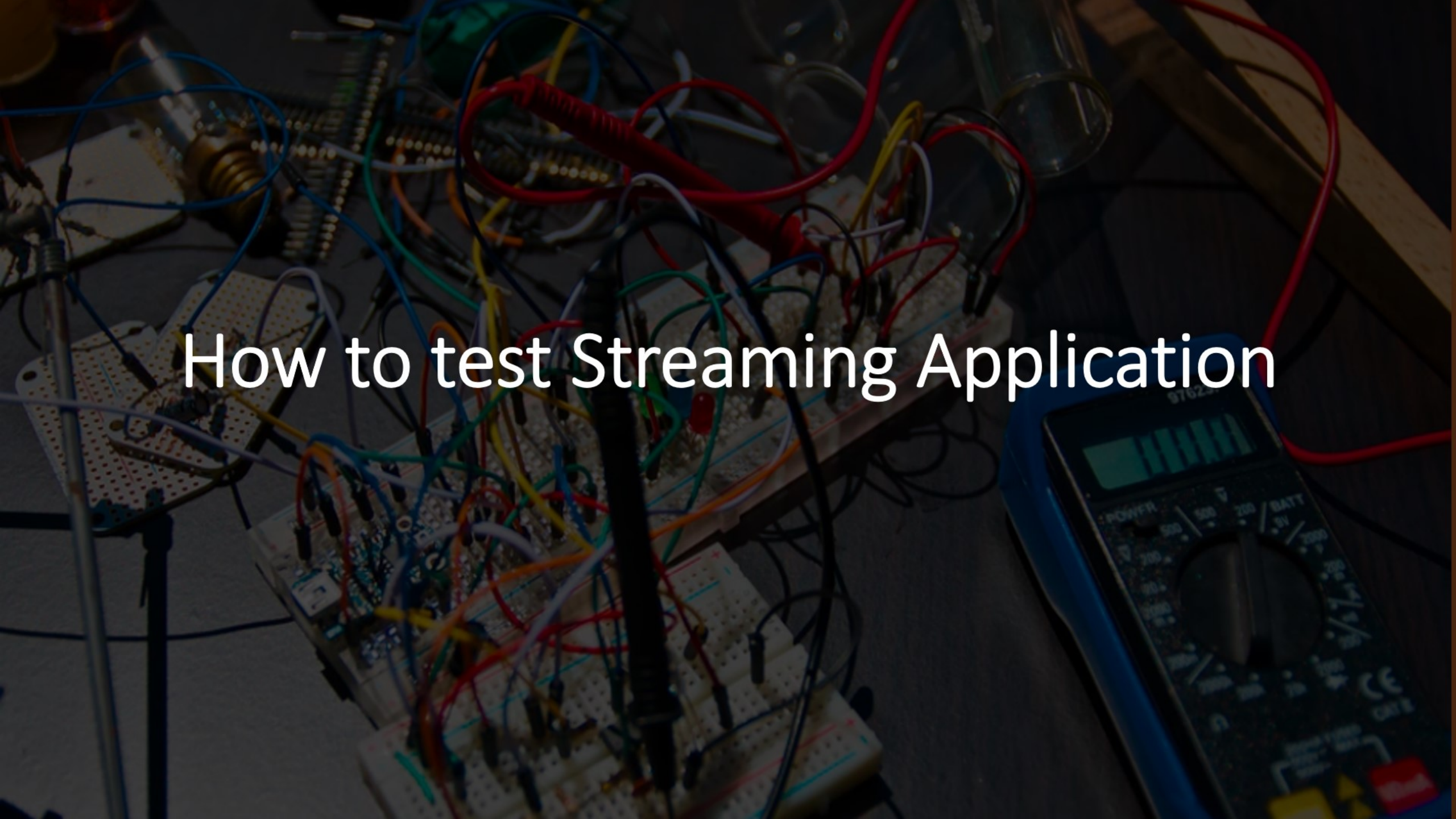


How to test Streaming Application

The background image shows a close-up of an electronics workspace. Several breadboards are populated with integrated circuits and other components. A dense network of multi-colored jumper wires connects the different boards. In the lower right corner, a blue digital multimeter is visible, with its LCD screen showing a series of vertical bars. The entire scene is dimly lit, with a dark overlay that makes the white text stand out.

Unit Testing

Embedded Kafka Cluster

- Start an embedded Kafka Cluster.
- Create the desired topics.
- Send some data to the topic.
- Start your streams application.
- Read the outcome from the Kafka topic.
- Assert the outcome.



Unit Testing

TopologyTestDriver

- Pipe input data to topology
- Run the topology flow
- Read final output of topology
- Assert the outcome.



Joins and Aggregates

Compute Following

1. Number of ad impressions.

```
100001:{"ImpressionID": "100001", "Campaigner": "ABC Ltd"}
100002:{"ImpressionID": "100002", "Campaigner": "XYZ Ltd"}
100003:{"ImpressionID": "100003", "Campaigner": "XYZ Ltd"}
100004:{"ImpressionID": "100004", "Campaigner": "XYZ Ltd"}
100005:{"ImpressionID": "100005", "Campaigner": "XYZ Ltd"}
100006:{"ImpressionID": "100006", "Campaigner": "ABC Ltd"}
100007:{"ImpressionID": "100007", "Campaigner": "ABC Ltd"}
100008:{"ImpressionID": "100008", "Campaigner": "ABC Ltd"}
100009:{"ImpressionID": "100009", "Campaigner": "ABC Ltd"}
100010:{"ImpressionID": "100010", "Campaigner": "ABC Ltd"}
```

Campaigner	Count
ABC Ltd	6
XYZ Ltd	4

2. Number of ad clicks.

```
100009:{"ImpressionID": "100009", "Campaigner": "ABC Ltd"}
100010:{"ImpressionID": "100010", "Campaigner": "ABC Ltd"}
100002:{"ImpressionID": "100002", "Campaigner": "XYZ Ltd"}
```

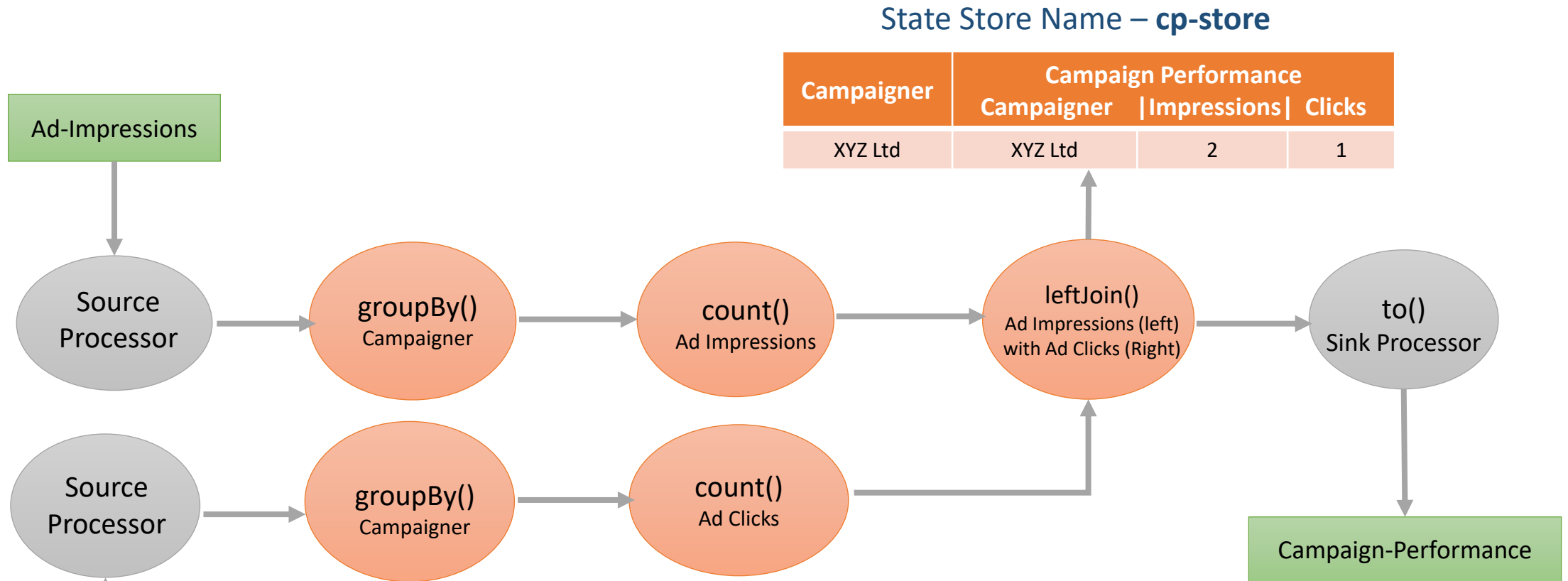
Campaigner	Count
ABC Ltd	2
XYZ Ltd	1

3. Compute CTR

Campaigner	Count
ABC Ltd	33.33%
XYZ Ltd	25.00%



Advert CTR



Advert CTR – Test Cases

1. Test the impression flow from the source topic to the final output topic.

Test Steps	Test Data
Send one impression to the source topic (Ad-Impressions)	100001:{"ImpressionID": "100001", "Campaigner": "ABC Ltd"}
Read the record from the final topic (Campaign Performance)	
Validate the Campaigner name	"ABC Ltd"
Validate impression count	1

Advert CTR – Test Cases

2. Test the impression count increments correctly.

Test Steps	Test Data
Send second impression to the source topic (Ad-Impressions)	100002:{"ImpressionID": "100002", "Campaigner": "ABC Ltd"}
Read the record from the final topic (Campaign Performance)	
Validate the Campaigner name	"ABC Ltd"
Validate impression count	2

Advert CTR – Test Cases

3. Test the adClick count increments correctly

Test Steps	Test Data
Send one ad click event to the source topic (Ad-Clicks)	100001:{"ImpressionID": "100001", "Campaigner": "ABC Ltd"}
Read the record from the final topic (Campaign Performance)	
Validate the Campaigner name	"ABC Ltd"
Validate impression count	2
Validate click count	1

Advert CTR – Test Cases

4. Test the state store holds the correct state

Test Steps	Test Data
Read the value from the state store for a key	Key="ABC Ltd"
Validate the Campaigner name	"ABC Ltd"
Validate impression count	2
Validate click count	1