draft-fm-bess-service-chaining-01

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Draft History

- Merged version of drafts:
  - draft-rfernando-l3vpn-service-chaining-05
  - draft-mackie-sfc-using-virtual-networking-02
- draft-rfernando
  - First presented at IETF 85 in Atlanta (November 2012)
  - Updated version -04 presented at IETF 90 in Toronto
    - Received good support for WG adoption
- draft-mackie
  - Presented at IETF 91 in Honolulu
  - Used similar approach and techniques
  - Chairs recommended drafts merge after discussion
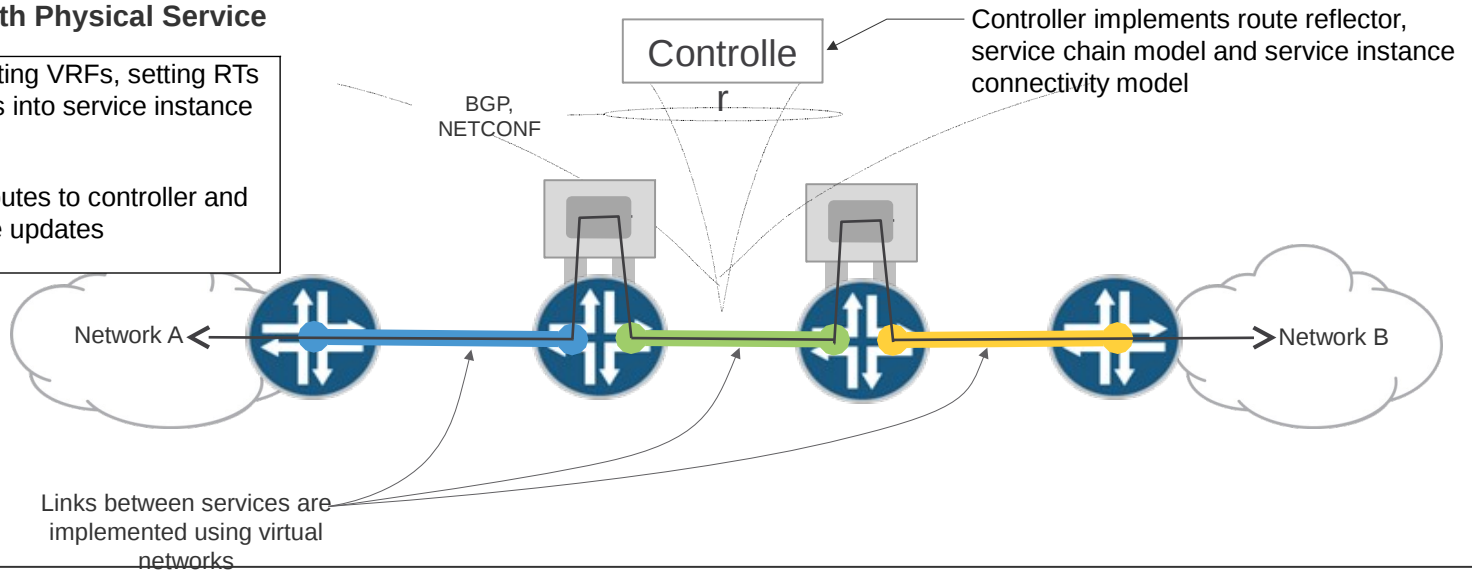
Goals of this draft

- Describe a service chaining approach using BGP VPN based virtual networking
  - Use of a controller to manage the SFC topology and network configuration
  - VPN mechanisms to efficiently constrain routing and traffic flow over the topology
  - Support use of existing protocols and PE devices with current capabilities
  - Support physical/virtual forwarders and services
  - Support single and multi-tenant network environments
  - Applicable to multiple VPN control protocols & data plane encapsulations

SFC-VN Architecture
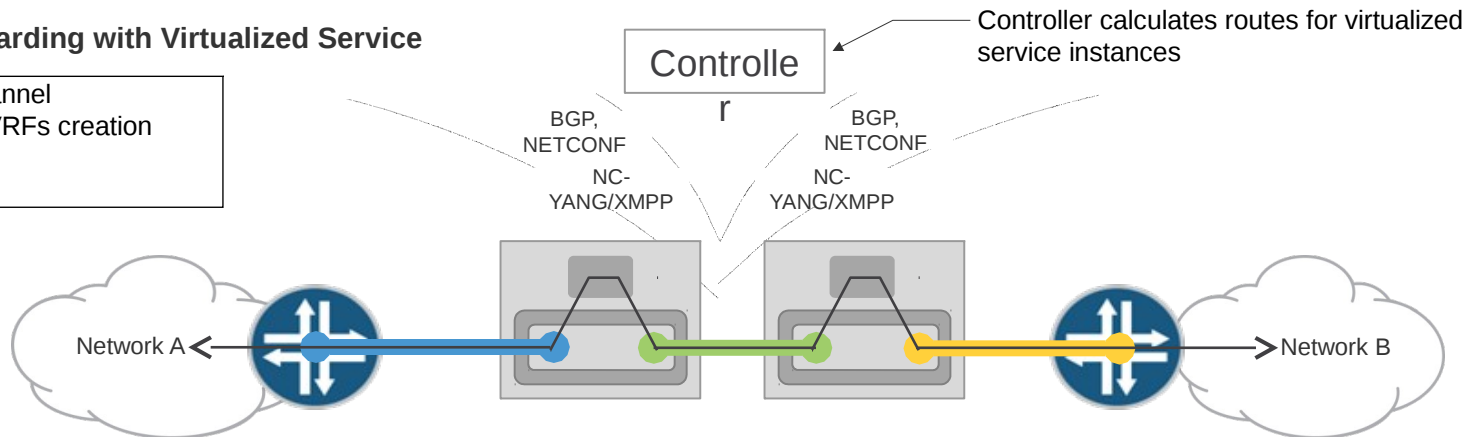
Physical Devices with Physical Service Instances

NETCONF for creating VRFs, setting RTs and installing routes into service instance interfaces

BGP to advertise routes to controller and controller to provide updates

Controller

Controller implements route reflector, service chain model and service instance connectivity model

BGP, NETCONF

Network A

Network B

Links between services are implemented using virtual networks

Server-Based Forwarding with Virtualized Service Instances

Single protocol channel encapsulates the VRFs creation and route updates

Controller

Controller calculates routes for virtualized service instances

BGP, NETCONF

NC-YANG/XMPP

BGP, NETCONF

NC-YANG/XMPP

Network A

Network B

Traffic forwarding

- Steering traffic into service chain
  - Destination based
  - Flow classification based

- Traffic flow through service chain
  - VPN (virtual network) forwarding
  - Multiple encapsulations supported
  - Load-balancing mechanisms to ensure consistent traffic paths

Summary

- Previous drafts combined as per last recommendation
- Request WG adoption