

Fig. 2. Architecture of our automatic management system

A. VLAN Setting

In Figure 3, we considered the scenario that we connect the virtual network interface of a virtual machine (VM) which is generated dynamically in the data center network to the assigned VLAN of the campus network. Our proposed network management system enables to execute the setting configuration about each network automatically, because our system stored information of the campus network and the data center network in a topology database. First, a new VM is generated in the data center network. Next, the network management application sets configuration for each network devices so that VMs in the campus network and a new VM can communicate by assigned VLAN. As a result, the generated VM seems like direct connection to the campus network subnet.

B. Priority Control

In Figure 4, when a distributed denial of service attack (DDoS attack) is occurred for the virtual machine on the data center network, DDoS attack is detected in the virtual machine located in the data center side as a trigger, and this system set the filter for the firewall router in the campus network as an action.

VII. CONCLUSION

In this paper, we explained an architecture of the operation and management of the wide-area distributed network by the defined network specification. On the assumption that the backbone network has the function of SDN such as OpenFlow, our purpose is that multiple

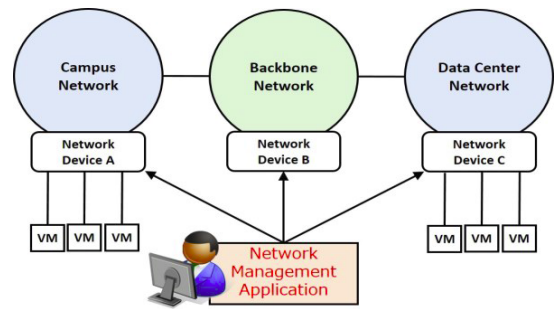


Fig. 3. Use case I (VLAN Setting)

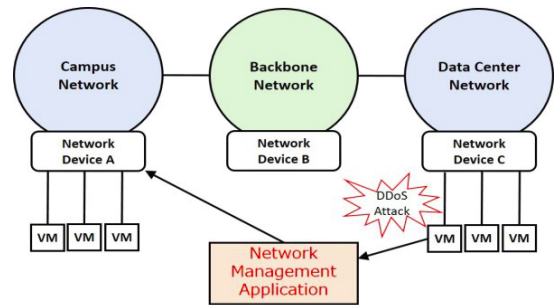


Fig. 4. Use case II (Priority Control)

wide-area distributed networks are managed centrally with single policy by the administrator, and the required settings are to be set in real time and automatically. We also show two use cases. Next, we are going to implement the extension of network management application that operates in conjunction with the content distribution application.

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