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Group Policy Encoding with VXLAN-GPE
draft-lemon-vxlan-gpe-gbp-01

Abstract

This document defines a header companion for the Generic Protocol Extension for Virtual eXtensible Local Area Network (VXLAN-GPE) that is used to carry a Group Policy Identifier for the purposes of policy enforcement.

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[1.](#) Introduction

This document defines the group-based policy (GBP) sub-header for VXLAN-GPE [[I-D.ietf-nvo3-vxlan-gpe](#)]. The GBP sub-header carries a 16-bit group policy ID that is semantically equivalent to the 16-bit group policy ID defined in [[I-D.smith-vxlan-group-policy](#)].

[1.1.](#) Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [[RFC2119](#)].

[1.2.](#) Abbreviations used in this document

GBP: Group-Based Policy

VXLAN-GPE: Virtual eXtensible Local Area Network, Generic Protocol
Extension [[I-D.ietf-nvo3-vxlan-gpe](#)]

[2.](#) Group Based Policy Sub-header

The Group-Based Policy (GBP) Sub-header follows the VXLAN-GPE header, or another VXLAN-GPE subheader.

[2.1.](#) Header Format

The format of the GBP sub-header is as shown below:

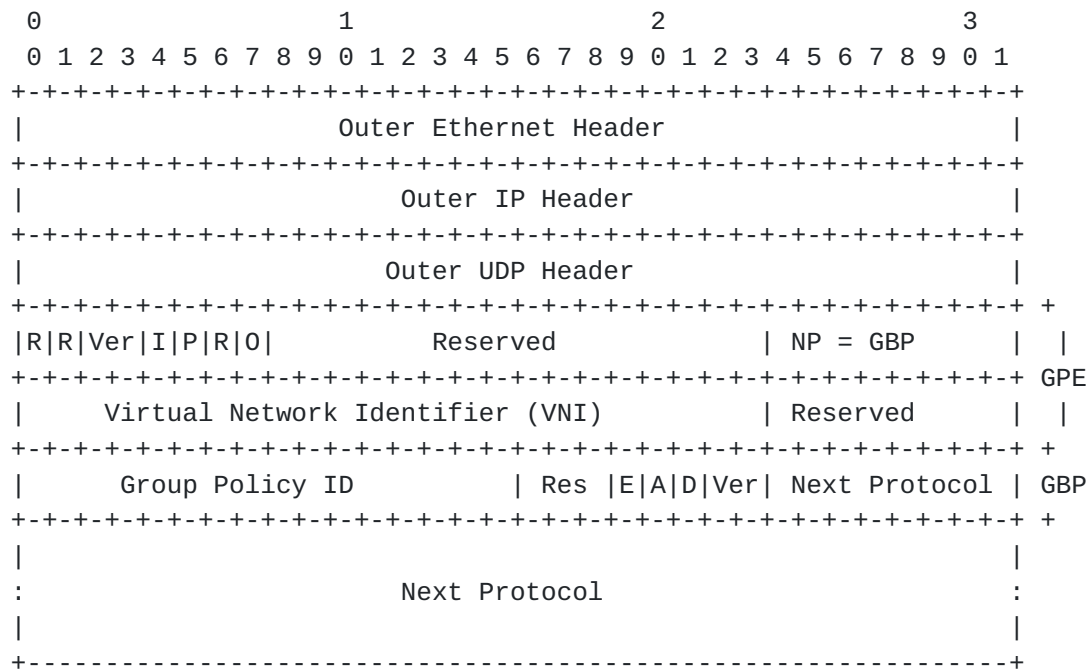

```

      0                               1                               2                               3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|      Group Policy ID      | Res |E|A|D|Ver| Next Protocol |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+

```

- o Group Policy ID: 16 bit identifier that indicates the Group Policy ID being encapsulated by this GBP sub-header. The allocation of Group Policy ID values is outside the scope of this document.
- o Reserved (Res): the 3 bit field MUST be set to zero on transmission and ignored on receipt.
- o End Destination bit (E bit): The E bit is set to 0 to represent the Group Policy ID associated with the source of the packet. The E bit is set to 1 to represent the Group Policy ID associated with the end destination of the packet. Note that if the packet carries a destination group sub-header, it MUST also carry a source group sub-header.
- o Policy Applied bit (A bit): The A bit is set to 0 to indicate that the group policy has not (yet) been applied to this packet. Group policies MUST be applied by devices when the A bit is set to 0 and the destination Group has been determined. Devices that apply the group policy MUST set the A bit to 1 after the policy has been applied. The A bit is set to 1 to indicate that the group policy has already been applied to this packet. Policies that redirect the packet MUST NOT be applied by devices when the A bit is set. Policies that cause the packet to be dropped MAY be applied.
- o Don't Learn bit (D bit): The D bit is set to 0 to indicate that the egress VTEP MUST NOT learn the source address of the encapsulated frame.
- o Version (Ver): indicates the Version of the Group Policy VXLAN-GPE sub-header. The initial version is 0.
- o Next Protocol: This 8 bit field indicates the protocol header immediately following this VXLAN GPE sub-header. Next Protocol types are encoded as specified in [[I-D.ietf-nvo3-vxlan-gpe](#)].

An example frame format is as shown below:



3. IANA Considerations

IANA is requested to add a new value to registry of "Next Protocol", which is defined in [[I-D.ietf-nvo3-vxlan-gpe](#)]. The new value of 6 will signify a GBP sub-header as the next protocol.

4. Security Considerations

The same security considerations applied to [I-D.ietf-nvo3-vxlan-gpe] and to [I-D.smith-vxlan-group-policy] apply to this document.

Additionally, the security policy value carried in the GBP header impacts security directly. There is a risk that this identifier could be altered. Accordingly, the network should be designed such that this header can be inserted only by trusted entities, and can not be altered before reaching the destination. This can be mitigated through physical security of the network and/or by encryption or validation of the entire packet, including the GBP.

5. Normative References

```
[I-D.ietf-nvo3-vxlan-qpe]
```

Maino, F., Kreeger, L., and U. Elzur, "Generic Protocol Extension for VXLAN", [draft-ietf-nvo3-vxlan-gpe-05](#) (work in progress), October 2017.

[I-D.smith-vxlan-group-policy]

Smith, M. and L. Kreeger, "VXLAN Group Policy Option",
[draft-smith-vxlan-group-policy-04](#) (work in progress),
October 2017.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
Requirement Levels", [BCP 14](#), [RFC 2119](#),
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