Capstone Project Status

ITOptics - SnapShot

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Part 1: Project Status

Our capstone project has been going really well. The initial goal was to develop a single web application that would gather the KPIs of our customers' client-premise equipment and display them in a uniform interface, regardless of the manufacture used. We spent a couple of weeks researching and gathering information on how to complete the project best and deliver a web application that the customer could use and build off of for future use. Initially, we had hoped to have enough time to integrate more than one manufacturer into the interface so we could learn how to gather KPIs through different methods such as fetch API and command line scripting. Still, due to the learning curve of understanding the customer's existing system, we ended up having to focus on one manufacturer. We still kept the same approach of keeping the backend separate from the front end so that in the future more development can occur and bring more functionality.

Currently, we have the first phase of the web application operational. It is integrated into the customer’s office management system and the application will launch with the click of a link. The major functionality of the application is working as expected. When a request for data is made from the client end, the application pulls the relevant data from their server and populates the web interface for them to view. At this moment, we are working to polish the interface and add any relevant data that may be needed by the client.

Putting this project together was a team effort. Emmanuel Salcedo has been focusing on getting the back-end operation and working as intended. He has come across some hurdles such as CORS security issues when attempting to call API from one web browser to another. He

came up with a great solution in creating a Python server to handle the fetch request from the client server and then pushing the data in a JSON format so the front end can parse and display the data. He also created a graph that populates the data in an easily ready format.

Christian Rodriguez has focused on bringing our vision to reality. He worked on creating the layout for the front using Illustrator which helped us decide on the overall view. He's worked on getting all the data displayed in a professional view while adding the logic to data to help users interpret what may be issues that need to be addressed., I have been working as the project manager keeping the team on track and working with the client directly. I also was responsible for integrating the web application into the client's network.

Part II Testing

The target audience for this project is for support technicians in the fixed wireless access industry. Though many that work in this industry have a high level of technical understanding, customer support technicians tend to be an entry level position and people that do not have a good understanding of the technology and have to learn on the job. Our project needs to be able to reach both ends of the knowledge spectrum and be useful to both.

The client we have been working with, OACYS Technology, has two levels of support technicians. We will have Sofie and Brenda from the level 1 team, they are the front line for customer support. Sofie has just over one year of work experience and Brenda has 3 years. Daniel and Sergio are part of the level 2 support team that will also join us for testing. Sergio has 8 years of work experience and Daniel just completed his 1th year. This group has both less experienced personnel and experienced personnel, which should help get different points of view on the project.

For testing, one of the first task is going to be, can they launch the program from their current office management system. One of the goals of this project was to add the application and make it easy to use so that we do not disrupt their existing workflow. If the application wasn't simple to launch, then there is less of a chance they would remember to use the

software. Another task that we are going to perform is, are they able to find the customer data pulled from their office management system. We want to confirm we've made the interface easy to read and not over stimulating with information. That can cause people to miss data on the page and slow down their work flow rather than improve it. Lastly, we like to see if the customer on premise equipment KPI's make sense and correctly showcasing them in a way that makes identifying issues quickly. In working with the client, they had a list of KPIs the review during a troubleshooting event, so if we did not gather all their requirements, then we have missed our target.

For the testing, I met with all 4 participants to trial the application. Christian Rodriguez was able to join via zoom to watch and see the responses from the test group. For the first tester, Sofie, she went through the process of stepping through a troubleshoot call as they normally would do. Then, she repeated the process but this time using SnapShot. The application launched for her and began populating data. After completing the first task, I asked her some questions about the data to see if she could locate that on her screen. This tested whether the interface was overly complicated or simple to read. She was able to give me the customer name and speedpack of the customer account she was working on. Lastly, I asked if the data showed any issues such as unplugged cable or low signal. Sofie let me know she was able to quickly see that those KPIs were labeled and color coded green, which meant everything was good.

Next for the testing, I had Sergio access another customer account and run SnapShot. He was able to load the application and see the KPIs for the client's on premise equipment. For this specific client, I asked Sergio if he could tell me how much speed is the equipment pulling from the network. He stated he saw the graph show 22.543Mbps. I had him access the equipment to confirm that data was accurate, which he was able to confirm. For the 3 tasks we were having the testers run through,each one was able to complete all three without issues.

After conducting the testing, I inquired about the group's opinions on the application. Brenda expressed her satisfaction with the application loading with just a single click and not requiring users to log into the equipment, which streamlined the workflow by eliminating about 3 steps. Daniel remarked that he found the interface to be well-organized, with the signal level, traffic levels, and uptime arranged from left to right, matching the pattern they follow when reviewing an account. They typically assess the signal levels, network traffic levels, and then equipment uptime to identify any issues. Overall, the application received a positive response due to our successful fulfillment of their initial request.

After reviewing the project, there were suggestions and improvement requests. Daniel suggested that the title for the data points should be positioned above the data, as he is accustomed to seeing the label above and the data point below, which initially caused some confusion for him. Sergio requested the inclusion of the customers' on-premise equipment frequency plan, as they have encountered issues with client home routers operating on the same frequency as the on-premise equipment, causing interference. Both Sofie and Brenda concurred with Sergio's request.

In general, the team's testing was successful. The application launched smoothly without any problems. The retrieval of client on-premise equipment functioned effectively, and the extraction of client data performed as anticipated. We successfully developed an application that streamlined a common client task and enhanced workplace efficiency.

After reviewing with Christian and Emmanuel, we verified the availability of frequency plan data through the API and subsequently modified our fetch to include this data. Christian successfully designed a new card for the page containing the frequency plan and channel detail, and also adjusted the page layout by moving the title of the data point above. These updates have been implemented and integrated into the application. As for future improvements, we plan to expand the range of equipment compatible with the application, which will involve creating a separate backend to retrieve data through SNMP instead of API calls.