ANCP Base Protocol Status

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IETF 78
Outline

• Changes from -09 to -10
• Issues
  • Capabilities and technology types
  • Version registry
  • Unspecified Tech Type codepoints
  • Underspecified VLAN tag field
  • GSMPv3 vs. ANCP registries
  • No mention of X-Function in Function registry
  • UTF-8 for text fields?
Changes From -09 to -10

● Summary

● Moved text to put related pieces together (see appendix of -10 document)

● Modified text to:
  – deemphasize GSMPv3
  – eliminate redundancy
  – clarify
  – make presentation more uniform

● Some new technical content (next slide)
Changes From -09 to -10 (cont'd)

• Technical changes (clarifications)
  • New definitions: TLV, capability, ANCP session
  • Narratives replaced by RFC 2119 requirement language
  • Added detail on Transaction ID initialization
  • Added statement that the length of a TLV that includes other TLVs MUST include the padding in those encapsulated TLVs
  • Fuller specification of Port UP/DOWN and Port Management message fields and procedures
  • Added description of Command TLV contents to justify Command Code registry
Capabilities and Technology Types

- The issue: some capabilities are technology-specific (e.g. DSL line testing), some are not (e.g. multicast).
- Tech Type field is separate from capability fields.
- Means capabilities have to be presented in groups, each for a specific technology type.

Current arrangement means same capability codepoint could be used for multiple Tech Types (contrary to -10 text).
Capabilities and Technology Types

• Alternatives:
  
  • Keep current arrangement. Need to modify adjacency message to carry multiple capability sets, one per supported Tech Type, plus one for "any".
  
  • Move Tech Type to be part of Capability Field.
  
  • Make Capability Type codepoints technology-specific (as they are in -10 version) and ignore the Tech Type field.

These alternatives are illustrated in the next three slides.
## Current Capability Arrangement

**Adjacency Message**

<table>
<thead>
<tr>
<th>Tech Type</th>
<th># Caps</th>
<th>Total Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

- **Cap Type = 3 (Transact Mcast)**: Length = 0
- **Cap Type = 1 (Topol discov)**: Length = 0
- **Cap Type = 2 (Line config)**: Length = 0
- **Cap Type = 4 (Line testing)**: Length = 0

New message format and new behaviour
Capability Fields Include Tech Type

Adjacency Message

<table>
<thead>
<tr>
<th>Unused</th>
<th># Caps = 4</th>
<th>Total Length = 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap Type = 3</td>
<td>Tech Type = x</td>
<td>Length = 0</td>
</tr>
<tr>
<td>Cap Type = 1</td>
<td>Tech Type = 5</td>
<td>Length = 0</td>
</tr>
<tr>
<td>Cap Type = 2</td>
<td>Tech Type = 5</td>
<td>Length = 0</td>
</tr>
<tr>
<td>Cap Type = 4</td>
<td>Tech Type = 5</td>
<td>Length = 0</td>
</tr>
<tr>
<td>Cap Type = 1</td>
<td>Tech Type = 1</td>
<td>Length = 0</td>
</tr>
</tbody>
</table>

New message format, new behaviour.
## Technology-Specific Capabilities

### Adjacency Message

<table>
<thead>
<tr>
<th>Unused</th>
<th># Caps = 4</th>
<th>Total Length = 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap Type = 3 (Transact Mcast)</td>
<td>Length = 0</td>
<td></td>
</tr>
<tr>
<td>Cap Type = 1 (DSL topol discov)</td>
<td>Length = 0</td>
<td></td>
</tr>
<tr>
<td>Cap Type = 2 (DSL line config)</td>
<td>Length = 0</td>
<td></td>
</tr>
<tr>
<td>Cap Type = 4 (DSL line testing)</td>
<td>Length = 0</td>
<td></td>
</tr>
<tr>
<td>Cap Type = 9 (PON topol discov)</td>
<td>Length = 0</td>
<td></td>
</tr>
</tbody>
</table>

Existing message format, minimal new behaviour.
Version Registry

• The issue:
  • -09 document had separate Version and Sub-version registries. Sub-version not meaningful once version advances to 4.

• Resolution:
  • Combine registries. Register version 3.1 (pre-standard) and version 3.2 (ANCPv1).
Unspecified Tech Type Codepoints

- The issue: -09 specified the following undocumented Tech Type codepoints for the IANA registry:
  - 0x00 Extension block not in use
  - 0x06-0xFE Reserved
  - 0xFF Base specification use
- Suggested alternative (requires changes to -10)
  - 0x00 Not technology specific
  - 0x02-0x04, 0x06-0xFE Unassigned
  - 0xFF Reserved
Underspecified VLAN Tag Field

• The issue:
  • Access-Aggregation-Circuit-ID-Binary holds two 12 bit VLAN identifiers in two 32-bit words
  • Do the 12 bits go into the least or most significant bits?
  • What goes into the rest of the word?
  • Which word holds the outer VLAN tag, which the inner?
GSMPv3 vs. ANCP Registries

• Issue:
  • Can ANCP modify GSMPv3 registries, not just by adding codepoints, but by specifying new limits?
  • Alternatives were described on the list, for the IESG to chew over
    – deprecate GSMP, make ANCP document independent of RFC 3292, take over GSMP registries
    – share registries with notes
    – parallel ANCP and GSMP registries
  • -10 currently uses the approach of shared registries with notes
Registry For X-Function?

- **Issue:**
  - Registry set up for Function
  - X-Function values and meaning supposedly dependent on Function (no non-zero values defined yet)
  - No registry defined for X-Function

- **Proposal:**
  - Define X-Function registry as sub-registry of Function (i.e. these are the values for this value of Function and here is what they mean)
UTF-8 For Text Fields

• Issue:
  • A number of text fields are defined, specified as ASCII
  • Could easily generalize to UTF-8
  • Not clear there is a requirement

• Proposal:
  • Do specify UTF-8
  • Default is US-ASCII
  • charset parameter in Provisioning message would identify non-default character set