

*15th International Conference on
Information Technology, Computer & Telecommunication*



Substrate Provisioning in Virtual Network Services based on Community Ranking

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Abstract

Virtual networks make possible to share the resources between many requests and make a multitenant service. Substrate provisioning for virtual network requests is still a challenging problem. Because of increasing the number of requests. One of the most common challenges is the dispersion of free resources and the rejection of new requests despite sufficient resources. This paper tries to address this problem with a two-phase solution. The proposed solution, at first extracts dense subgraphs of substrate network and then gives rank to the extracted subgraphs based on node centrality and then starts to embed virtual networks. Based on the evaluation results, the proposed method can be a kind of topology-aware algorithm and can use fewer substrate resources for more virtual networks compared to a topology-aware method that has recently been proposed.

Keywords: Virtual Networks, Substrate Provisioning, dense subgraph, Subgraph detection, Ranking.