

# NVO3 Data Plane Requirements

(draft-kj-nvo3-pion-architecture-00.txt)

Bhumip Khasnabish

Lizhong Jin

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

1

## About this presentation

- draft-kj-nvo3-pion-architecture-00, initially submitted on 11 May 2012
  - <http://tools.ietf.org/id/draft-kj-nvo3-pion-architecture-00.txt>
- Draft introduces the NVO3 protocol layers, and list many data plane requirements of NVO3

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

2

## NVO3 Data Plane Requirements

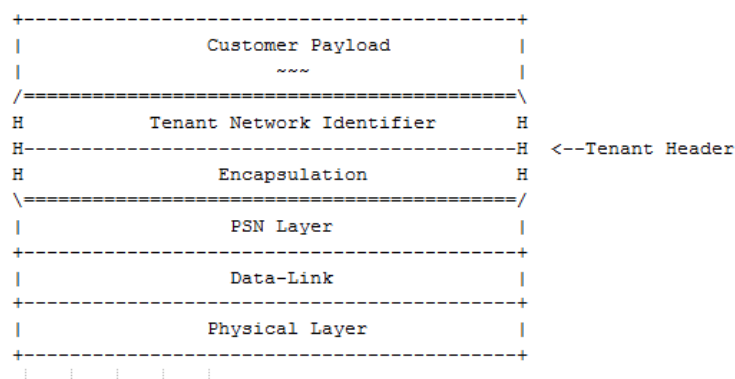
- It is required that only one kind data plane will be standardized for both Layer2 and Layer3 Network Virtualization
- It is required that both IP and MPLS transport technologies could be applied to NVO3

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

3

## NVO3 Protocol Layers



Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

4

## Encapsulation Layer

- Requirements for the Encapsulation Layer
  - It is required to have an indicator to designate different type of customer payloads, e.g., Ethernet or IP
  - It is required to provide packet sequencing
    - Some application using UDP transportation requires to transmit packets with sequence, and to get the information of packet loss

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

5

## Encapsulation Layer (contd./2)

- Requirements for the Encapsulation Layer
  - It is required to support fragmentation capability
    - Some application requires larger packet transportation to improve efficiency
    - Packet fragmentation is required, and is preferred to be performed at hardware layer

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

6

## Encapsulation Layer (contd./3)

- Requirements for the Encapsulation Layer
  - Support Flow entropy value to add flow based entropy
  - Tag all the packets from one flow with same entropy value
  - Some PSN connection does not provide ECMP capability, then Flow entropy value is required

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

7

## Tenant Network Identifier (TNI) Layer

- Requirements for the TNI Layer
  - TNI indicates the membership of each customer packet
  - One example is to use an explicit integer number, like VLAN
    - Explicit tenant ID will simplify the interoperations in the inter-datacenter connection environment

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

8

## TNI Layer (contd./2)

- Requirements for the TNI Layer
  - It is required that, by whatever control plane TNI has been allocated, e.g., static or dynamic or centralized control plane, the overlay network with different control planes could be always interoperable with same TNI without any kind of translation gateway

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

9

## PSN Layer

- Requirements for the PSN Layer
  - It is required that the PSN Layer could be any kinds of PSN connection that has capability to transmit tenant packets
  - The PSN connection could be GRE, UDP, TCP or MPLS

Wed.- 19-Sept.-2012

NVO3 Interim Mtg., Westford, MA

10

## Next Steps

- A separate draft to address the data plane requirements discussed here will be published soon
  - draft-xxx-nov3-encapsulation-requirement-00
- Comments
- Suggestions
- ??