Container overlay networks: supporting remote data processing

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Motivation: secure and scalable data sharing
Virtual nets for containers

Our interests:

- Multi-tenancy
- Solution complexity
- Performance
- Traffic policies

Approach:

- Select solutions fitting our profile
- Deploy a few competing architectures
Scenario I - extend on containers and EVPN based overlay integration

MP-BGP to exchange VTEP:MAC mappings

Blue-Tenant network

VXLAN EVPN

SNE OpenLab

Surfnet testbed
Scenario II - use Identifier-Locator Addressing (ILA) to interconnect containers

64-bit Identifier (where)
e.g. 0:0:0:1

64-bit Locator (where)
e.g. 2001:DB8:0:0

ILA router (performs the translation of ILA addresses)
Scenario III - evaluate the advantages eBPF (Cilium project) brings into container networks

control container traffic with eBPF (better performance and security) than iptables+linux-bridge
Our SC16 conference demo (former work)

Poster:

http://delaat.net/sc/sc16/posters/dockermon_poster-v2.5.pdf
(http://tinyurl.com/dockermon)

Screencast:

http://delaat.net/sc/sc16/dockermon.html
(http://tinyurl.com/dockermon2)