Intent Driven Networking with OVS and Vendor Neutral Hardware Offload

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Agenda

Context

- User intent based policy
- Policy driven networking

OVS hardware offload

- Reaching ludicrous+1 speed
- SDN + SR-IOV is hard
- A model that could work
Legacy Forwarding Elements

Service Ticket

NetOps

Vendor UI

Developer

Hours to Weeks
SDN solved everything, right?

Application developers don't care about 802.1Q, VXLAN, switching or routing.
Group Based Policy
Tell me “what you want” instead of “how you want it implemented”.

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<th>Contract</th>
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<tr>
<td>Dir</td>
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<td>In</td>
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<td>Out</td>
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WAN Group
- IP 0.0.0.0/0

App Group
- VM 10.0.0.1
- VM 10.0.0.2
- LXC 10.0.0.3

Diagram:
- A WAN Group consumes a contract with conditions and actions.
- The contract specifies that traffic on Port 8080 is routed to a service chain containing a load balancer (LB).
- The App Group provides services with VMs and LXC containers.
Intent

Governance

Capabilities and State

Operations Constraints
Intent Driven Networking

• How (L2/L3) a packet gets from A to B doesn't matter ...
  – ... but it should only get there if it's allowed to
  – ... and it should get there fast
Intent Based Edge Intelligence

WAN Router

Vendor Neutral Underlay

Overlay

Hypervisor

Hypervisor

Intent Based Edge Intelligence
Awesome!

What about throughput and latency?
$(LUDICROUS\_SPEED + 1)$

**LIGHTSPEED IS TOO SLOW. WE'LL HAVE TO GO RIGHT TO LUDICROUS SPEED.**
Can we leverage SR-IOV?
SDN + SR-IOV is hard

- Almost anything is possible with software
  - That's why OVS rocks
- Constant feature gap
  - Software release cycle < Hardware release cycle
- SR-IOV resources are not unlimited
  - # VFs, # queues, limited flow setup rate
Taking the networking approach

Adding layers will solve any problem.
Q&A

Interested in helping out?
Join the community fun on the netdev and ovs-dev mailing lists

Contact
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