

# Path Detection in VXLAN Overlay Network

draft-pang-nvo3-vxlan-path-  
detection-00

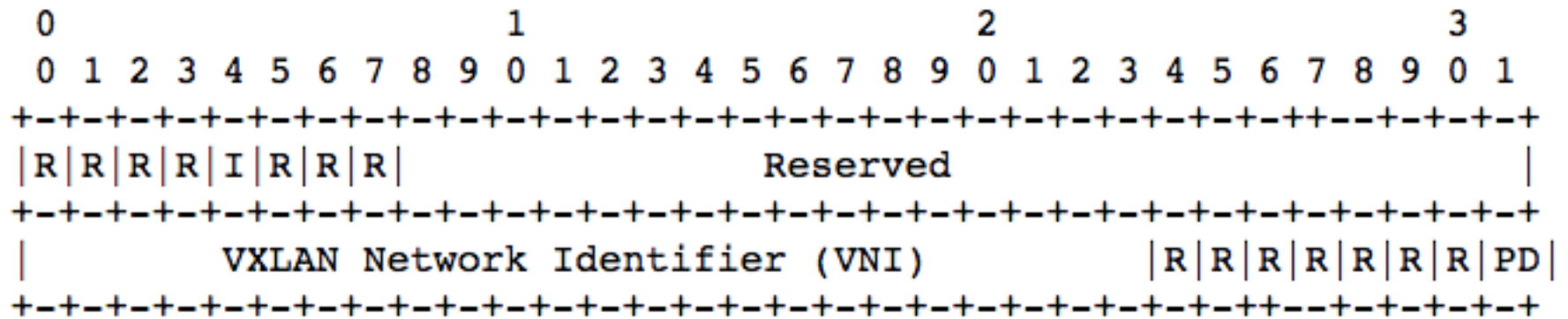


# Proposed PD Mechanism

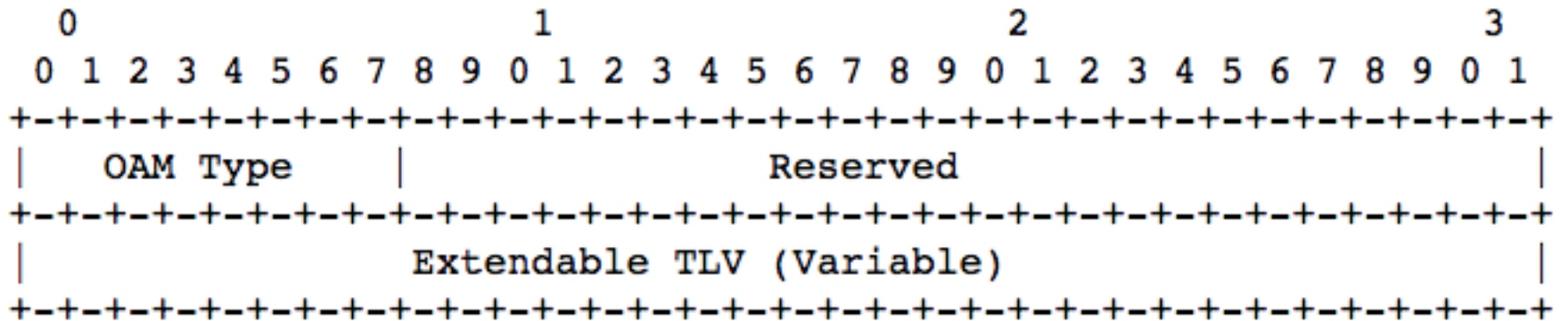
A centralized Controller is provided as a centralized unit to:

- 1) Construct Path Detection(PD) packets,
- 2) Inject them into the network devices to record information such as device's Ingress/Egress interface number
  - Extend the VXLAN header's reserved bit (last bit is defined for PD)
  - The forwarding devices see the "PD bit" in VXLAN header, know that this is an OAM packet. Then gather information and copy to CPU and forward to controller.
- 3) Collect the PD packets from network devices for further analysis.

# Proposed Extension to VXLAN Header

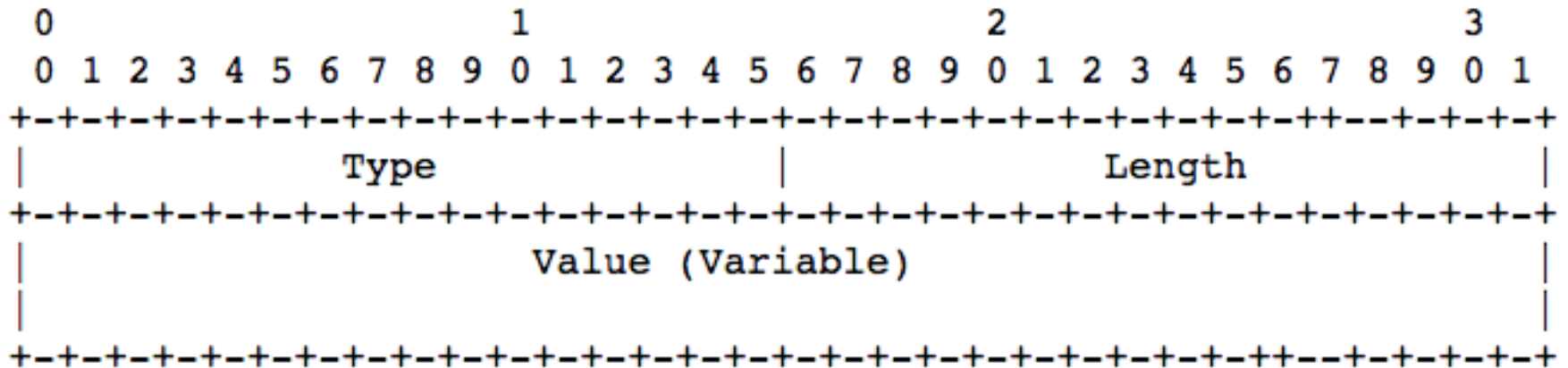


# Format of OAM PDU



OAM Type	Function
0x01	Path Traversal
0x02	Path Tracking
Other	Reserved

# Format of Extendable OAM TLV



OAM Type

0x0001

0x0002

Function

Ingress Interface Identifier

Egress Interface Identifier

# PD Mechanism

- Path Detection between VTEPs
  - Fabric controller generates a series of Path Traversal packets targeting to the same Egress VTEP. “PD bit ” set to 1.
  - After the ingress VTEP receives the Path Traversal Packets from controller, it then computes the egress port based on the outer header. By Increasing the outer source UDP port number to cover all the ECMP paths. Then forward the packet. All the forwarding devices follow the same processing logic.
  - The Extendable TLV is used to record the Ingress/ Egress interface information.
  - The controller gathers all the path traversal packets from the forwarding device along the paths.

- Path Detection between tenant systems
  - Controller generates one Path Tracking packet to the ingress VTEP. The “PD bit” is set to 1.
  - VTEP and forwarding devices deliver the packets to the corresponding egress port based on the header information.
  - Each network forwarding device receives the Path Tracking packet from its upstream device, make a copy of it and passes the copy to its CPU. Filling the extendable TLVs and forward to controller.
  - The controller gathers all the path tracking packets from the forwarding devices along the paths.



**Thanks!**