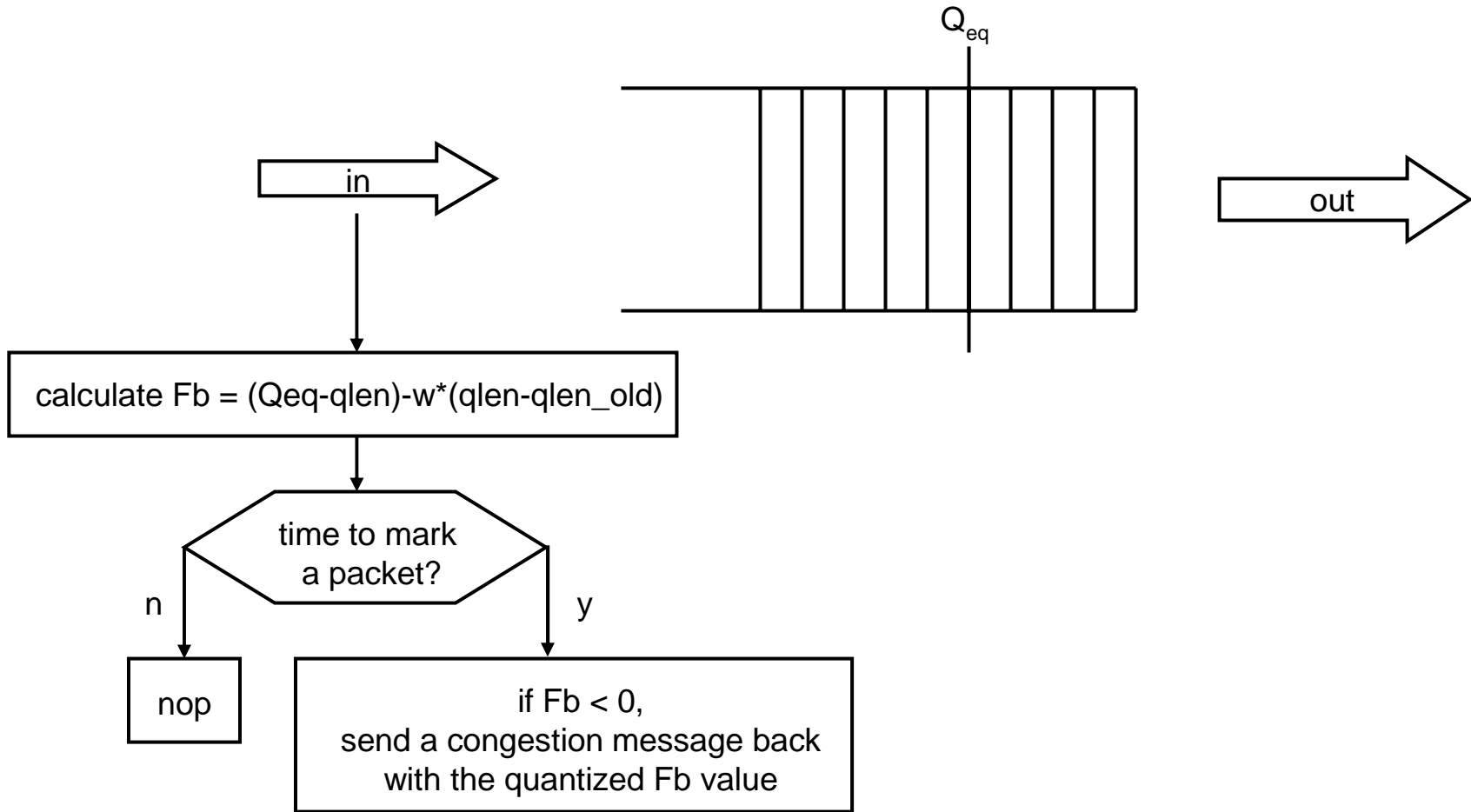# Rate Limiter Installation

Balaji Prabhakar and Rong Pan
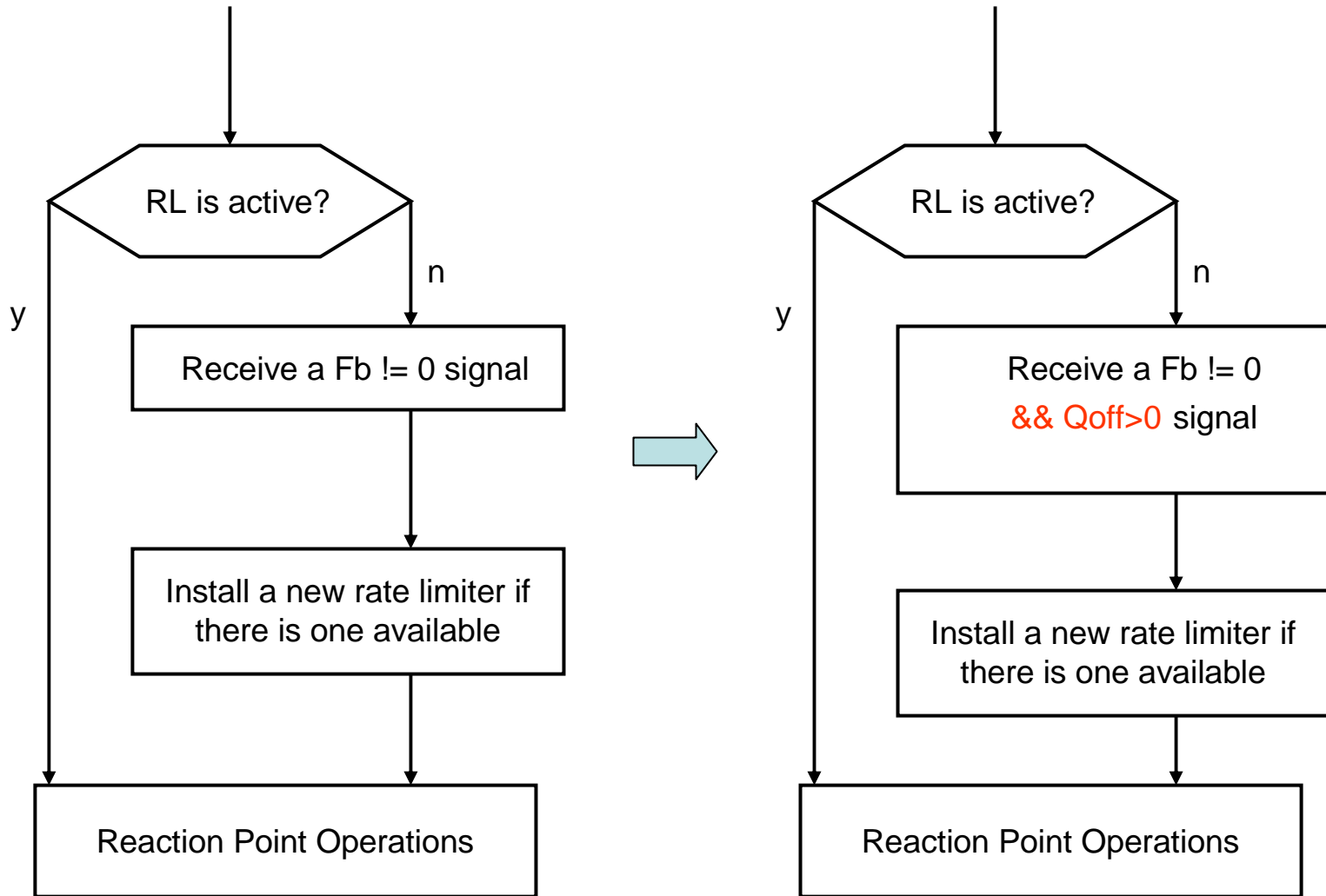
Current Situation

- A new L2 flow, for which an RL has not been installed, currently gets an RL the first time it gets an Fb < 0 message from the network

- As pointed out by Guenter Roeck and Mitch Gusat, this can cause unnecessary rate limiter installations
  - Because Fb<0 can happen even when Qlen < Qeq (equivalently when Qoff < 0)

- Suggested change: install RL only if Qoff > 0 and Fb < 0

- We show the exact change in the p-code

QCN - Congestion Point

Q_{eq}

in

out

calculate Fb = (Qeq-qlen)-w*(qlen-qlen_old)

time to mark
a packet?

n

y

nop

if Fb < 0,
send a congestion message back
with the quantized Fb value
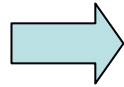
QCN - Reaction Point

Proposed Pseudo Code Modification

```
if (RL[rlidx].state = = INACTIVE) then
    if (FBFrame.fb != 0) then
        //initialize new rate limiter
        RL[rlidx].state = ACTIVE;
        RL[rlidx].flowid = FBFrame.flowid;
        RL[rlidx].crate = C;
        RL[rlidx].trate = C;
        RL[*].tx_bcount = BC_LIMIT;
        RL[rlidx].si_count = 0;
    else
        //ignore FBFrame
        return;
    endif
endif
```

```
if (RL[rlidx].state = = INACTIVE) then
    if (FBFrame.fb != 0 && Q_off>0) then
        //initialize new rate limiter
        RL[rlidx].state = ACTIVE;
        RL[rlidx].flowid = FBFrame.flowid;
        RL[rlidx].crate = C;
        RL[rlidx].trate = C;
        RL[*].tx_bcount = BC_LIMIT;
        RL[rlidx].si_count = 0;
    else
        //ignore FBFrame
        return;
    endif
endif
```