Querying Storm Data Streams Using Trident

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Overview

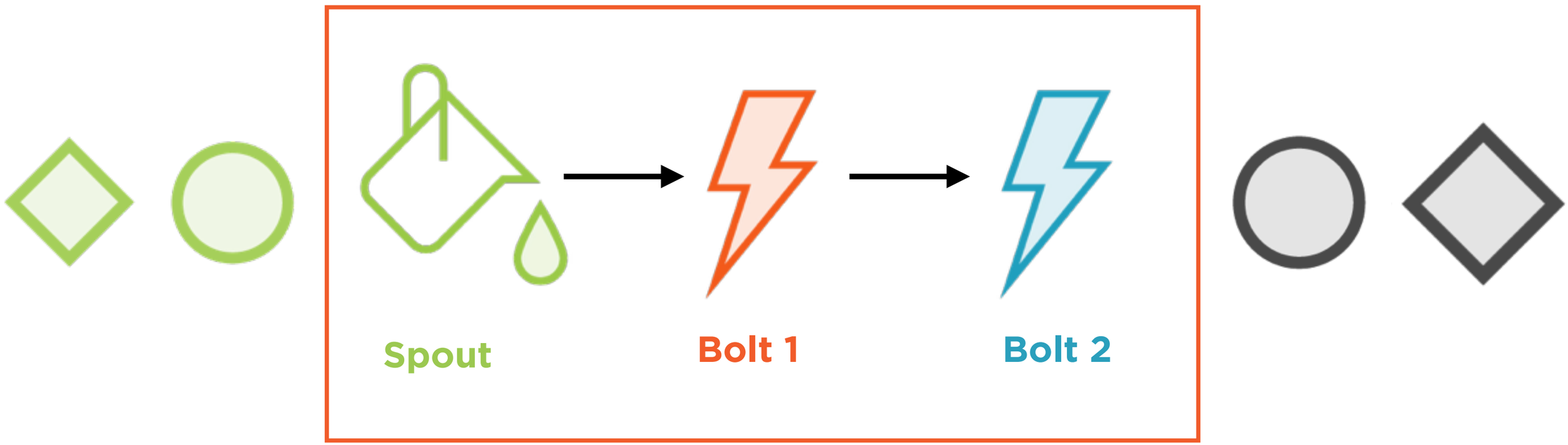
Process data streams using the Trident API

Use Trident for Distributed Remote Procedure Calls i.e. DRPC

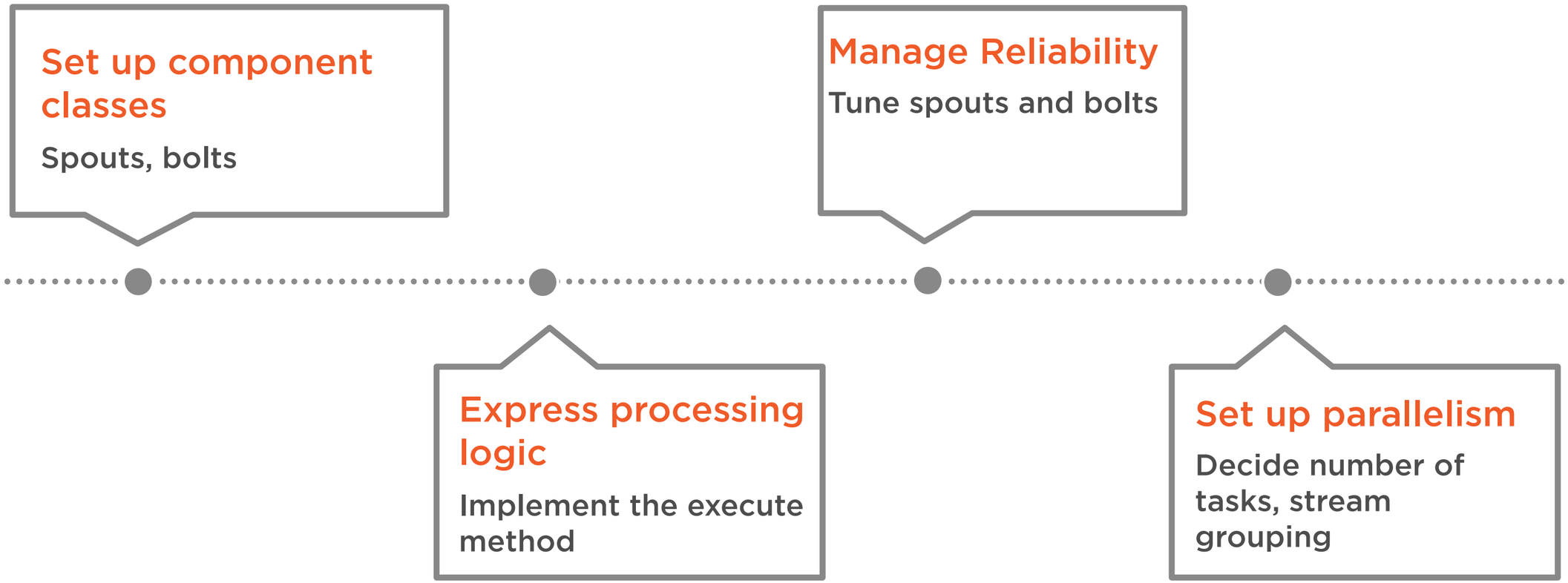
Maintain the state of a data stream

Query a state object

Storm Topology



Setting Up a Storm Topology



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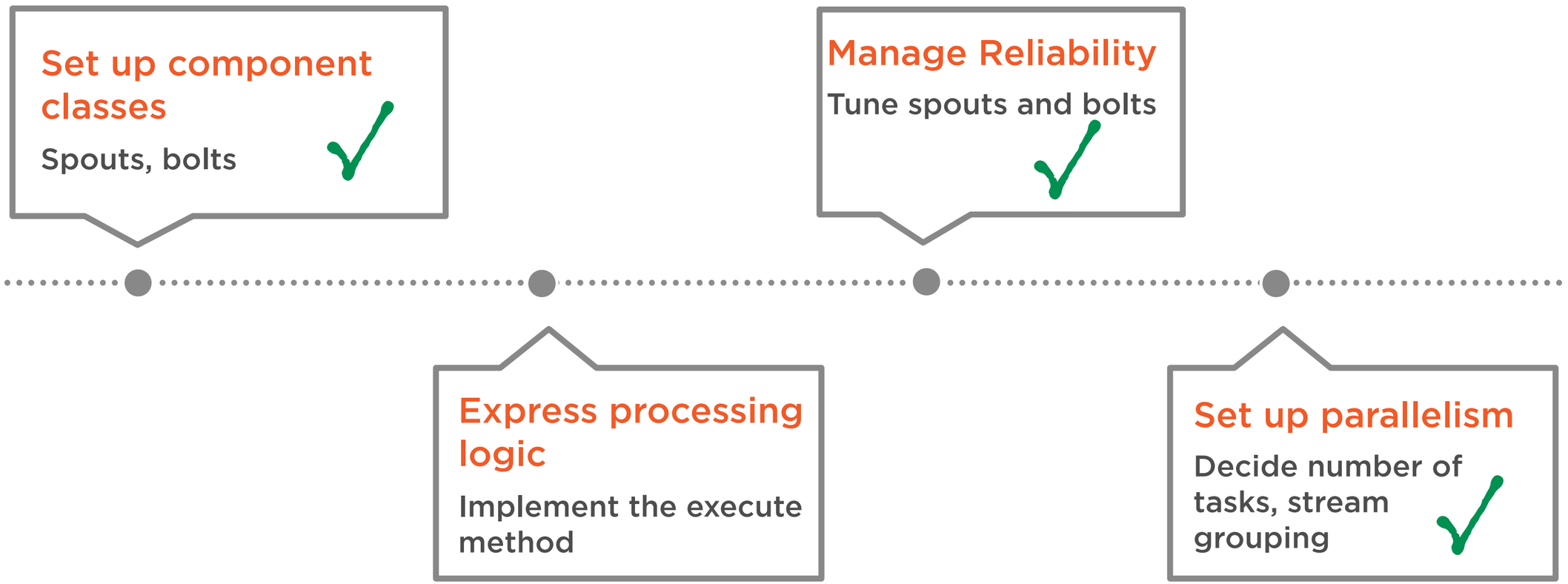
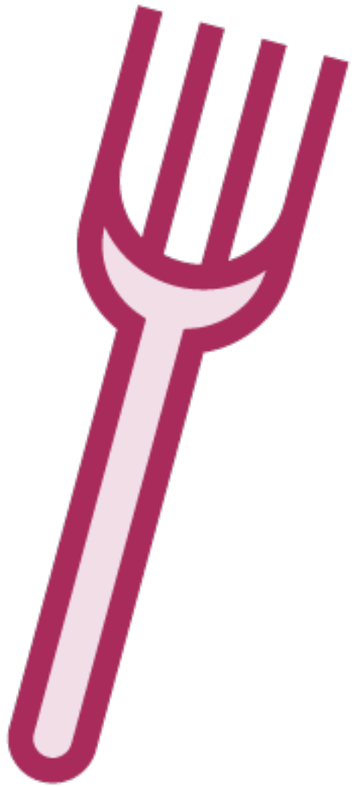




Trident API

Implement processing logic using functions

Apply a series of functions on the input stream

Trident Topology

A Trident Stream object

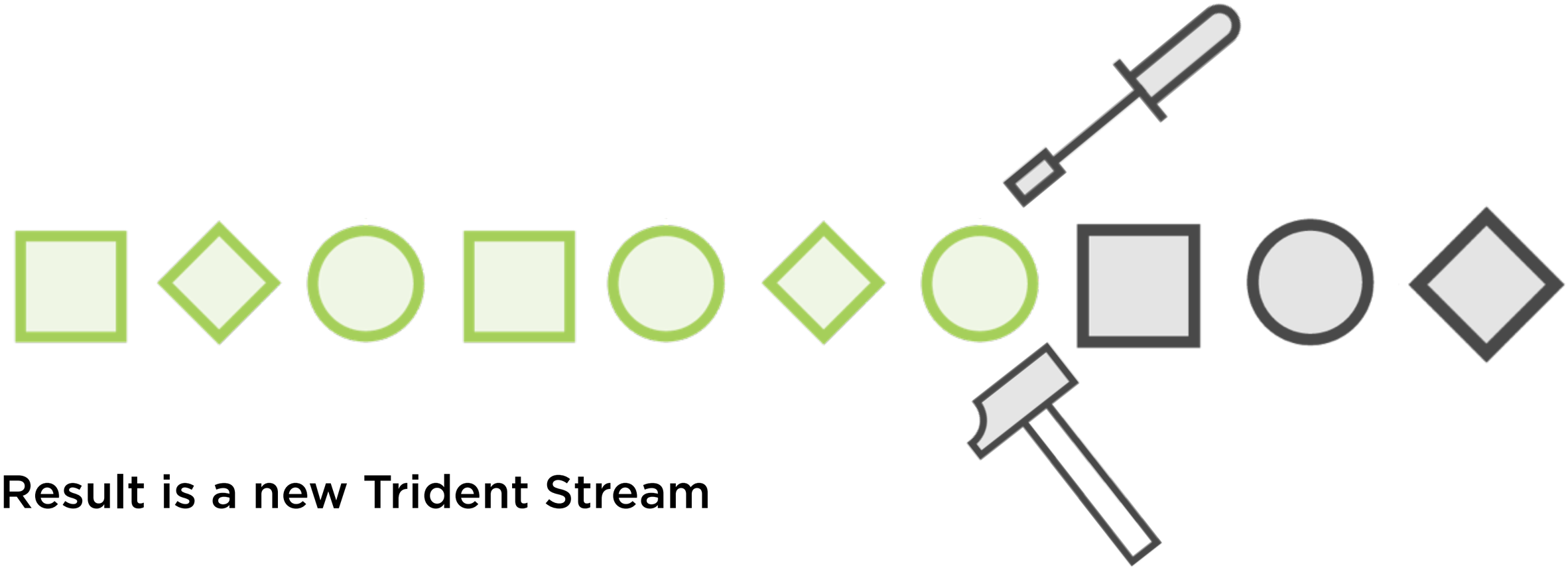
- Generated by a spout
- Result of an operation on another Stream

Trident Topology

Apply a Trident operation

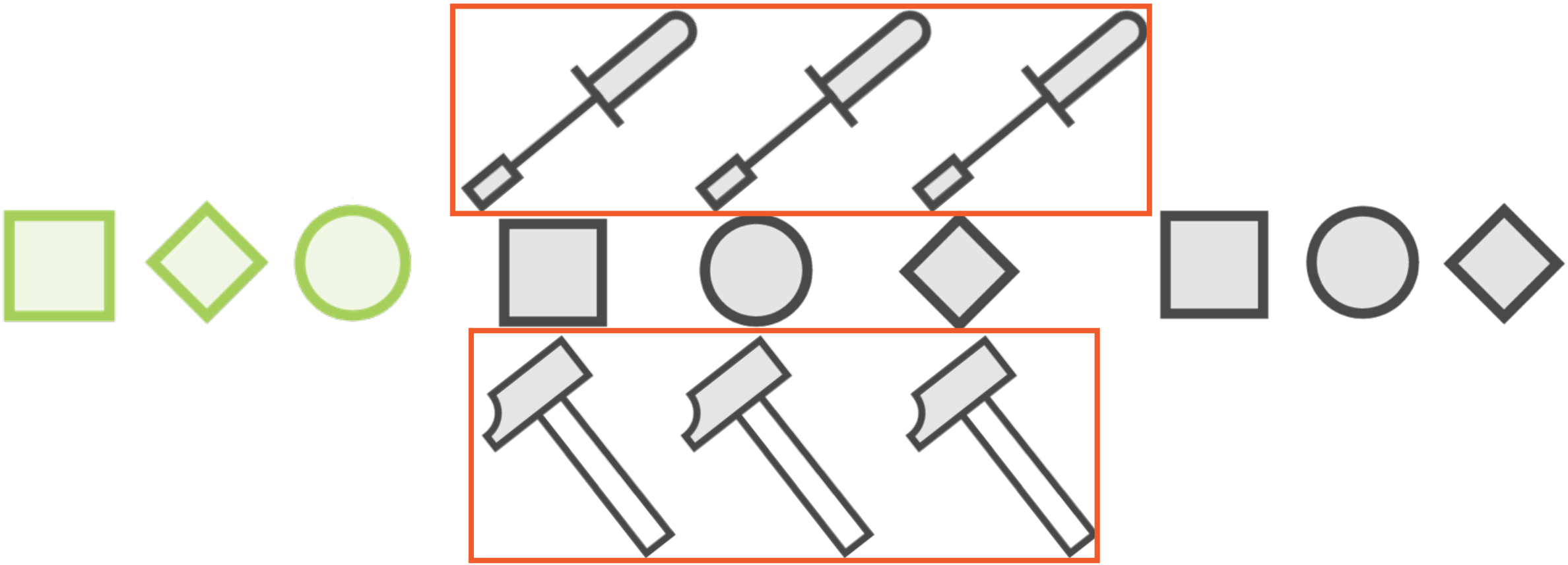
- each
- filter
- aggregate

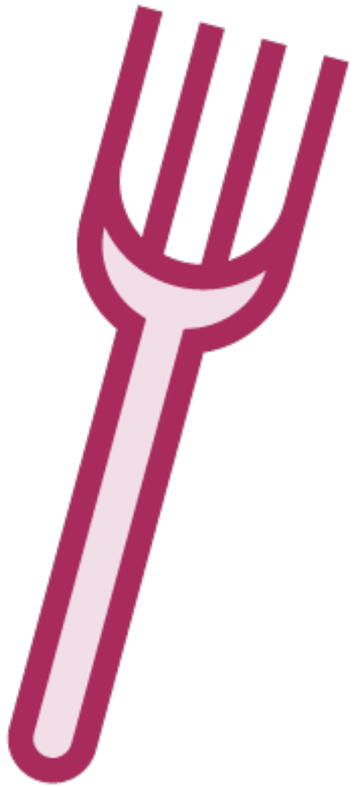
Trident Topology



Result is a new Trident Stream

Trident Topology





Trident API

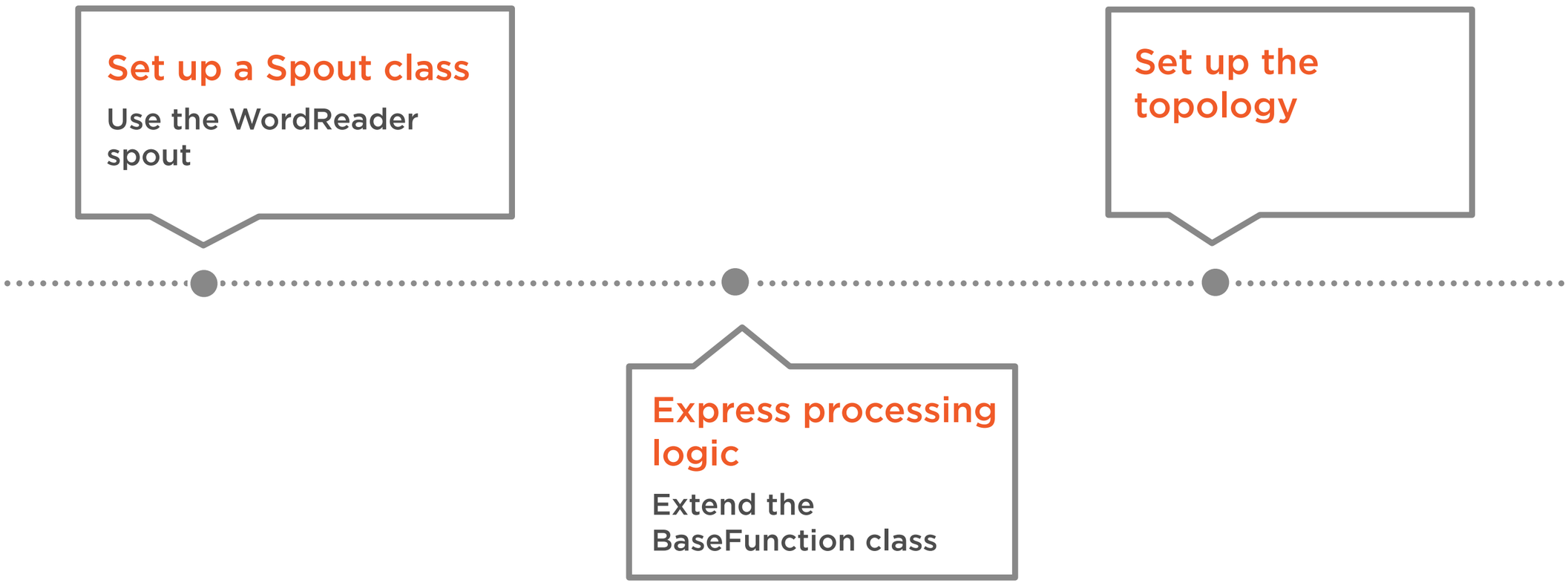
Abstract away details like parallelism, reliability

Think functionally

A Hello World Trident Topology

Trident Hello World

Trident Hello World



Demo

Set up a hello world Trident topology

Run the topology

- Local
- Remote

```
public void execute(TridentTuple tuple, TridentCollector collector) {}
```

Extend the BaseFunction Class

Process the input tuple

```
public void execute(TridentTuple tuple, TridentCollector collector) {}
```

Extend the BaseFunction Class

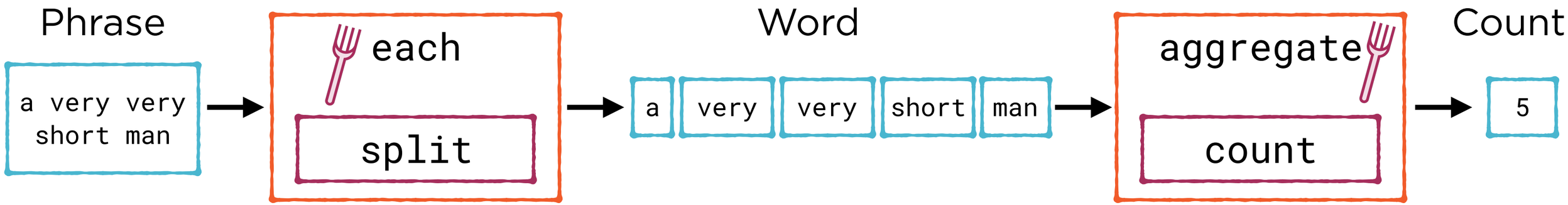
Emit the output tuple(s)

Demo

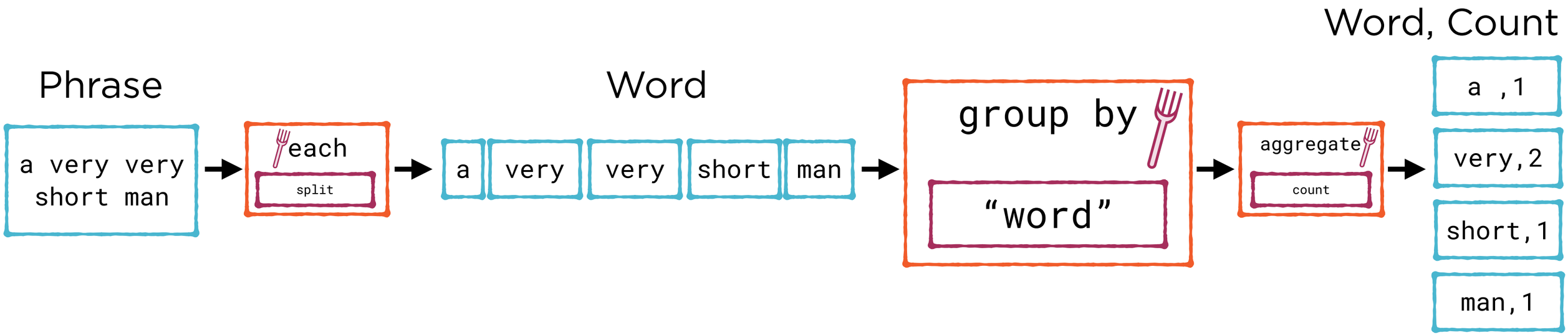
Apply aggregations on data streams

- aggregate
- group by

Trident Aggregation

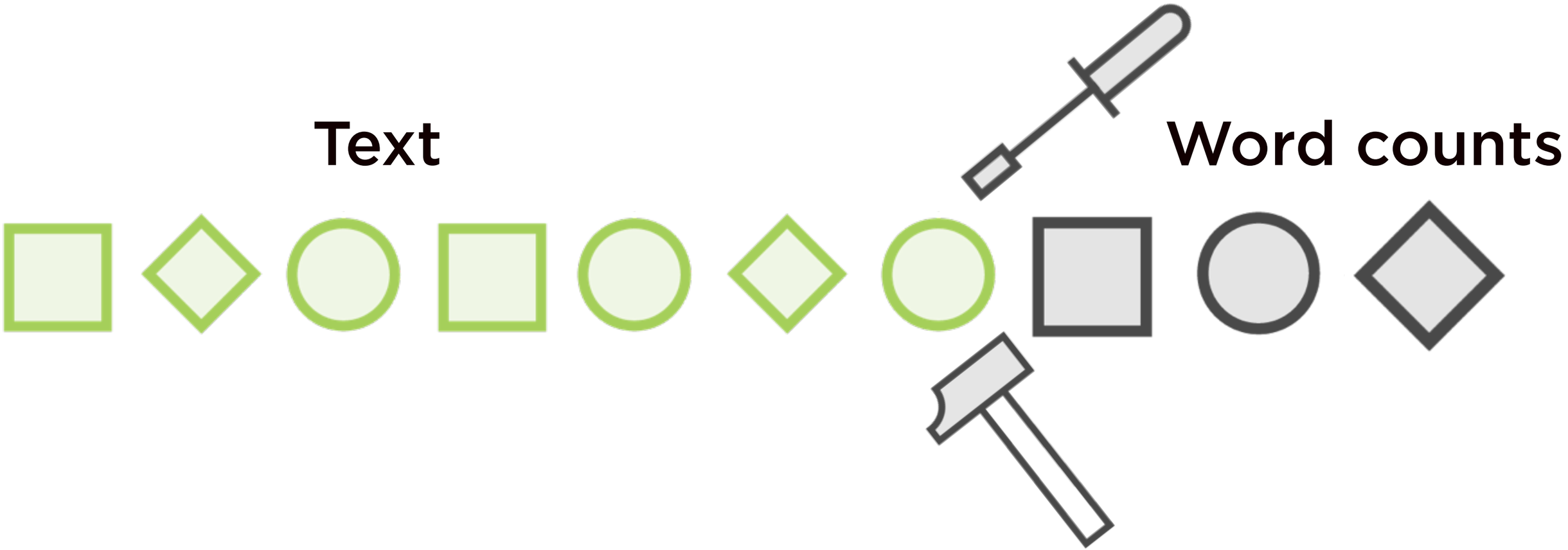


Trident Aggregation



Distributed Remote Procedure Calls Using Trident

Real-time Application



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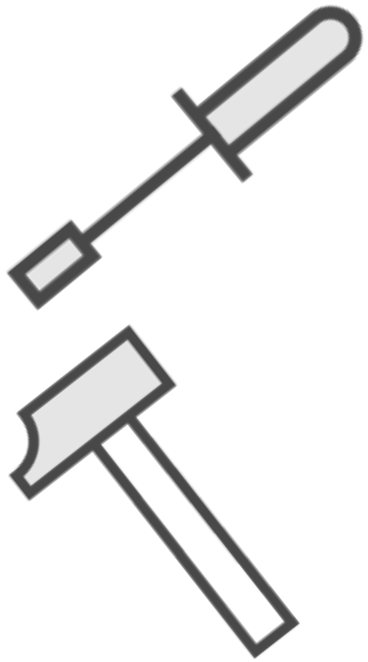


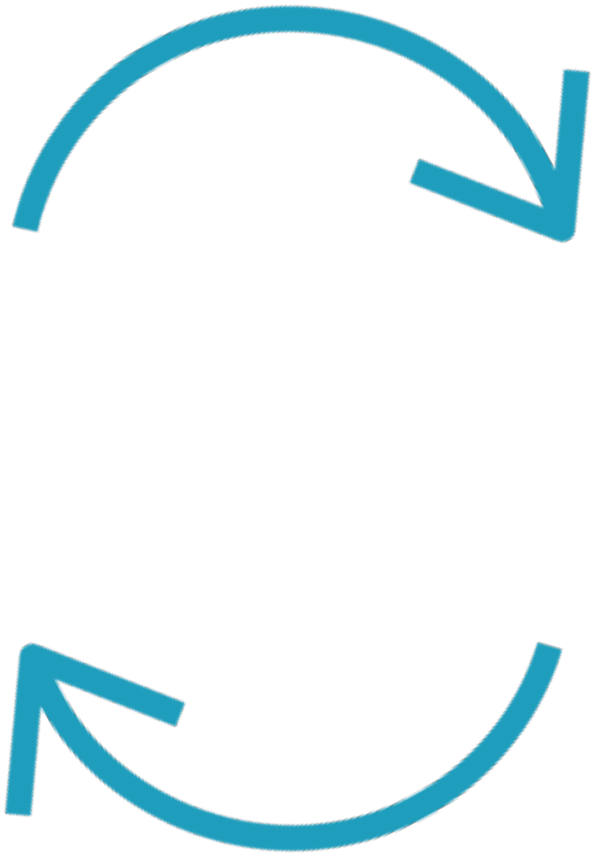
Real-time Application

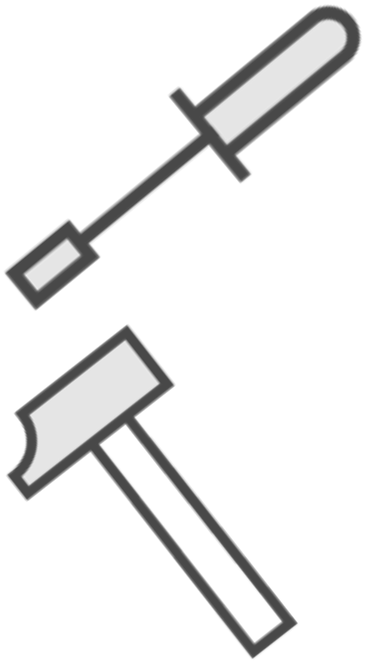
Distributed

Remote Procedure Call

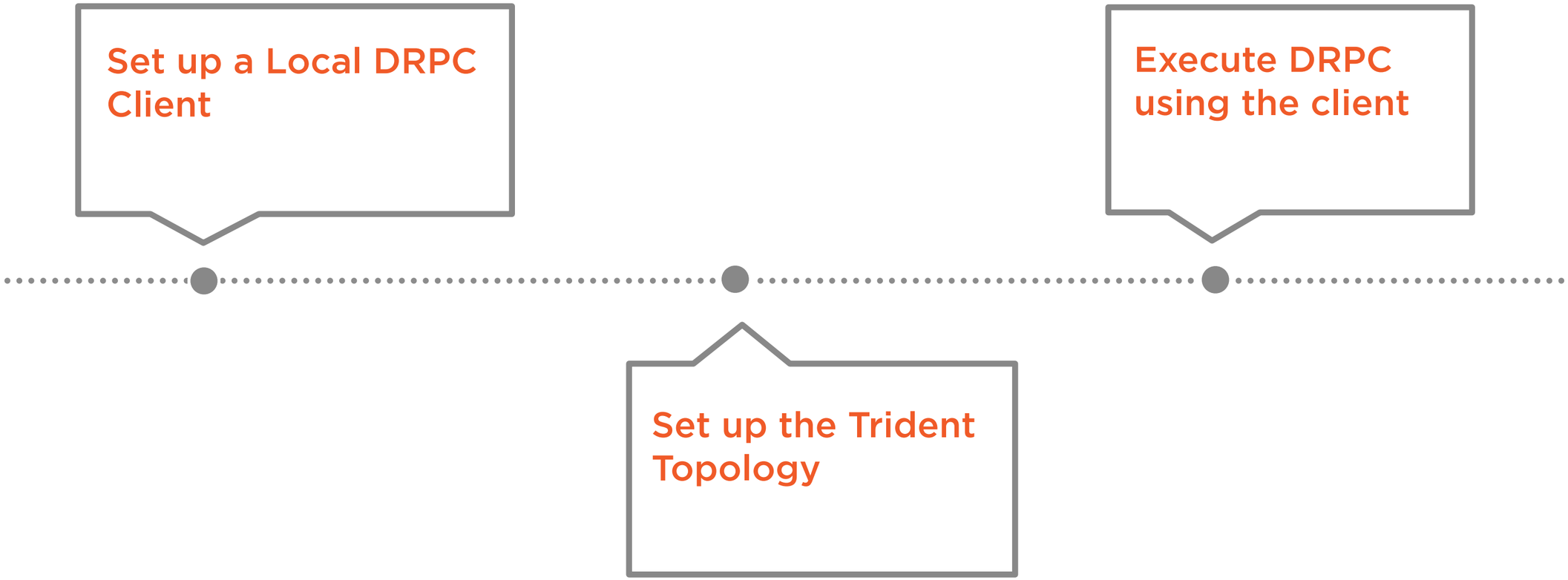
Real-time Application

DRPC Client





Trident DRPC Topology

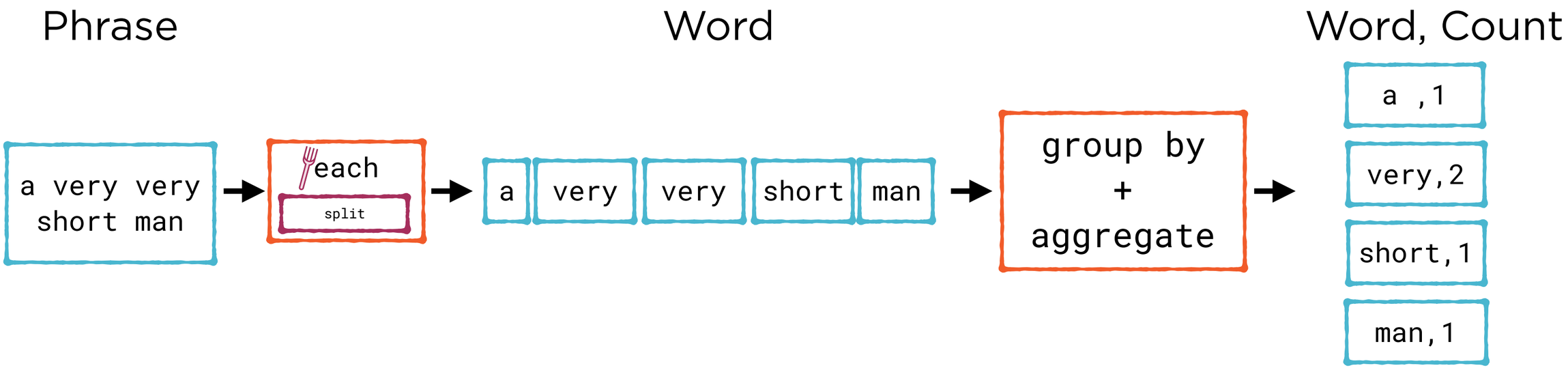


Demo

Set up a DRPC topology

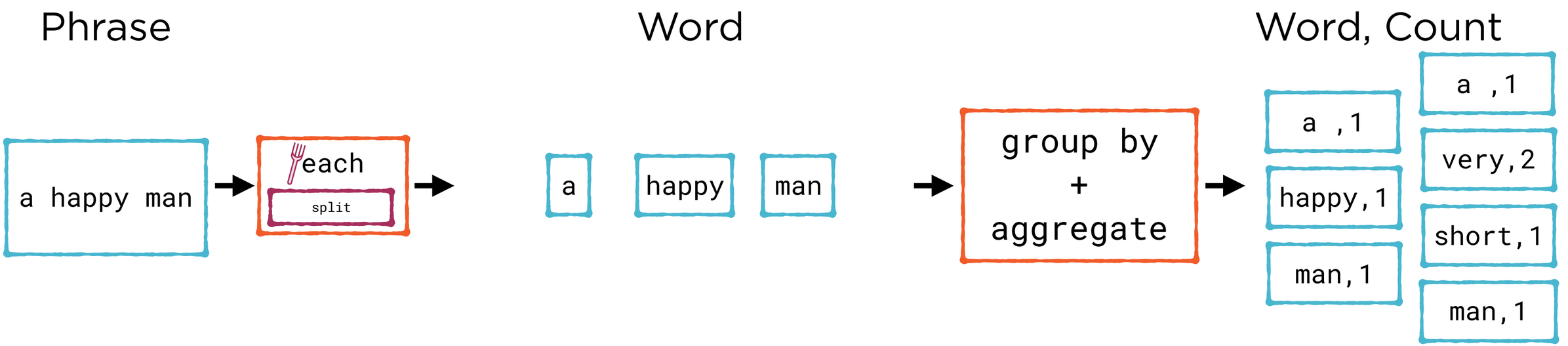
Maintaining and Querying States

Word Count Topology



Result of aggregate is a Stream object

Word Count Topology



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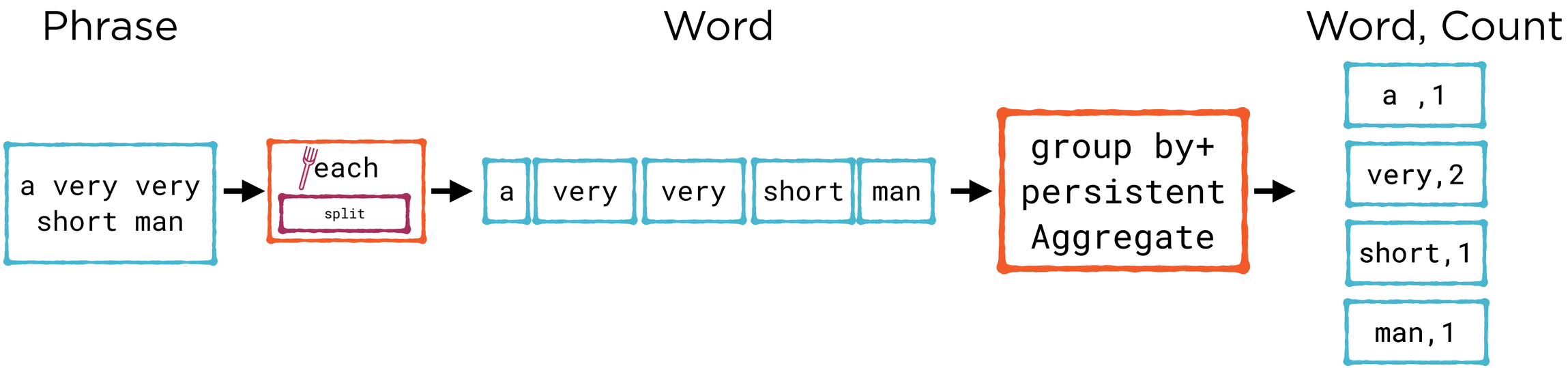

persistentAggregate stores results in a State object

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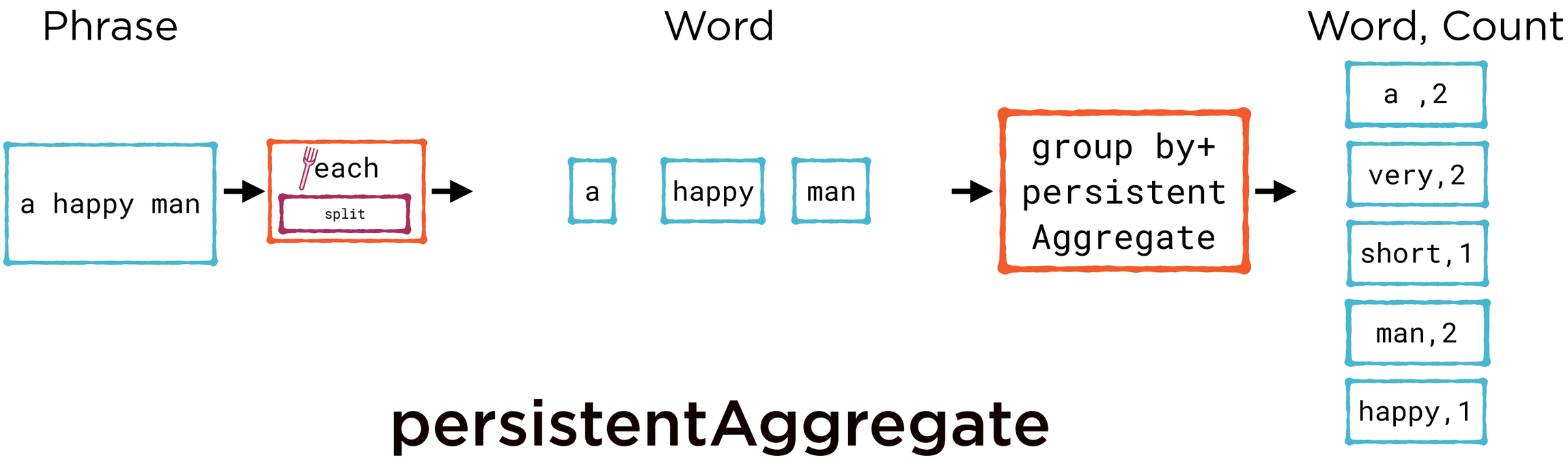
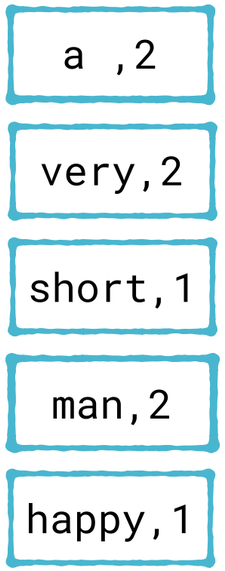


persistentAggregate stores results in a State object

Trident State

Word, Count



May be in-memory or persistent

Can be queried for information

Demo

Set up a Trident State object to store word counts

Query the state object for counts of specific words

Summary

Process data streams using the Trident API

Use Trident for Distributed Remote Procedure Calls i.e. DRPC

Maintain the state of a data stream

Query a state object