Export of ECN Information in IPFIX

draft-song-opsawg-ipfix-ecn-03

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Why Dedicated ECN IEs?

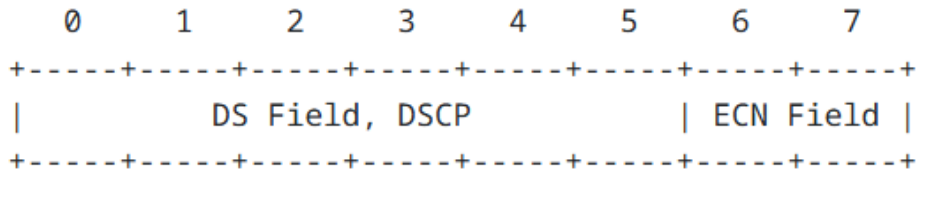
- Problem
  - Operators lack L4S network visibility and diagnostics, and quantifies the network congestion status in flow granularity.
- IPFIX ECN
  - Provides IPFIX IEs for ECN information export and packets statistics to facilitate adjustments of network traffic patterns and supports network planning.

Draft History

- 00 – Initial version
- 01 – Presented at IETF 125 (OPSAWG, TSVWG)
  - Initial presentation and WG feedback received.
- 02 – Changed based on comments received during 125 meeting
  - Added relationship between ipEcn and ipClassOfService (thanks to Benoit and Gorry)
  - Added privacy considerations (thanks to Zahed)
  - Changed scope from L4S-specific to general ECN monitoring
  - Added new co-authors: Jonathon and Jason (welcome)
- 03 – Presented at IETF 126 (OPSAWG, TSVWG)
  - Revised rationale for dedicated ipEcn IE vs. reusing ipClassOfService IE
  - Clarified relationship between mplsEcn IE and the existing mplsTopLabelExp IE
  - Added new mplsMnaEcn IE to support ECN export independent of the EXP field
  - Removed two control-plane IEs: ipsecSaEcnMode and l2tpEcnNego
  - Clarified L4S CE marking confusion and fixed tunnel header ECN issues (thanks to Paul Aitken)

ipEcn IE

- Updates
  - Merged ipv4HeaderEcn & ipv6HeaderEcn to a single ipEcn IE
    - Single ipECN IE aligns with ipClassOfService & ipDiffServCodePoint
  - Added limitations on reusing the existing ipClassOfService
    - Reusing Perform ipClassOfService & 0x03 on each record to extract ECN, technical feasible but complex; split into 64(at most) flows due to DSCP differnce but collector may only support 5-10 range



- ipClassOfService, Element ID: 5
- ipDiffServCodePoint, Element ID: 195

Template Example - Existing

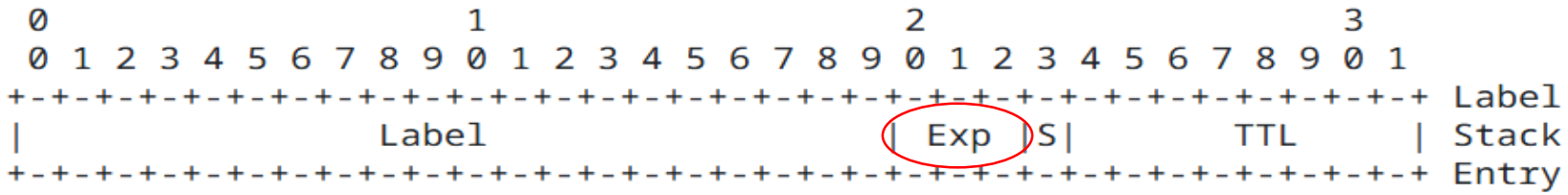
- **ipClassOfService (Flow Key)**
- packetDeltaCount
- octetDeltaCount

Template Example – New

- **ipEcn (Flow Key)**
- packetDeltaCount
- octetDeltaCount

mplsEcn IE

- [RFC5129] defines propagation ECN information using the MPLS EXP field in the MPLS label entry.
- Implementations MAY derive mplsEcn from mplsTopLabelExp by extracting the bits designated for ECN semantics.

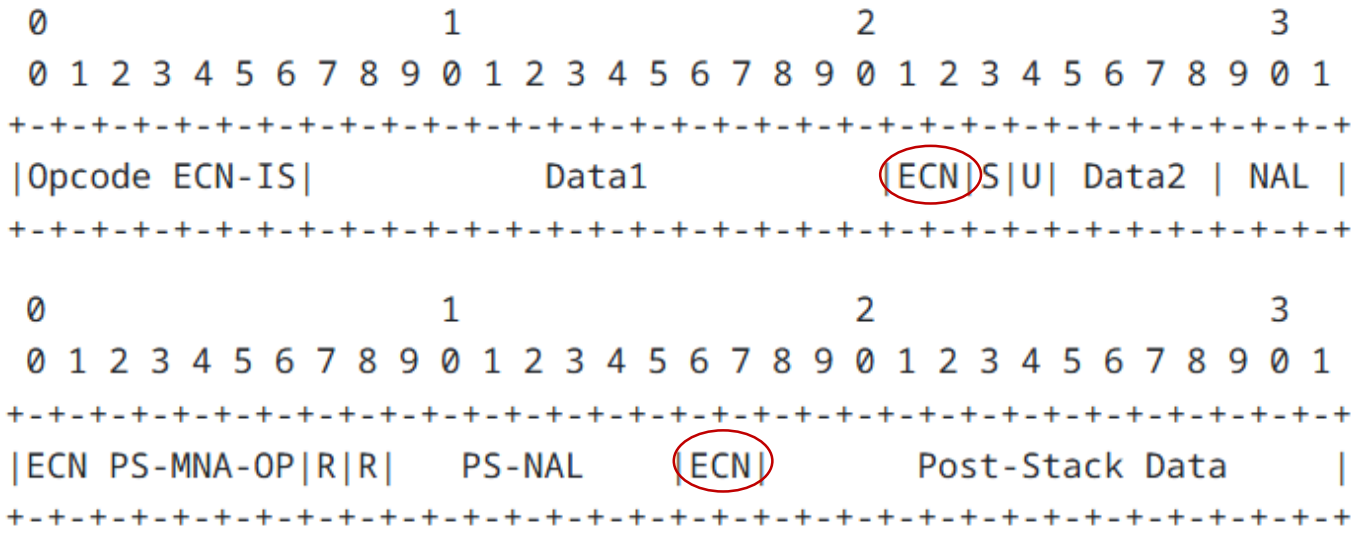


mplsTopLabelExp IE
ID: 203
Description: The Exp field from the top MPLS label stack entry, i.e., the last label that was pushed.
Reference: [RFC3270], RFC3032, [RFC5102].

mplsEcn IE
ID: TBD
Description: This Information Element captures the bits designated for ECN-specific semantics from the MPLS Experimental (EXP) field, as defined in [RFC5129].
Reference: [RFC5129], this document.

mplsMnaEcn IE

- New IE mplsMnaEcn
  - Purpose: Enable export of ECN information from MPLS networks that use MPLS MNA technologies.
  - Description: This Information Element retrieves the ECN field from an MPLS Network Action (MNA) Sub-stack carrying ECN information. The ECN field values are equivalent to IP ECN.
  - Reference: I-D. halmir-mpls-ecn.



Next Steps

- Welcome your review and feedback.
- Seek co-authors to further refine the document.