End to End SCHC
For IP Datagrams

draft-ietf-intarea-schc-ip-protocol-number-00
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IP Protocol Number and more
for SCHC
Why review?

• Networks are complex and what if
  - Constrained link is within path
  - That is, end points ‘know’ of constrain, but have no control over it
  - All IP content is within a non-compressed security wrapper
    • e.g. Diet ESP – Want to compress security wrapper (>20 bytes!), but how to flag this, other than special SPI
    • e.g. DTLS – Much of UDP can be derived from DTLS
IF

• IPv6 Next Header were SCHC
  - Rules can compress Transport and all up to security envelope
    • Can even indicate what Rules for within security envelope
      - As also E2E
IF

• IPv6 Next Header were SCHC
  - Effectively becomes the Transport Layer
    • To transport original Transport Layer, compressed
      - e.g. why have UDP CRC when ESP/DTLS have better?
    • Provide new and valuable transport functions
      - E2E Forward Error Correction (FEC) via SCHC
        • New work for lpwan
HOW

- IPv6 Next Header for SCHC
  - Review of current Protocol Numbers – nothing to camp on
  - SCHC payload (RuleID may be zero bytes):

```
|------- Compressed Header -------|
+---------------------------------+--------------------------+
| RuleID   | Compression Residue | Payload     |
+---------------------------------+--------------------------+
```
BUT

• Can we really introduce a new IPv6 Next Header value?
  - Will it just work or need router upgrades?
  - What might IP fragmentation result in?
    • Use SCHC fragmentation a prior
OTHER PIECES

• Turns out once head down this road, there is more
  - SCHC as an EtherType
    • Generic case for all the lpwan special cases
    • IPv6 header compression on some 802 media
  - SCHC as an UDP port
    • Punch a firewall hole
      − Sigh. All my fault...
Next steps

• Review draft
  - Add Ethertype and UDP port requests
  - Then Start WG last call

• Questions?