Graceful Restart Mechanism for RSVP-TE
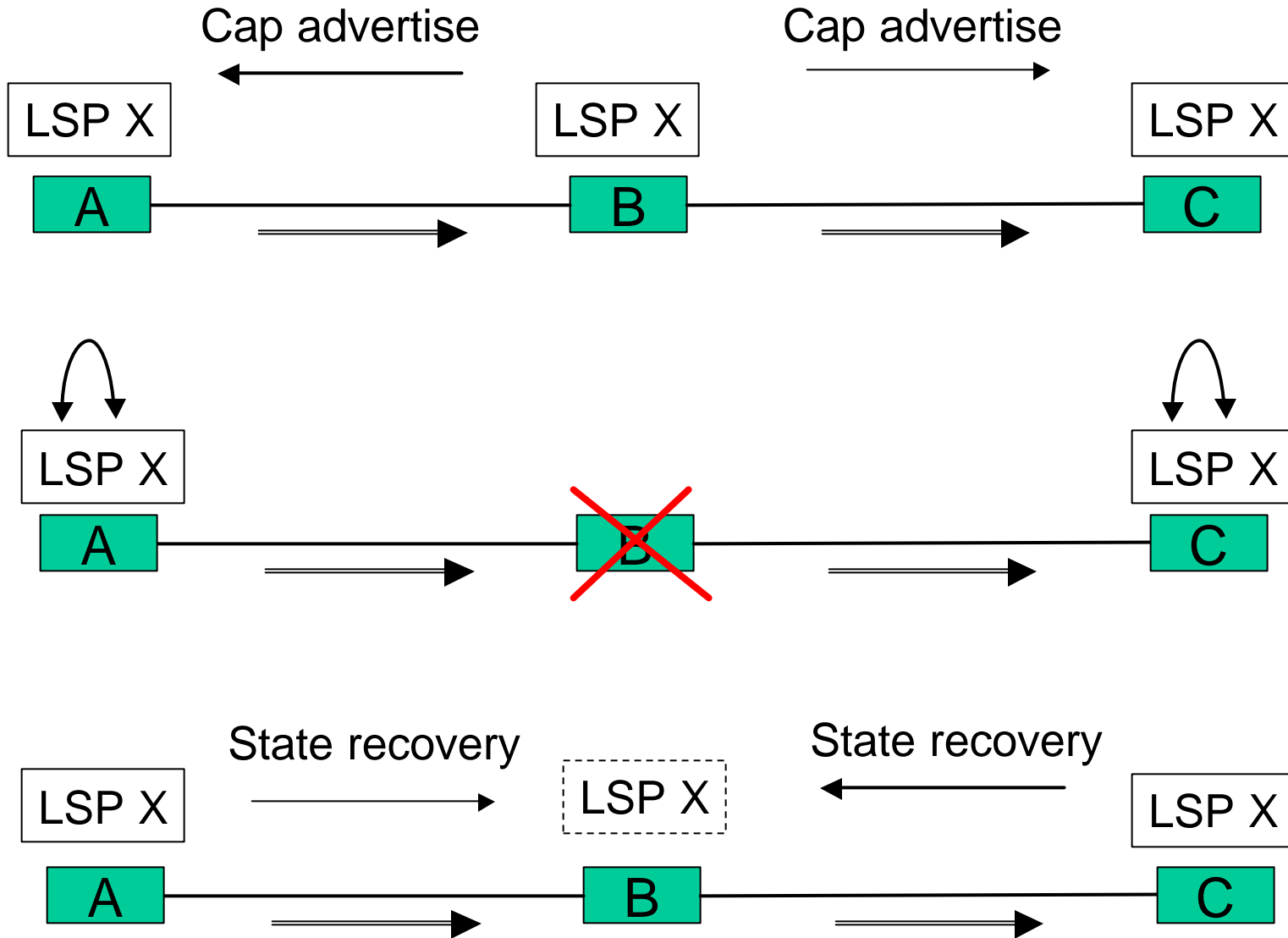
Ping Pan

IETF 51, 8/6/2001
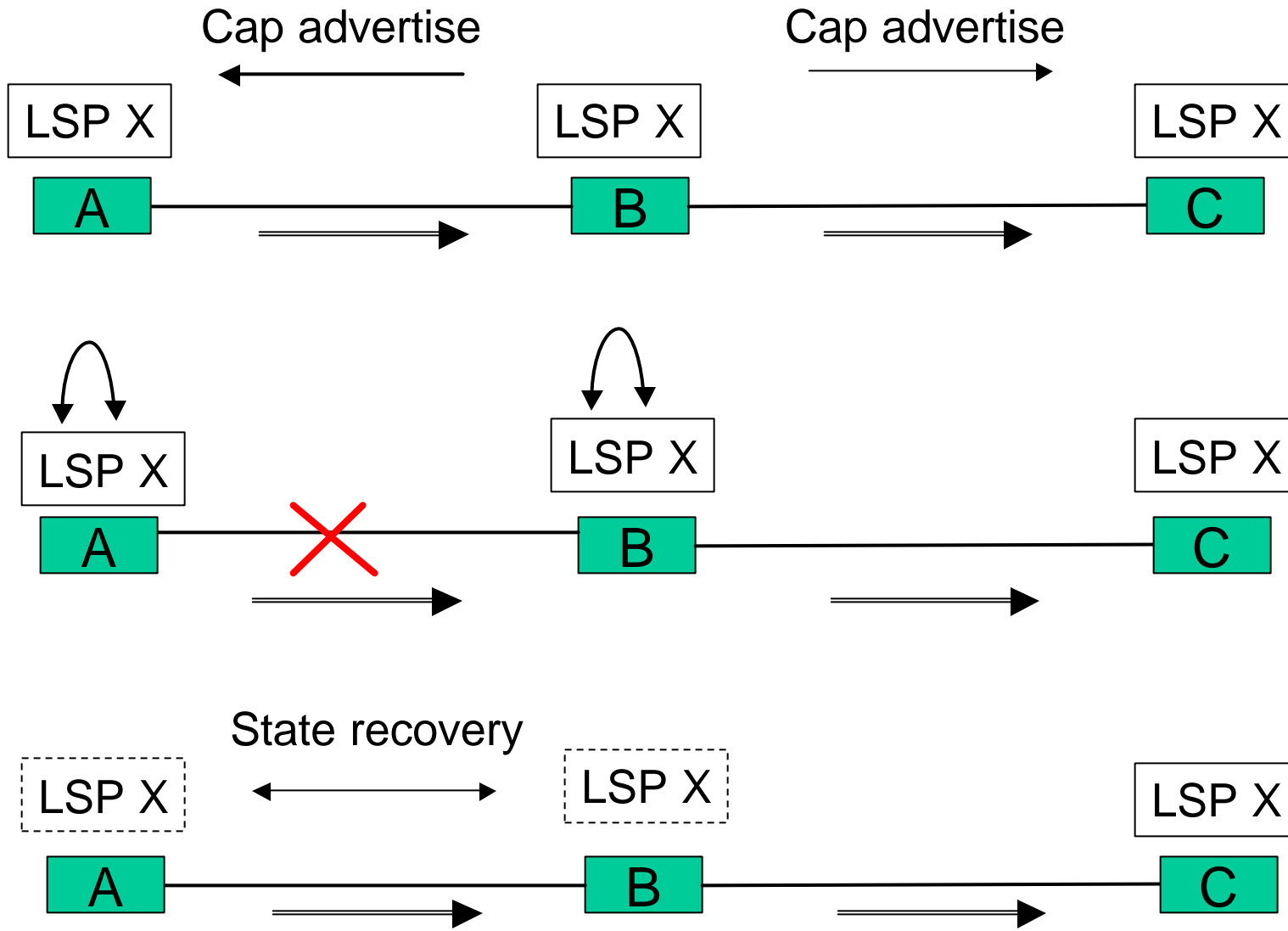
Motivation

- **MPLS forwarding state is OK**
  - IF…
    - LSR control plane restarts (e.g., due to crash, or s/w upgrade).
    - Control channel between LSR's restarts.
  - THEN …
    - All LSP's (at both control and forwarding level) are terminated…

- **Graceful Restart**
  - Recover control plane
  - … while not disturb forwarding plane

Operation: control plane restart

Cap advertise

Cap advertise

LSP X → LSP X → LSP X

A → B → C

LSP X

LSP X

A → B → C

State recovery

State recovery

LSP X → LSP X ← LSP X

A → B → C

Operation: control channel restart

Cap advertise

Cap advertise

| LSP X | | LSP X | | LSP X |

A   B   C

LSP X   LSP X   LSP X

A   ✕   B   C

State recovery

LSP X   LSP X   LSP X

A   B   C

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Protocol Issues

- **Capability Advertisement:**
  - Use HELLO messages
  - RESTART_CAP object
    - Contain timing parameters
- **Recover labels**
  - SUGGESTED_LABEL object [GMPLS]
    - Contain previously allocated labels
- **Refresh Reduction**
  - Work as it is …
    - Will speed-up control-channel recovery

Conclusions

- Useful feature
- Simple to implement
- Backward compatible