

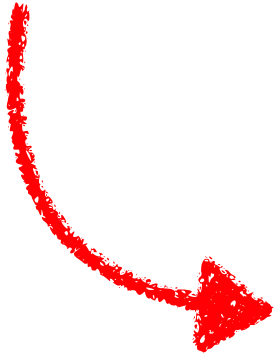
Which FIFCO is right for you?

Ask yourself two questions?

1. Will more than one thread currently read/write into the FIFO?

2. What should happen if the FIFO is full when writing/empty when reading?

Choose One



Single Thread

Multiple Thread

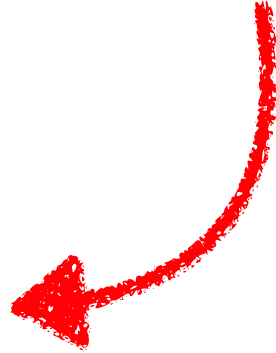
Choose One

Report if FIFO Full

(does not advance write pointer
when full)

Overwrite when full

(always advances write pointer,
never checks write pointer - loss
of FIFO ordering on overwrite)



Consumer



Single Thread

Multiple Thread

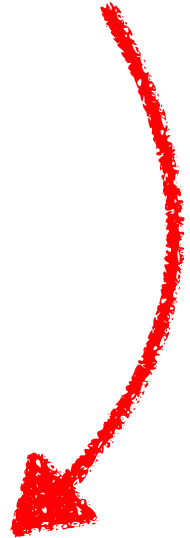
Choose One

Report if FIFO Empty

(does not advance read pointer
when empty)

Return “null” element

(always advances read pointer,
never checks write pointer - loss
of FIFO ordering on underrun)











Example 1: audio thread is sending “down-sampled” audio to UI thread to display as waveform

Example 2: "Peak detection" from multiple sensors



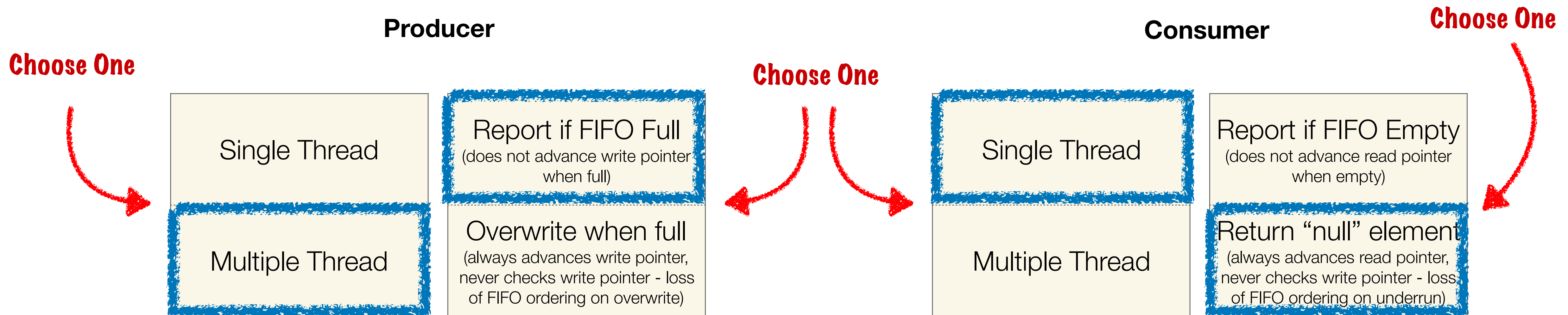




Which FIFO is right for you?

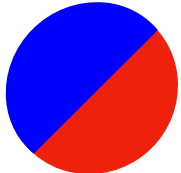
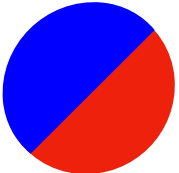
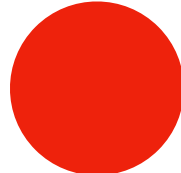
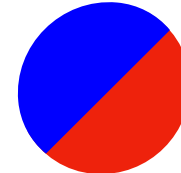
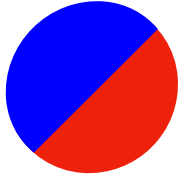
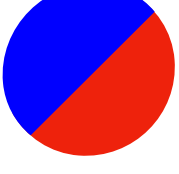
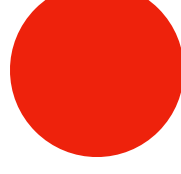
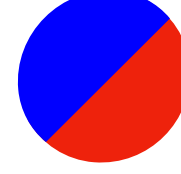
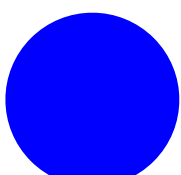
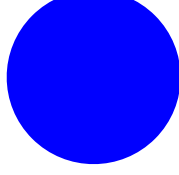
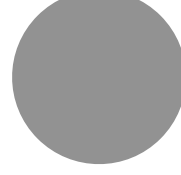
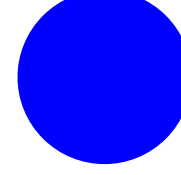
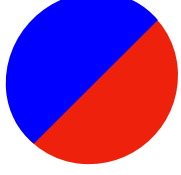
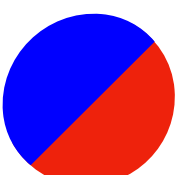
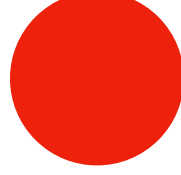
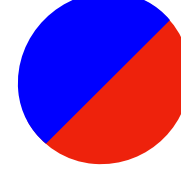
Ask yourself two questions?

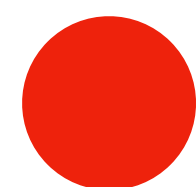
1. Will more than one thread concurrently read/write into the FIFO?
2. What should happen if the FIFO is full when writing/empty when reading?



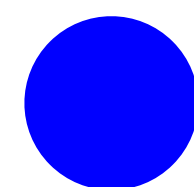
Example 2: "Peak detection" from multiple sensors

Costs of various FIFOs

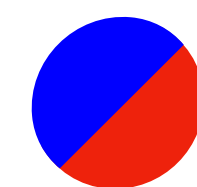
<div> <div>Producer</div> <div>Consumer</div> </div>		Single Producer		Multiple Producer	
		Report Full	Overwrite on Full	Report Full	Overwrite on Full
Single Consumer	Report Empty				
	"null" on Empty				
Multiple Consumer	Report Empty				
	"null" on Empty				



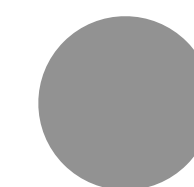
Wait free on read



Wait free on write



Wait free on
read and write



Not wait free on
write or read