draft-ietf-6tisch-6top-protocol
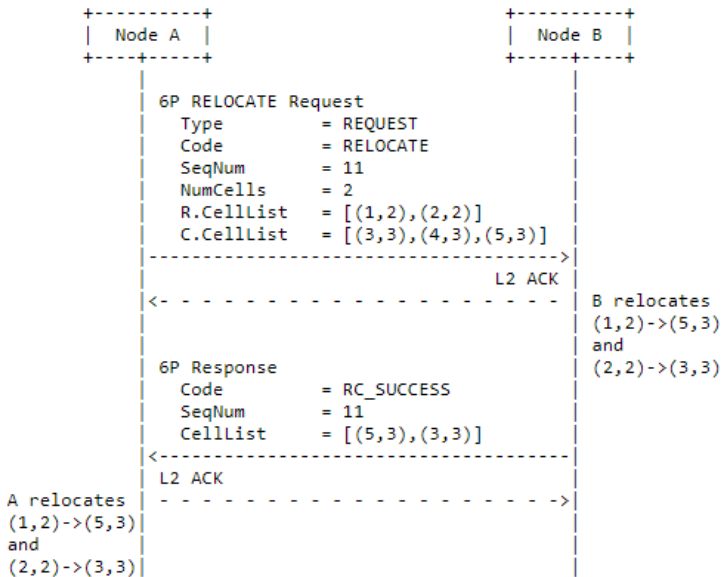
Authors: Qin Wang (Ed.)
             Xavi Vilajosana
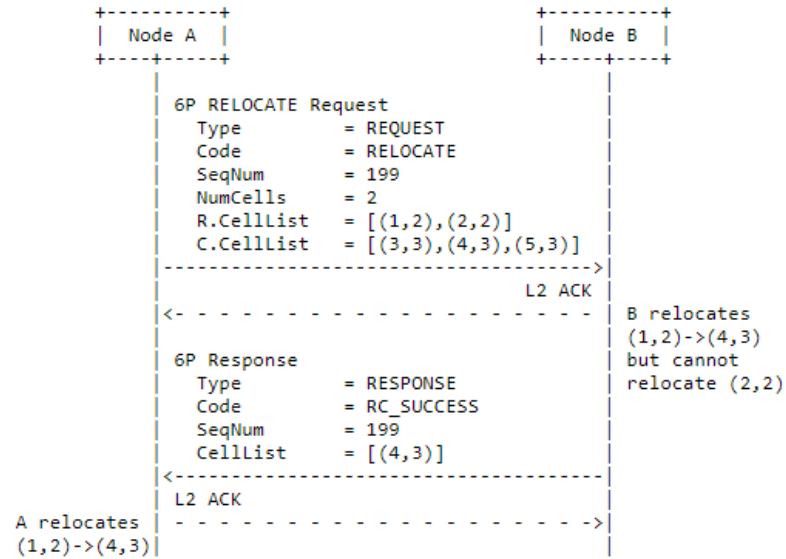   Thomas Watteyne

Status

- Stable version since IETF99 (now version -09)

- Addressed Comments in the ML
- Improved readability and minor fixes
- Clarified relocation
- Clarified inconsistency handling
- Clarified error codes
- Improved figures

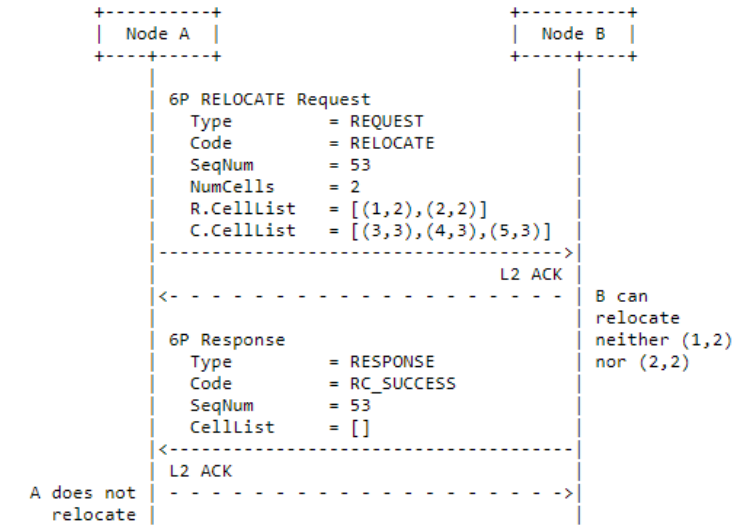- Submitted to the IESG since 31 Oct

Relocation

Cells in the Candidate CellList are equivalent


```
+----------+                    +----------+
|  Node A  |                    |  Node B  |
+----+-----+                    +----+-----+
     |                               |
     | 6P RELOCATE Request           |
     |   Type        = REQUEST       |
     |   Code        = RELOCATE      |
     |   SeqNum      = 11            |
     |   NumCells    = 2            |
     |   R.CellList  = [(1,2),(2,2)] |
     |   C.CellList  = [(3,3),(4,3),(5,3)] |
     |------------------------------>|
     |                 L2 ACK        |
     |<- - - - - - - - - - - - - - - | B relocates
     |                               | (1,2)->(5,3)
     |                               | and
     | 6P Response                   | (2,2)->(3,3)
     |   Code        = RC_SUCCESS    |
     |   SeqNum      = 11            |
     |   CellList    = [(5,3),(3,3)] |
     |<------------------------------|
     | L2 ACK                        |
A relocates | - - - - - - - - - - - - - - - ->|
(1,2)->(5,3)|                        |
and      |                           |
(2,2)->(3,3)|                        |
```

Case A: All cells are allocated

```
+----------+                    +----------+
|  Node A  |                    |  Node B  |
+----+-----+                    +----+-----+
     |                               |
     | 6P RELOCATE Request           |
     |   Type        = REQUEST       |
     |   Code        = RELOCATE      |
     |   SeqNum      = 199          |
     |   NumCells    = 2            |
     |   R.CellList  = [(1,2),(2,2)] |
     |   C.CellList  = [(3,3),(4,3),(5,3)] |
     |------------------------------>|
     |                 L2 ACK        |
     |<- - - - - - - - - - - - - - - | B relocates
     |                               | (1,2)->(4,3)
     | 6P Response                   | but cannot
     |   Type        = RESPONSE      | relocate (2,2)
     |   Code        = RC_SUCCESS    |
     |   SeqNum      = 199          |
     |   CellList    = [(4,3)]       |
     |<------------------------------|
     | L2 ACK                        |
A relocates | - - - - - - - - - - - - - - - ->|
(1,2)->(4,3)|                        |
```

Case B: Partial relocation

```
+----------+                    +----------+
|  Node A  |                    |  Node B  |
+----+-----+                    +----+-----+
     |                               |
     | 6P RELOCATE Request           |
     |   Type        = REQUEST       |
     |   Code        = RELOCATE      |
     |   SeqNum      = 53           |
     |   NumCells    = 2            |
     |   R.CellList  = [(1,2),(2,2)] |
     |   C.CellList  = [(3,3),(4,3),(5,3)] |
     |------------------------------>|
     |                 L2 ACK        |
     |<- - - - - - - - - - - - - - - | B can
     |                               | relocate
     | 6P Response                   | neither (1,2)
     |   Type        = RESPONSE      | nor (2,2)
     |   Code        = RC_SUCCESS    |
     |   SeqNum      = 53           |
     |   CellList    = []            |
     |<------------------------------|
     | L2 ACK                        |
A does not | - - - - - - - - - - - - - - - ->|
relocate |                           |
```
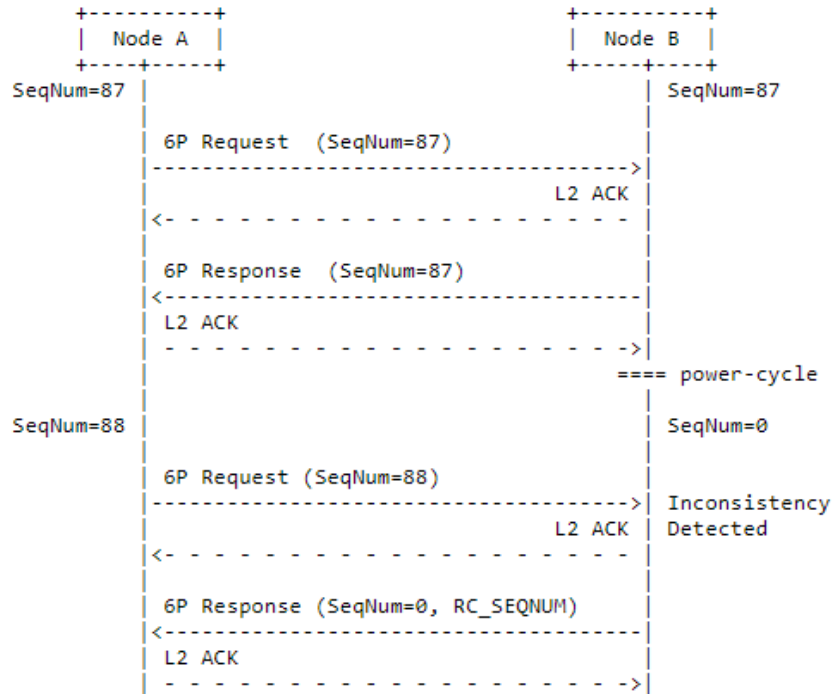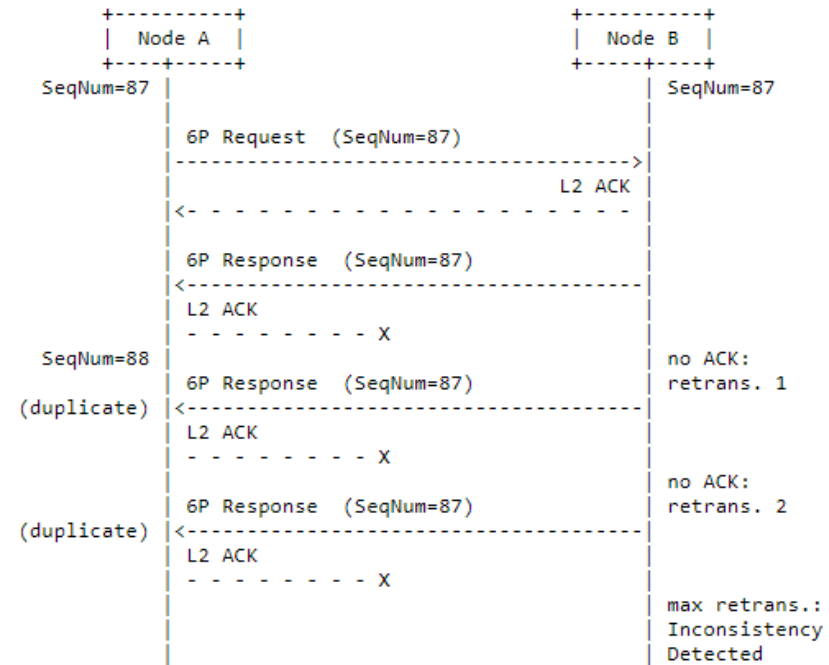
Case C: Failure to relocate

Inconsistency

A schedule inconsistency happens when the schedules of nodes A and B are inconsistent.
For example, when node A has a transmit cell to node B, but node B isn't listening to node A on that cell.
A schedule inconsistency results in loss of connectivity.

inconsistency because of
node redets

inconsistency because of
max link-layer retransmissions reached

Error Codes

Clarified use of ERROR Codes

```
+------+-----------+--------------------------+-----------+
| Code | Name      | Description              | Is Error? |
+------+-----------+--------------------------+-----------+
|    0 | RC_SUCCESS | operation succeeded     |        No |
|    1 | RC_EOL    | end of list              |        No |
|    2 | RC_ERROR  | generic error            |       Yes |
|    3 | RC_RESET  | critical error, reset    |       Yes |
|    4 | RC_VERSION | unsupported 6P version  |       Yes |
|    5 | RC_SFID   | unsupported SFID         |       Yes |
|    6 | RC_SEQNUM | schedule inconsistency   |       Yes |
|    7 | RC_CELLLIST | cellList error         |       Yes |
|    8 | RC_BUSY   | busy                     |       Yes |
|    9 | RC_LOCKED | cells are locked         |       Yes |
+------+-----------+--------------------------+-----------+
```

Thank You!