



# 802.17 presentations

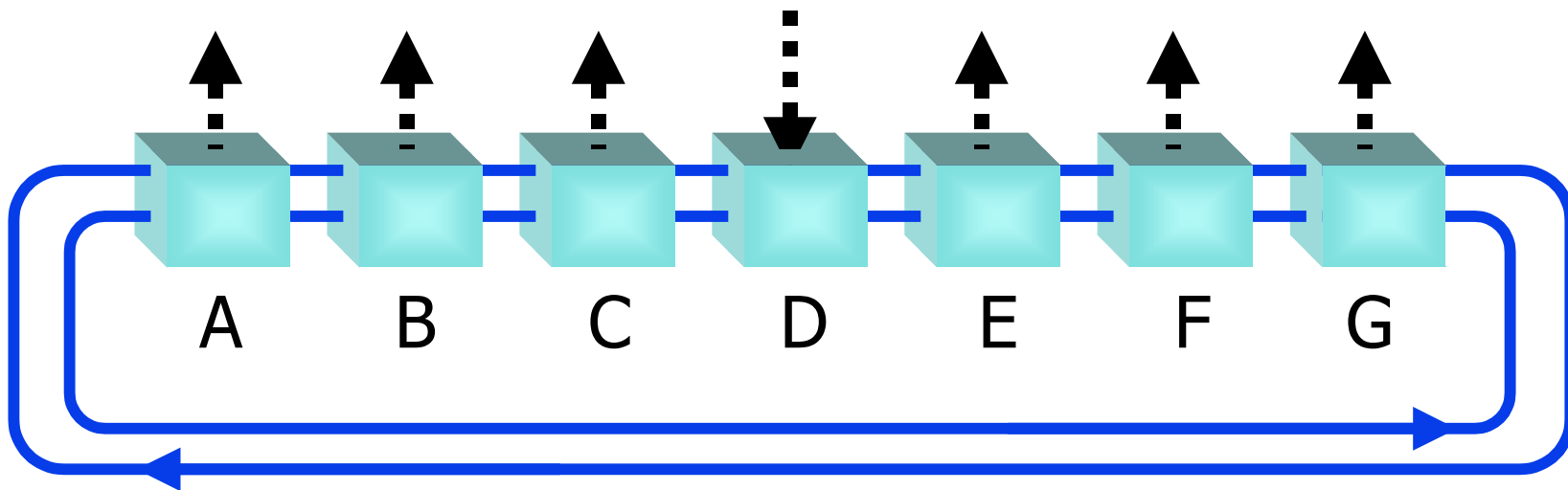
- Prepared for 802.17, March 2002
- David V. James, PhD  
Chief Architect  
Network Processing Solutions  
Data Communications Division  
110 Nortech Parkway  
San Jose, CA 95134-2307  
Tel: +1.408.942.2010  
Fax: +1.408.942.2099  
Base: [dvj@alum.mit.edu](mailto:dvj@alum.mit.edu)  
Work: [djz@cypress.com](mailto:djz@cypress.com)



# Flooding protocols

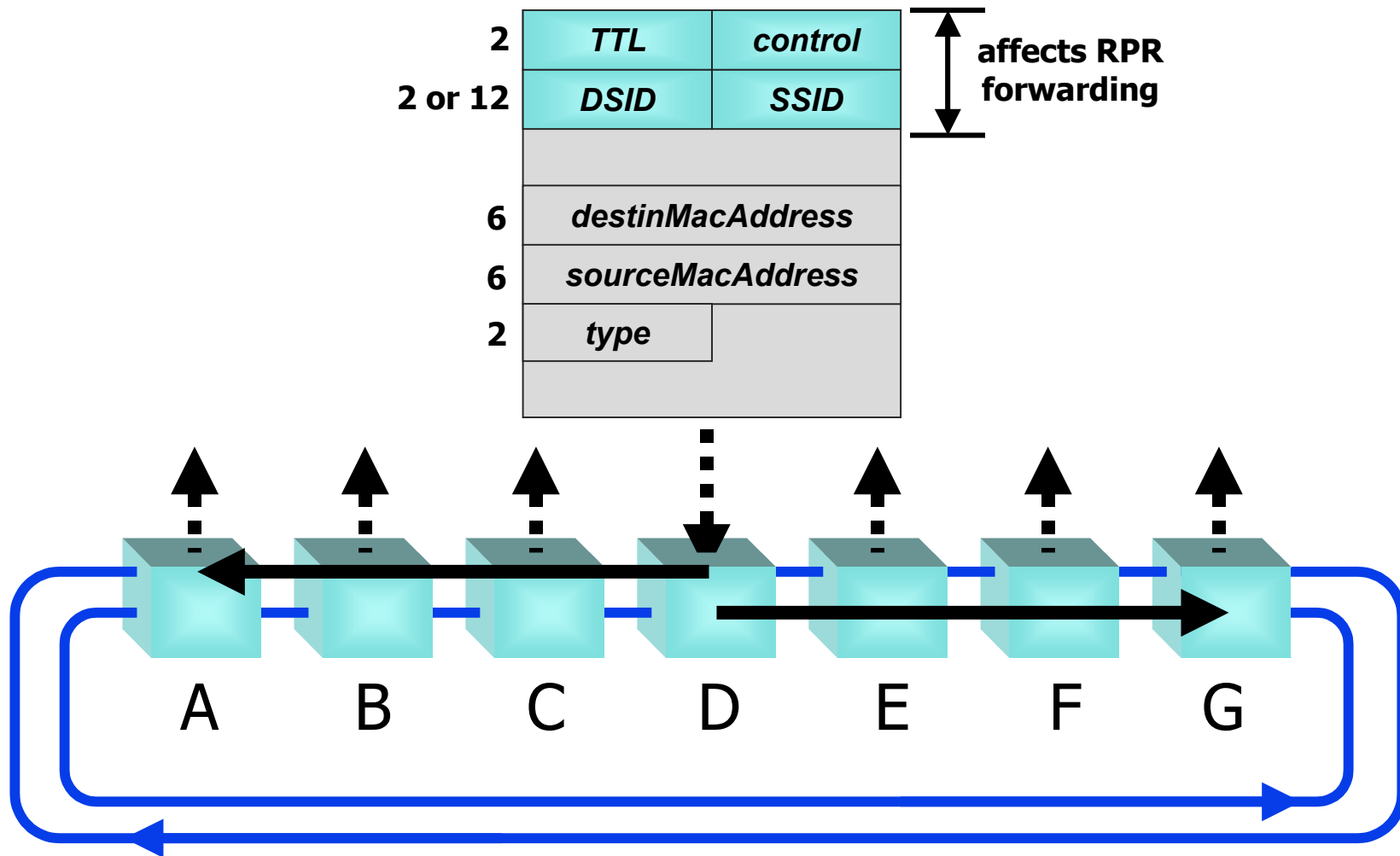


## Flooding operations



- Unlearned remote unicast
- Local&remote broadcast
- Local&remote multicast

# Flooding components

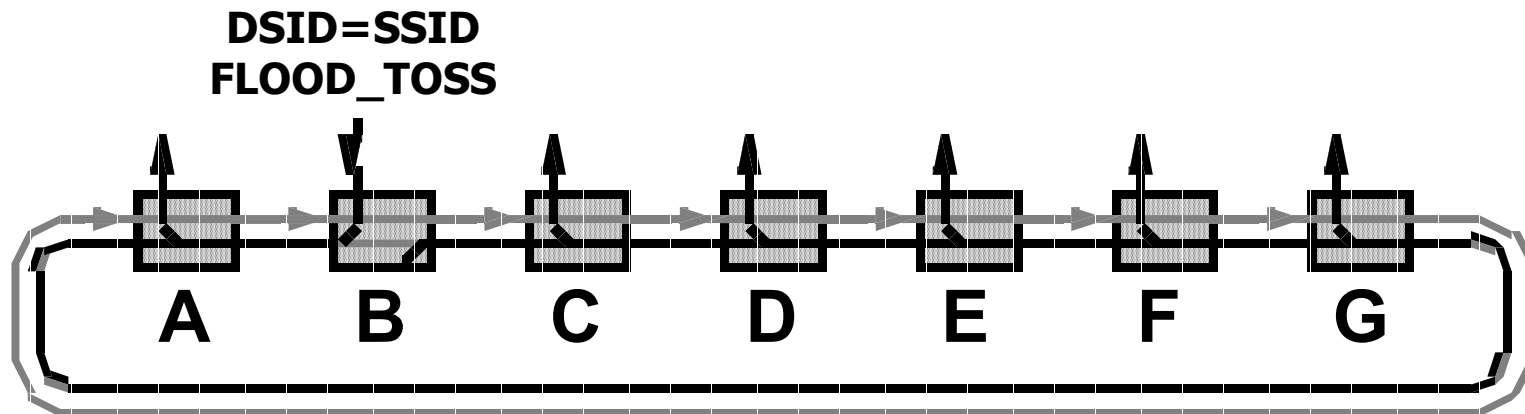
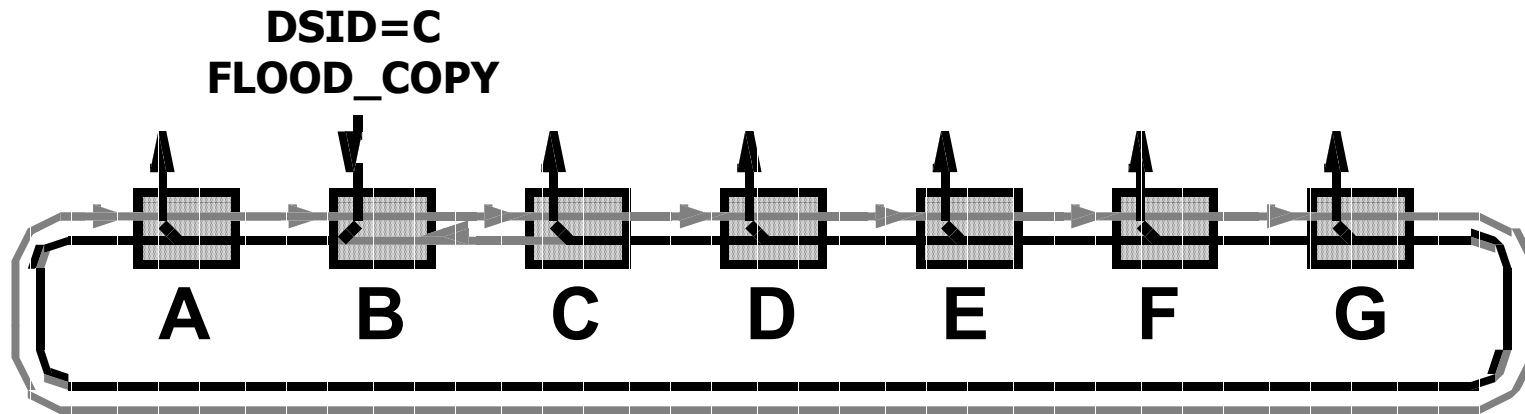




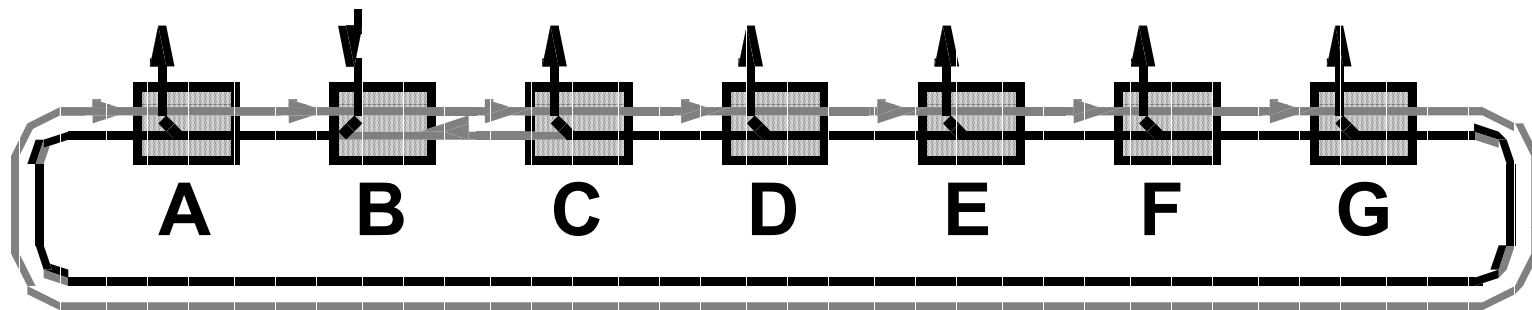
# Multidrop properties

- **No frame misordering**
  - **steering after protection, topology change**
  - **explicit flush sometimes required**
  - **flood and remote unicast utilize the same path**
- **No frame duplication**
  - **DSID, SSID, TTL consistency check**
  - **assumes TTL decrements from 255**

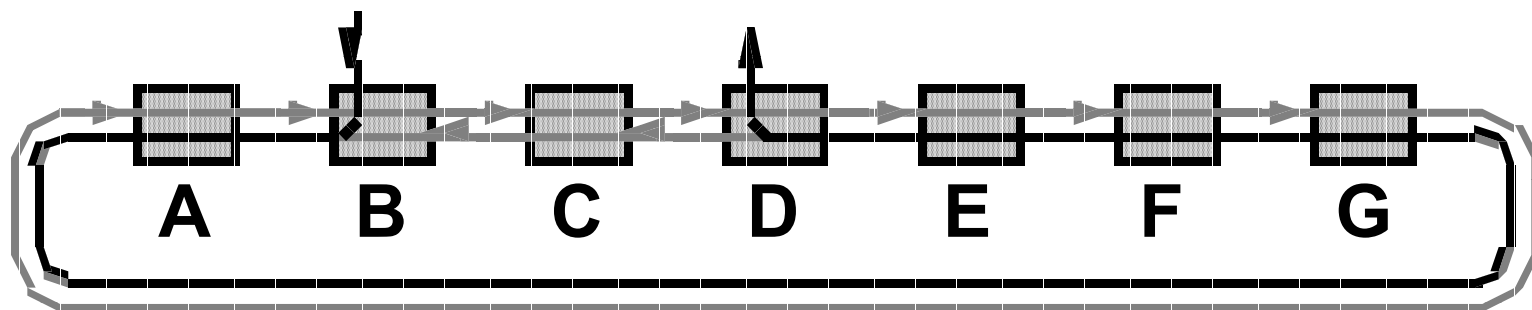
# Unidirectioned/unidirectional flooding



## Consistent flood/unicast paths



**unidirectional leftside flooding**

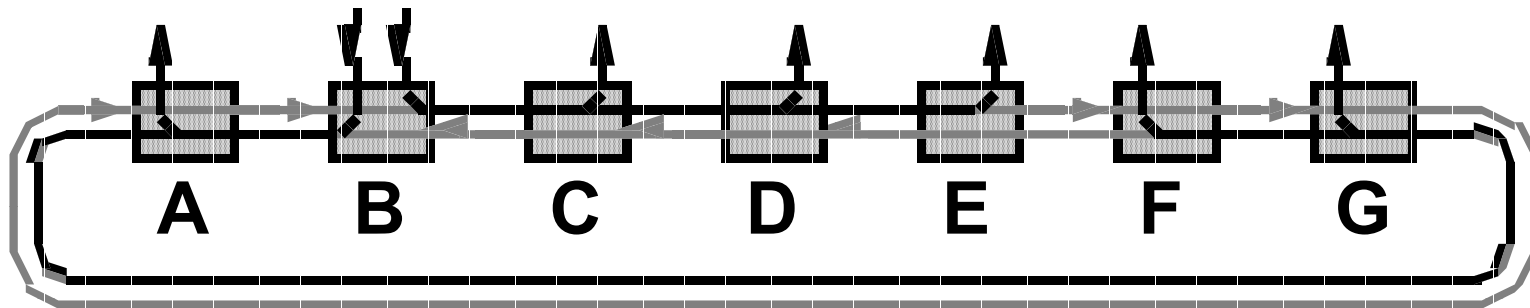


**unidirectional leftside remote-unicast**

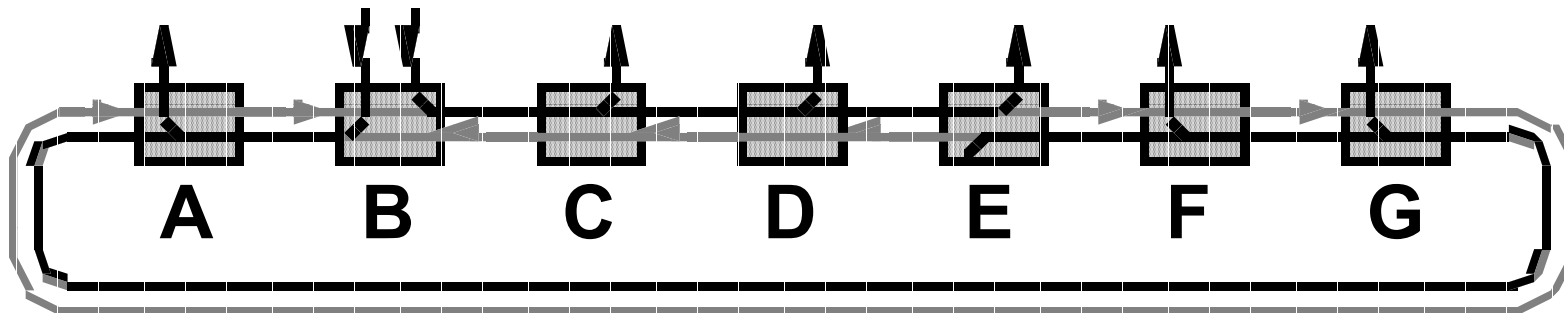


# Bidirectional & bidirectional flooding

DSID=F DSID=E  
FLOOD\_COPY



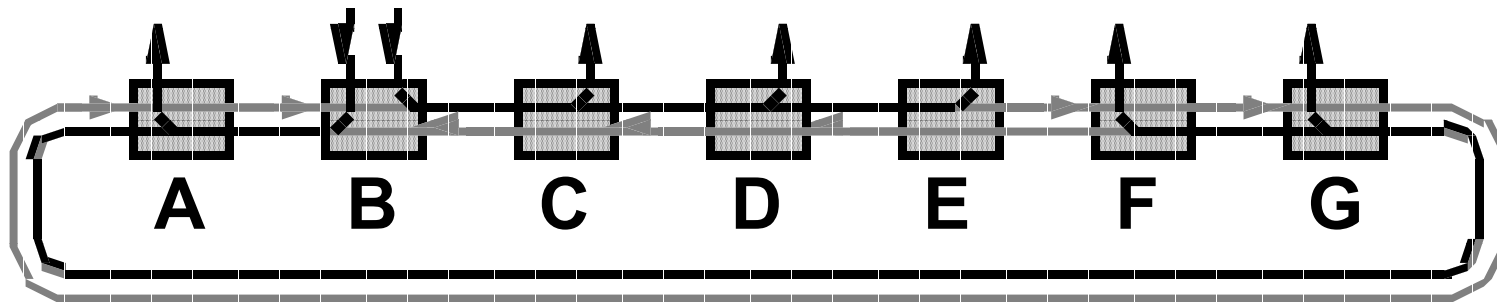
DSID=E  
FLOOD\_TOSS FLOOD\_COPY



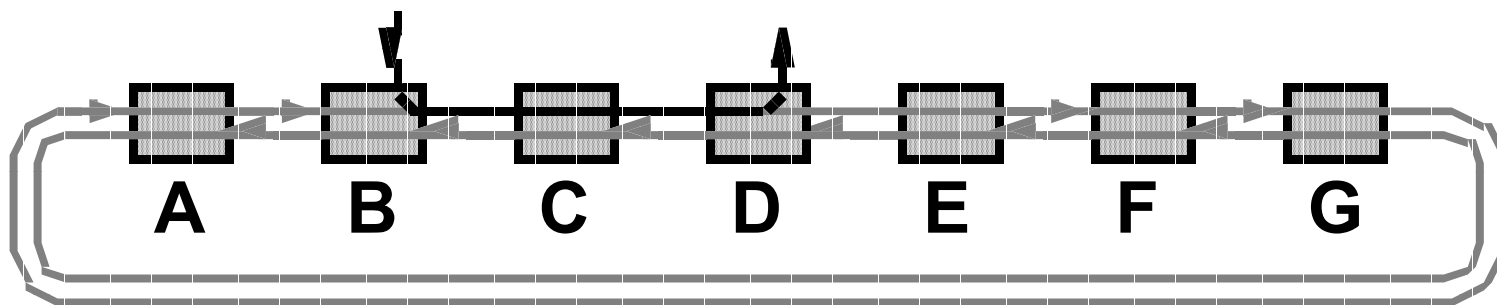




## Consistent flood/learned paths



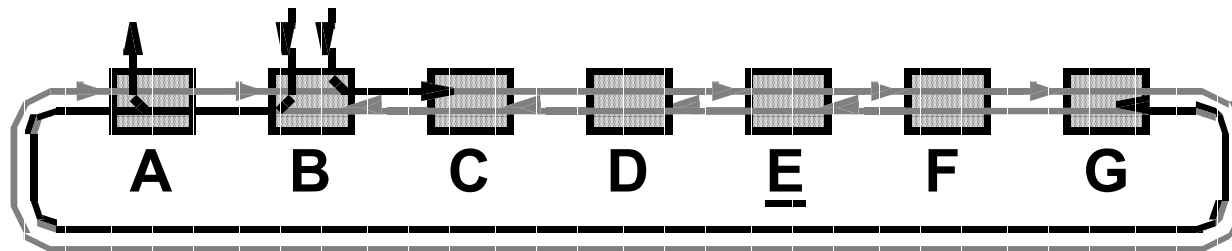
ring flooding



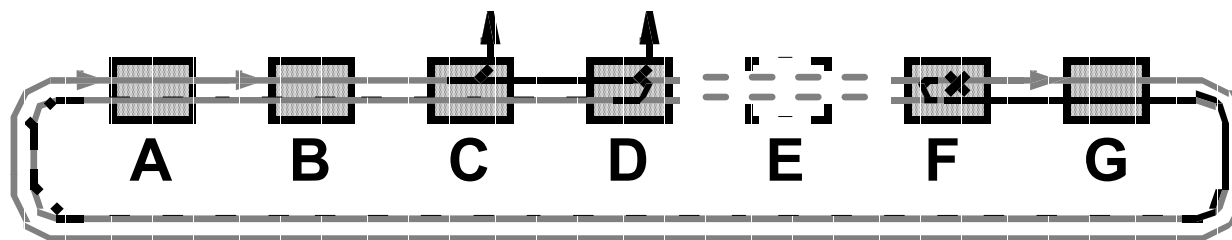
learned remote-unicast



# Bidirectional duplicate suppression



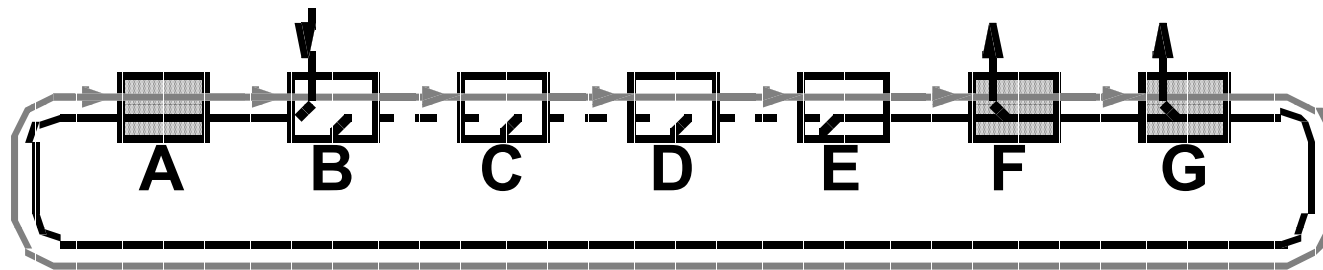
bidirectional flooding starts



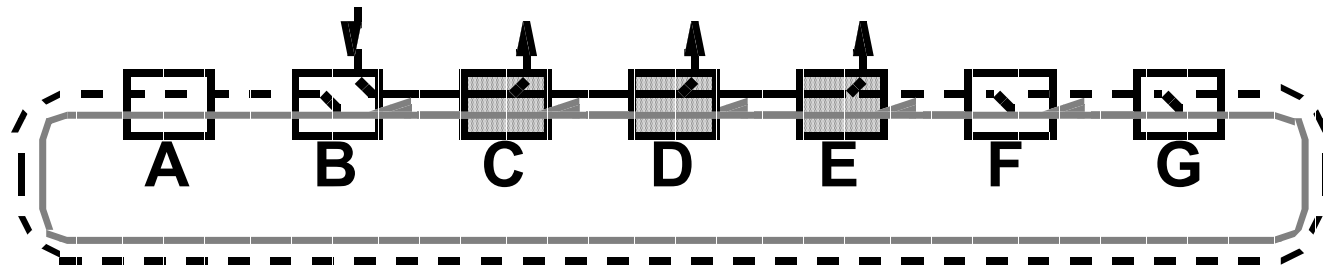
rightsided flooding completion



## Interval-deletion protocols



capable counterclockwise stations



capable clockwise stations

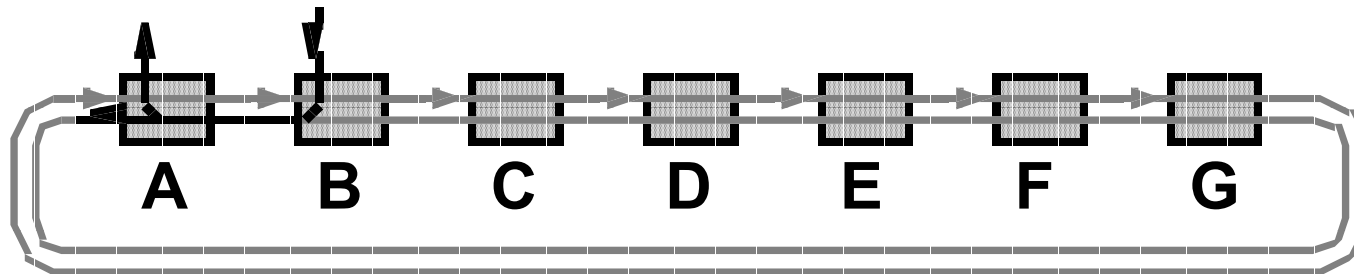


## Interval-deletion protocols

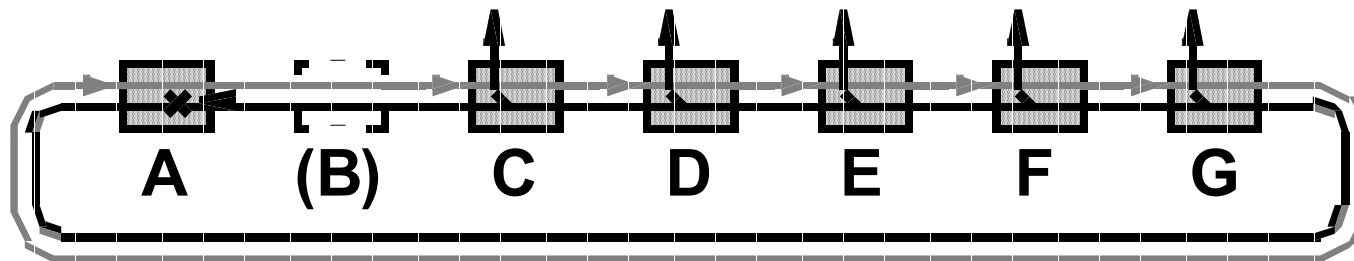
- **DSID is invalid**
- **SSID is invalid**
- **Interval is invalid:**
  - **frame.ringletID==attachment.ringletID**
  - **dbase.hopsFromSSID > dbase.hopsFromDSID**



## Unidirectional deletion protocols



ring flooding starts



ring flooding completes



## Timeout-deletion protocols

- All of the following conditions:
- `frame.ringletID==attachment.ringletID`
- `(256-frame.timeToLive) > dbase.hopsFromSSID`
- `(256-frame.timeToLive)!=`  
`dbase.hopsFromSSID+dbase.stationsOnRing`
  - assuming `timeToLive-= 2` at wrap point

# Flooding conclusions

- **DSID and SSID are unique station addresses**
- **MAC addresses & type don't affect transit routing**
  - **Could affect a multicast filter**
- **Distinctive flood codes desired:**
  - **Basic: FLOOD\_COPY, FLOOD\_TOSS**
  - **Enhanced: FLOOD\_COPY, FLOOD\_TOSS**
  - **Possibly 3-bit type field (2-bit type + flood)**
- **Flooding techniques apply to multicast & broadcast**
- **Flooding formats applicable to remote unicast**
- **Duplicates are eliminated (for all cases considered)**
  - **Requires DSID/SSID & TTL consistency checks**
- **Misordering is avoidable (using flush as necessary)**