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RAPID, RELIABLE ACCESS TO SPACE VIA SPACECRAFT UNIVERSAL PAYLOAD ADAPTER

Abstract

This paper presents a rapid and standard approach for payload integration and operations. The New Space industry is undergoing a shift from traditional, large and customized satellites to more small, generic and replicable satellites. This new model allows the implementation of standardized processes, especially during assembly, integration and test phases. Two main innovations have enabled their standardization: 1. A structural, mechanically and thermally universal interface that decouples payloads from the platform and enables the re-use of a standard platform for different payloads and CONOPS. Elimination of non-recurrence engineering (customization) and the standardization of the AIT phases yield substantial cost and schedule improvements. 2. Embedded control software for supporting multiple different payloads: the management of data transfer, power resources and communication are centralized into one software interface. These two technologies, currently under development by Loft Orbital, enable integration of any payload to a standard satellite platform and reliable operations on orbit. They drastically reduce production times and AIT phases, share bus resources, and therefore reduce costs. With this, Loft Orbital will prove the effectiveness of this approach as early as 2020 with the launch of their first two missions. Loft Orbital offers a turnkey solution for access to space including: spacecraft production, integration, launch and operation of the satellite infrastructure. The customer bears only the costs of the mission service and not for the infrastructure with faster schedules, lower cost, and greater flexibility.