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| klName | Description |
| Time to look up the kernel flow table for each packet | This feature records the time to look up the kernel flow table for each packet flowing through the datapath. It can demonstrate the congestion of the current datapath and the sudden diversification of the IP of the packets in the network. |
| The number of packets hitting the kernel flow table | This feature records the number of packets hitting the kernel flow table in the datapath, roughly suggesting the number of packets being transmitted to the user space and the amount flows in the network. |
| The number of packets hitting the cache of the kernel flow table | The flow tables in the OVS is similar to Page Table in linux. The cache of the flow table is a subset of total flow table. It demonstrates the sudden transition of the IP of the packets. |
| The executions of ovs\_flow\_cmd\_set() | Since the kernel flow table is managed by controller through 3 functions, namely ovs\_flow\_cmd\_set()、ovs\_flow\_cmd\_get()、ovs\_flow\_cmd\_del(),the executions of ovs\_flow\_cmd\_set() demonstrate the frequency of the kernel flow table being updated. |
| The executions of ovs\_flow\_cmd\_get() | The executions of ovs\_flow\_cmd\_set() demonstrate the frequency of the kernel flow table being updated. |
| The executions of ovs\_flow\_cmd\_del() | The executions of ovs\_flow\_cmd\_del() demonstrates the frequency of the kernel flow table entry being deleted and evaluates how well does the entries of the flow table fit the packets. |
| The executions of ovs\_execute\_actions() | ovs\_execute\_actions() is designed to process a hit flow in OVS when the flow hits an entry in kernel flow table. The frequency of ovs\_execute\_actions() being executed shows the number of packets being processed in an OVS. |
| The number of Upcalls | Roughly showing the number of packet\_in sent to the controller, the number of Upcalls approximately equal to the number of packets which miss the kernel flow table and have to send to user space. |
| Upcall delay | Upcall delay shows the time to send a packet from kernel space to user space when the packet misses the kernel flow table. It shows the performance of the OVS and the state of being congested in the network. The larger the delay is, the more packets wait for process or the worse match occurs in kernel flow table. |
| The length of Upcall message | This feature records the length of Upcall message. It illustrates the size of the packet. |
| The number of failed Upcall messages[note] | When packet fails to match the rule in the kernel flow table, datapath will send a message to user space. The feature can demonstrate the congestion of the OVS and network. |
| The number of packets receiving from the Controller | The feature records the number of packets receiving from the Controller. Most of packets are sent to reply the missing flow rule and give a new rule. It shows the number of new rules sent by the Controller and demonstrates the frequency of the interaction between the OVS and the Controller. |
| The number of packets sending to the Controller | The feature records the number of packets sending to the Controller. Only the packet which fails to hit the flow table is sent to the Controller. It approximately shows the number of the packet\_ins. |
| The Frequency of circulations being executed in ovs-vswitch.c:main() | The feature records the frequency of circulation being executed in ovs-vswitch.c:main().This circulation is used to achieve the effect of the daemon. It illustrates the performance of the OVS. |
| The executions of udpif\_upcall\_handler() | The feature records the frequency of udpif\_upcall\_handler() used to handle the upcall message from kernel space. It shows the number of upcalls handled by OVS. |
| Time to look up the flow table in user space for each packet | This feature records the time for each packet to look up the flow table in user space, suggesting the congestion of the current vswitch module. |
| The number of flow table rules in user space | The feature records the number of flow table rules in user space at the current time, demonstrating the congestion of the current vswitch module. |
| The number of packets hitting the flow table in user space | This feature records the number of packets hitting the flow table in user space. It shows the hitting rate of the flow table in user space and roughly shows the amount of flows in the network. If the value is large, it suggests that the flow table fits well for current flows and flows in the network is not very large. |
| The number of failed executions of kernel space commands | When the packet in user space match flow table or the OVS receive some commands from the Controller, vswitch module will send corresponding commands to kernel space to execute. So, this feature can demonstrate the interflow traffic between the OVS and the Controller. |
| The number of dropped packets in rx\_queue in net\_device[note] | This feature can demonstrate the congestion of the network. If the value is very large, it illustrates physical port may be overload and many packets are waiting for receiving. |
| The number of error packets in rx\_queue in net\_device[note] | If the value is very large, it illustrates there are some problems in sender. |
| The number of dropped packets in tx\_queue in net\_device[note] | This feature can demonstrate the congestion of network. If the value is very large, it illustrates physical port may be overload and wait to send too many packets. |
| The number of error packets in tx\_queue in net\_device[note] | If the value is very large, it illustrates there are some problems in sender or the design of the actions/rules in the flow table may be not correct. |

Note:These features are all zero in our experiment.