عنوان مقاله:

ESV-DBRA: An enhanced method for proportional distribution of the multitenant SDN traffic load

محل انتشار:

فصلنامه مهندسی برق دانشگاه تبریز, دوره 52, شماره 4 (سال: 1401)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:

One of the obvious reasons for most disorders in network service provisioning is network path congestion. Congestion avoidance in today's networks is too costly and sometimes impossible. With the introduction of SDN, centralizing the equipment's control plane has become possible. This paper presents an enhanced method named ESV-DBRA to avoid congestion in multi-tenant SDN networks. At first, ESV-DBRA monitors the traffic load and delay of all network paths for each tenant individually. Then, by merging the parameters obtained from the monitoring, the Service Level Agreements (SLA), and a novel proposed cost function, it calculates the cost of the network paths per tenant. As a result, traffic for each tenant is routed through the path/paths at the lowest possible cost from the tenant's perspective. Next, the bandwidth quotas will be calculated and assigned to the tenants over their optimal routes. Afterward, whenever congestion is likely to occur in a path, ESV-DBRA automatically changes the route or bandwidth of the tenants' traffic related to this path to avoid congestion. Related algorithms are also proposed.Eventually, simulations show that the proposed method effectively increases bandwidth utilization by ۱۰.۷۶%.

کلمات کلیدی:

Virtual tenant networks (VTN), Software-Defined Networks (SDN), OpenFlow, Dynamic bandwidth resource allocation (DBRA), Congestion avoidance, Path Cost Estimation