

Drift

an imperative programming
environment for the cloud

#2 Implementation

Overview


- Drift Language

- Concepts
- Examples

- Drift Execution

- Drift FS
- Architecture
- Error Model

Recap

- Want: ‘language of the system’
- Workflow languages one possible domain
 - black box tasks, ...
- Bash: system-view coordination
 - black box tasks, immediate feedback, ...
 - Problem: FS → shared mutable state
- Functional  Distributed
 - Cuneiform: functional, distributed, ...

Recap

Bash	Functional
&	- (lazy)
	function composition
>, >>	name binding
<	-
\$	eval

Drift Language

Can we build an *imperative, stateful, interpreted* language for distributed (micro) service coordination ?

- Need ‘state’ to be stateful on
- Essence: data + services

“Do this on that thing over here.”

“Now do this on that and put it over there”

Drift Language

- How do we (humans) ‘interact’ with data?
 - need ‘names’ to identify and retrieve our data
 - need ‘names’ to give data *meaning*
- *Names* are at the center of programming!
 - only names and services
- Names best be hierarchical → Namespaces
 - Names, Namespaces and Services

Drift Language

```
.> wordcount_h = Wc hamlet.txt  
.> wordcount_mb = Wc macbeth.txt  
.> Max wordcount_h wordcount_mb  
wordcount_h
```

```
.> a = A data.csv | B | C
```

```
.> a = A in1.data in2.data
```

```
.> b = B a | C
```

```
.> a = G homework.txt
```


Drift Language

```
.> import my.tar
```

```
.> res/ = Untar* my.tar | *FormatCheck txt
```

```
.> ls
```

```
my.tar
```

```
res/
```

```
.> $res/
```

```
c1.txt
```

```
c2.txt
```

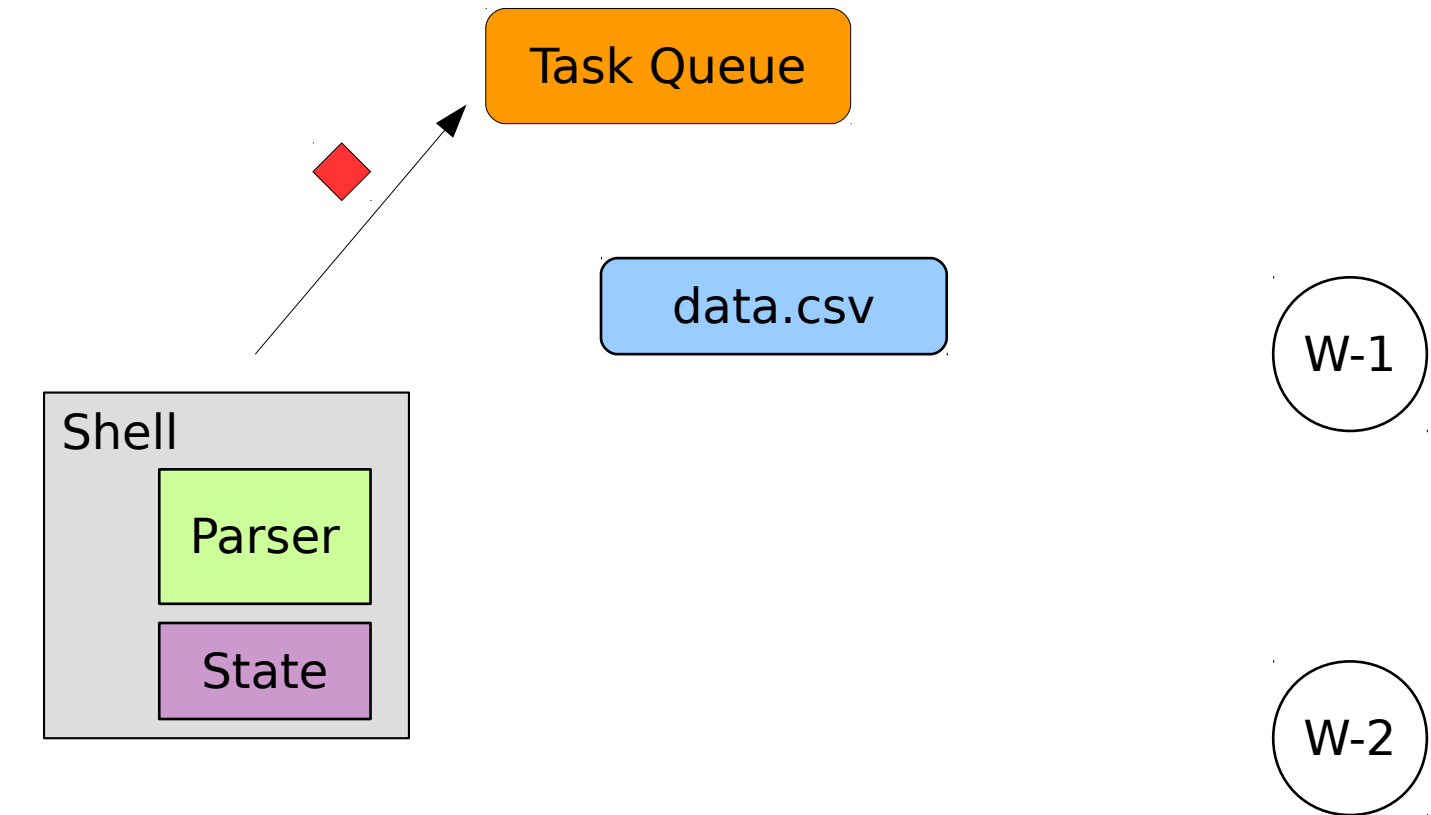
```
.> wordcount = Wc res/c1.txt
```

Drift Language



So far:

- no arithmetic
- no conditionals
- not turing-complete! (hopefully)
- tiny
- very abstract
- very few constructs

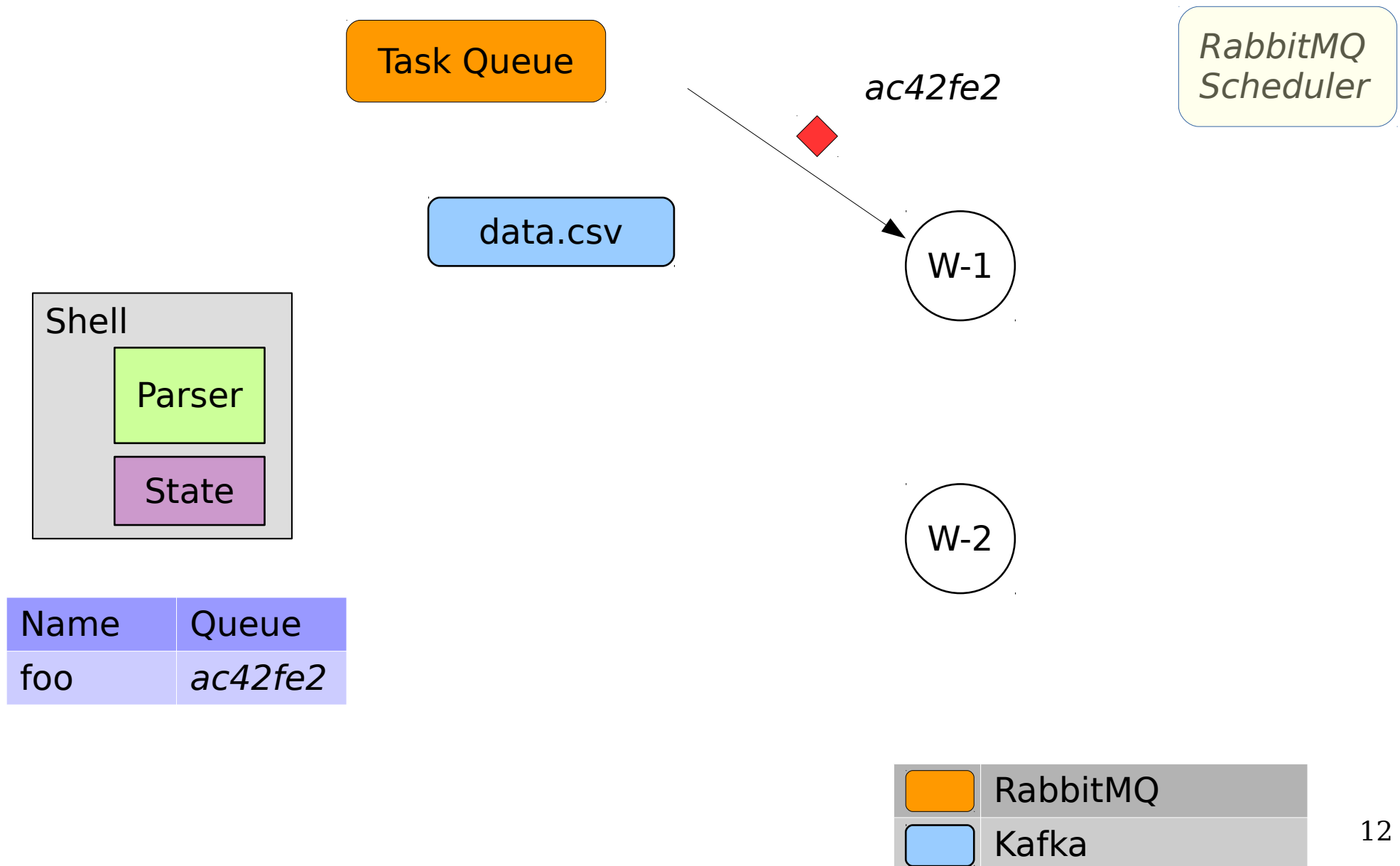
Drift Execution



Name	Queue
foo	ac42fe2

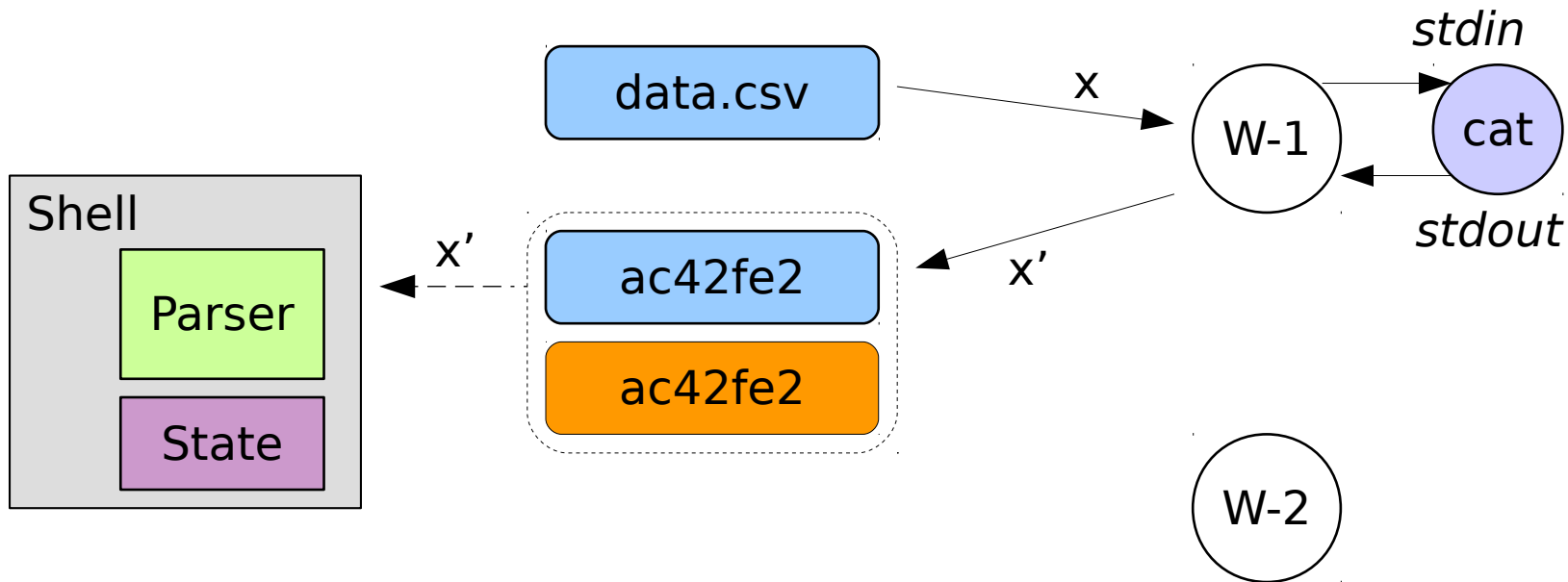
	RabbitMQ
	Kafka

Drift Execution





Drift Execution

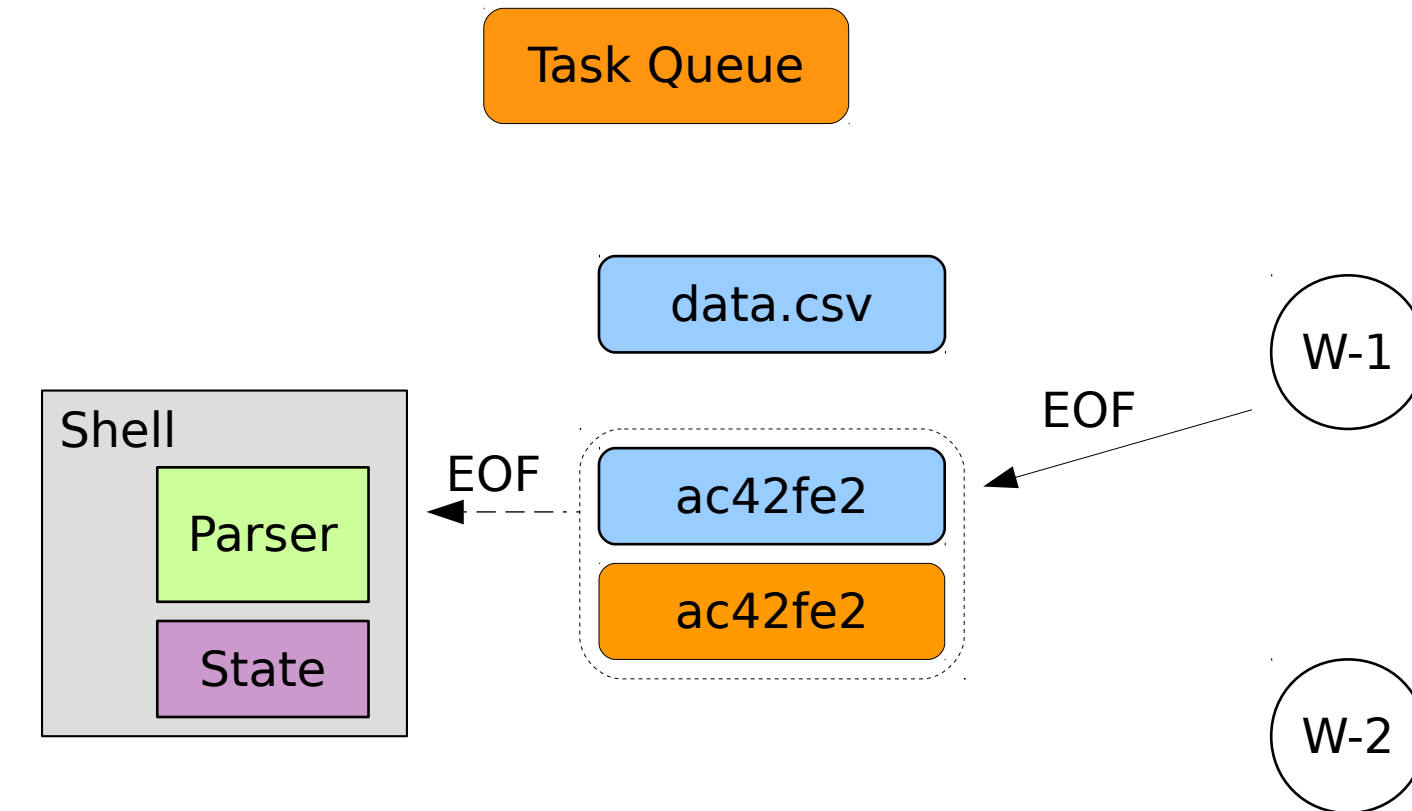
Task Queue





Name	Queue
foo	ac42fe2

	RabbitMQ - Signal
	Kafka - Data

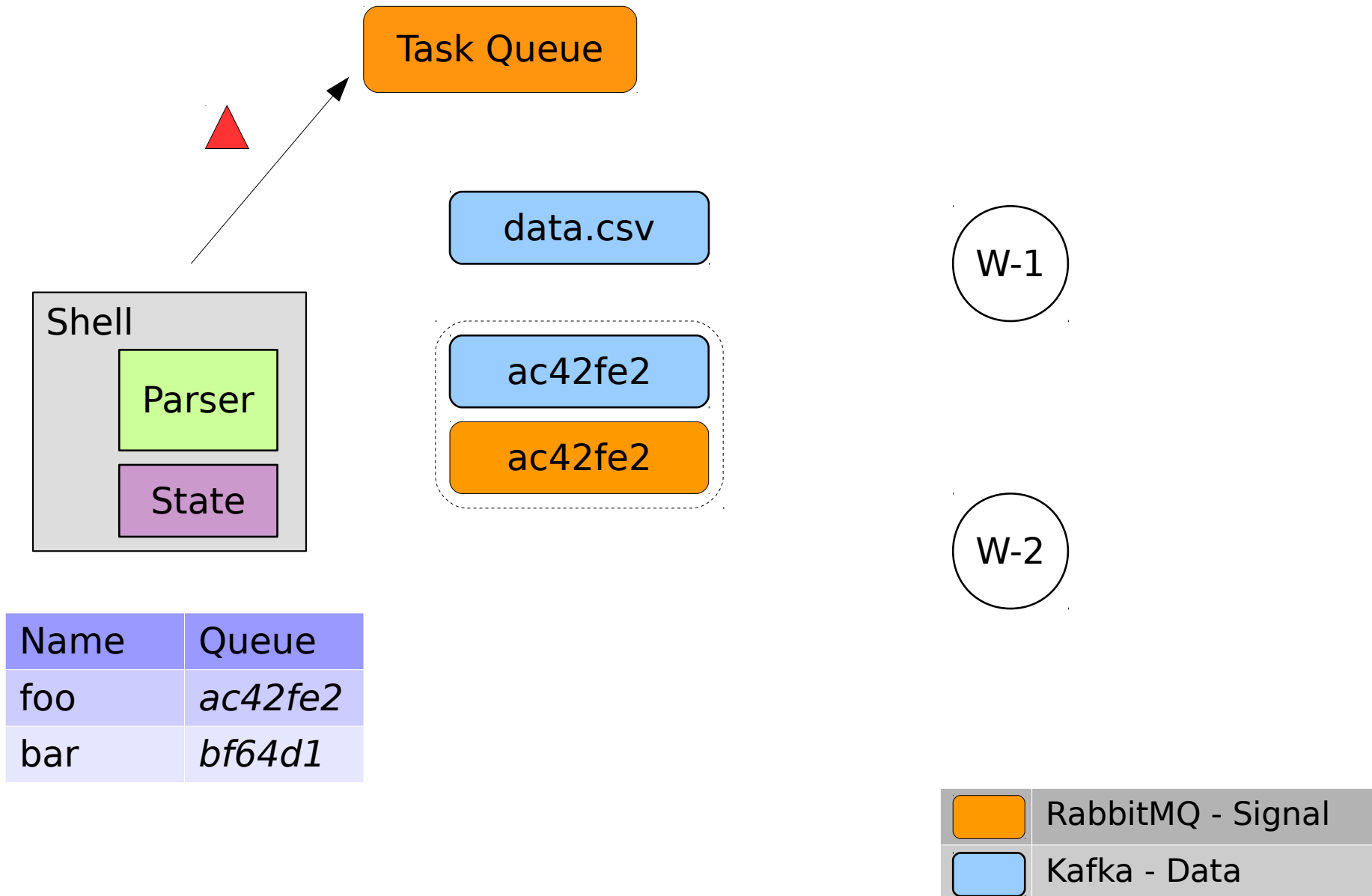
Drift Execution



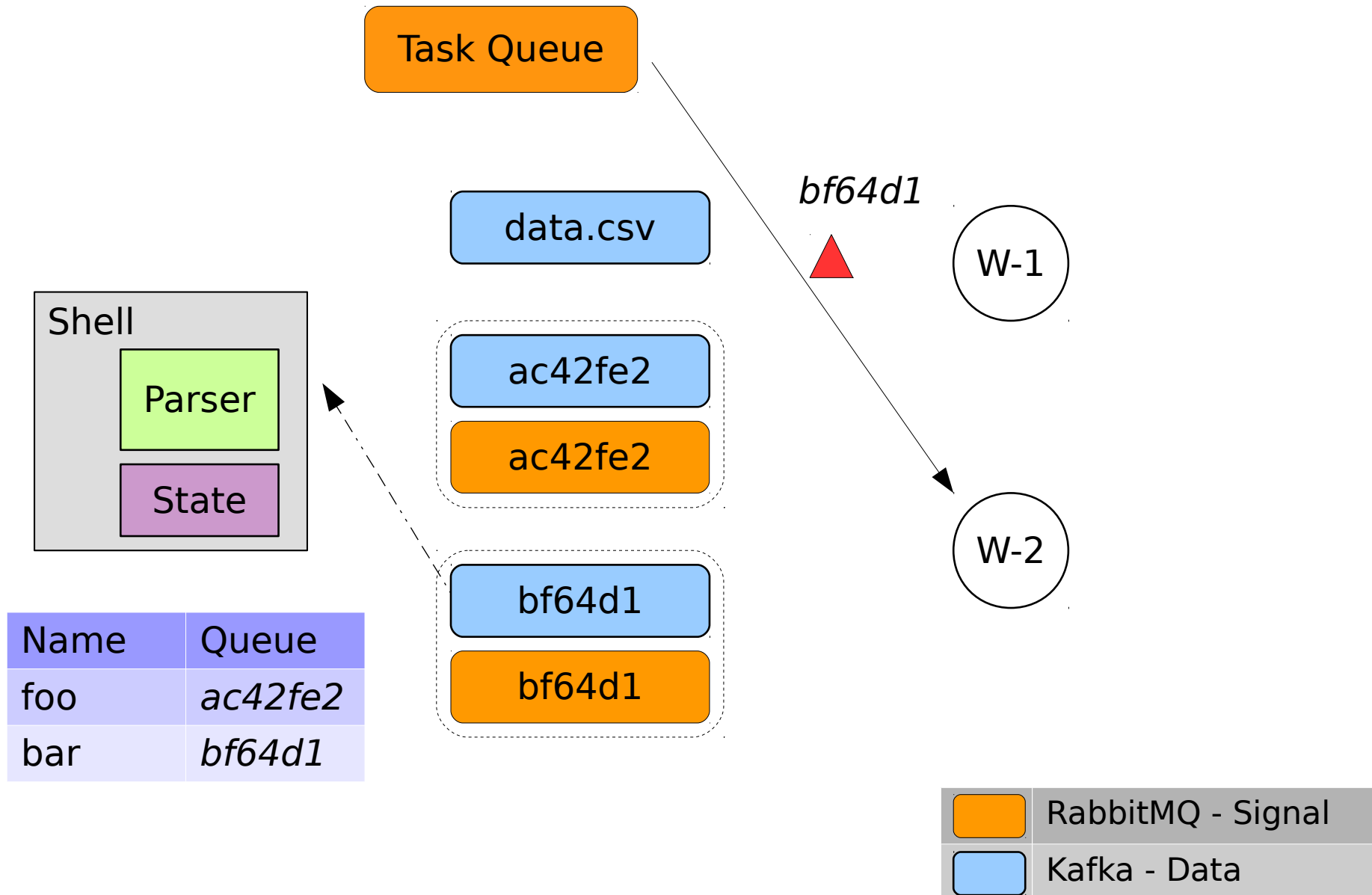
Name	Queue
foo	<i>ac42fe2</i>

	RabbitMQ - Signal
	Kafka - Data

Drift Execution



Drift Execution



Drift Execution

