

## ABSTRACT

In our daily lives, internet usage has become an inseparable part of modern needs. This creates a lot of demand that will involve more network elements and end-users, larger traffic volumes and more diverse features. To meet this demand, Network Virtualization (NV) appears as the answer but is also followed by the problem of Virtual Network Embedding (VNE) which has the main goal of achieving effectiveness and efficiency in a virtual network. This study aims to compare the performance between two Virtual Network Embedding (VNE) algorithms, namely the NRM-VNE and VNE-MGA methods through three evaluation metric values, namely long-term average revenue, acceptance ratio and revenue to cost.

The NRM-VNE method itself uses the Node Ranking Metrics (NRM) algorithm where this algorithm calculates the ranking value for all virtual nodes and links which are then sorted according to the highest ranking while the VNE-MGA method uses a genetic modification algorithm that goes through several specific operations to achieve the optimal solution. From the simulation results that have been carried out, it is found that the VNE-MGA method has better performance compared to the NRM-VNE method in three evaluation metrics, but the NRM-VNE method is better in terms of the total time cost required to run the simulation. This happens because the NRM-VNE method centralizes performance on the highest-ranking nodes and links in the substrate network, thus affecting the evaluation metric values obtained, in contrast to the VNE-MGA method which performs a checking operation to assess whether the performance equalization has reached the optimal value at each node and link, so this makes the evaluation metric value better than the previous method.

**Keywords:** Network Virtualization (NV), Virtual Network Embedding (VNE), NRM-VNE, VNE-MGA, Evaluation Metrics.