Asymmetric IPv6 for IoT Networks

draft-jiang-asymmetric-ipv6

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Why?

• In edge IoT deployments, physical MTU and bit rate are very low
  – so packet size matters a lot
• Even the edge routers may be constrained
  – so header compression/decompression uses precious resources
  – 128 bit addresses consume memory
What?

- Shorten addresses inside IPv6 packets
- Route on shortened addresses
- Don’t transmit unnecessary bytes
- Avoid compression/decompression algorithms
How?

• Define an address length N within a domain
• All addresses inside the domain are assumed to have a common prefix of (128-N) bits
  – Unnecessary header bytes are elided
• Use a “flexible header encoding”

```
<table>
<thead>
<tr>
<th>Version</th>
<th>Payload Length</th>
<th>Next Header</th>
<th>Hop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit</td>
<td>Truncated Destination Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transport payload</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

FHE octet

```
+---------------------+
|1 0 0 1 1 1 0 1|+
+---------------------+
```

```
+-----------------------------+
|0 0 0 1|+
+-----------------------------+
```

```
+-----------------------------+
|0 0 0 1|+
+-----------------------------+
```
Where?

- 6lo WG
  
  Monday 13:30-15:30
  Sainte-Catherine

- Side meeting discussion:
  
  Wednesday 08:30-09:45, Notre Dame
  (also draft-jiang-service-oriented-ip)