An Evaluation of Protocol Enhancing Proxies and File Transport Protocols for Satellite Communication

NASA is utilizing Global Hawk aircraft in high-altitude, long duration Earth science missions. Communications with the onboard research equipment and sensors (the science payload) is via Ku-Band radio utilizing satellites in geostationary orbits. All payload communications use standard Internet Protocols and routing, and much of the data to be transferred is comprised of very large files. The science community is interested in fully utilizing these communication links to retrieve data as quickly and reliably as possible. A test bed was developed at NASA Ames to evaluate modern transport protocols as well as Protocol Enhancing Proxies (PEPs) to determine what tools best fit the needs of the science community. This paper describes the test bed used, the protocols, the PEPs that were evaluated, the particular tests performed and the results and conclusions.

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