Virtualized Overlay Network Multiple Encapsulation Interconnection


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London, 2018-03
Background

• We have many overlay technologies
  • VxLAN-GPE
  • GENEVE
  • NVGRE
  • ......

• Different vendor may use different encapsulations

• But
  • for virtual network, all the hosts that connect to the same VN and want to communicate with each other are required to have the same data plane encapsulation.
Architecture supporting multi-encap interconnect

- A new component is introduced
  - Transformer Gateway: Transformer NVE (tNVE)
  - Provide a “bridge” function for the two NVEs that may not share the same encapsulations but want to communicate each other.
tNVE reference model

- NVE1 and NVE3 using different encapsulations want to communicate.
- tNVE is adaptive to the encapsulations on NVE1 and NVE3. It takes the role of interconnection between NVE1 and NVE3.
- tNVE de-encapsulates the packets from NVE1, and then encapsulates the packets to NVE3, and vice versa.
- There is no need for NVE1 and NVE3 to detect the difference of their data plane.
Control messages required

- **tNVE to NVA**
  - Encapsulations the tNVE support

- **NVE to NVA**
  - Address mapping between the NVE and its attached TSs
  - Encapsulation tunnel the NVE support
  - Mandate metadata (optional)

- **NVA to NVE**
  - Address mapping information between the remote NVE and TS

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Next Steps

• Comments, questions always welcome and greatly appreciated
• Update the draft