MSRP Redundant Stream Reservation Protocol Proposal

Contributed by Philippe Klein, PhD

Broadcom

Aug 2013

Proposal Aims

- Keep a clear separation between reservation and path selection

- Minimize the modifications to the current MSRP reservation protocol

- Rely on Short Path Bridging (801.1Qca) to select the best and constrained paths for the streams

- Leave the redundancy scheme and its characteristics as a listener's choice
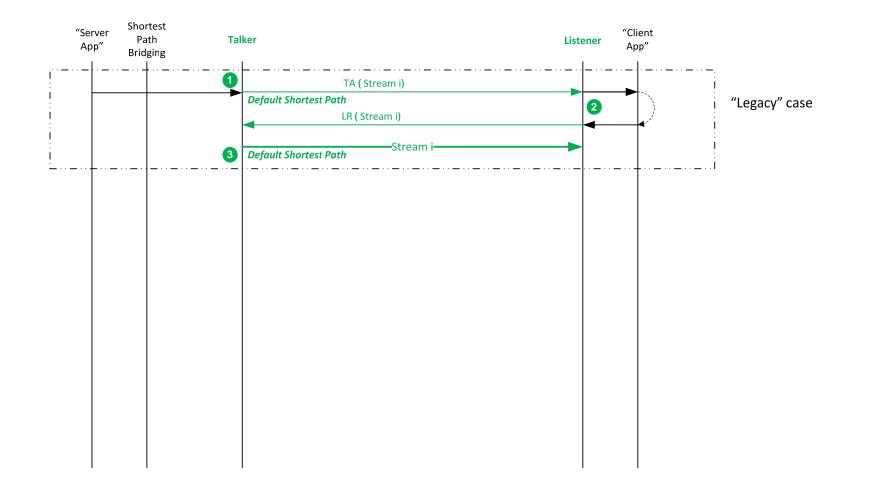
Proposed Scheme

- Extend the Listener Ready message to allow a Listener to request the Talker to advertise the **same stream (same stream ID)** thru alternate paths computed by SPB

- As a result, the redundancy for a given stream could be created.

  The next 3 slides illustrate this proposed scheme

MSRP – "Legacy" scenario
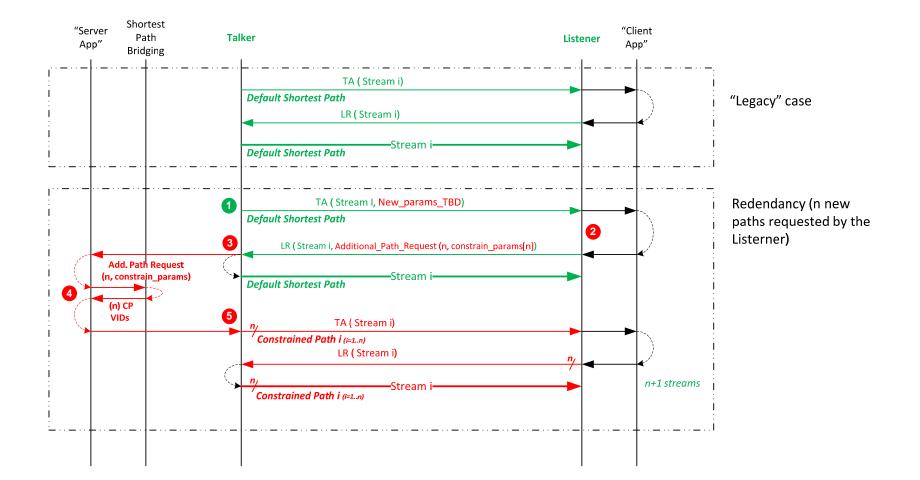

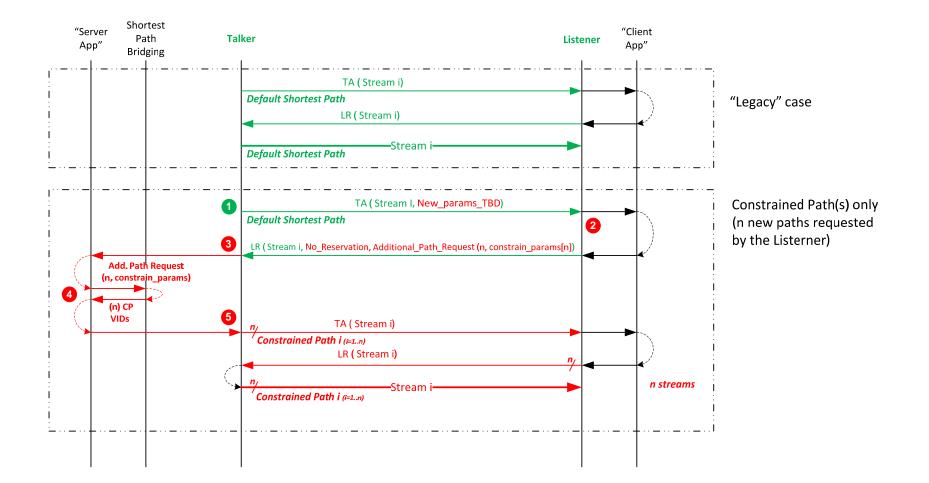"Server App" Shortest Path Bridging **Talker** **Listener** "Client App"

1 TA (Stream i)
Default Shortest Path

2

LR (Stream i)

3 *Default Shortest Path* Stream i

"Legacy" case

MSRP 1+n Redundant Streams

MSRP – n Constrained Streams only

BROADCOM.

```
"Server          Shortest
 App"             Path        Talker                                                              Listener      "Client
                 Bridging                                                                                        App"
```

"Legacy" case

TA (Stream i)
Default Shortest Path

LR (Stream i)

Stream i
Default Shortest Path

Constrained Path(s) only
(n new paths requested
by the Listerner)

❶ TA (Stream I, New_params_TBD)
Default Shortest Path   ❷

❸ LR (Stream i, No_Reservation, Additional_Path_Request (n, constrain_params[n])

Add. Path Request
(n, constrain_params)

❹

(n) CP
VIDs

❺ n/ TA (Stream i)
Constrained Path i (i=1..n)

LR (Stream i) n/

n/ Stream i   **n streams**
Constrained Path i (i=1..n)

tsn-phk-redundant-stream-rsv-0813-v2

New Parameters

- TA: New parameters
  - TBD

- LR:

The parameter data structure should support the case where multiple listener LRs for the same stream are merged together

The listener could optionally indicate its constrain parameters for the default best path to allow the network resource to be optimized

  - Array of Listener IDs
  - Per Listener ID:
    - Reservation/No_Reservation flag (for default best path)
    - Constrain parameters for default best path
    - Nbr of requested additional paths
    - Per requested path: constrain parameters (TBD)

tsn-phk-redundant-stream-rsv-0813-v2

Path Recovery After Failure

- To avoid re-executing the whole n_way exchange after a path failure, the redundancy requests per Stream_ID could be stored in the Talker DB

- Details and other alternatives however are subject to further study

Thank You

philippe@broadcom.com