

Continuing to Improve Telemetry Data Accessibility

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Abstract—Mission operations personnel require decommutation, plotting, and statistical software to perform ad-hoc data analysis on archived telemetry data to ensure mission integrity and normality. Therefore, our goal is to provide software solutions to assist in telemetry accessibility. In this paper, we describe our continuing efforts to improve telemetry data accessibility by enhancing the Second Level Archive, as presented in SMC-IT 2006, simplifying the data analysis process and improving the plotting performance.

Index Terms—telemetry, archive, MATLAB, relational database, web application

I. INTRODUCTION

IN SMC-IT 2006, we presented a Second Level Archive system that stored selected decommutated values of critical telemetry points to a relational database with a web-based user interface to provide for a single point of access to the data and to a suite of software tools. We continued the improvement of the telemetry data accessibility by enhancing the Second Level Archive, simplifying the data analysis process and improving the plotting performance.

II. DESCRIPTION OF THE SYSTEM

A. Legacy System

Our legacy telemetry data trending system includes four stand-alone software applications running on two operation systems, which makes ad-hoc data analysis on archived telemetry data difficult for mission operations personnel (Fig. 1).

B. New System

Our new system contains a short term archive which contains 60 days of decommutated critical data and a long term archive which contains hourly averages of the critical data since the launch of the mission.

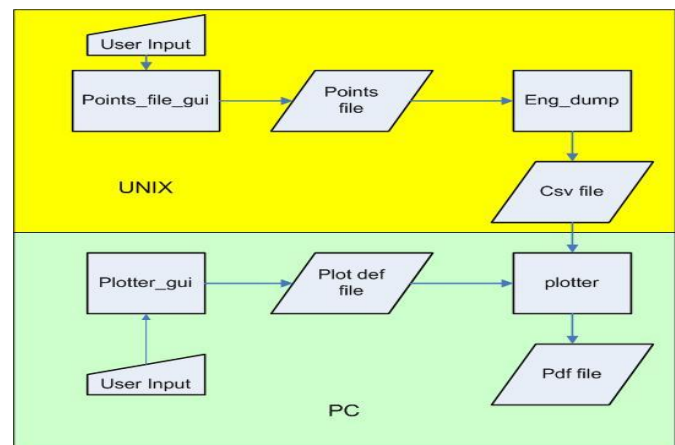


Fig 1. Legacy Trending System

The web interface allows the user to select from either the short or long term Second Level Archive or from the Primary Archive data source. We developed a new web-based plotting tool that uses a MATLAB embedded Java server to produce plots of user-specified telemetry.

II. IMPACT/BENEFITS FOR SPACE SYSTEMS

The new system provides a sleek user friendly interface to the most commonly used software tools used by the mission engineers. It also improves the plotting speed by a factor of 10 when compared to our legacy plotting tool. It allows the user to store and retrieve their selected configurations, including data source, telemetry points, time ranges, time orders and plotting options. The use of MATLAB expands the user base from MOPS personnel to sub-system engineers, who already use MATLAB as their data analysis extensively.

III. FUTURE WORK

We intend to enhance the system to automate the daily and long term plotting process, which has been, up to this point, performed manually by mission operations. We would also like to investigate real-time telemetry plotting.

REFERENCES

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