

## INTRODUCTION

An experimental firewall, named Cellblock, that emerged at the Laboratory for Telecommunications Science during the past year required a user-friendly GUI (Graphical User Interface). The Java based GUI named Firestarter was created for the purpose of allowing users to easily administer and configure the settings which are read into the FCP (Firewall Control Program).

## TECHNICAL SUBJECTS LEARNED

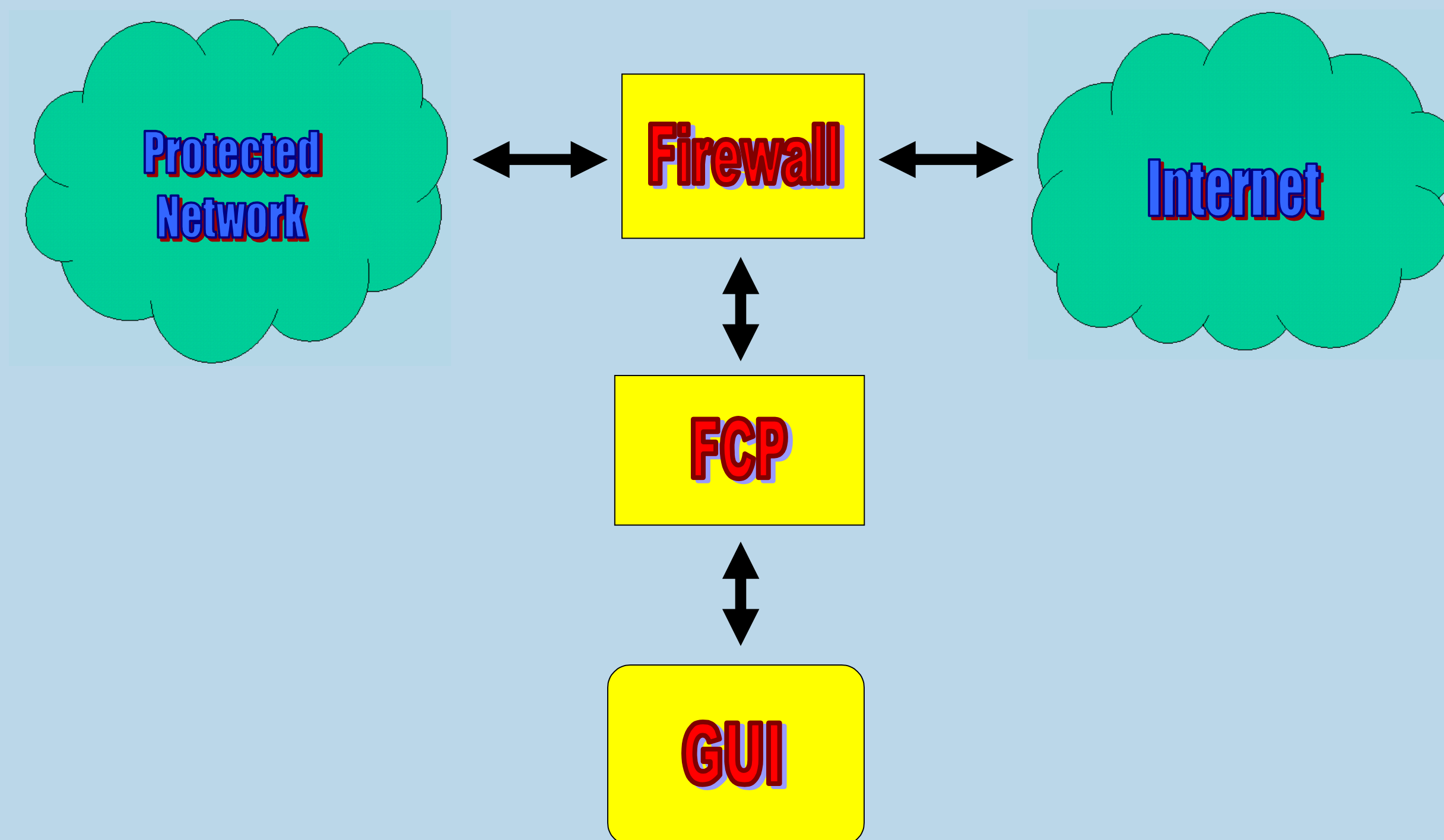
- Networks
- TCP/IP
- IP Security
- Java Programming Including Swing
- Multithreading
- UNIX Signaling
- Voice over IP

## SUMMARY

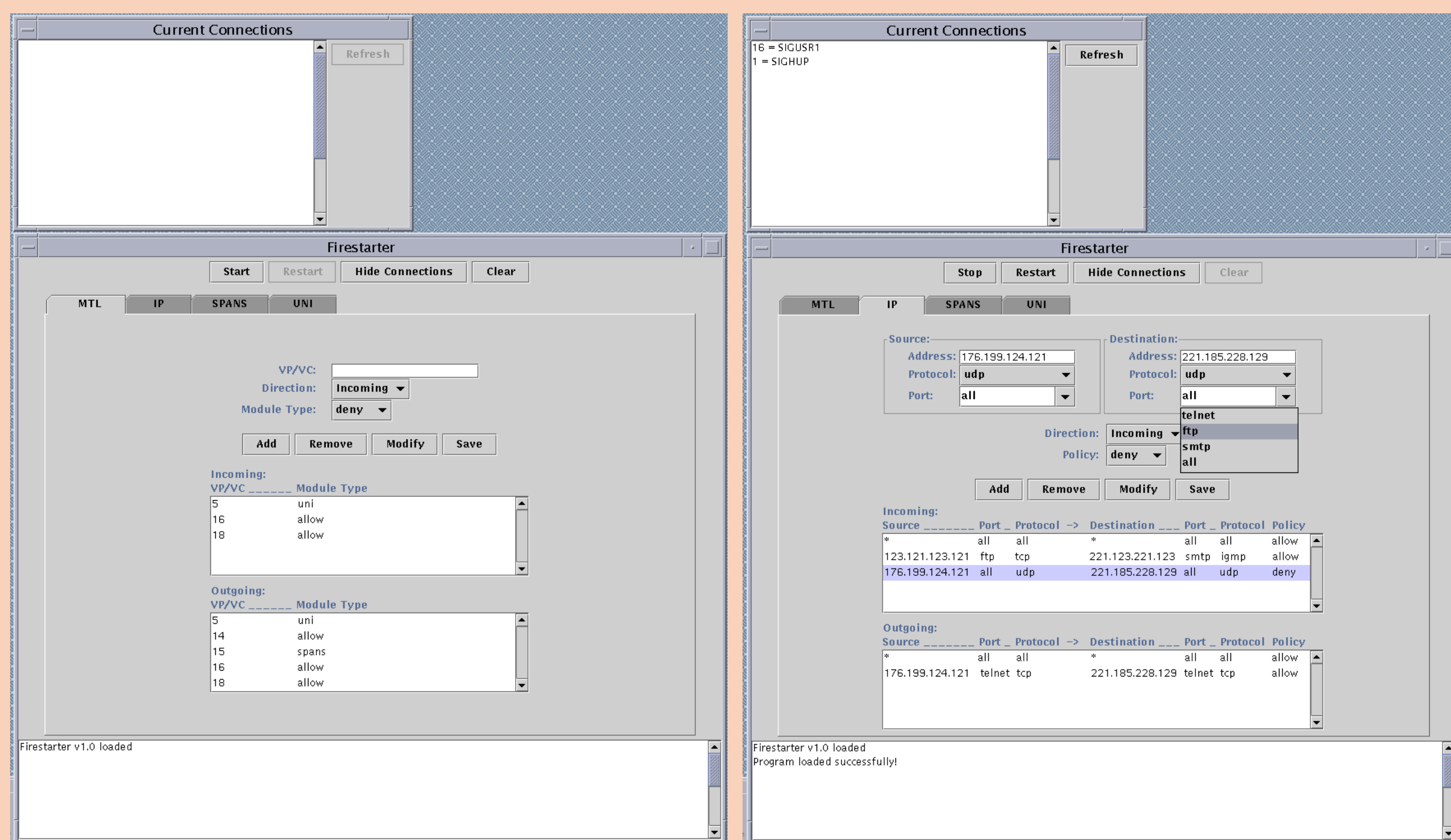
Project Cellblock was developed based upon the need for a fast and efficient method of packet filtering. A single card acts as the firewall. The card is controlled by a piece of software that runs on a control terminal. The FCP (Firewall Control Program) is used to load the configuration settings into the network card where they thereafter reside in memory for fast access.

Cellblock was not complete without an easy-to-use GUI (Graphical User Interface) that configures the firewall settings, controls the startup and shutdown sequences of the FCP and displays the output generated from packets traversing the firewall. The project Firestarter was created as a result. The GUI, shown below, was created in Java using an advanced platform called "Swing". Firestarter uses UNIX signals sent by the "KILL" command to tell the FCP to startup, shutdown, or restart itself. The buttons at the top of the window perform these commands. It was necessary to implement multithreading in Firestarter so that the user could configure the firewall settings while displaying the current output of the FCP from the standard out stream. When pressed, the "Show Connections" button will display a new window with the current connections to the firewall listed inside. The listing comes from the error stream of the FCP. The user may refresh the listing by pressing the "Refresh" button in the "Current Connections" window. Firestarter generates the initial configuration listing by reading in the Cellblock initialization files. After altering the list, the user may save the configuration to disk using the "Save" button and then commit the configuration to the firewall by pressing the "Restart" button.

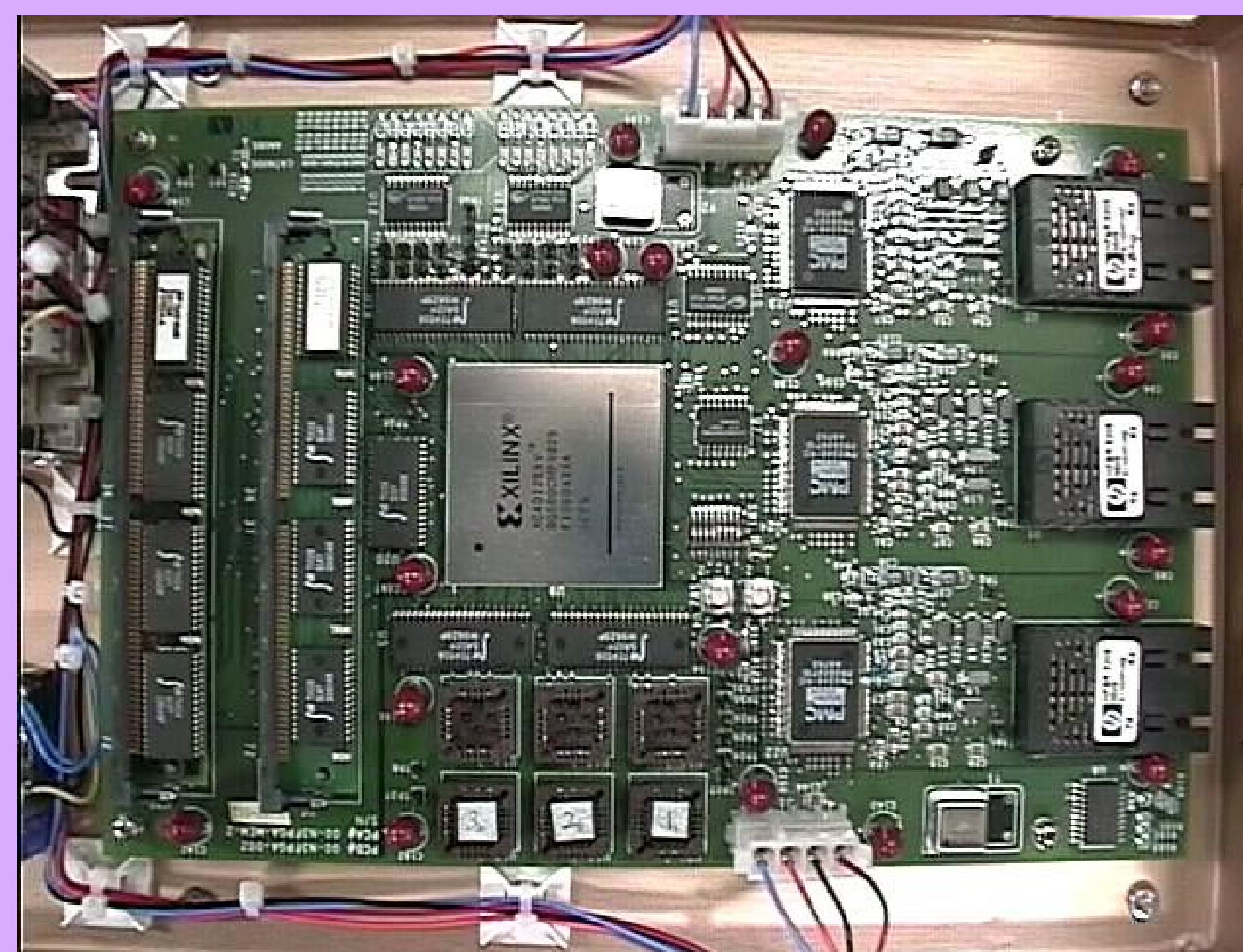
Currently, Firestarter is running as it should without any problems. Of the users currently in possession of the GUI, David Hoffmeister has deemed it to be very useful and user-friendly.



## FIRESTARTER GRAPHICAL USER INTERFACE



## FIREWALL CARD



Outgoing/  
Incoming

FCP

Incoming/  
Outgoing