



Consolidated Air Mobility Planning System (CAMPS): An Air Mobility Planning and Scheduling System

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In support of the U.S. Air Force's Air Mobility Command (AMC), the ORNL Center for Transportation Analysis (CTA) has developed a suite of air mobility (airlift and air refueling) planning, scheduling, and analysis tools. Following several attempts to develop scheduling tools using "in house" resources and commercial contractors, the Air Force formed a partnership with ORNL to address the challenge. ORNL's support for the Military Airlift Command (MAC) began in 1986, and ORNL has continued to support the project through 2008.

The system was originally known as ADANS—the "Airlift Deployment Analysis System." In 1992, the Military Airlift Command was replaced by the Air Mobility Command (AMC), and the system was renamed to the "AMC Deployment Analysis System"—ADANS. In 1996 the name of the system was changed from ADANS to CAMPS—the "Consolidated Air Mobility Planning System."



The first component of CAMPS was made operational in 1990. That component planned and scheduled



Channel airlift missions—missions which are scheduled on a monthly basis and operate over the same routes on a regular basis. Later that year, the Contingency Planning component of CAMPS was quickly put into operation seven months ahead of schedule—to support the scheduling of Operations Desert Shield and Desert Storm. Other components were added over the next six years. In 1996, the initial development of CAMPS was concluded and primary maintenance responsibility was turned over to a commercial contractor.

CAMPS has continued to evolve and improve. ORNL has remained involved in the CAMPS development, particularly in the area of automated planning and scheduling, and the advancement of CAMPS into a system using Web services for connectivity between the client and server components.

The CAMPS System

CAMPS consists of a Windows client PC program, a set of Web and application servers, and an Oracle database management system. There are a host of planning and scheduling components that are part of the overall CAMPS program:

- scheduling of missions that are repeatedly flown—similar to an airline (Channel missions);
- Special Assignment Airlift Missions (SAAMs)—where every mission is unique;
- Exercise missions—some of which actually fly and some of which are for “paper” exercises; and
- Air Refueling (AR) missions which provide aerial refueling to other missions and Contingency missions (which support “wartime” operations).

One of the goals of CAMPS was to build an integrated planning and scheduling system—not a set of disconnected systems each of which operated differently. Another major goal was to have a system that could transition from “peacetime” scheduling to “wartime” scheduling easily—since both sets of functions were to be accomplished with the same system and done in a similar manner.

CAMPS Development

In recent years, AMC has looked to ORNL to lead the project from one which used tightly coupled connections between the client and the database to a project which uses more Web



services for database connectivity and more Web applications to replace some client functions. This transition helps CAMPS move into a global environment—where the system is used not only at HQ AMC’s Tanker Airlift Control Center (TACC) at Scott AFB, but it is also used in the CENTCOM theater for planning and scheduling wartime missions overseas. ORNL has continued to improve the capabilities to do automated scheduling of missions—based on a host of criteria that the planner can model with CAMPS. ORNL has also developed a set of Web-service based interfaces with the Joint Operation Planning and Execution System (JOPES)—whereby a CAMPS user can request an OPLAN from JOPES, and CAMPS will automatically retrieve the appropriate data using Web services, and then load the data into CAMPS for subsequent scheduling.

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