Typical External Connectivity

- Gateway chassis physically connected to external network via localnet port.
- OVN programs NAT rules into OVS via openflow for floating IPs and SNAT.
Non-OpenFlow Gateway

- Program gateway through netconf instead of OVN/OpenFlow.
- Keep configuration simple and static - no NAT.
Splitting The Gateway

Non-OF Gateway

OpenFlow Gateway

External network (underlay)

External network (overlay)

Tenant network (overlay)
Logical Topology

Legend
LR: Logical router
LS: Logical switch
LSP: Logical switch port
Datapath Topology

Legend
C: Chassis
CRP: Chassis redirect port
DP: Datapath
P: Regular port
PP: Patch port
Datapath Example

Example
10.0.1.10 → 9.0.0.20

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Reference Architecture Example

Who has 9.0.0.20?
Reference Architecture Example

I have 9.0.0.20!

I have 9.0.0.20!

who has 9.0.0.20?
(Ab)using l3gateway

Use "l3gateway" instead of "patch" ports.

- Bind the l3gateway and chassis-redirect ports to the same chassis.
- Configure floating IPs for "centralized NAT".
  - CRP chassis has ARP responders for both SNAT IP and FIPs.
Example
10.0.1.10 → 9.0.0.20

Legend
C: Chassis
CRP: Chassis redirect port
DP: Datapath
L3GP: L3Gateway port
P: Regular port
PP: Patch port
Example
10.0.1.10 → 9.0.0.20

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L3GP: L3Gateway port
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Datapath Example

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CRP: Chassis redirect port
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Pros:
- Works for FIP→FIP, SNAT→FIP.
- Provides isolation; each chassis subscribes only to relevant datapaths.
- Requires only minor changes to networking-ovn and ovn-northd.
- No hair-pinning of traffic to gateway appliance.

Cons:
- Doesn’t work with distributed NAT.
- Doesn’t work (nicely) with gateway HA.
- Still relies on ARP, even though we know the MAC binding.
Closing Questions

• Does anyone else see value in splitting the gateway?
• The l3gateway thing is obviously a hack. How can we do better?