Virtual Private Network Cost Optimized Provisioning Algorithm

S. Deepa and vekadesh

Abstract - It has been observed from literature that virtual Private Networks provide secure and reliable communication between customer sites . With increase in number and size of VPNs, providers need efficient provisioning techniques that adapt to customer demand by leveraging a good understanding of VPN properties. Provisioning quality of service and flexibility , but also saving cost through link multiplexing are some of the main goals when identifying suitable algorithm for VPNs. This paper describes COVPA a provisioning algorithm for a virtual private network (VPN) service, which builds and manages VPNs on demand. It allows each VPN to have guaranteed resource and customized control, and supports a highly dynamic VPN service where creation and modification operations can take place on fast timescales with reduced cost . These features are contingent on the automated establishment and maintenance of VPNs . A design process is described that attempts to satisfy the goals of both customer and VPN service provider (VSP). In this paper we formulate and solve the problem of building VPN as well as validating them . We distinguish between different routing approaches . We add algorithms and linear programming formulations for VPN tree routing , our algorithm runs in polynomial time . Finally, We compare performance issues of different VPN tree routings and put the provisioning algorithm in contrast to a more traditional approach of setting up a directly linked VPN .