

SUPAR

(Seamless Uplink Process Architecture and Representation)

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Abstract:

Current uplink architectures, software and procedures have been developed over decades in attempts to cope with missions of ever increasing complexity. The resulting systems have evolved along the path of least resistance which in most cases implies lowest short-term implementation cost. As a consequence the typical uplink system has become badly fragmented, involving a plethora of interfaces and labor-intensive manual checks. Life-cycle costs, system responsiveness and risk have all been adversely impacted by this evolution.

Prior work in sequence automation has resulted in performance enhancements, but it is becoming clear that further improvements will be of increasingly less value unless they are incorporated into an overall, well integrated system. Without such integration low cost missions will only be possible at the expense of mission return.

A new Seamless Uplink Process Architecture and Representation (SUPAR) is being developed to address these problems. The new technology is based upon application of commercial, off-the-shelf, Object Oriented Data Base (OODB) software as the foundation upon which to build what in effect is an Uplink-wide, fully integrated, environment or operating system. The SUPAR system will provide a standardized set of services. These services will be those needed to interface Uplink tools with the system as well as those required to provide for information propagation, access control, configuration management, simultaneous multi-user shared data access, and services supporting inter-processor communication and coordination.

The SUPAR technology is being developed specifically for application to the Uplink process, but its utility will extend throughout the mission operations system. It is also expected that the SUPAR concept will be generally applicable to other complex systems which are in need of non-invasive system integration technology.

This paper describes the current state of the SUPAR development and also describes the relationship of SUPAR to Low Cost Missions.

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