Using the Flow Label for Transport Signaling

draft-donley-6man-flowlabel-transport-sig-00

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Problem

- Port and protocol header information not in a fixed location within an IPv6 packet
  - Obscured behind one/more extension headers
  - Encapsulated in an IPv6 tunnel such as Dual-Stack Lite

- Creates a problem for home gateways and deep packet inspection devices
  - Can’t classify traffic based on port/protocol
  - Can’t perform special handling in hardware
Possible Solution

- Possible solution: include port/proto in the Flow Label

```
 1
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9
+---------------------------------------+
| L | Transport Proto | P | Port Number |
+---------------------------------------+
```

- L - Set to 1 to indicate that the flow label follows [I-D.carpenter-6man-flow-update], rather than [RFC3697] behavior.
- Protocol – 8 bit protocol
- P - Set to 0 to indicate Destination or 1 to indicate Source
- Port Number - the lower 10 bits of the 16-bit port number
Design Choices

- Separate Port and Protocol fields support masking
  - easier to use for classification
    - (e.g. “all SIP traffic”)

- 5-tuple hash in flow label not sufficient
  - Opaque, difficult to identify specific traffic types

- P-bit usage
  - Expect to use Well-known port and set P-bit accordingly
    - Using the WKP allows for easier classification at the gateway
    - Client sets P-bit=0 (destination port)
    - Server sets P-bit=1 (source port)
Request For Feedback

- Is this approach useful for your applications?