Dissemination of DCS Messages (GTS or other means)

Summary and Purpose of Document

To provide an update on the assessment of DCP data
the DAPS via the INTERNET (GTS or other means)

Action Requested: None

UTILIZING THE INTERNET TO COLLECT DCS DATA

Introduction

There are several methods to collect DCS data from the Wallops Command and Data Acquisition Station. The traditional methods included connections to the Station via asynchronous telephone circuits, re-transmission of data through a leased spacecraft, and dedicated land lines. With the advent of the internet, we have explore the possibilities of distributing data via the Internet.

Development and Operation

To that end, we have evolved through several generations of development. Initially, the CDA was asked by the Satellite Telemetry Interagency Working Group (STIWG) to "take a look" at the possibilities of internet distribution. As a response to this a spare Micro-VAX computer was commissioned for the job. The results were a Beta test that allowed some of the DCS users to gain access to the prime DAPS computers for retrieval of data and updating of their assigned data bases. This test continued for several months, after which, the system was opened for the entire user community. This was widely accepted and, subsequently led to more advances that were driven by the user community.

One drawback to the original system was that only six users could access the system at a time. The next generation rectified this. Building on the knowledge that had been gained, we looked at the possibility of terminating services on the Micro-VAX and installing dedicated hardware in the Data General systems to directly serve the users. This would remove the standalone system and integrate the internet services within the DAPS. Three Data General TCP/IP boards were purchased that would provide up to sixteen dedicated consoles on each board. As part of this configuration, each DAPS system was set up with identical IP addresses. The logic here was to provide a Internet back up in the case of a system failover. As part of this setup the users were allowed to used the same software when they interfaced with the system through the web as they would if they had dialed-in.

We did face one challenge in this configuration. The users could connect through a virtual console with little problems. However, if they did not disconnect properly they would leave the CDA console "hanging". This meant that operator intervention was required to restore the console.

To solve this challenge new Intelligent LAN Controller boards were acquired. This allowed each user to have his own dedicated consoles. Therefore, if a session was terminated improperly, the system would close the session at the CDA. This has been a grest aid to the CDA operations. The current boards will handle 128 continuous sessions.

In order to provide security for the system, a firewall was installed. This firewall is an NT machine which is running Check-Point firewall software. We have two types of users. The first, are those who always use a dedicated workstation. For these users we ascertain the IP address of their workstation and enter that into the authentication tables of the firewall. Therefore, when a packet arrives at the CDA from the workstation, the firewall will strip the IP and compare it with the table. If there is a match the user is allowed access to DAPS. The second method allows global access. The user is given a username/password sequence which will allow that user to sign on to the firewall NT. Then, if this is successful, they are passed to the DAPS computer.

Future Improvements

On the horizon, we plan to replace what we have now with a new system. This system will allow push, pull and FTP of data. The push technique has been partially developed through a contract with the USGS. This system called the LRGS can receive the data via the Domsat spacecraft and make the data available on the web. We at the CDA have installed such a system to provide backup. "Pushing" data means that when the data arrives and is processed, it is sent to the owner. On the other hand, "pulling" data entails logging on the system and making a specific data request. Then it is sent. Finally, FTP entails the processing of scripts that collect the requested data and forwards the results to the owner in a single block.

All of these enhancements are included in the next generation. We feel that the evolution will continue and plan to be a part of it.