ABSTRACT

Services VPN (*virtual* private network) is a private network connections over public networks. Construction of VPN is being solution to provide a secure private network. Selection of VPN protocol will affect the level of performance and network security. IPSec encapsulates the data passing and using tunneling techniques to transmit information through the Internet or intranet network securely, there is the problem of authentication on VPN service much longer than the process of authentication on the network that not use that system. This was due to the encapsulation packet before the packet is sent and the process of checking in the database.

This final project implemented VPN services into *virtual* network and physical network. In this *virtual* network allows the system work faster because the technology is applied to the hardware already supports hypervisor technology.

With the implementation of network *virtual*ization in this Final Project, *virtual* network still provide data security in form of data encapsulation using ESP protocol which is the same with the physical network and *virtual* network has 28.76% increased value for *throughput*, and offer better performance than physical network.

Keywords: VPN, IPSec, Network physical, virtual network