**Executive summary (Final Project Proposal)**

Subject: CI/CD implementation using Jenkins and Travis

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With networks always changing and scaling, it is difficult to configure every device in the network manually. Network automation simplifies this task of configuring every device. Network automation allows for scalability while making the configuration easy and customizable. Software-defined networking allows for provisioning, configuring, and managing network infrastructure as code.

DevOps is the practice of automating the process of development and deployment of the code for the network infrastructure. DevOps is built on the model of continuous integration and continuous deployment (CI/CD). This increase the frequency of integration and deployment of code. There are various tools that facilitate the CI/CD pipeline and Jenkins, and Travis are 2 such examples.

The following will be achieved in this lab:

* Jenkins, and Travis both will be used for automated testing and deployment of network codes.
* A GitHub repository will be used where the code for the network infrastructure will be stored and updated.
* An email notification will be sent about the status of the codes in the repository.
* Demonstration of how frequent changes to the repository is possible and identification of errors is quick.

The goals of this lab will be achieved ad follows:

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| Task | Time allocated (in hours) |
| Learning Jenkins and Travis and their implementations | 5 |
| Connecting GitHub repository and performing preliminary tests | 3-5 |
| CI/CD implementation using the GitHub repository and writing of code | 12-15 |
| Setting up of email notifications | 3-5 |
| Making changes in code frequently and quick error identification | 3-5 |
| Debugging | 5-7 |
| Report and presentation | 3-5 |

The conclusion of this lab will include a demonstration of how DevOps facilitates easier configuration, deployment, and scalability of networks. It will showcase the possibility of many frequent changes and the fail-fast ideology of DevOps. It will also include of a comparison of Jenkins and Travis as DevOps tools.

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