

> Sink | or > Swim <

Enhancing Pipe and Filter Diagrams

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# Oscar?



Yup!



# 1998 Scientific and Technical Award



Aid received an Oscar statuette representing the 1998 Scientific and Technical Award for the concept, design and engineering of the Aid Film Composer® system for motion picture editing.

<http://www.imdb.com/event/ev0000003/1999>

[http://fp.avid.com/pressroom/corp\\_bg.html](http://fp.avid.com/pressroom/corp_bg.html)

amazon®

communications

Avid®

clique™  
VIDEO PHONE

Google™

wireless generation®

BETA  
tracked.com

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<http://www.ivanism.com/Articles/SinkorSwim.html>

# Pipe and Filter



# Media & PubSub & Streaming & Data



\*disclaimer: neither complete nor to scale



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# Media & PubSub & Streaming & Data

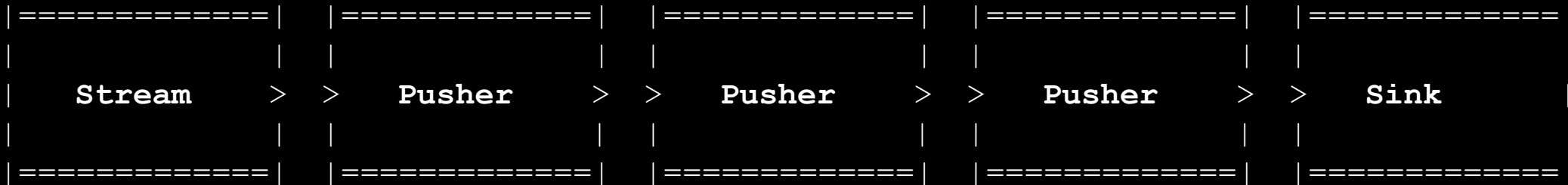


\*disclaimer: neither complete nor to scale

# From Pipe and Filter ...



... to Sink or Swim Puzzle Pieces!



# Streaming Media Example

## Live Podcaster



## Podcast Listener



# sink

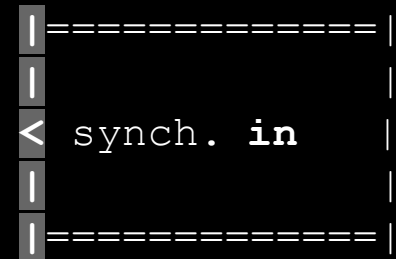
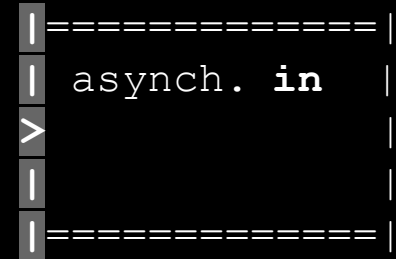
```
|=====|  
|         |  
|  async. out < |  
|         |  
|=====|
```

```
|=====|  
|         |  
|         > |  
|  synch. out |  
|=====|
```

```
|=====|  
|  async. in |  
> |         |  
|         |  
|=====|
```

```
|=====|  
|         |  
< synch. in |  
|         |  
|=====|
```

# sink



# sink

```
=====|  
|  
| asynch. out <|  
|  
|=====|
```

```
=====|  
|  
|>|  
| synch. out |  
|=====|
```

```
=====|  
| asynch. in |  
>|  
|=====|
```

```
=====|  
|< synch. in |  
|=====|
```

# a sink

```
|=====|  
| timing loop |  
< synch. in  *  
|         |  
|=====|
```



# a sink

```
|=====|  
|       |  
* asynch. out <  
|       buffer |  
|=====|
```

# a sink

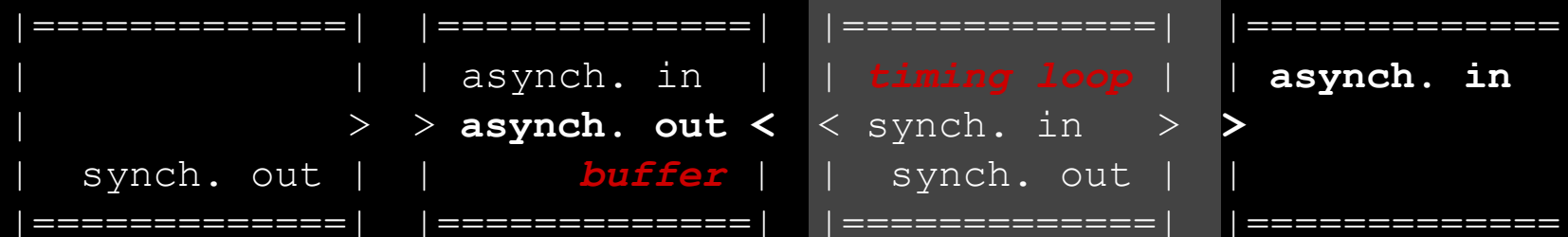
```
|=====|  
| timing loop |  
< synch. in  *  
|         |  
|=====|
```

```
|=====|  
|         |  
* asynch. out <  
|         |  
| buffer |  
|=====|
```

# synch

=====	=====	=====	=====
	<i>timing loop</i>	asynch. in	<i>timing loop</i>
asynch. out <	< synch. in >	> asynch. out <	< <b>synch. in</b>
<i>buffer</i>	<b>synch. out</b>	<i>buffer</i>	
=====	=====	=====	=====

# synch

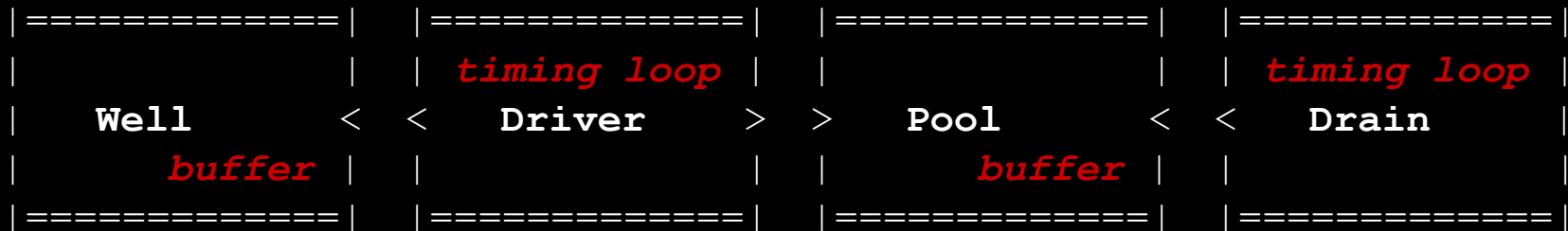


# synch

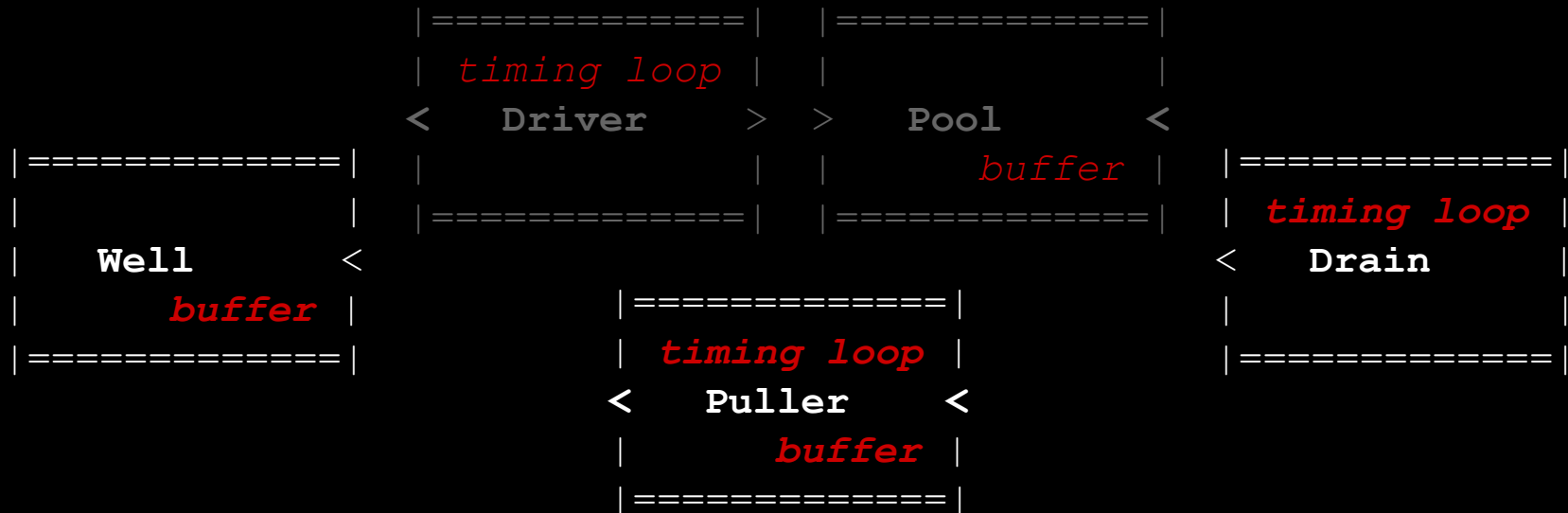
```
|=====| |=====| |=====| |=====|
|          | | timing loop | | asynch. in | | timing loop |
| asynch. out < < synch. in > > asynch. out < < synch. in |
| buffer | | synch. out | | buffer | |
|=====| |=====| |=====| |=====|
```

```
|=====| |=====| |=====| |=====|
|          | | asynch. in | | timing loop | | asynch. in |
|          > > asynch. out < < synch. in > > |
| synch. out | | buffer | | synch. out | |
|=====| |=====| |=====| |=====|
```

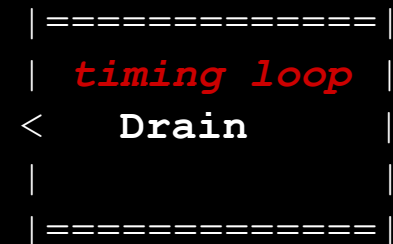
# (a)synch



# (a)synch



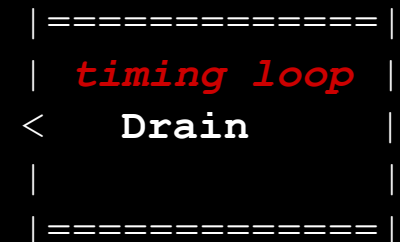
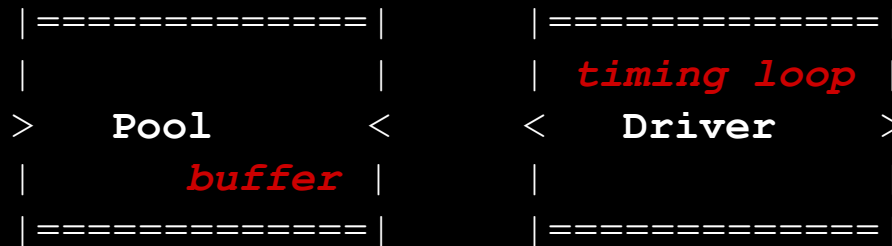
# (a)synch



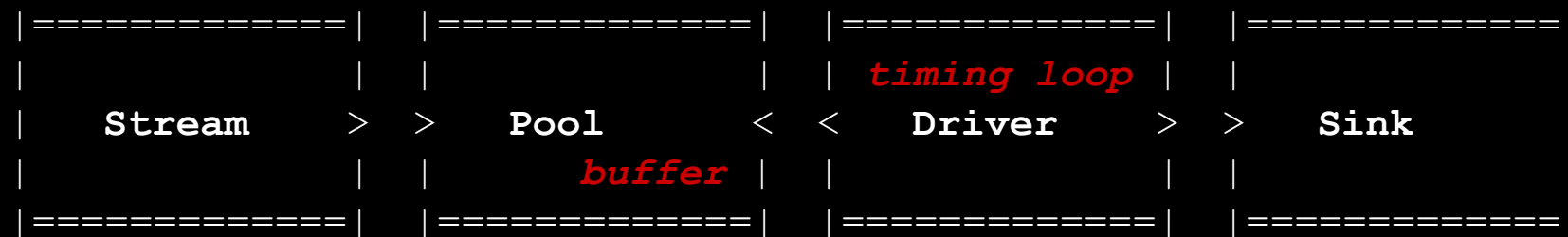


# > Sink or < Swim

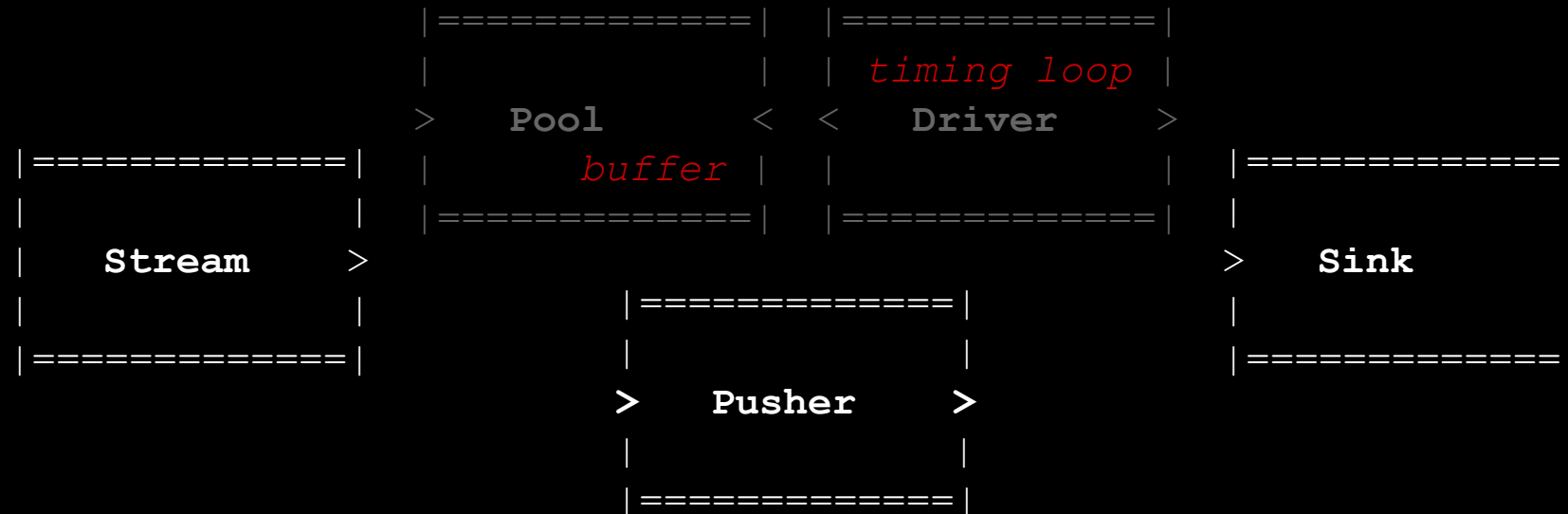
## Enhancing Pipe and Filter Diagrams



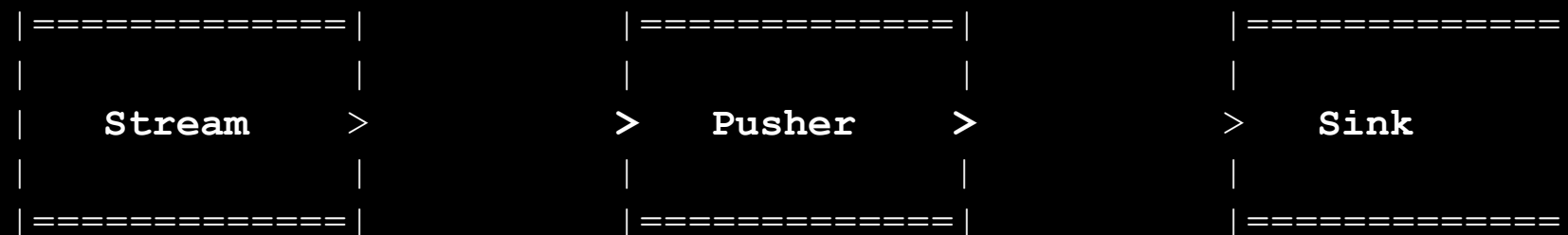
# (a)synch



# (a)synch



# (a)synch



# > Sink or Swim <

Stream >

## Enhancing Pipe and Filter Diagrams

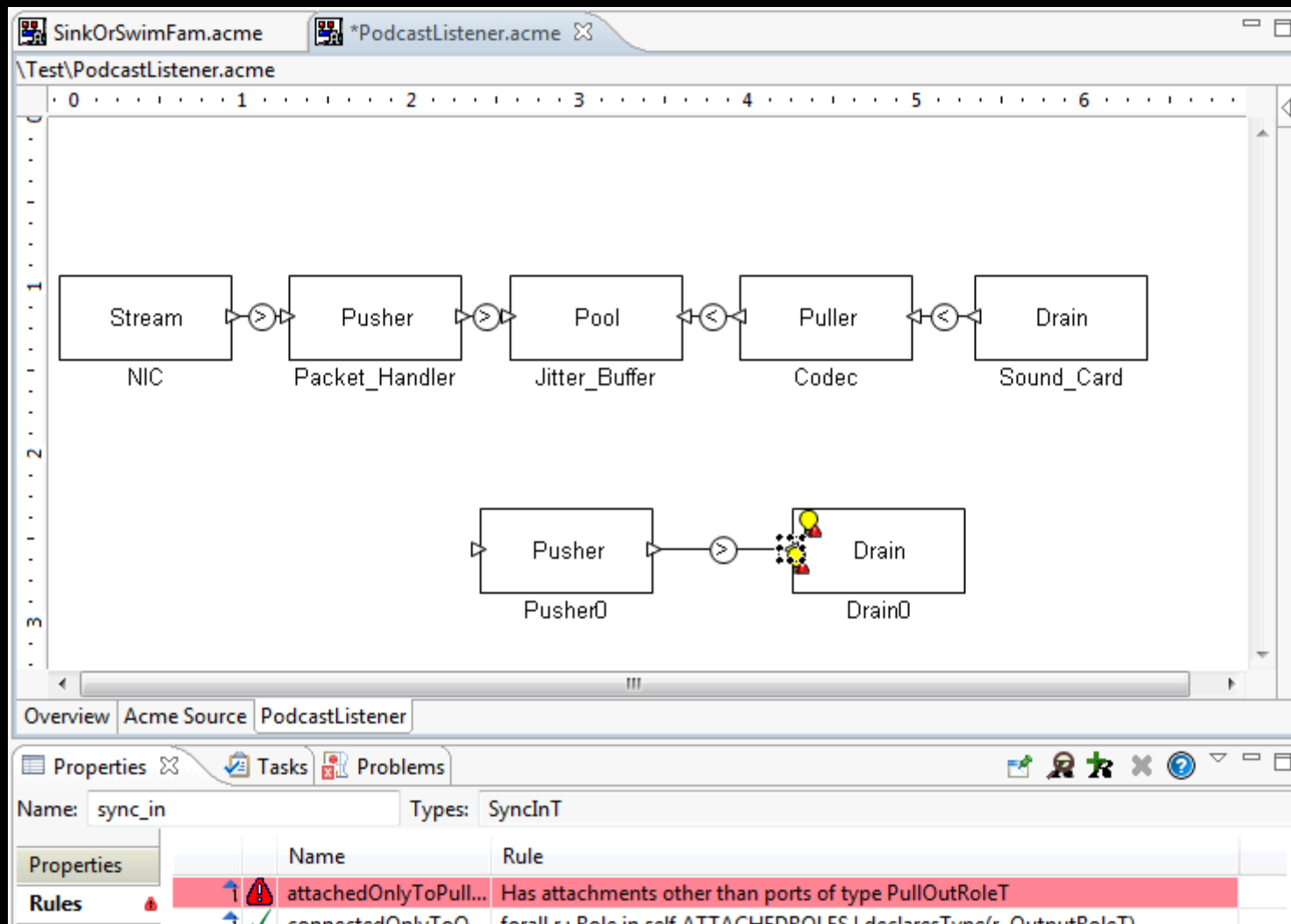
> Sink

> Pool <  
*buffer*

*timing loop*  
< Driver >

> Pusher >

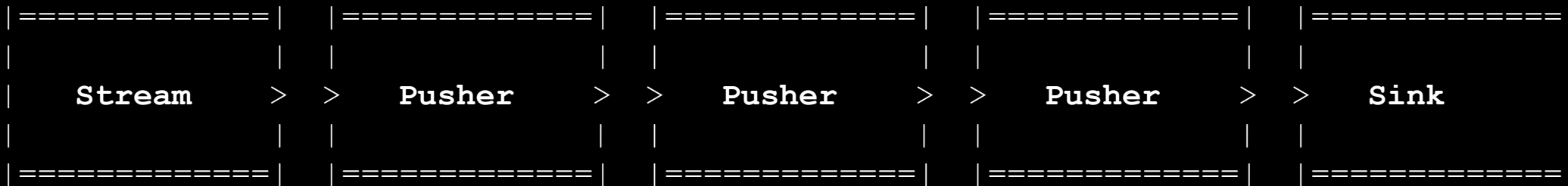
# Formalized in Acme Studio



# From Pipe and Filter ...



... to Sink or Swim Puzzle Pieces!



# > Sink or Swim <

Stream >

## Enhancing Pipe and Filter Diagrams

> Sink

> Pool <  
*buffer*

*timing loop*  
< Driver >

> Pusher >

*timing loop*  
< Puller <  
*buffer*

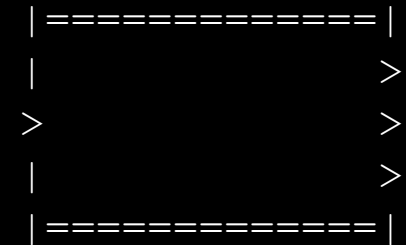
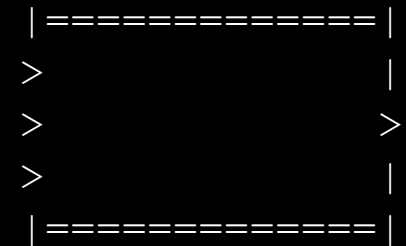
Well <  
*buffer*

*timing loop*  
< Drain



# Next...

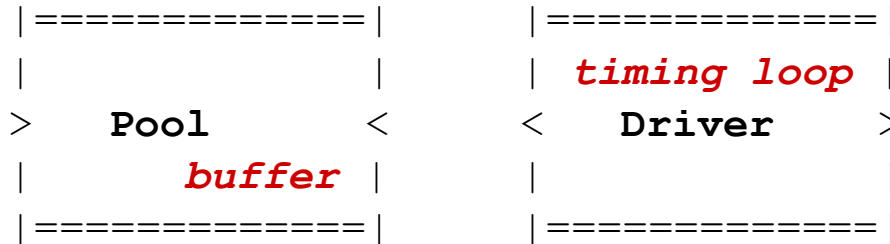
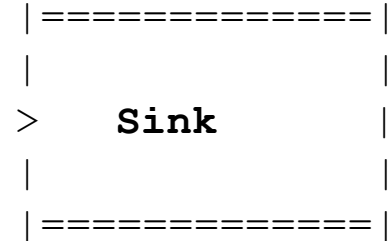
- More Shapes:
  - 1 to many -- Diffusers?
  - many to 1 -- Combiners?
  - many to many -- ???
- Input to output ratios -- think gearbox!
- Blocking behavior
- Timing behavior
  - eg. underruns



# > Sink or Swim <

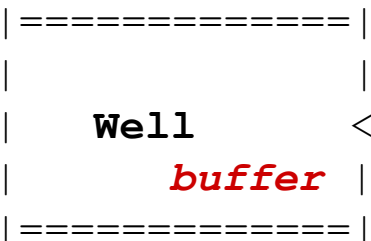
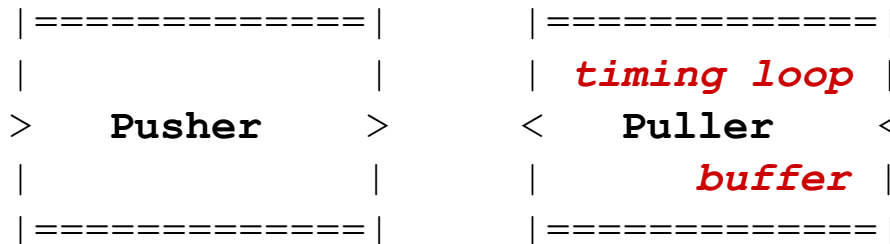


## Enhancing Pipe and Filter Diagrams

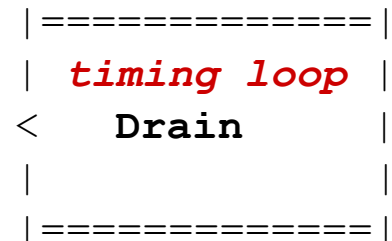


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Questions?

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