Tenant Based Dynamic Processor Mapping in the Cloud Network Function Virtualization System

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Abstract— In this paper, we present a novel processor mapping method for Cloud Network Function Virtualization System which ensures that network traffic processing of virtual machines belonging to the same tenant is not affected by congestion in network traffic of virtual machines belonging to different tenant. In this paper, we provide a method of dynamically mapping a processor, the method including extracting tenant information on a tenant and information on a virtual machine generated by a Cloud OS or controller; classifying virtual machine queues and processors to process the virtual machine queues by tenant; and dynamically mapping the virtual machine queues onto the processors by tenant. The dynamically mapping of the virtual machine queues onto the processors by tenant may include dynamically mapping the processors to process the VMQs in proportion to either a total number of virtual machine queues belonging to the same tenant, or a total number of virtual machine queues belonging to the same tenant. Finally, we describe the operation of the Tenant based Dynamic Processor Mapping including both spreading process and coalescing process with flow chart.

Keywords— Dynamic Processor Mapping, Cloud Network Function Virtualization System

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