Title: Flight Dynamics Software in a Distributed Network Environment

Authors: J Jeletic (NASA/GSFC), D. Weidow (NASA/GSFC), D. Boland (CSC)

As with all NASA facilities, the announcement of reduced budgets, reduced staffing, and the desire to implement smaller/quicker/cheaper missions has required the Agency's organizations to become more efficient in what they do. The Flight Dynamics Division (FDD) is no exception. Although the flexibility and high quality products and services provided in the past have been the major reason for the FDD's success, today's business climate has changed. The FDD now finds itself in direct competition with other government agencies and private industry to provide efficient flight dynamics services and products to the user community. The FDD, in response to this new business climate, is making significant strides to maintain the quality and flexibility of the services and products available while significantly reducing the cost and cycle time associated with this support.

This effort is characterized by the following objectives:

1. Continue to provide quality flight dynamics services and products.

2. Reduce software development costs, software maintenance costs, and software development cycle time through common approaches, common software, and strict adherence to standards across flight dynamics applications.

3. Reduce operations costs through automation and streamlined work flow.

4. Expand customer base to offer flight dynamics services and products to government, industry, and university customers world wide.

5. Maximize the use of distributed systems concepts and open systems technologies to provide configurable and flexible system solutions to our customers.

To accomplish these objectives, the FDD has initiated the development of the Flight Dynamics Distributed System (FDDS). The underlying philosophy of FDDS is to build an integrated system that breaks down the traditional barriers of attitude, mission planning, and navigation support software to provide a uniform approach to flight dynamics applications. Through the application of open systems concepts and state-of-the-art technologies, including object-oriented specification concepts, object-oriented software, and common user interface, communications, data management, and executive services, the FDD will reengineer most of it's six million lines of code. The FDDS will allow flight

dynamics applications to be quickly and efficiently configured into systems, large and small, and customized to satisfy the needs of the customer being supported. These systems will reside within a transportable workstation based environment, allowing flight dynamics services and products to be provided through the Flight Dynamics Facility (FDF) or from within the control center environment by physically locating the systems and their operation at the customer site.

FLIGHT MECHANICS/ESTIMATION THEORY SYMPOSIUM

MAY 16-18, 1995

SESSION 5