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LAUNCH.CTRL SOFTWARE BY PRECIOUS PAYLOAD: UNLOCKING ALL SPACE MOBILITY SOLUTIONS

Abstract

The successful execution of space mission management is considered to be one of the most challenging engineering and management tasks in human history. Precious Payload has developed a software suite to streamline launch services and space logistics and make it a commodity. The software suite's key innovation is the ability to decompose the end-user business objectives of a space mission into mission requirements using a common syntax. These requirements can be seamlessly translated into task orders for space industry contractors and regulators, enabling the efficient coordination of data and actions across teams of satellite developers and launch providers.

Launch.ctrl, Precious Payload's flagship software product, is a gateway to all space mobility solutions available on the market, including orbital and suborbital launches, in-space transportation, commercial space platforms, and returnable capsules. During the mission design phase, more than half of the engineering time is spent conducting RFI/RFP (Request For Information/Request For Proposals) cycles to determine the optimal supplier for the mission. However, with Launch.ctrl, the need for such cycles is eliminated, as the software enables the efficient identification of appropriate vendors for each specific mission.

The ultimate goal of Precious Payload's software suite is to enable users to create a digital twin of an asset in orbit to make a space mission management more efficient and less complex. The digital twin would enable greater accuracy and predictability in mission planning, thereby facilitating the optimization of space mission costs.

This paper provides a comprehensive discussion of Precious Payload's software suite and shares practical experiences with various software users in the space industry. The paper highlights the software suite's innovation in streamlining space logistics and reducing the need for lengthy RFI/RFP cycles during mission design. Moreover, this paper analyzes the potential of the software suite to revolutionize space mission management by facilitating economic analysis of all available space mobility solutions, financing, insurance, licensing, and more supporting space mission services.