

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations and Facilities (2)

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A NEW OVERALL NETWORK ARCHITECTURE DESIGN FOR THE LAUNCH VEHICLE SYSTEM

Abstract

Ground overall network is the data center of the launch vehicle system, which construct control network to achieve data transmission and storage, including testing information of control system, remote measuring system, fault detecting system, etc. Overall network also actualizes integrated information processing and communication to C3I system of launching base in the launching process. So, high reliability of the overall network is very important for the aerospace engineering. In the available space model, 4-network-switches frame with redundancy is popular. But, if failure occurrence in the system, the redundancy design ensures that the network system can rework in 5s by the fault switching design. But in special situations such as the manned space flight fault switching time is critical to protect personnel security. In this paper, a new overall network architecture design based on 4-SDH and 4-network-switches frame is present. Base on this frame the fault switching time can be reduced to 1s from 3s to 5s. Which is very critical for some launch vehicle models, such as CZ-7, CZ-5, CZ-11, etc.