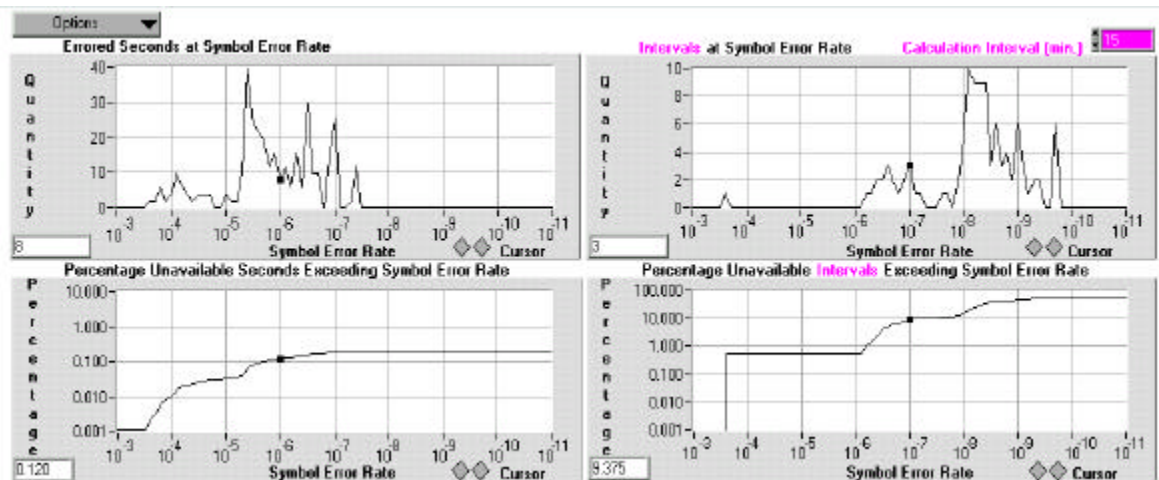


The Problem:

A company had developed hardware for the testing of cable television forward and return hybrid fiber-coax plants for transient impairments. Such testing is necessary to determine requirements for high speed data transmission (i.e. cable modems). The size of each daily data file ranged from 10MB to many 100's of MB. The size of and the number of data files posed an analysis problem. Software was required that would allow a user to simply select which days, weeks, or months of data to analyze and then to present the information graphically. The software also had to have the capability of allowing a user to easily progress from a high level view of all data collected to a very detailed view of a single transient event that may have lasted only microseconds.

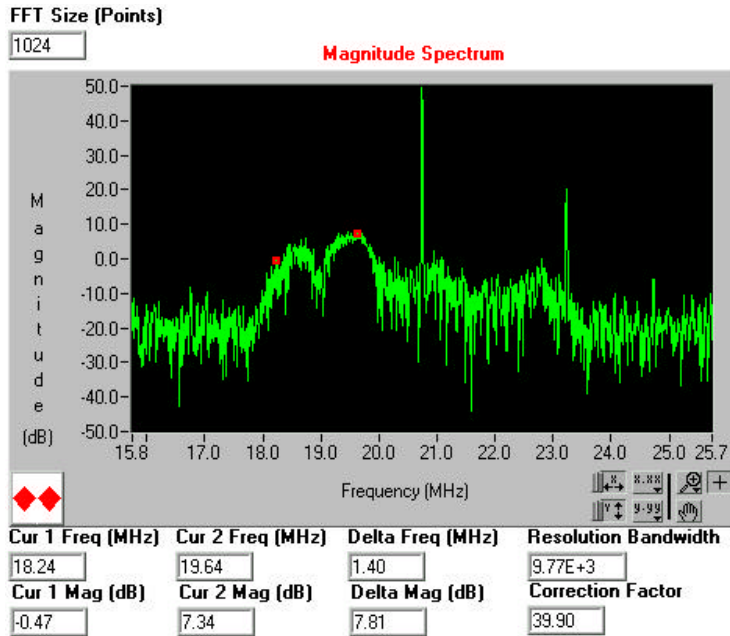
The Solution:

LabVIEW software from National Instruments was chosen as the language to develop the program for several reasons. One, LabVIEW's statistical and digital signal analysis features would be used at several layers of the program. Two, graphical user interfaces with charts, graphs, buttons, and pull down menus are very easy to implement. Three, though the original data acquisition software and the analysis software was developed on the Sun Unix platform, the goal was to eventually port all software to a computer running Windows NT. The ease of porting LabVIEW applications across different hardware/software platforms made this a simple task.



The analysis program has three main levels. The first level shows summary information from days, weeks, or months of data collection. It also gives the user the ability to select for further analysis, data on a daily basis.

The daily view then gives the user the ability to select data based on time of day with a one-minute resolution. The last level then shows each transient event as captured by the data acquisition hardware. Each event typically contains 500 microseconds of high-speed data which is viewable in both time and frequency domains. The program has proved to be very valuable for those cable television plants planning to provide high speed internet access to homes across the country.



Hardware Used:

Software Used:
National Instruments LabVIEW