NASA SPACE OPERATIONS SYSTEM*

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Abstract

The international and national environment for the conduct of space missions has been changing significantly over the last several years. The changes require that the NASA Space Operations System substantially increase its productivity and reduce the cost of providing space operations services. The NASA Space Operation System consists of all the functions, services, tools, physical elements, and people that NASA uses to do space mission operations. The designers of the System of today optimized the performance for individual missions in the deep space, near Earth, human exploration, and suborbital mission domains. Consequently, there is significant duplication of functions and insufficient interoperability among the networks and mission control centers in the System. Meeting the challenge requires that the System provide data acquisition, space vehicle control, mission operation services, and products with the same ease and reliability as acquiring services and products from a public utility. It should be essentially transparent to the user and the user should get reliable service with minimal knowledge about the details of the System. The System should be scalable. It should adapt to match the capacity and performance requirements of future missions. Appropriate elements of the System should interconnect functionally (not just physically networked) to provide customers a single standardized interface for services such as telemetry or metric tracking. This single service interface is the interface to request services and the interface for data as a result of service execution. This paper describes these characteristics that the NASA Space Operations System should have by about 2010.

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