

IPv6 Flow Label Hashing, Threat or Menace?

Blame goes to Joel Jaeggli

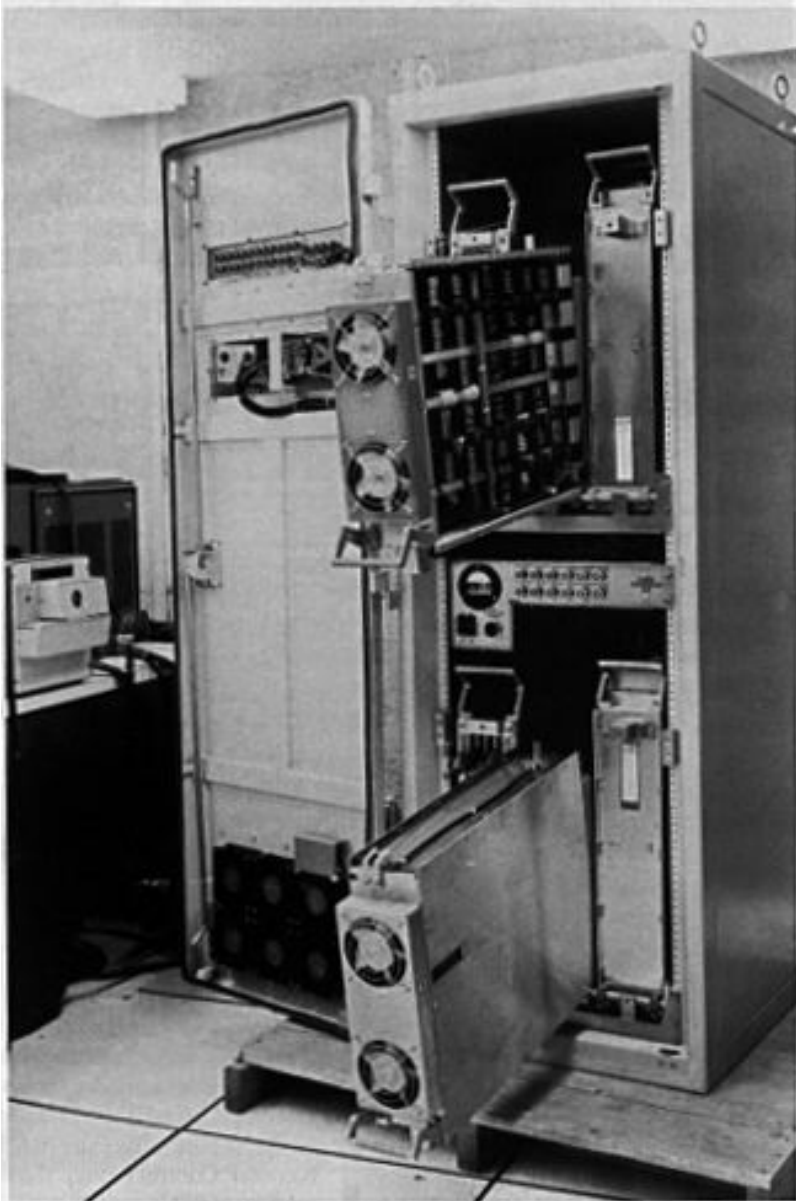
Credit goes to Jermiah Millay, Erick Turnquist,
Matt Byerly, Lennert Buytenhek, Fastly Network
Engineering and Network Systems

RFC 1883





Packet Switch



All packets belonging to the **same flow** must be sent with the same source address, destination address, priority, and flow label. - (RFC1883)



A node that forwards a flow whose flow label value in arriving packets is zero **MAY change the flow label value** - (RFC6437)

“What kind of sociopath does this?”



A forwarding node **MUST** either leave a non-zero flow label value unchanged or **change it only for compelling operational security reasons** as described in Section 6.1 (RFC 6437)
“Do whatever you want.”

WHAT THE F*CK IS HASHING?



WTF is this?

0x5c736

```
2017-06-23 11:23:50.213785 0.000000000 2001:8a0:7024: [REDACTED] 2a04:4e42:4::201 0x5c736 33816 → 443 [SYN]
```

0x5c702

```
2017-06-23 11:23:50.368715 0.000000000 2001:8a0:7024: [REDACTED] 2a04:4e42:4::201 0x5c702 33816 → 443 [ACK] S
```

0x739ec

```
2017-06-23 11:23:50.549736 0.000000000 2001:8a0:7024:a [REDACTED] 2a04:4e42:4::201 0x739ec 33816 → 443 [RST]
```

W

0x5c736

T

0x5c702

F

0x739ec

0x5c736

2017-06-23 11:23:50.19626...	0.000000000	2001:8a0:7024: [REDACTED]	2a04:4e42:4::201	0x5c736	33816 → 443 [SYN] Seq=3866983043 Win...
2017-06-23 11:23:50.23372...	0.037466097	2a04:4e42:4::201	2001:8a0:7024: [REDACTED]	0xf1bba	443 → 33816 [SYN, ACK] Seq=218503233...
2017-06-23 11:23:50.23393...	0.000209918	2001:8a0:7024: [REDACTED]	2a04:4e42:4::201	0x5c736	33816 → 443 [ACK] Seq=3866983044 Ack...

0x5c736







