SATP Network Identification

Update from Network Identification Subgroup

IETF118 Prague

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Summary Report from Subgroup

• Recognition of different types & layers (e.g. L1, L2)
• Three (3) general goals:
  • Network/subnetwork identification (forks)
  • Self-identification internally (transactions)
  • Network ownership (legal)
• Support for monolithic systems (e.g. RTGS/Banks)
• Backward compatibility with existing operational DLTs
# Overview of TLV-based Model (proposal)

<table>
<thead>
<tr>
<th>Type of net</th>
<th>Length</th>
<th>Value (variable length)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 bits</td>
<td>8 bits</td>
<td>N (bytes)</td>
</tr>
</tbody>
</table>

- **Number of bytes following**
- **Network identifier value**

- **Type = 1**: public permission-less type (with genesis block)
- **Type = 2**: private closed type (with genesis block)
- **Type = 3**: monolithic non-blockchain type (no genesis block)

- **Type = 240**: Metadata only (eg. 11110000)
Type-1 and Type-2: Default Mode

Type-1 or Type-2: Default address mode (32 bytes)

Note: Type-1 & Type-2 are asset networks with a genesis block

draft-zhang-00
(Reserve bytes reduced to 4 bytes)

<table>
<thead>
<tr>
<th>Position</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(All zeros)

- 8 bits: 00000000
- 16 bytes: Hash of genesis block [2-17]
- 4 bytes: Custom/Subnet [18-21]
- 2 bytes: Type of subnet [22-23]
- 2 bytes: Network owner [24-25]
- 4 bytes: Reserve R [26-29]
- 1 byte: C1 checksum default [30]
- 1 byte: C2 checksum for extended length [31]
  (C2 not utilized in Default mode)
Type-1 and Type-2: Extended Length Mode

Type-1 or Type-2: Extended Length address mode (with metadata)

<table>
<thead>
<tr>
<th>Position</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
<th>32</th>
<th>284</th>
<th>285</th>
<th>286</th>
<th>287</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 bits</td>
<td>8 bits</td>
<td>26 bytes</td>
<td>31 bytes</td>
<td>256 bytes max</td>
<td>256 bytes max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>L</td>
<td>Byte</td>
<td>Byte</td>
<td>...</td>
<td>Byte</td>
<td>Byte</td>
<td>Byte</td>
<td>Byte</td>
<td>Byte</td>
<td>Byte</td>
<td>...</td>
<td>Byte</td>
<td>Byte</td>
<td>Byte</td>
</tr>
</tbody>
</table>

- **(Indicates length of metadata portion, max 256 bytes)**
- **(as above)**
- **C2 used for checksum of metadata portion**

draft-zhang-00
(Reserve bytes reduced to 4 bytes)

Metadata portion
(e.g. readable name)

- **256 bytes max for Extended Length addresses [32-287]**
- **Checksum C2 utilized**

Note: Type-1 & Type-2 are asset networks with a genesis block
## draft-zhang-satp-network-identification-00

<table>
<thead>
<tr>
<th>Name</th>
<th>Length</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hash of genesis block</td>
<td>16</td>
<td>Permits distinction from Forks</td>
</tr>
<tr>
<td>Custom sub-network</td>
<td>4</td>
<td>Support existing network-specific numbers</td>
</tr>
<tr>
<td>Subnetwork type/ID</td>
<td>2</td>
<td>Identify purpose of subnetwork (if any)</td>
</tr>
<tr>
<td>Network Owner Identifier</td>
<td>2</td>
<td>Organizational/governance identifier</td>
</tr>
<tr>
<td><strong>Reserved</strong></td>
<td>7-4</td>
<td>(Future)</td>
</tr>
<tr>
<td>Checksum</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Thank You and Q&A