**Research Activity: Look for additional tools for monitoring/managing Kafka. Submit their analysis.**

Over the years, Kafka has grown considerably in terms of both volume and complexity, and being a crucial component in the IT infrastructure, it's necessary to implement a dedicated kafka monitor to track its operations and performance. Kafka monitoring tools like Applications Manager's Kafka monitoring tool collects all performance metrics that can help when troubleshooting Kafka issues, and it shows you which ones require corrective action.

Important Kafka performance metrics to look for while performing Kafka monitoring include:

* Resource utilization metrics
* Kafka broker metrics
* Kafka producer metrics
* Kafka consumer metrics

The key parameters to monitor are:

### Ensure your resources aren't overloaded

### Keep tabs on threads and JVM usage

### Understand broker, controller, and replication statistics

### Monitor network and topic details

## Confluent Control Centre

[Confluent](https://www.confluent.io/), is the company founded by the original creators of Apache Kafka. Confluent Enterprise, is a -more complete- Kafka distribution for production environments. The commercial licence of Confluent Platform comes with [Confluent Control Centre](https://www.confluent.io/confluent-control-center/) which is a management system for Apache Kafka that enables cluster monitoring and management from a User Interface.

Confluent Control Center delivers understanding and insight about the inner workings of the Apache Kafka clusters and the data that flows through them. Control Center gives the administrator monitoring and management capabilities through curated dashboards, so that they can deliver optimal performance and meet SLAs for their Apache Kafka clusters.

1. **Lenses**

[Lenses](https://lenses.io/lenses-features/) (ex Landoop) is a company that offers [enterprise features and monitoring tools](https://lenses.io/lenses-features/) for Kafka Clusters. More precisely, it enhances Kafka with User Interface, streaming SQL engine and Cluster monitoring. It also enables faster monitoring of Kafka data pipelines by providing SQL and Connector visibility into the data flows.

Lenses works with any Kafka distribution, delivers high quality enterprise features and monitoring, SQL for ALL and self-serviced real-time data access and flows on Kubernetes.

The company also offers [Lenses Box](https://lenses.io/lenses-box/), which is a free all-in-one docker that can serve a single broker for up to 25M messages. Note that Lenses Box is recommended for development environments.

Furthermore, Lenses also offers Kafka Topics UI, which is a web tool for managing Kafka Topics.

## Datadog Kafka Dashboard

[Kafka Dashboard](https://www.datadoghq.com/dashboards/kafka-dashboard/) by Datadog is a comprehensive Kafka Dashboard that displays key metrics for Kafka Brokers, Producers, Consumers and Apache Zookeeper. Kafka deployments often rely on external software which is not part of the Kafka, like Apache Zookeeper. Datadog enables a comprehensive monitoring on all the layers of the deployment, including software components in the data pipeline which are not part of Kafka as such.

## Cloudera Manager

[Kafka in Cloudera Manager](https://www.cloudera.com/documentation/enterprise/latest/topics/kafka_tour.html) is clearly a less rich monitoring tool compared to Confluent, Lenses and Datadog. However, it is very convenient for companies that are already customers of Cloudera and need their monitoring mechanisms under the same platform.

## Yahoo Kafka Manager

[Yahoo Kafka Manager](https://github.com/yahoo/kafka-manager) is an open-source managing tool for Apache Kafka clusters. With Kafka Manager, one can:

* Manage multiple clusters
* Easy inspection of cluster state (topics, consumers, offsets, brokers, replica distribution, partition distribution)
* Run preferred replica election
* Generate partition assignments with option to select brokers to use
* Run reassignment of partition (based on generated assignments)
* Create a topic with optional topic configs
* Delete topics
* Batch generate partition assignments for multiple topics with option to select brokers to use
* Batch run reassignment of partition for multiple topics
* Add partitions to existing topic
* Update config for existing topic
* Optionally enable JMX polling for broker level and topic level metrics.
* Optionally filter out consumers that do not have ids/ owners/ & offsets/ directories in zookeeper.

## KafDrop

[KafDrop](https://github.com/HomeAdvisor/Kafdrop) is an open-source UI for monitoring Apache Kafka clusters. The tool displays information such as brokers, topics, partitions, and even lets us view messages. It is a lightweight application that runs on Spring Boot and requires very little configuration.

Kafdrop 3 is a UI for navigating and monitoring Apache Kafka brokers. The tool displays information such as brokers, topics, partitions, consumers and lets us view messages.

## LinkedIn Burrow

[LinkedIn Burrow](https://github.com/linkedin/Burrow) is an open-source monitoring companion for Apache Kafka that provides consumer lag checking as a service without the need for specifying thresholds. It monitors committed offsets for all consumers and calculates the status of those consumers on demand. An HTTP endpoint is provided to request status on demand, as well as provide other Kafka cluster information. There are also configurable notifiers that can send status out via email or HTTP calls to another service. Burrow is written in Go, so before getting started, we should [install and set up Go](https://golang.org/doc/install).

## Kafka Tool

[Kafka Tool](http://www.kafkatool.com/) is a GUI application for managing and using Apache Kafka clusters. It provides an intuitive UI that allows one to quickly view objects within a Kafka cluster as well as the messages stored in the topics of the cluster. It contains features geared towards both developers and administrators. Using Kafka Tool, we can:

* View metrics on cluster, broker, topic and consumer level
* View contents of messages in the partitions and add new messages
* View offsets of the Kafka consumers, including Apache Storm Kafka spout consumers
* Show JSON and XML messages in a pretty-printed format
* Add and drop topics plus other management features
* Save individual messages from the Kafka partitions to local hard drive
* Write custom [plugins](http://www.kafkatool.com/plugins.html) that allows to view custom data formats

The tool runs on Windows, Linux and Mac OS.

**Comparison and Conclusions**

If one cannot afford commercial licenses then the options are Yahoo Kafka Manager, LinkedIn Burrow, KafDrop and Kafka Tool. Seems like the former is a comprehensive solution that should do the trick for most of the use-cases.

If big Kafka Clusters are running, then it is worth paying for a commercial license. Confluent and Lenses offer more rich functionality compared to the other monitoring tools and both of them are highly recommended.