

Socket PI for IPv6 traffic class field

<draft-itojun-ipv6-tclass-api-03.txt>

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The need for traffic class PI

- **Traffic class is:**
 - 8bit hop-by-hop value (intermediate router can rewrite it)
 - Diffserv bits (6 bits)
 - ECN bits (2 bits)
- **Diffserv**
 - Routers control diffserv bits
 - Marker node: classify traffic, prioritize
 - Hosts may need to control diffserv bits for debugging
 - Generate packets with arbitrary diffserv bits
 - Lower class for non-important packets
- **ECN**
 - Kernel TCP may implement ECN

Proposed traffic class PI

- Follows 2292bis advanced API
- **Inbound:**
 - `setsockopt(IPV6_RECVTCLASS)` to turn on
 - Ancillary data item will come up with `recvmsg(2)`
- **Outbound:**
 - Sticky value can be set with `setsockopt(IPV6_TCLASS)`
 - Ancillary data item can control the value with `sendmsg(2)`
- **Conflict resolution**
 - Whenever there's conflict between the userland and kernel, the kernel wins
- Can subject to debate/implementation issue

Issues

- **TOS field API for IPv4? - sticky setsockopt(IP_TOS) in BSD**
 - standard?
 - is it enough?

- **type to use with ancillary data**
 - u_int8_t: no room for "back to default"
 - int: negative value = "back to default"

- **How to proceed?**
 - An informational document
 - Include it into 2292bis

- **Flow label API?**

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