

Link Management Protocol Extensions for Grid Property Negotiation

draft-ietf-ccamp-grid-property-imp-03

Qilei Wang, ZTE

Guoying Zhang, CATR

Yao Li, Nanjing University

RamonCasellas, CTTC

Yu Wang, CATR

Comparison with 02 version

- Main changes:
 - This version add a new section 4 to describe the grid property negotiation requirement for inter-domain scenario.
- Rearrange the content in section 4 following Fatai's comments in mailing-list.

Implementation

- Initial state of two nodes at opposite of a link
- Show Imp interface

```
LMP Interface:
Name: fei-0/1/0/1  State: up  Index: 8  TestSucc: yes
Parameters:
  Associated IPCC           : 1
  Remote Interface ID      : 8
  Remote TE-LINK ID       : 10.20.1.2
  Remote Switching-Capability: LSC
  Neighbor Name           : abc
  Config Grid Property    :
    Grid Capability       : ITU-T Flex
    C.F.G                 : 2 * 6.25 GHz
    S.W.G                 : 4 * 12.5 GHz
    Min Width             : 4 * 12.5 GHz
    Max Width             : 8 * 12.5 GHz
  Negotiable Grid Property :
    Grid Capability       : ITU-T Flex
    C.F.G                 : 2 * 6.25 GHz
    S.W.G                 : 4 * 12.5 GHz
    Min Width             : 4 * 12.5 GHz
    Max Width             : 8 * 12.5 GHz
```

```
LMP Interface:
Name: fei-0/1/0/1  State: up  Index: 8  TestSucc: yes
Parameters:
  Associated IPCC           : 2
  Remote Interface ID      : 8
  Remote TE-LINK ID       : 10.20.1.1
  Remote Switching-Capability: LSC
  Neighbor Name           : abc
  Config Grid Property    :
    Grid Capability       : ITU-T Flex
    C.F.G                 : 1 * 6.25 GHz
    S.W.G                 : 2 * 12.5 GHz
    Min Width             : 2 * 12.5 GHz
    Max Width             : 10 * 12.5 GHz
  Negotiable Grid Property :
    Grid Capability       : ITU-T Flex
    C.F.G                 : 2 * 6.25 GHz
    S.W.G                 : 4 * 12.5 GHz
    Min Width             : 4 * 12.5 GHz
    Max Width             : 8 * 12.5 GHz
```

Implementation

- Message exchanged
- LinkSummary message sent by A side (only DATA_LINK part is copied)

```
|_+-----+
|_+DATA_LINK -+-----+
|_+-----+
|_|C-Type_3|Class_12| len_36 |
|_+-----+
|_|Flags_7|Reserved_12 |
|_+-----+
|_|Local_Interface_Id_8 |
|_+-----+
|_|Remote_Interface_Id 8 |
|_+-----+
|_+(Subobjects)-+-----+
|_+-----+
|_|Type_20|Length_8|Grid_3|C.F.G_2|S.W.G_4|
|_|Min Width_4|Reserved_0|Max Width_8| |
|_+-----+
|_lmp_sck_send():Entry
|_ param :0x2b30878c9f30
|_ lmp_sck_ctrl_add():Entry
|_ lmp_sck_ctrl_add():Exit
|_ sub_ret = 68
|_ 10 00 00 0e 00 44 00 00 01 05 00 08 00 00 00 04 01 0b
|_ 00 10 02 00 00 00 0a 14 01 01 0a 14 01 02 03 0c 00 24
|_ 07 00 00 00 00 00 00 08 00 00 00 08 01 0c 96 05 00 00
|_ 00 00 00 00 00 00 14 08 32 04 04 00 00 08
```

Implementation

- LinkSummaryNack message sent by the B side

```
|_ ++++++
|_ +ERROR_CODE -+++++
|_ ++++++
|_ |C-Type_2|Class_20| len_8 |
|_ ++++++
|_ |error_code_2 |
|_ ++++++
|_ +DATA_LINK -+++++
|_ ++++++
|_ |C-Type_3|Class_12| len_36 |
|_ ++++++
|_ |Flags_7|Reserved_12 |
|_ ++++++
|_ |Local_Interface_Id_8 |
|_ ++++++
|_ |Remote_Interface_Id_8 |
|_ ++++++
|_ +(Subobjects)-+++++
|_ ++++++
|_ |Type_20|Length_8|Grid_3|C.F.G_2|S.W.G_4|
|_ |Min Width_4|Reserved_0|Max Width_8| |
|_ ++++++
```

```
|_ 10 00 00 10 00 3c 00 00 02 05 00 08 00 00 00 04 02 14
|_ 00 08 00 00 00 02 03 0c 00 24 07 00 00 00 00 00 00 08
|_ 00 00 00 08 01 0c 96 05 00 00 00 00 00 00 00 00 14 08
|_ 32 04 04 00 00 08
```

Implementation

- LinkSummary message sent again by A side

```
|_+++++++|
|_+DATA_LINK -+++++++|
|_+++++++|
|_|C-Type_3|Class_12| len_36 |
|_+++++++|
|_|Flags_7|Reserved_12 |
|_+++++++|
|_|Local_Interface_Id_8 |
|_+++++++|
|_|Remote_Interface_Id_8 |
|_+++++++|
|_+(Subobjects)-+++++++|
|_+++++++|
|_|Type_20|Length_8|Grid_3|C.F.G_2|S.W.G_4|
|_|Min Width_4|Reserved_0|Max Width_8| |
|_+++++++|
|_lmp_sck_send():Entry
|_ param :0x2b30878c9f70
|_ lmp_sck_ctrl_add():Entry
|_ lmp_sck_ctrl_add():Exit
|_ sub_ret = 68
|_ 10 00 00 0e 00 44 00 00 01 05 00 08 00 00 05 01 0b
|_ 00 10 02 00 00 00 0a 14 01 01 0a 14 01 02 03 0c 00 24
|_ 07 00 00 00 00 00 08 00 00 00 08 01 0c 96 05 00 00
|_ 00 00 00 00 00 00 14 08 32 04 04 00 00 08
```

Implementation

- LinkSummaryAck message sent by B side

```
|_=====RCV(msgtype:15)=====
|_
|_+COMMHEAD(LINKSUMMARYAck)-----+
|_+-----+
|_|Vers_16 |(Reserved) |Flags_0|Msg Type_15|
|_+-----+
|_|      LMP Length_16  |(Reserved)      |
|_+-----+
|_+MESSAGE_ID_ACK-----+
|_+-----+
|_|C-Type_2|Class_5|  len_8      |
|_+-----+
|_|      MessageId_5      |
|_+-----+

|_sub_ret = 16
|_ 10 00 00 0f 00 10 00 00 02 05 00 08 00 00 00 05
```

- Comments?
- Move forward?