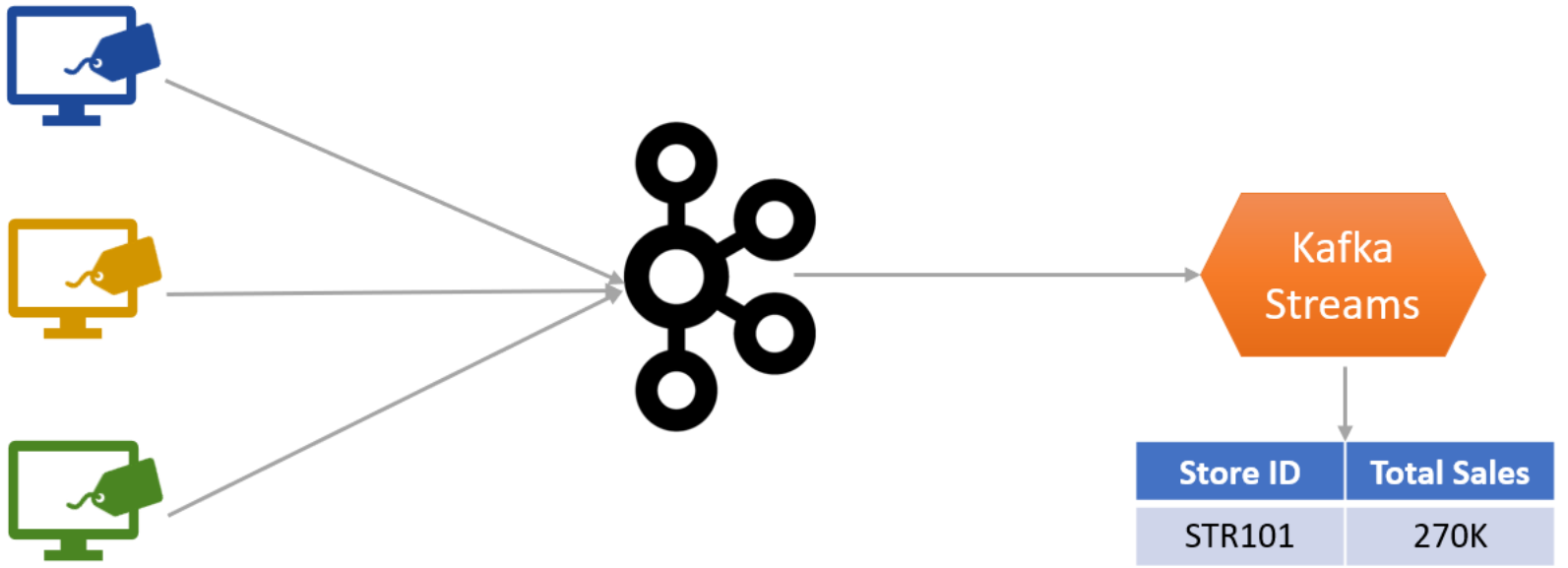
Stream Timestamps
And Timestamp Extractors

Infinite Aggregation



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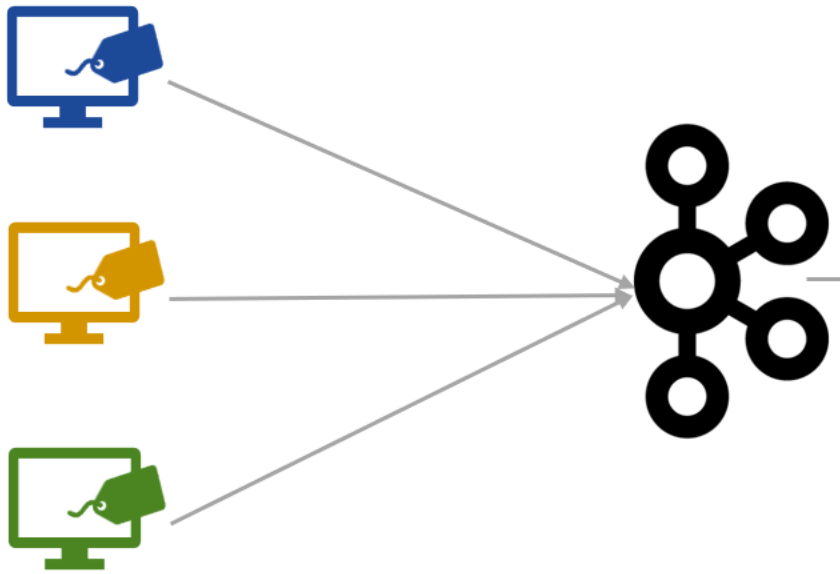
Windowed Aggregation



Kafka Streams

Store ID	Day	Total Sales
STR101	01-Jan-2019	100K
STR101	02-Jan-2019	80K
STR101	03-Jan-2019	90K

Daily Window

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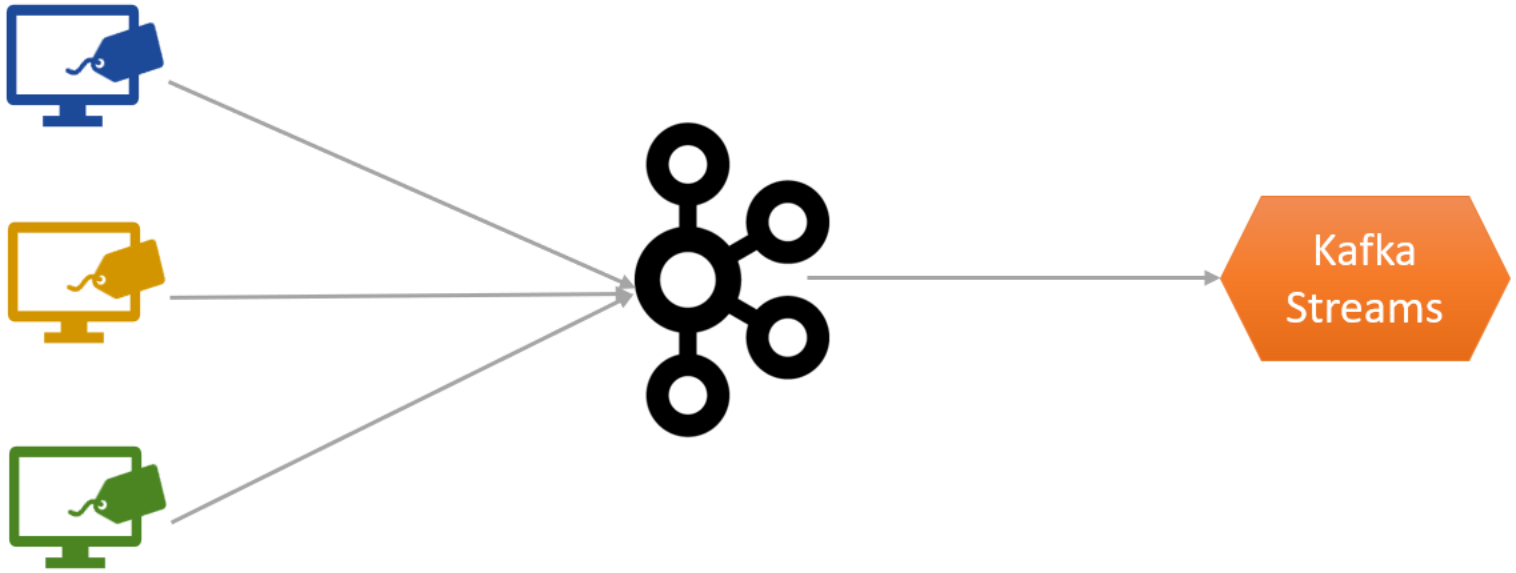
Windowed Aggregation

1. Which timestamp?
2. How to read time?



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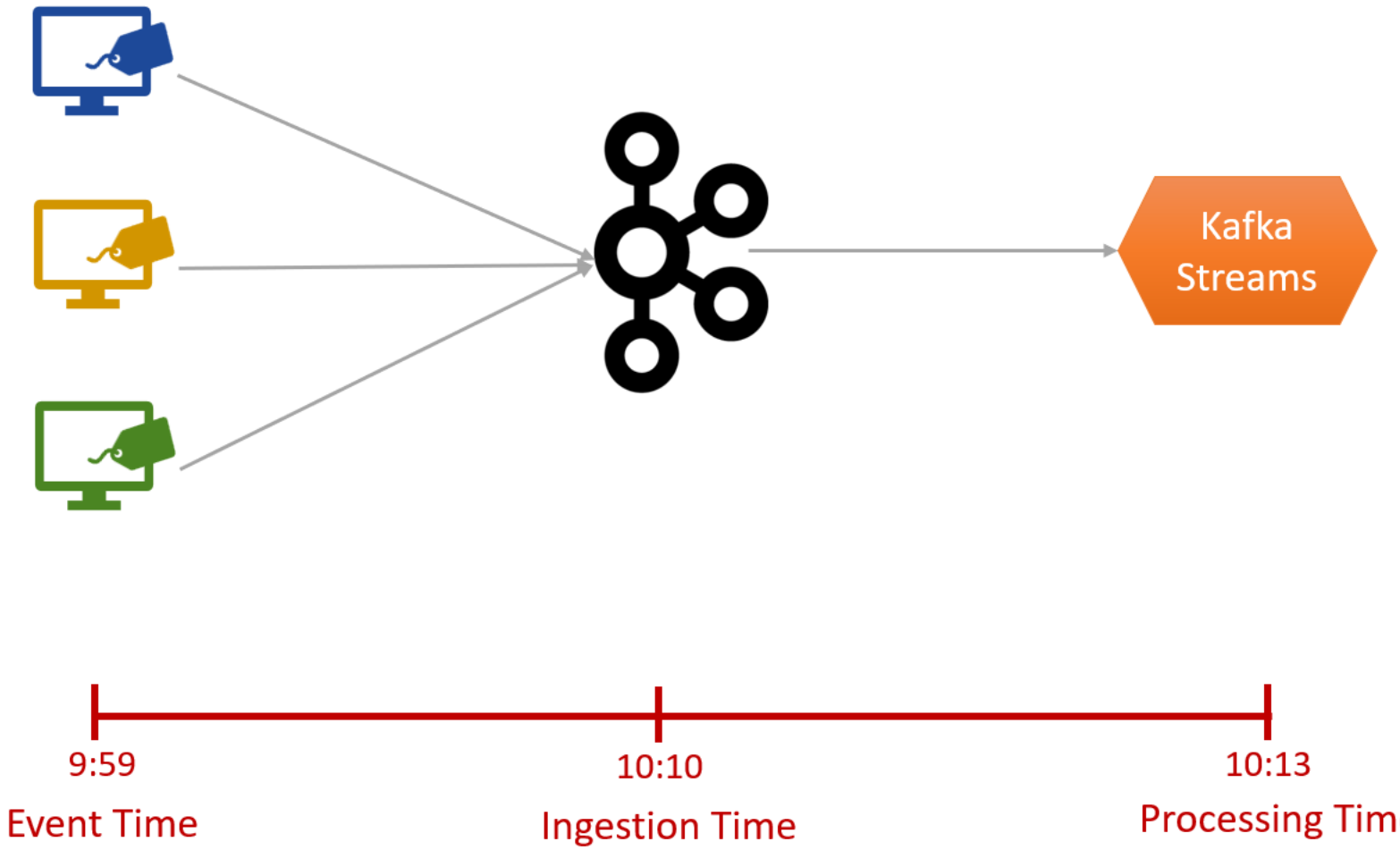
Notion of Timestamps



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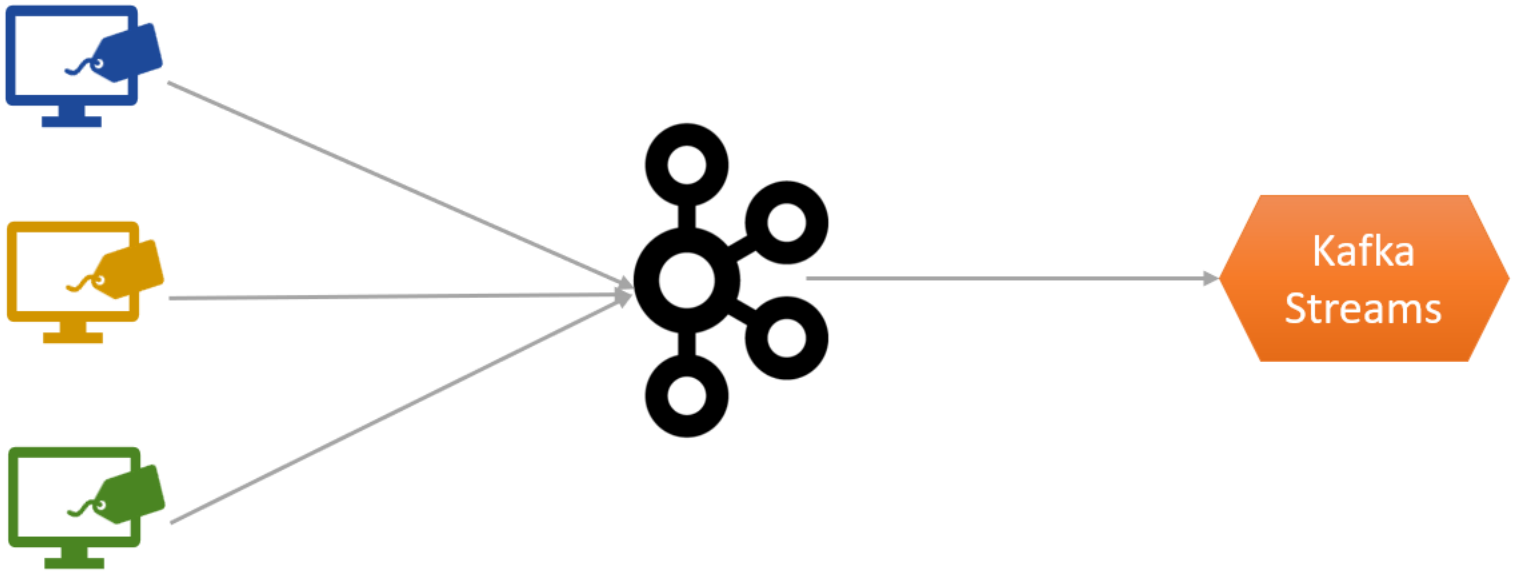
Notion of Timestamps




```
"InvoiceNumber": "DAMB509",
“CreatedTime": “2019-02-05 9:59:00",
"TotalAmt": 3953.00
```

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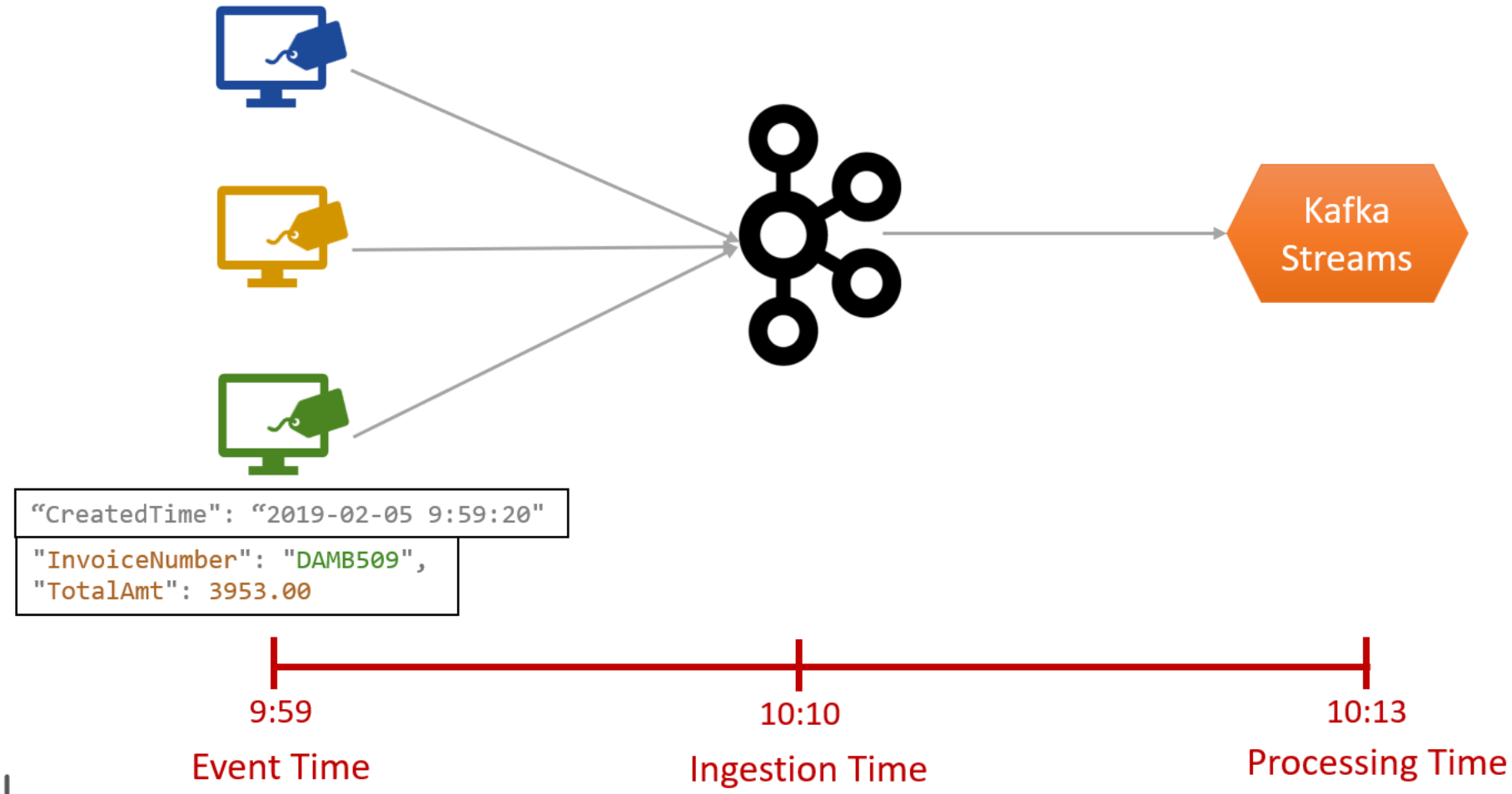
Notion of Timestamps



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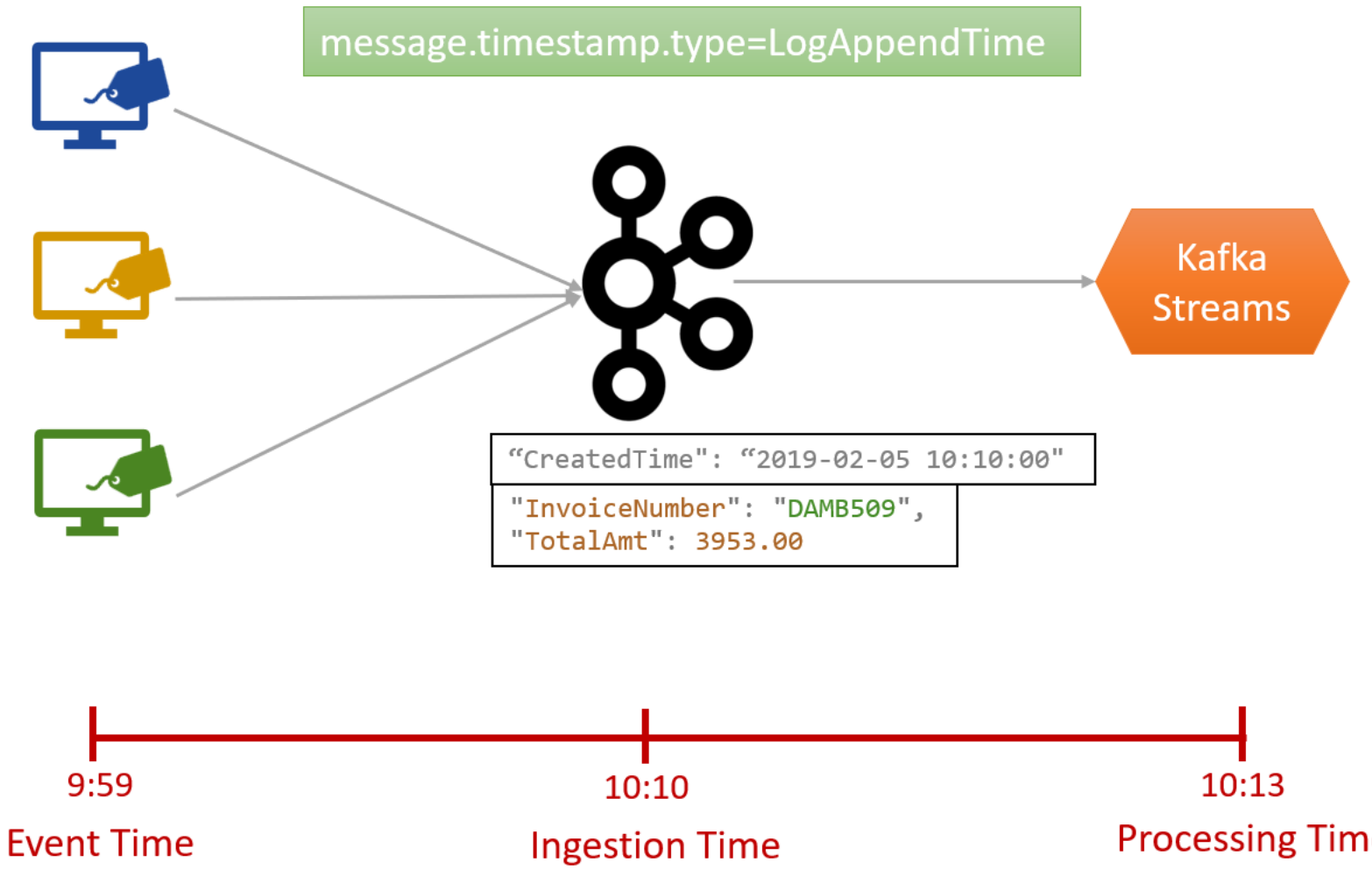
Notion of Timestamps



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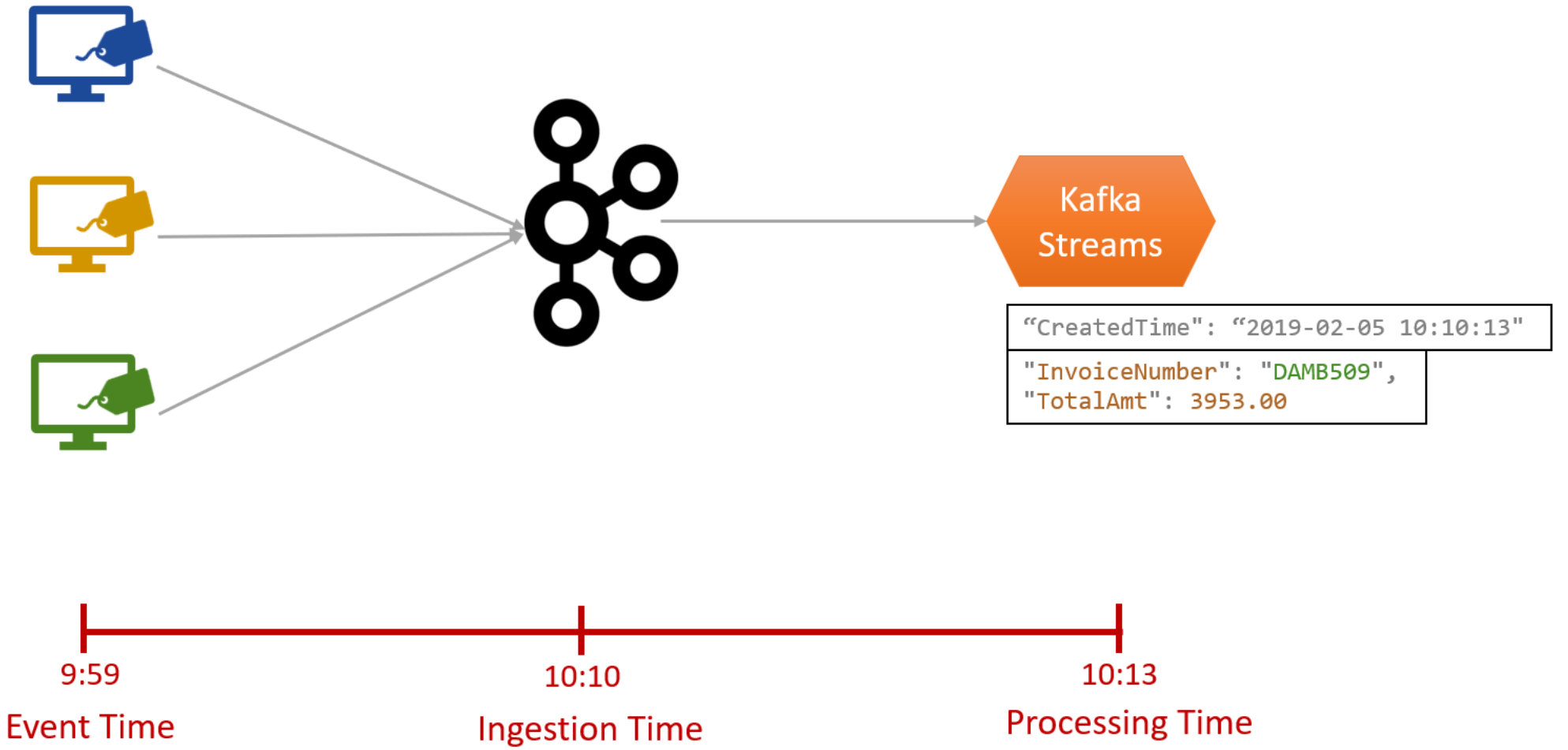
Notion of Timestamps



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Notion of Timestamps

Record Metadata

```
"CreatedTime": "2019-02-05 10:10:00"
```

Message Value

```
"InvoiceNumber": "DAMB509",
"CreatedTime": "2019-02-05 9:59:00",
"TotalAmt": 3953.00
```

```
props.put(StreamsConfig.DEFAULT_TIMESTAMP_EXTRACTOR_CLASS_CONFIG, WallclockTimestampExtractor.class);
```

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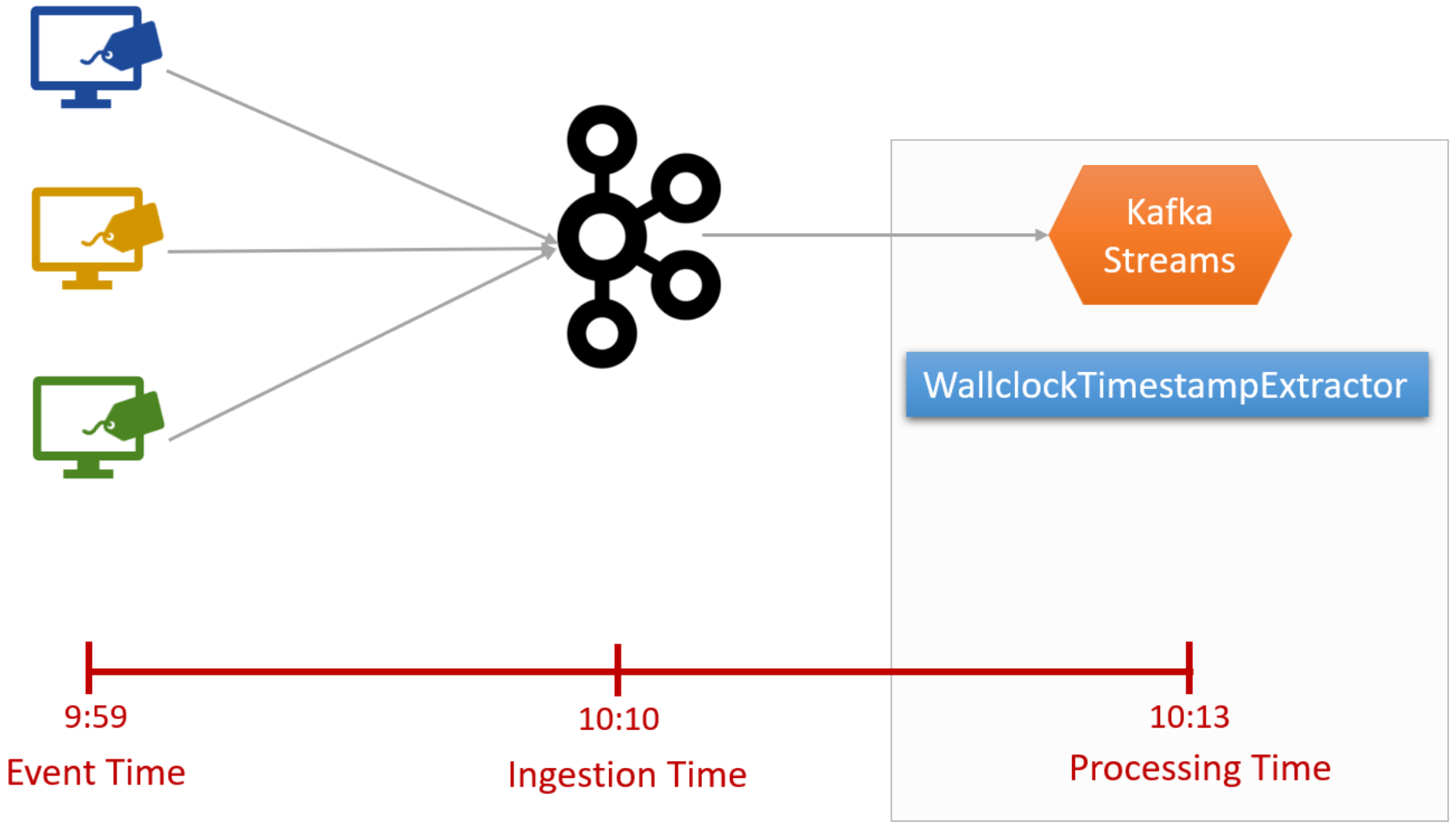
Notion of Timestamps



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Notion of Timestamps

S. No.	Timestamp Extractor	Description
1.	FailOnInvalidTimestamp	Raise exception when timestamp is invalid
2.	LogAndSkipOnInvalidTimestamp	Skip the message if the timestamp is invalid
3.	UsePreviousTimeOnInvalidTimestamp	Use the timestamp of previous message when the timestamp in current message is invalid

1. Event Time
   - Use custom timestamp extractor to read time from the message value
   - Use above timestamp extractor to read producer time
2. Ingestion Time
   - Configure the topic for LogAppendTime and use above timestamp extractors
3. Processing Time
   - Use WallclockTimestampExtractor

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