IT Management

Manage Computers Over a Network

Implementation, Integration, and Testing

SE 353

December 9th , 2021

Spencer Seim, Cory Thatcher, Nikolas Pensyl

Advisor: Dr. Khadka

**Introduction:**

Our software has come a long way and has had many additions and changes implemented since our phase 2. During this time a lot of time was put into research about being able to login to a user's computer remotely. We decided to go with SSH and SCP as they are somewhat easy to understand and implement into c++ code. We have been able to login to someone's computer remotely and send/use commands to perform various tasks. Like we stated in our functional requirements we are able to access another computer remotely. We are able to transfer files remotely between computers and scan the hardware and software present on them. Essentially we were able to meet all of our top priority requirements. As far as medium priority requirements we were able to add a blacklist system in order to blacklist certain IPs from being scanned. We have a fully functional login page which will remember credentials. We also added a way for the user to select time scan intervals if they would like to scan every certain amount of time.

With our very first initial design we wanted to create a database system, but decided to include everything into the User interface to make it easier to use and navigate for the user. We created a way for once the network is scanned it will provide the IPs into a list and create a button for each listed IP. This allows the users to use our dropdown command option and select what computer they would like to perform the action on. Overall our program is located under a pretty easy to use user interface which allows the user to perform a lot of tasks that a normal IT personal would need to perform in order to provide assistance and gain knowledge about the computers located on the network.

**Overview:**

To build our software we created a start widget class using QT so we could provide a user-friendly user interface. In the .h file we define all of the methods that we will be using in our program as well as the features that will be defining the actual widget interface.In our startwidget.cpp file is where the bulk of the code will be located and defining all of our methods included in the program. We start off by defining the start widget and what tabs will be located on the user interface. The text setting method sets the input fields in the settings tab and saves the actual input without it changing. We then have our rescan method which will restart the program and rescan the network, providing a new list of IPs for the user. The changeLogin method is a method to store the user's login credentials. When the user clicks the change login the new info will be stored for the users next login. We then have the changeInterval method which changes the time interval between each scan. The message method takes an input and is able to display a popup notifying the user of the message. Our main setting method sets up the layout for the entire settings tab of our program.

The registerIP method is able to validate an IP when the register IP button is clicked and adds it to the active list. We then have a reName method in order to rename an IP to something other than just the numbers. Our to\_IP method is a complicated method as it makes sure an IP address is actually the correct length and converts it into one continuous string. We have a blackList method which is able to blacklist a certain IP that is entered, hiding it from the next scan. We have a CompbyIP method which sets up the list of IPs and creates a button for each specific IP. We have a runAll method which is able to run the selected command for all of the IPs listed in the computers tab. We have a login method which is in charge of the login page at the beginning of the UI. We have a method to validate the interval scan set by the user called validateIntervalScan. We have a loggerIn method which is in charge of computing the logic for when someone enters something wrong into the login page.We have a method called execut which executes a command on the specific IP button that was pressed. We have a scanLan method which scans the actual network for computers connected to it and supply a non duplicated IP for each computer. We have a method called SCP which allows the user to transfer files from the main computer to a specific IP.