, direct web access and an development environment. This paper presents and compares the features of the Bartolomeo and SmallSat solutions for payload mission operations and elaborates the advantages for various different mission types in comparison with the classical satellite mission scenario.