Divide and Conquer: Improving Post-Flight Data Processing

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ABSTRACT

This paper describes Dryden Flight Research Center's (DFRC's) transition from a mainframe-oriented post-flight data processing system, heavily dependent upon manual operation and scheduling, to a modern, distributed, highly automated system. After developing requirements and a concept development plan, DFRC replaced one multiple-CPU mainframe with five specialized servers, distributing the processing workload and separating functions. Access to flight data was improved by buying and building client server automated retrieval software that takes advantage of the local area network, and by providing over 500 gigabytes of on-line archival storage space. Engineering customers see improved access times and continuous availability (7-days per week, 24-hours per day) of flight research data. A significant reduction in computer operator workload was achieved, and minimal computer operator intervention is now required for flight data retrieval operations. This new post-flight system architecture was designed and built to provide flexibility, extensibility and cost-effective upgradeability. Almost two years of successful operation have proven the viability of the system. Future improvements will focus on decreasing the elapsed time between raw data capture and engineering unit data archival, increasing the on-line archival storage capacity, and decreasing the automated data retrieval response time.