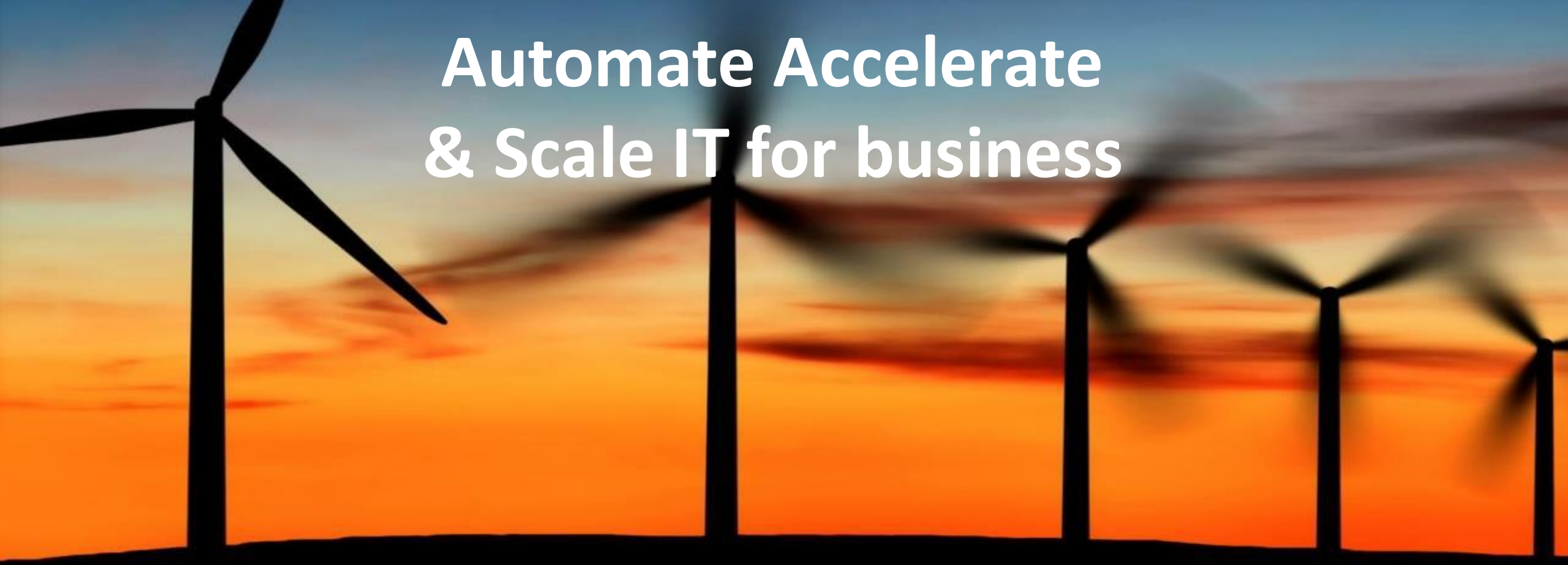

# Automate Accelerate & Scale IT for business

## Cloud, Digital Transformation, IoT

Activeeon
SCALE BEYOND LIMITS

Paris, London, Sophia Antipolis, San Jose, Dakar

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# Objective

- We aim at demonstrating how easy and efficient to perform real-time data stream processing using ActiveEon ProActive.

- We use a data streaming platform composed of:
  - ***Apache Kafka**:* A distributed streaming platform (https://kafka.apache.org/)
  - ***Apache Storm**:* A distributed real-time computation system (http://storm.apache.org)
  - ***Visdom**:* A tool for creating, organizing, and sharing visualizations of live, rich data (https://github.com/facebookresearch/visdom)

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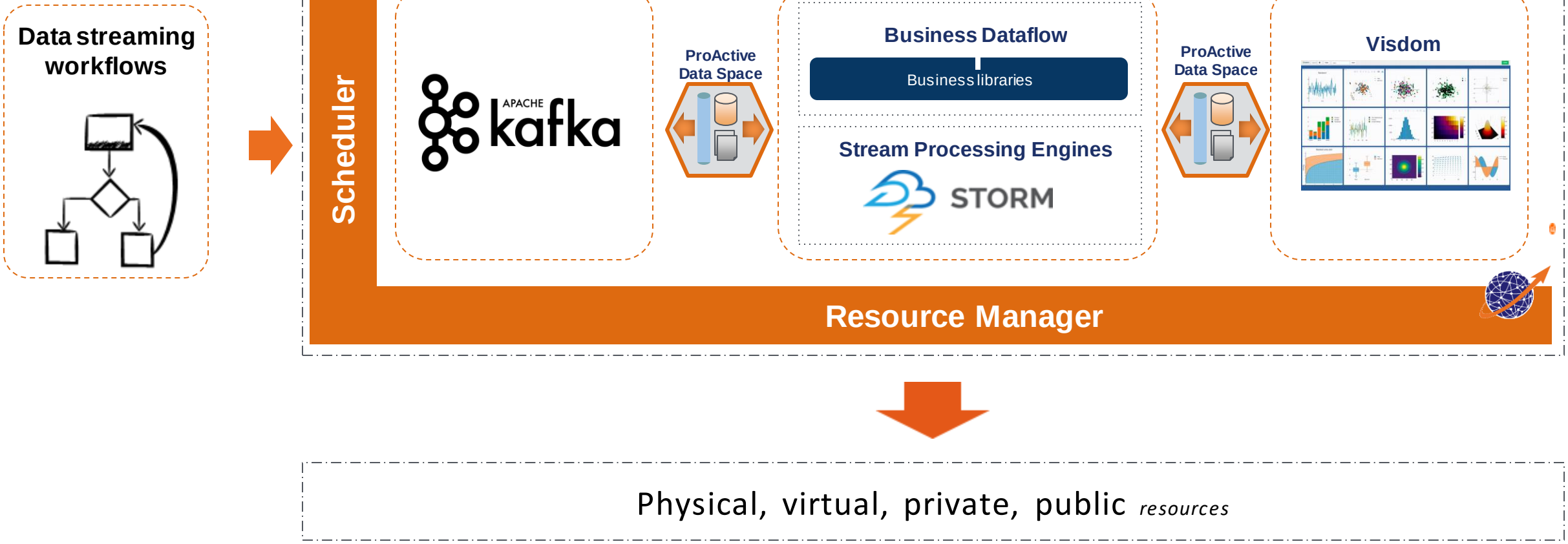
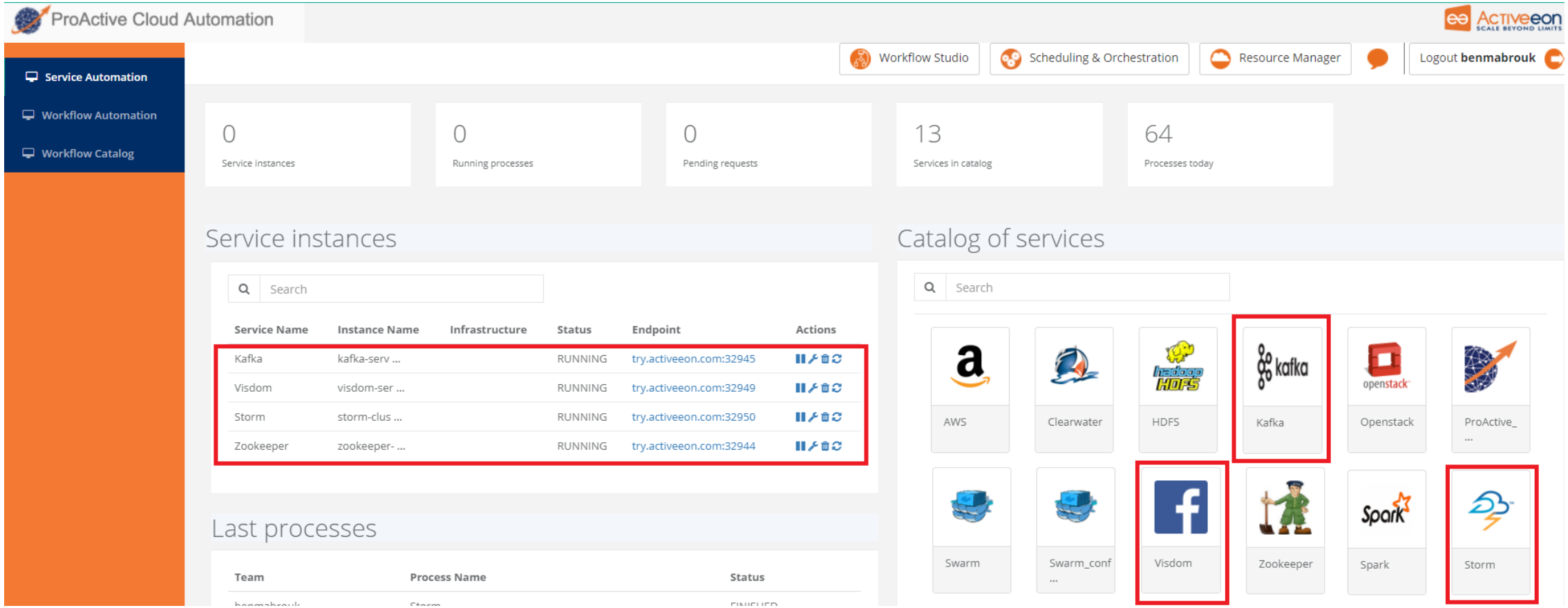
# Data Streaming Platform
# Kafka-Storm-Visdom

# Data Streaming Platform - Architecture



# Data Streaming Platform in PCA

- In ProActive Cloud Automation (PCA), we created workflows for creating and removing instances of ***Apache Kafka***, ***Apache Storm*** *and* ***Visdom.***



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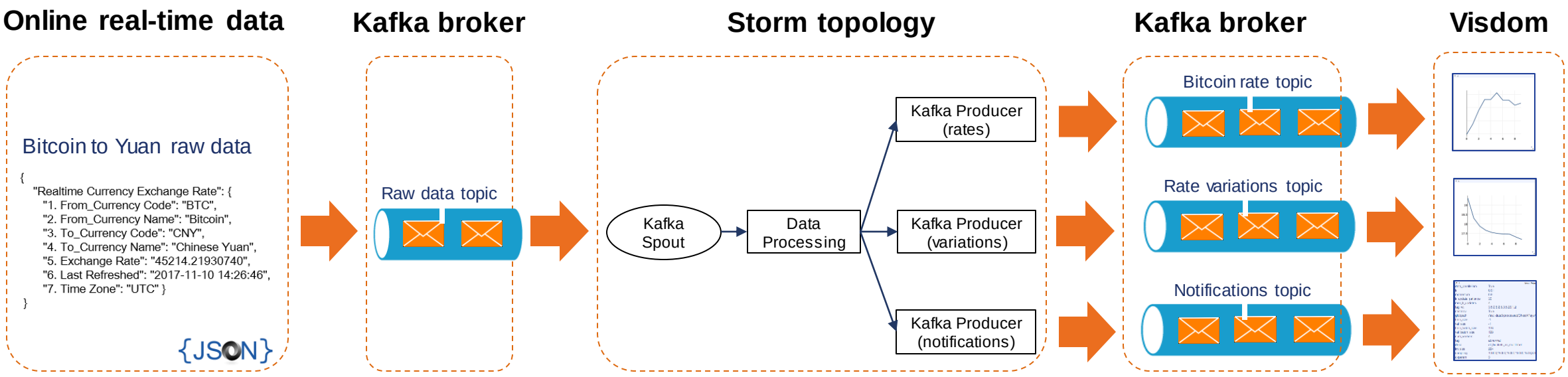
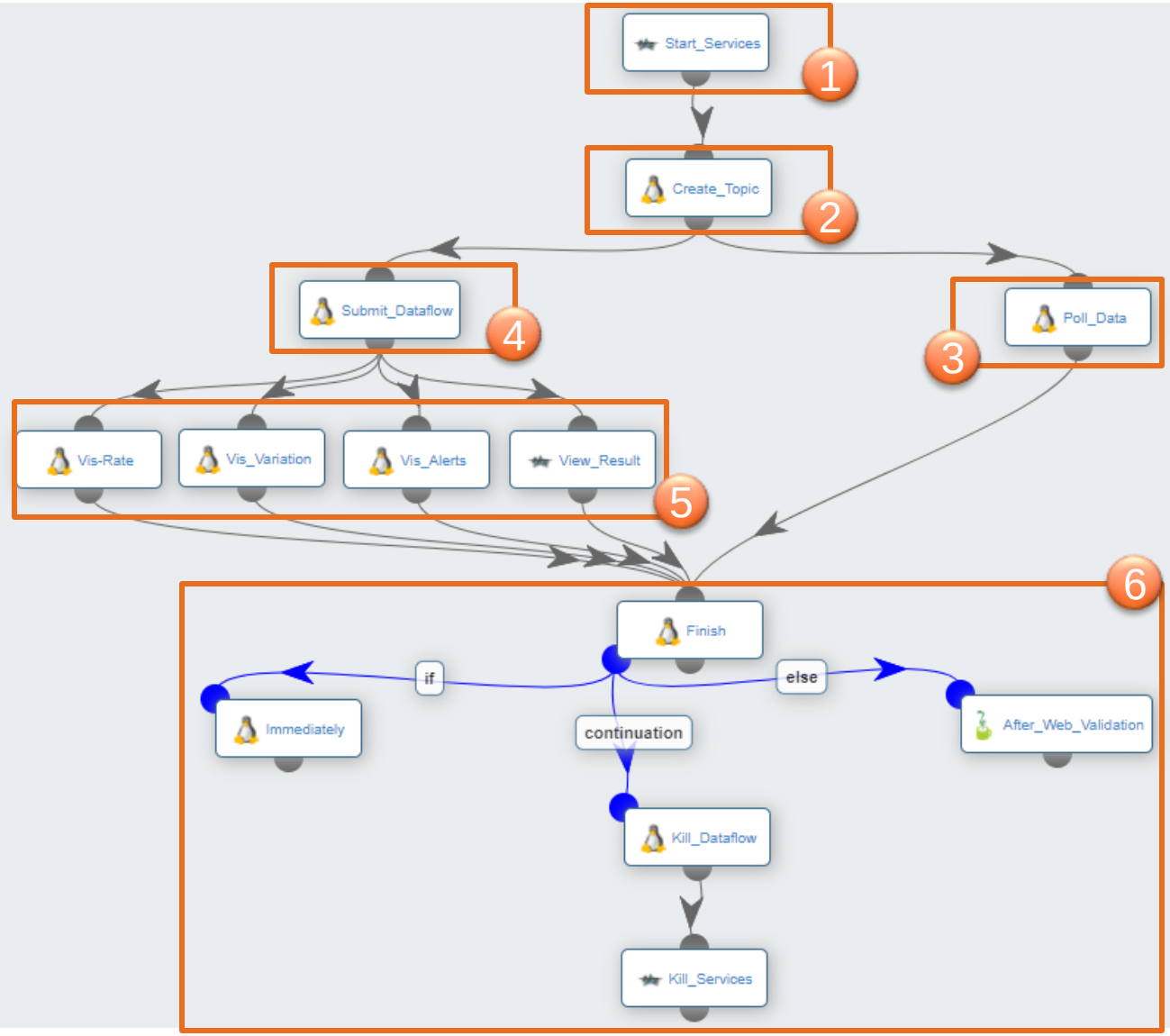
# Dataflow Sample

# Dataflow Sample - *Bitcoin to Yuan rate processing*




- We acquire real-time data about the exchange rate of Bitcoin to the Chinese Yuan.
- This data is available online in a json format. Each json message is stored in a Kafka publish-subscribe topic.
- We further deploy a topology (i.e., a dataflow application) in storm, which:
  (i) reads json messages from the kafka topic,
  (ii) parses the json structure,
  (iii) extracts the exchange rate,
  (iv) computes the rate variations,
  (v) sends a notification if the variation is greater than 50 Yuan.
- The extracted rate, variations and notifications are sent to Kafka topics, and further visualized via Visdom.

# Dataflow Sample – *Workflow overview*




1. Start PCA services (Kafka, Storm and Visdom)

2. Create a topic in Kafka to receive Bitcoin raw data

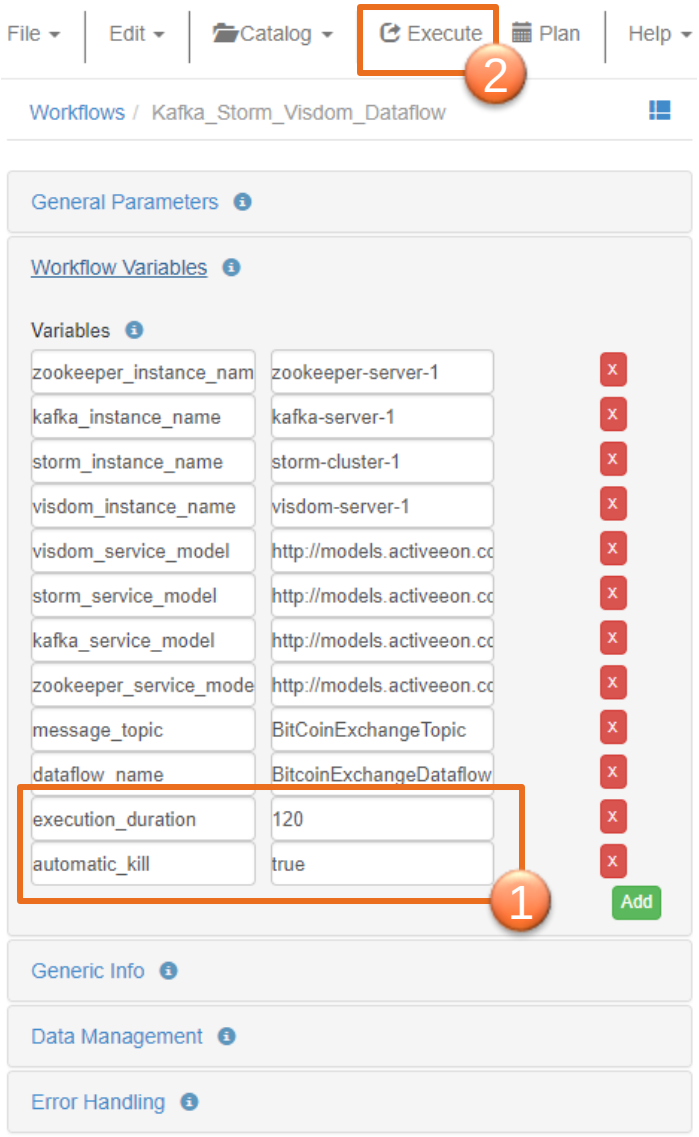
3. Acquire Bitcoin raw data available online and send it to the created topic in Kafka

4. Submit the dataflow (jar) code to Storm. The processed data will be sent to some Kafka topics

5. Acquire processed data from Kafka topics and send it to Visdom for visualization

6. Remove the dataflow and PCA platforms, either immediately, or after a web validation

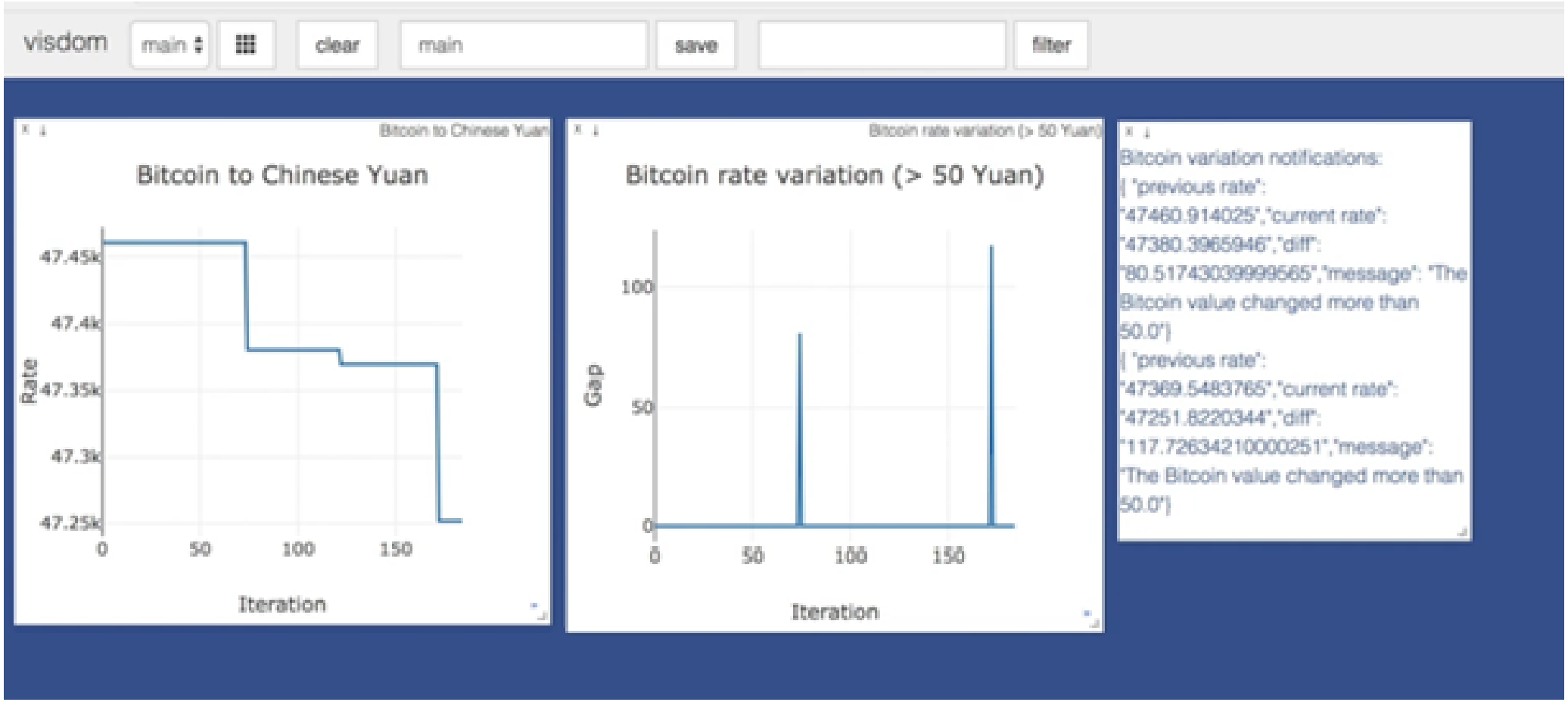
# Dataflow Sample – *Workflow execution*




1. Configure key workflow parameters
   - **execution_duration:** The execution duration of the dataflow Default 120 seconds
   - **automatic_kill:** Automatic kill of the dataflow and PCA platforms. if set to true, the dataflow and PCA platforms are immedialtely removed after elapsing the execution duration. Otherwise, a web notification is sent to the user, and an acknowldgement is required to remove the running dataflow and PCA platforms.

2. Launch the dataflow

# Dataflow Sample – *Result visualization*



# Summary

# Pros of Data Streaming with ProActive

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- Deploy/undeploy complex big data platforms in One Click
- Loose coupling and easy integration between big data platforms using ProActive Dataspaces and Endpoints
- Schedule big data workloads and manage resources efficiently
- Fault tolerance and recovery for business dataflows

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