August 15th, 2021
Dr. Mark Lanthier
Computer Science Department
Carleton University

Dear Mark Lanthier,

From May 1, 2021, to August 27, 2021, I had my third Co-op term as a Web Developer in part of the Development - NRC-P team at Nokia. I have extended the same position for the incoming fall Co-op term. My Co-op course number is COMP3999A. My supervisor is Ehsan Rezaaifar who is the software design manager in NRC-P.

The following interim Co-op work term report follows the guidelines set for the Co-op Work Term Report Guidelines. The report is my own original work and has not been previously submitted for credit.

Sincerely,
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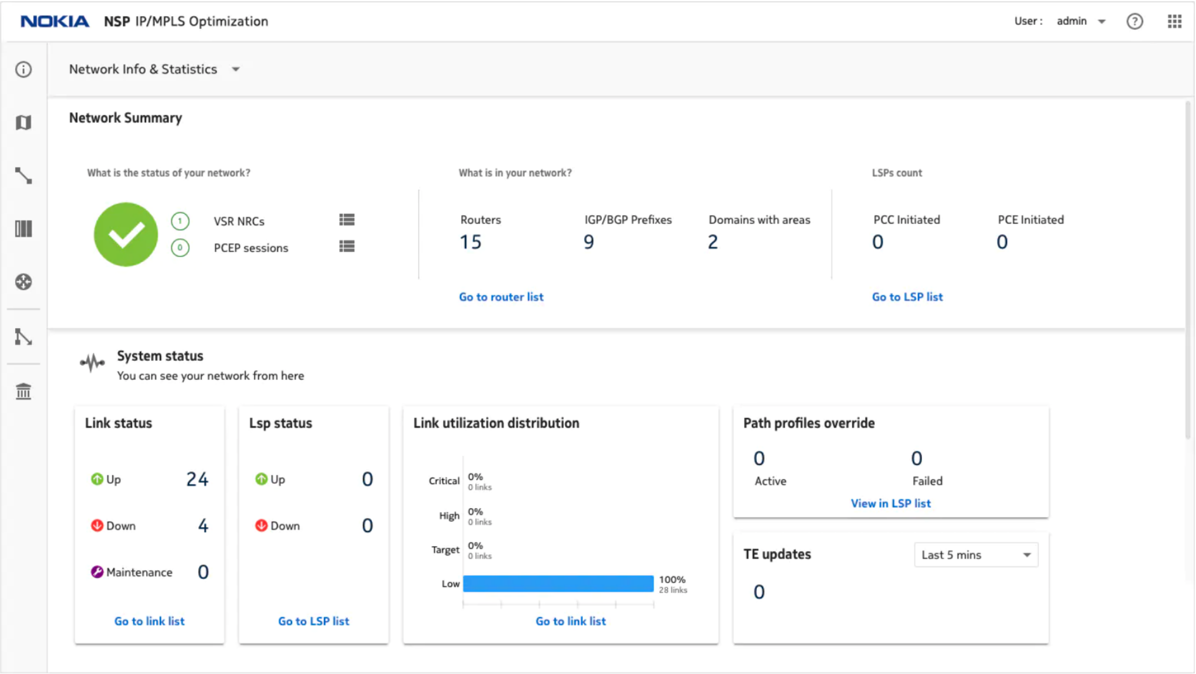
COOP 3999A

Web Developer - IP SDN Co-op (DB6)
Second work term report
Interim report
Employer: Nokia
Supervisor: Ehsan Rezaaifar



Network Summary

What is the status of your network?

1 VSR NRCs
0 PCEP sessions

What is in your network?

Routers 15
IGP/BGP Prefixes 9
Domains with areas 2

Go to router list

LSPs count

PCC Initiated 0
PCE Initiated 0

Go to LSP list

System status
You can see your network from here

Link status
Up 24
Down 4
Maintenance 0
Go to link list

Lsp status
Up 0
Down 0
Go to LSP list

Link utilization distribution
Critical 0% 0 links
High 0% 0 links
Target 0% 0 links
Low 100% 28 links
Go to link list

Path profiles override
0 Active
0 Failed
View in LSP list

TE updates
Last 5 mins
0

Figure 1: NSP IP/MPLS Optimization -network info and statistics

## Overview of the work planned over the entire work placement

In general, the work for Web Developer - IP SDN Co-op is assisting in designing and implementing web GUI features which are built with React.

The product that I am working on is Network Services Platform (NSP), and I am focusing on two applications which are called IP/MPLS Optimization(NRC-P) and IP/MPLS Simulation(NRC-P simulator) respectively. The NRC-P shows the network info and statistics, and NRC-P simulator shows the simulation results for the networks. Since parts of their UI are similar, they are sharing some of the React components.

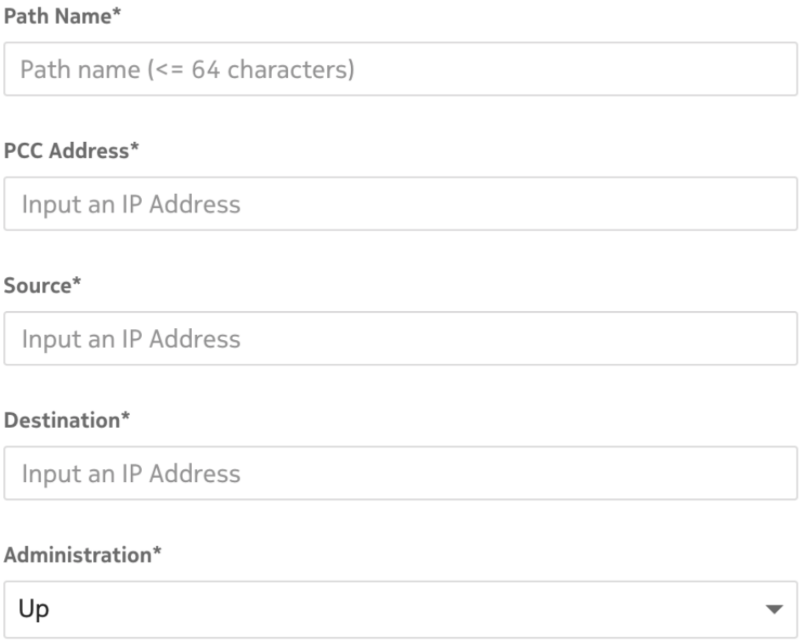
## Description of the work done during the current academic term

Since I have already worked at Nokia at the same position for one work term. I am more familiar with NRC-P and NRC-P simulators. In May and June, my goal was to fix as many Nsp Defects as possible before the second week of June, which was the time of code freeze for the product release.

In order to debug more effectively, I learned how to run packages locally which contain the React components that are built by the other teams so that I can add breakpoints in the package to track how the values are passed from one component to another. When the bugs are actually in other teams' code, the defects are not easy to solve. I need to reproduce the problem on the Showbook, which is a unified Nokia software portfolio that contains examples of almost every component. I learned how to run the Showbook locally as well, and made examples which reproduce the issue again, then I can send a new defect with the example that I have made to the team who is responsible for the bug so that when other programmers fix that bug, they can understand the issue quickly.

From the end of June until now, I have worked on Nokia React Schema Form for a certain period of time. It is based on a third party library which is called Fomik. It allows us to build forms in React with less code, few Edge cases. Formik comes with solutions for validations, formatting, masking, etc.

During the last two months, I have updated four forms by using the Nokia React Schema Form. It is different from the traditional Redux form. From a coding perspective, the schema form saves much more time than the original way of coding. In the new Schema Form, we build a form by passing a JSON object into the Schema Form component. This following picture is a screenshot of part of the form that I have worked on. There are three different types of components which are input field (Path Name), autocomplete input field (Ip address), and select field (Administration) on the screenshot. If a programmer wants to add an instance of select field into this form. He/She can simply add another Javascript object into the model with properties which can be customized according to the requirements.



Path Name*

Path name (<= 64 characters)

PCC Address*

Input an IP Address

Source*

Input an IP Address

Destination*

Input an IP Address

Administration*

Up

Figure 2: Part of the Form that I have worked on

Although Nokia React Schema Form is convenient to modify the form, it was difficult for the programmers to understand the code and know how to implement it. Since Nokia React Schema Form is built by Nokia, I need to understand how the props of React Schema Form works. For example The onChange is a callback function which is called every time a field on the form is focused on, and onChange has two parameters that include the previous state of the form and the current state of the form. So I can make decisions based on the states. For example,to enable the submit button or disable it.

Understanding the props is not enough. When I upgrade the forms, the goal of updating is to keep the UI and functionalities the same after I finish the upgrade. After working almost for eight months as a web developer at Nokia. I can use the developer tools more confidently and efficiently since I know what I am looking for.

## Description of the work expected to be done for the remainder of the placement

In the next Co-op term which will start from September 2021. The goal is to update all the forms in the app by using Schema Form. I will also be required to solve more defects that can be more challengeable.

I am excited and looking forward to having further development and debugging experience during my next work term at Nokia.

## Acknowledegments

None of my achievements is possible without my supervisor’s trust and colleagues’ support. I want to express my sincerest gratitude to them for their help.

## References

Network Services Platform Automate, manage and control IP and optical networks
https://www.nokia.com/networks/solutions/network-services-platform/ [Aug 15, 2021]