

**98-0885R1**

**Proposal To Move The  
DFBA Text To Baseline**

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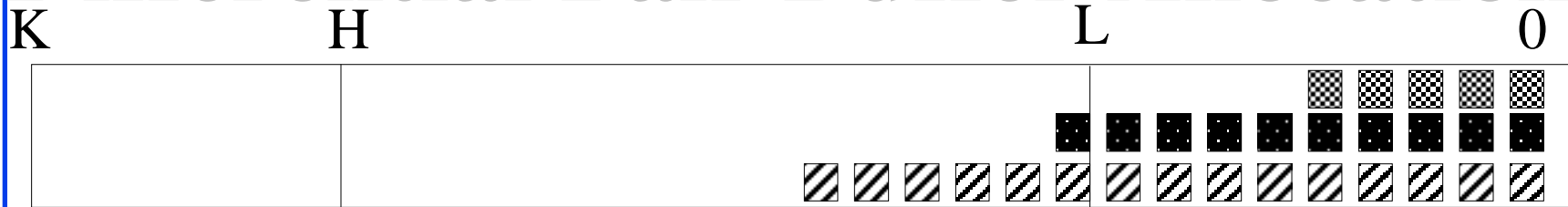


- ❑ The DFBA Scheme: 98-0405
- ❑ Motion

# GFR Sample Implementations

- ❑ VII.2.1: WFQ and Per-VC Accounting
  - Works for TCP [ATM Forum 97-0528]
  - Multiple TCPs per VC not tested
- ❑ VII.2.2: Tagging and FIFO Queuing
  - Does not work for TCP [ATM Forum 97-0310]
- ❑ (Proposed VII.2.3): DFBA [ATM Forum 98-0405]
  - Works for TCP
  - Works for multiple TCPs per VC
  - Works for terrestrial and satellite RTTs

# Differential Fair Buffer Allocation



$$X > H$$

$\Rightarrow$  EPD

$$X > L \Rightarrow \text{Drop all CLP1.}$$

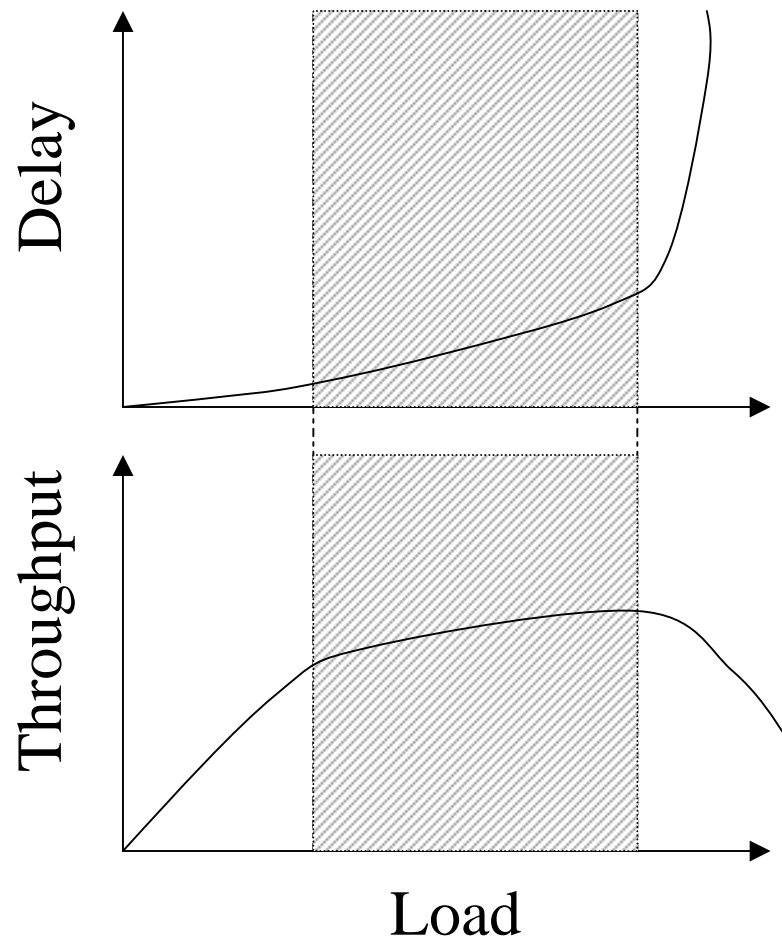
$X > L$  and  $X_i > X * W_i / W \Rightarrow$   
Probabilistic Loss of CLP0

$$X \leq L$$

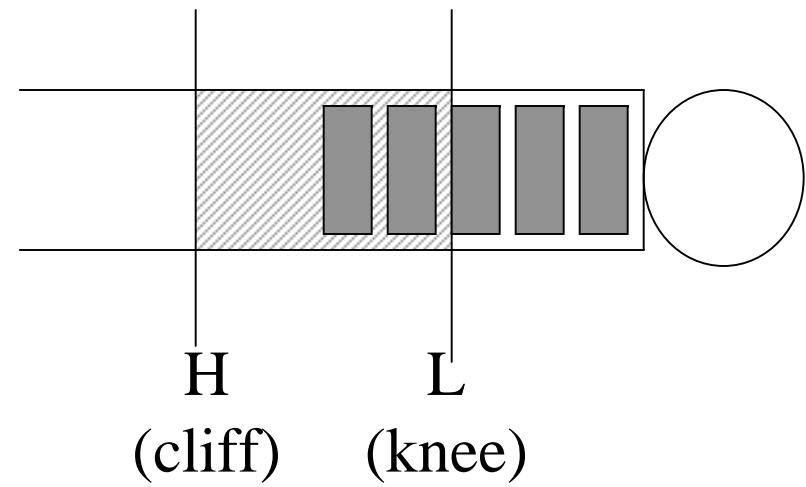
$\Rightarrow$  No Loss


- $W_i = \text{Weight of VC}_i = \text{MCR}_i / (\text{GFR Capacity})$
- $W = \sum W_i$
- $L = \text{Low Threshold. } H = \text{High Threshold}$
- $X_i = \text{Per-VC buffer occupancy. } (X = \sum X_i)$
- $Z_i = \text{Parameter } (0 \leq Z \leq 1)$

# DFBA Operating Region

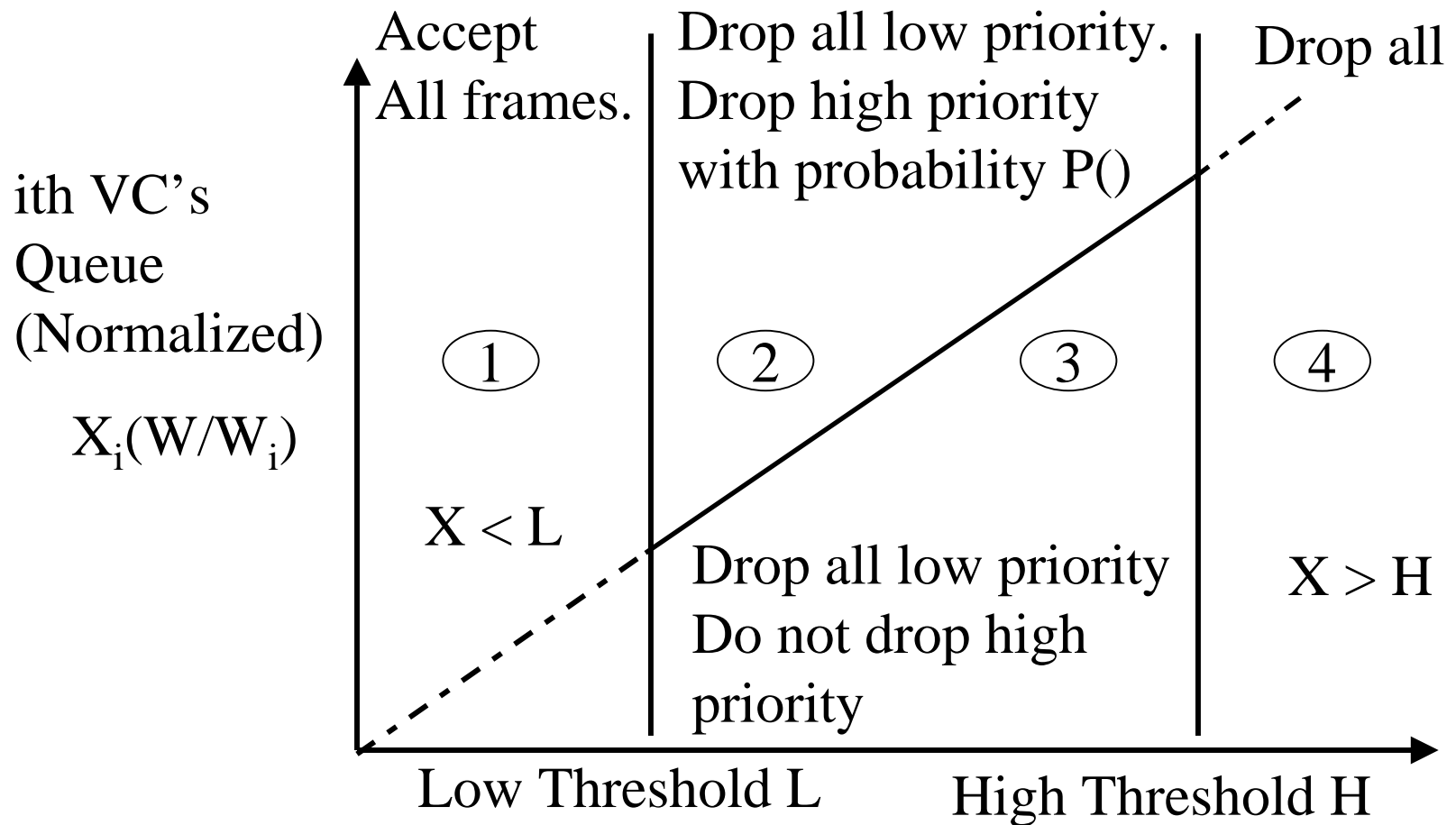


Buffer occupancy (X)



 Desired operating region

# DFBA (contd.)



TCP Rate  $D \propto \frac{MSS}{RTT \times \sqrt{P(drop)}}$

# **New Baseline Text**

- ❑ **VII.2.1 GFR Implementation using Weighted Fair Queuing and per-VC accounting**

(Unchanged)

- ❑ **VII.2.2 GFR Implementation Using Tagging and FIFO Queue**

(Unchanged)

- ❑ **VII.2.3 GFR Implementation Using Differential Fair Buffer Allocation**

(From living list)

- ❑ **VII.2.4 Evaluation Criteria**

(From VII.2.3 in the baseline text document.)

# DFBA Algorithm

When first cell of frame arrives:

IF ( $X < L$ ) THEN

Accept frame

ELSE IF ( $X > H$ ) THEN

Drop frame

ELSE IF ( ( $L < X < H$ ) AND ( $X_i \leq X \times W_i / W$ ) )

Drop CLP1 frame

ELSE IF ( ( $L < X < H$ ) AND ( $X_i > X \times W_i / W$ ) )

Drop CLP1 frame

Drop CLP0 frame with

$$P\{\text{Drop}\} = Z_i \left( \alpha \times \frac{X_i - X \times W_i / W}{X(1 - W_i / W)} + (1 - \alpha) \times \frac{X - L}{H - L} \right)$$

# Motion

- Move the modified Section VII.2.3 in the GFR section of the living list to the baseline text.