



## Overview

Emergent Space Technologies, Inc. leverages its IT experience to provide ground system solutions that reduce cost and enable the next generation of missions to fly. As part of this charter, Emergent has developed the Universal Planning and Scheduling System (UPASS). UPASS is a multi-mission and multi-purpose planning and scheduling (P&S) system that is well-suited for real-time operations and as a P&S algorithm development environment.

## Planning and Scheduling

UPASS is a 100% service-oriented architecture (SOA) built using open J2EE standards. The P&S engine is one of the core services of UPASS. The engine has the capability to work with any resource, task, and P&S algorithm developed by the customer. The engine can be executed with a schedule or event-based triggers. The engine manages consumable and replenishable resources, priorities, dependencies, task activity execution, and performs conflict recognition, resolution, and notification. Since UPASS is multi-mission and multi-purpose, security features ensure that user permissions are strictly enforced.

## Real-Time Operations

To ensure robust operations, UPASS has a distributed architecture with features that include automatic backups and failover capabilities. With its clustered SOA, UPASS server instances can be added or removed from the system on the fly without reconfiguration to accommodate growing or shrinking computing resource needs. All UPASS capabilities are built as high availability services, where custom services and interfaces can be built on top of to support unique mission needs.

## P&S Algorithm Development

The UPASS product contains an application programming interface (API) for customers to develop their own resource, task, and P&S algorithm objects that can be imported into the system. By using this API, the developers can build the objects without the need to understand the inner workings of UPASS. Additionally, it allows them to develop their objects in an environment that is similar to the operational environment.

