NASA TECH BRIEF
Goddard Space Flight Center

System/360 Computer Assisted Network Scheduling (CANS) System

The problem:

Efficient, effective scheduling and operational control of the world-wide Manned Space Flight Network (MSFN) from a Central Control Center is a difficult, complicated task. The increasing number of missions, simulations, and tests necessary for manned and unmanned satellites, plus longer and more complex missions, cause an increasing network scheduling problem. As requirements increase, possibilities of conflicts in the need for equipment at network facilities also increase. As space flight activity has increased in duration and complexity and as required Network Management response time for mission planning, scheduling, and schedule modification has decreased, effective centralized operation control of the network in a strictly manual environment has become more difficult.

The solution:

Computer assisted scheduling techniques that produce conflict-free and efficient schedules have been developed and implemented to meet the needs of the Manned Space Flight Network. The CANS program (Computer Assisted Network Scheduling System) assists MSFN Operations Center personnel to perform the functions of MSFN scheduling, rescheduling, and operation control.

How it's done:

The major purpose of the CANS system is to provide efficient, effective management of resources in a complex scheduling environment. The system is an automated resource scheduling, controlling, planning, simulation, information storage and retrieval management tool. The system stores, in computer files, resources available for scheduling, accepts and analyzes requests or demands for use of resources, matches resources with demands (using user specified times and priorities), and produces conflict-free schedules for the time periods specified by the user. Conflict analysis is provided for requested events that cannot be scheduled due to resource conflict.

This is a general purpose program and can be adapted to assist management in solving planning, controlling, and conflict-free scheduling problems in a complex resource scheduling environment.

Notes:

1. This program was written in FORTRAN IV and ASSEMBLER for operation on an IBM-360 (MVT), under either a time sharing mode using remote terminals or under OS/360 as a batch job.
2. Inquiries concerning this program should be directed to:

    COSMIC
    112 Barrow Hall
    University of Georgia
    Athens, Georgia 30601
    Reference: GSC-10909

Source: Andrew C. Brewer of
IBM Corp.
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