Reservation of bridge resources

- for STREAM_CONTROL registers and bridge band resource -

Proposal for January 26 P1394.1 working group

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Agenda

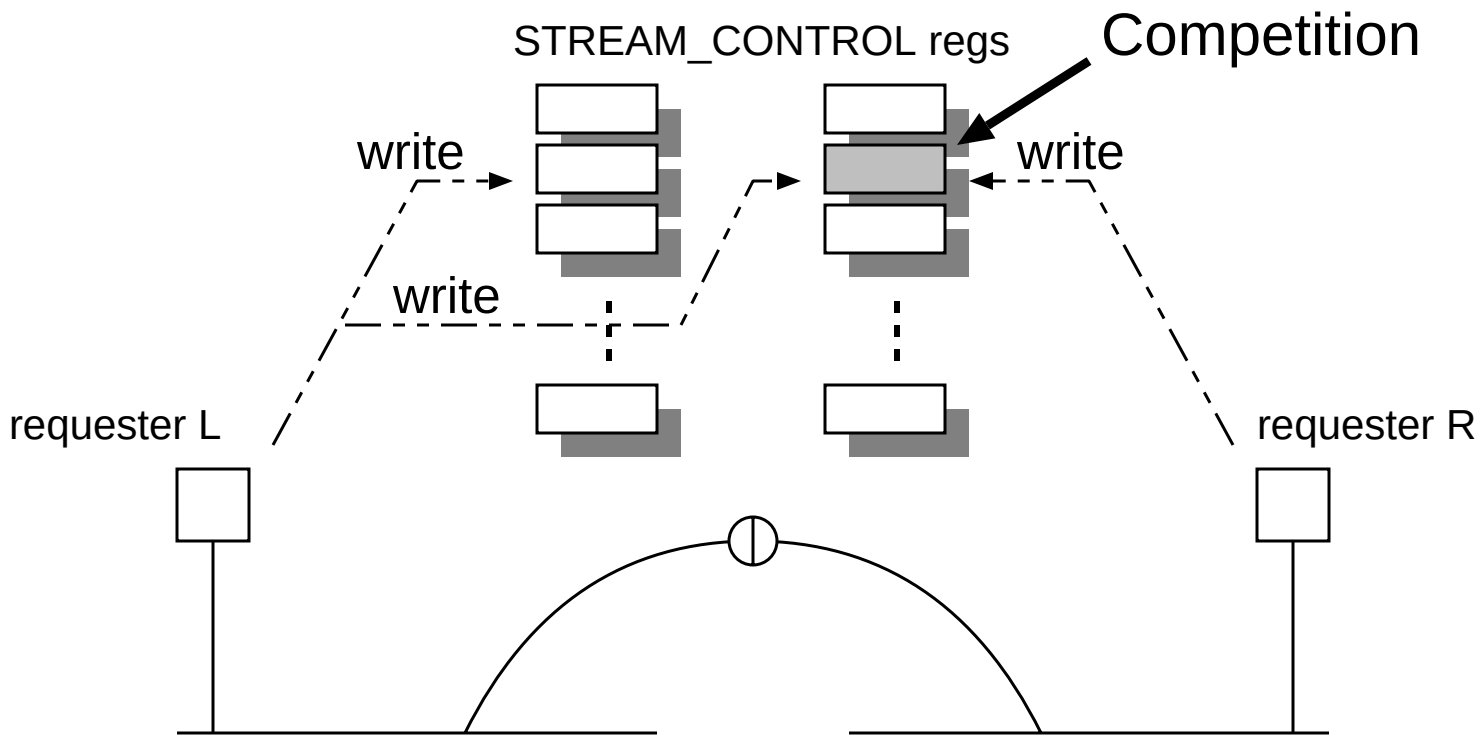
- Problems
  1. Competition of STREAM_CONTROL registers
  2. Bridge bandwidth overflow problem

- Proposal
  3. Definition: Bridge Resoruce Manager (BRM)
  4. Definition: registers and a config ROM field
  5. Proposed procedures for reservation of bridge resources
  6. Bridge type selection

- Conclusion

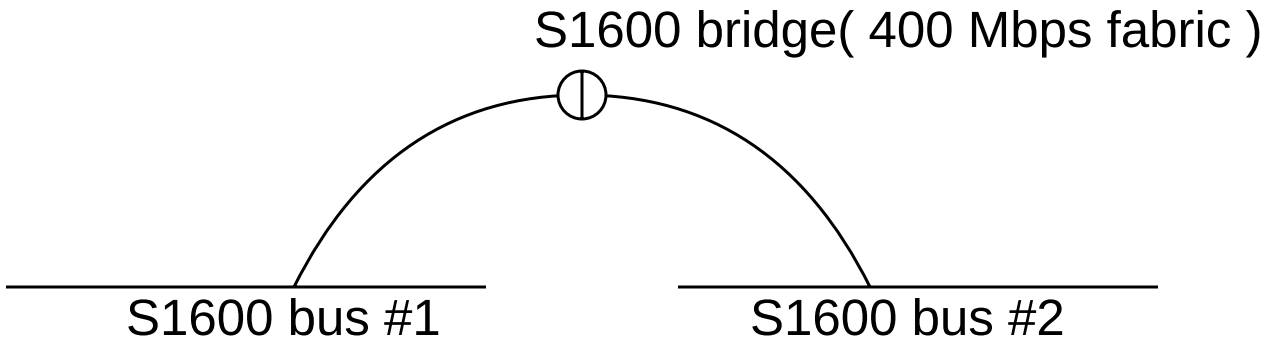
A competition problem

- STREAM_CONTROL registers should function as pairs
- Any requester can write the STREAM_CONTROL registers
  and it causes a competition under the current draft



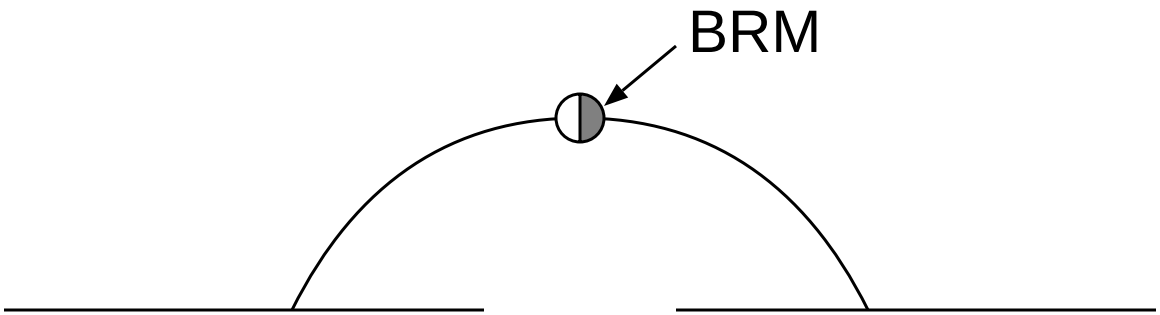
Bandwidth overflow problem

- Some bridges have bandwidth limitation
- The bridge might cause a bandwidth overflow problem
- The band resouce should be managed in order to avoid the problem



Definition 1: Bridge Resource Manager (BRM)

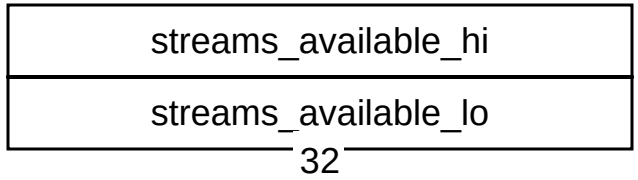
- BRM manages bridge resources:
    1. STREAM_CONTROL registers
    2. band resource in a bridge
- One of two bridge portals should be a BRM



Definition 2: registers and a ROM field

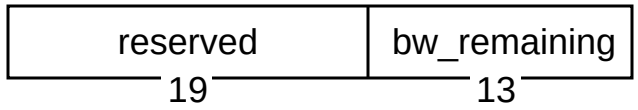
- STREAMS_AVAILABLE register

- BRM should have this register
- This can solve the competition problem of STREAM_CONTROL registers
- The register is similar to CHANNELS_AVAILABLE registetr on IRM
- For bit zero, one value indicates STREAM_CONTROL[0]s on the both portals are available for use
- Otherwise, STREAM_CONTROL[0]s are owned and unavailable



- BRIDGE_BANDWIDTH_AVAILABLE register

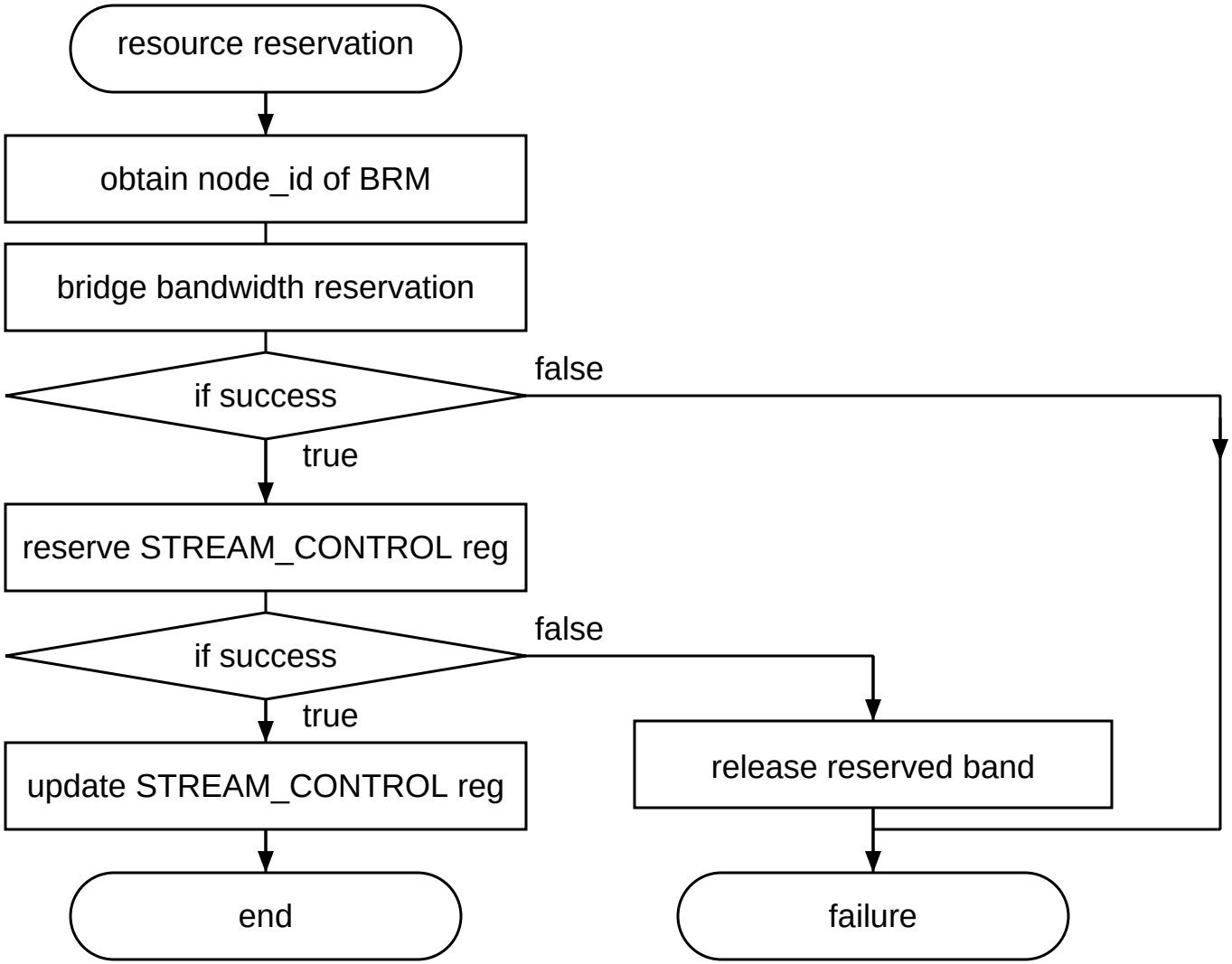
- BRM should have this register
- This can manage band resouce in a bridge
- The register is similar to BANDWIDTH_AVAILABLE register on IRM



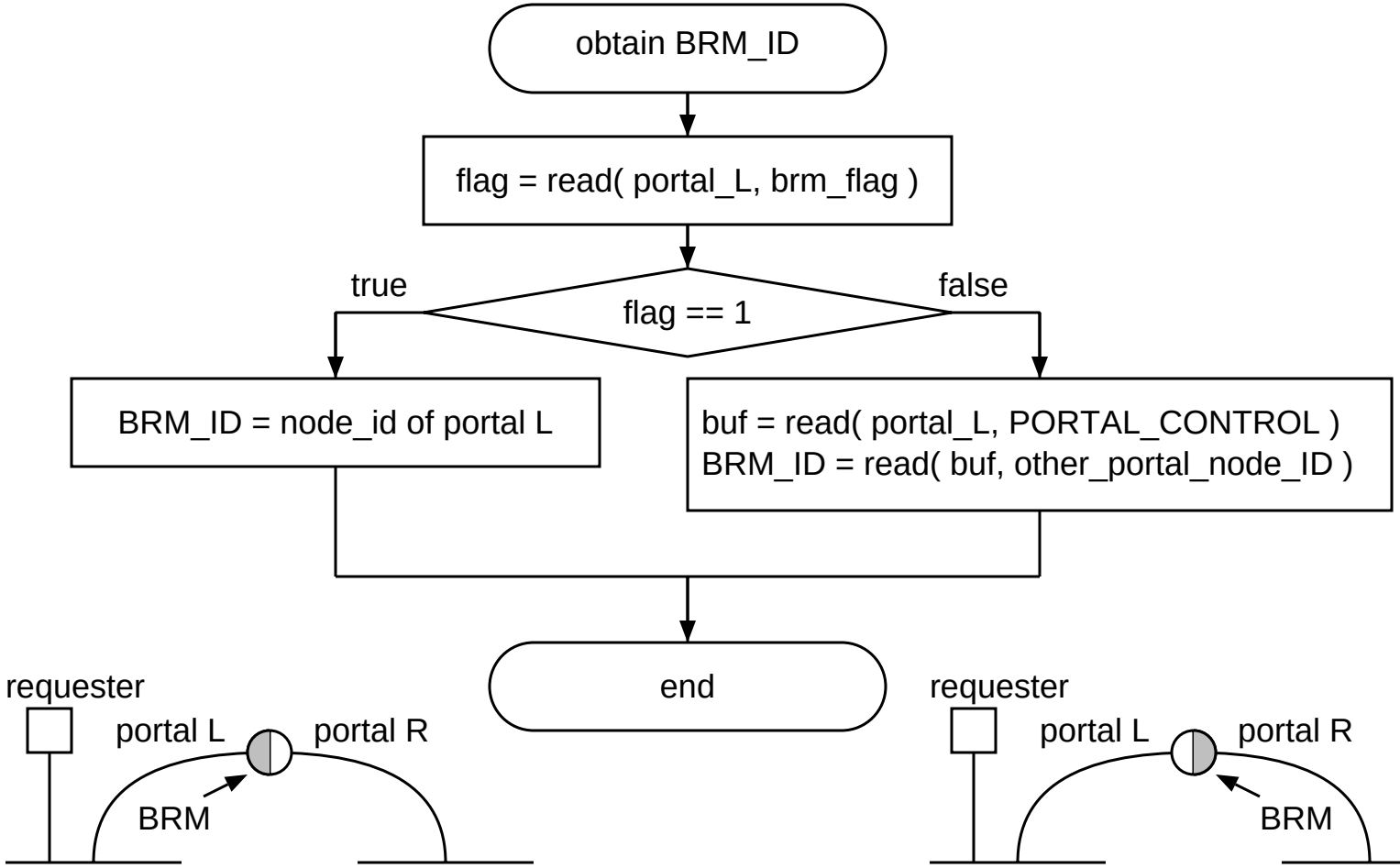
- brm_flag field

- Both portals of a bridge should have the field on their config ROMs
- A requester reads this field at a portal and recognizes which portal is the BRM

Proposed procedure for resource reservation

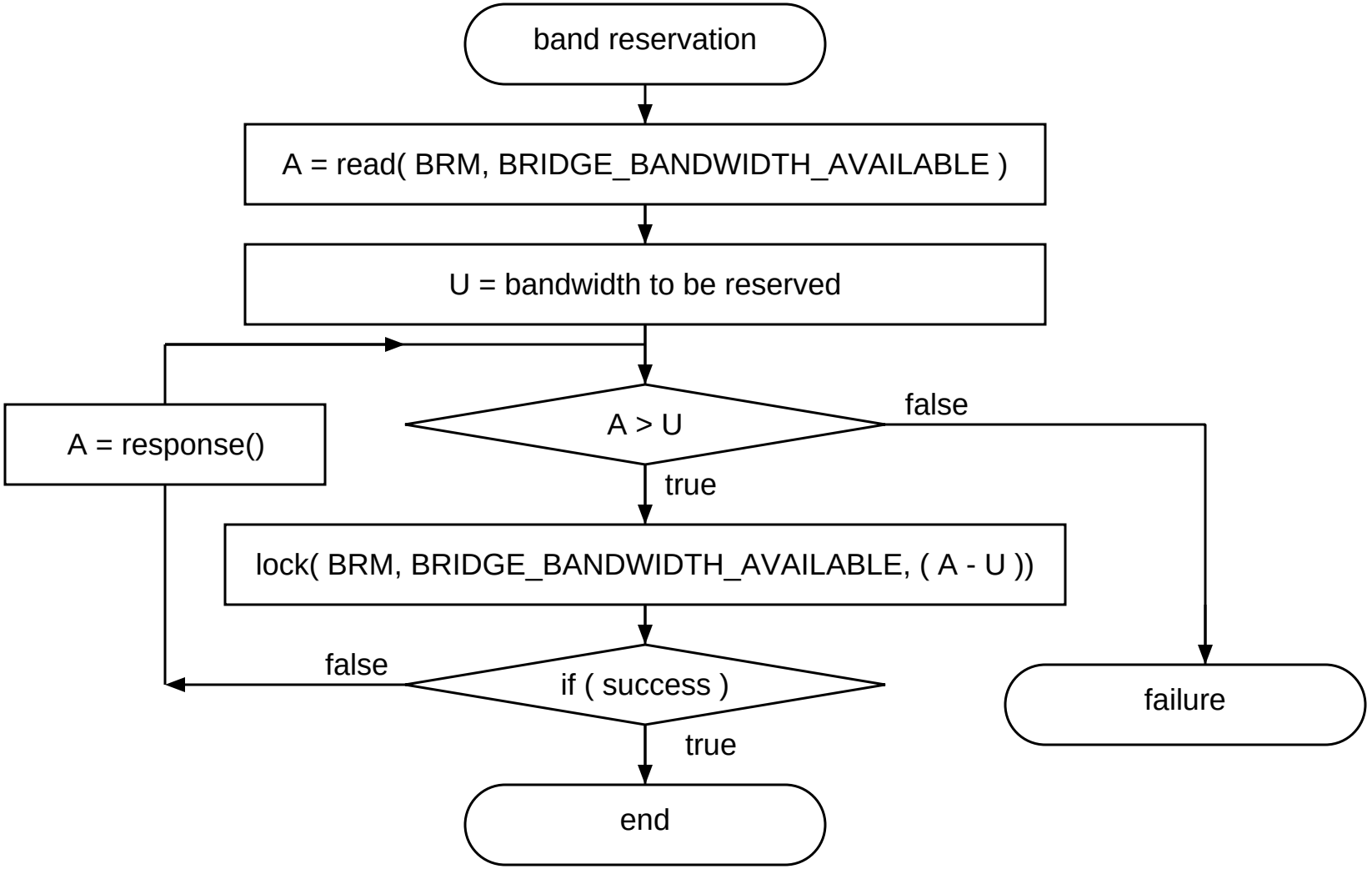


Procedure to obtain BRM_ID

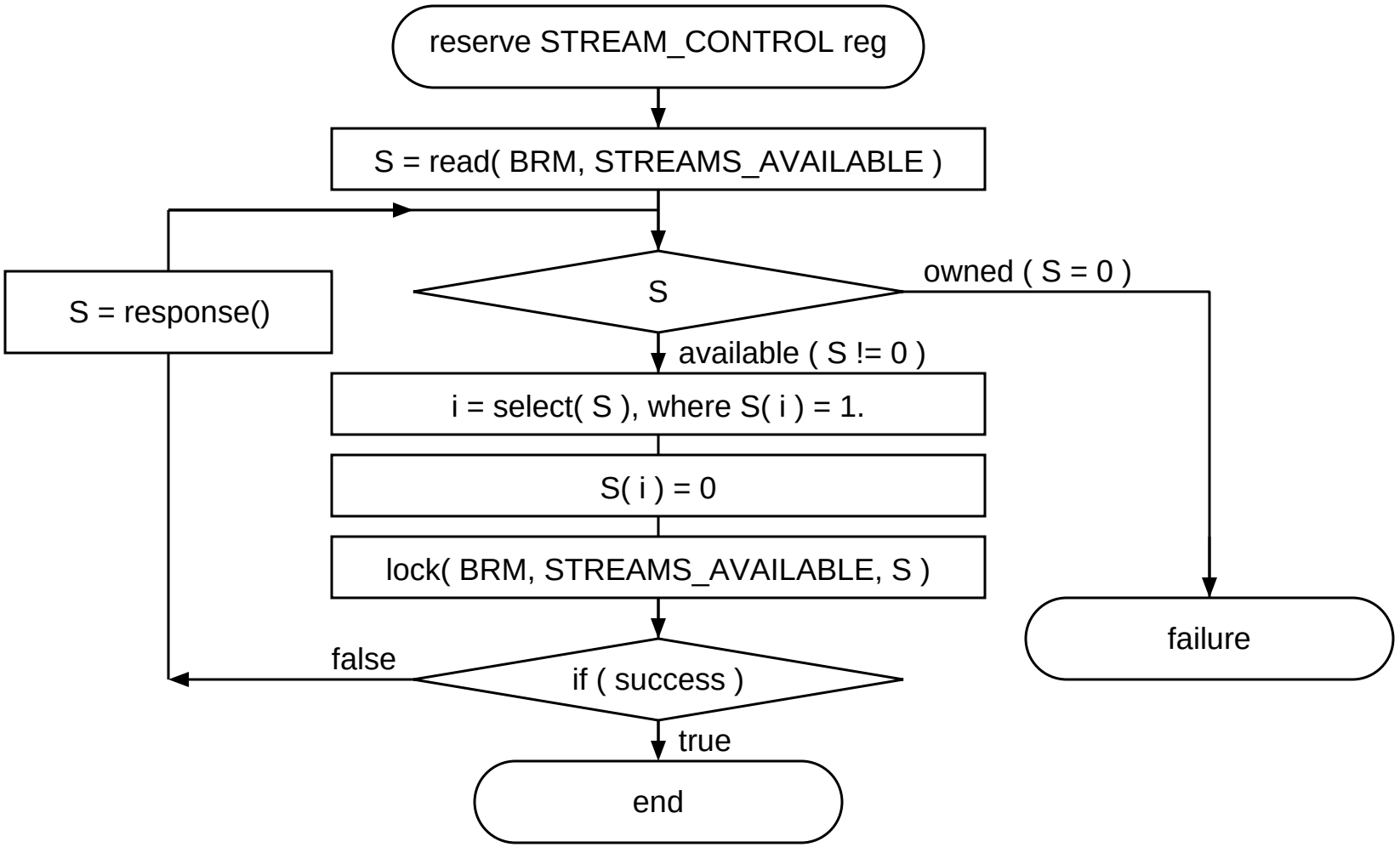


BRM_ID: node_id of BRM

Procedure for bandwidth reservation



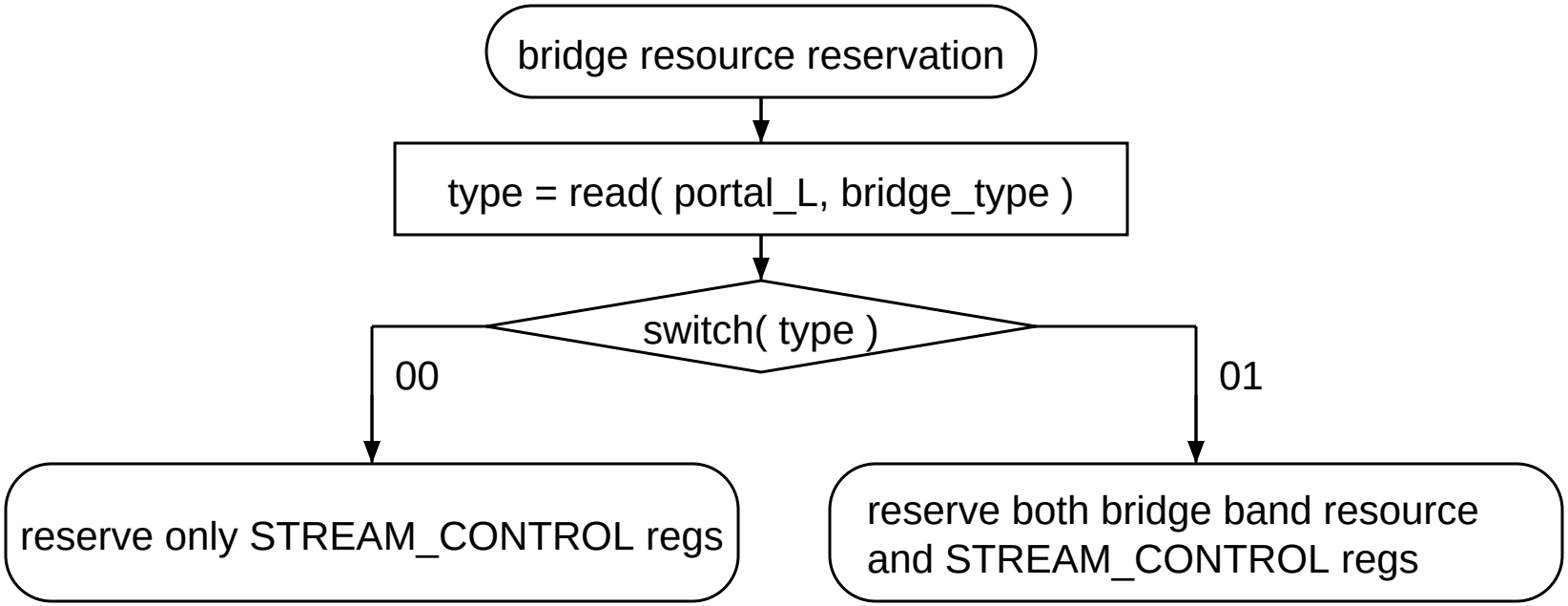
Procedure to reserve STREAM_CONTROL



bridge type selection

Table: bridge type

bridge_type	type
00	no bandwidth limitation
01	bandwidth limitation bridge
10	reserved
11	reserved



Conclusion

- This proposal gives new manager for bridge resouces(BRM)
- BRM can solve the competition problem
- BRM will manage band resource
  for bandwidth limitation bridge
- We will have at least two kind of bridges:
  1. bandwidth limitation bridge
  2. no limitation bridge