One-Click Monitoring Solution For Multi-ENV Kubernetes Clusters

About The Customer

The customer designs and develops solutions that provide real-time visibility into stacks, sensors, and systems. It also provides solutions around operations monitoring, application metrics, and the Internet of Things. Its products are optimized for high-availability storage and data retrieval.

Business Challenge

The customer needed assistance deploying and managing their monitoring pipeline on Kubernetes and different Kubernetes distributions such as OSS, Minikuber, AKS, GKE, OpenShift, etc.

There were three major challenges:

- There were Helm charts for the individual components but not for the complete monitoring stack.
- The monitoring stack lacked support for Kubernetes and its different distributions.
- The monitoring stack was not integrated with different monitoring agents as per K8's distributions and pre-defined dashboards for different monitoring metrics.

The challenges included establishing integration to enable the flow of time series data from a Kubernetes-based monitoring application, Telegraf, into the customer's database and easily deploying the customer's platform into a Kubernetes environment.

It also required building and managing custom Helm charts to deploy the customer's platform for a selected Kubernetes cluster. The goal was to increase the data volume that the application scales out, defining Helm charts and building templated YAML for Helm chart deployment.

How Opcito Helped

Our team analyzed the requirements of the customer carefully, gauged the problem at hand, and proposed an architecture consisting of operator framework from CoreOS, Helm charts, configuration control through ConfigMaps, options to install data processing & administration components, and the storage of sensitive data in Kubernetes Secrets. We then designed and built a Kubernetes monitoring solution on the customer's platform using a set of Helm charts for easy collection and visualization of Kubernetes metrics. This is a tailor-made monitoring solution for Kubernetes based on their monitoring TICK stack. And the best part about the solution is that you get a view of all the individual Kubernetes clusters' metrics with a single click in one place.

This solution is a collection of dashboard rules and definitions that can be easily deployed. It collects metrics from the underlying resources that bare metal Kubernetes is running on and Kubernetes resources such as services, pods, ingress, etc. The modular design approach allows the customer to choose components that need to be deployed. The architecture of monitoring dashboards facilitates adding new dashboards easily. It also offers Kubernetes-specific dashboard support for various network configurations.
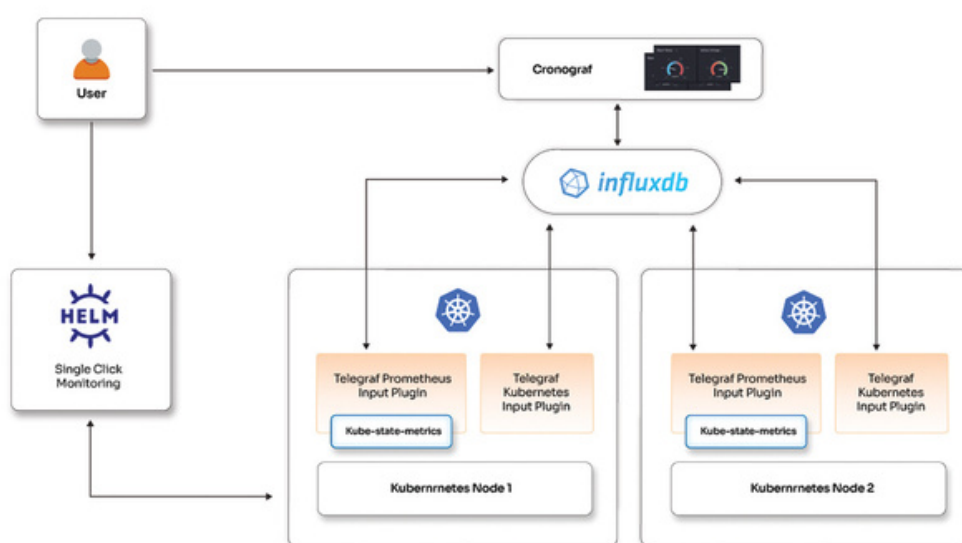
Technologies, Tools, and Platforms used

COREOS

HELM CHARTS

CONFIGMAPS

CRONOGRAF

INFLUXDB

TELEGRAF

Benefits

TIME SAVING WITH SIMPLIFIED PROCESS	The process of creation, configuration, and deployment of dashboards was simplified, further reducing the execution times required for these operations.
METRICS ON DEMAND	Canned monitoring metrics and charts are now readily available whenever required.

Opcito

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HASSLE-FREE DEPLOYMENT	Single components from the customer's platform can be deployed without hassle due to a modular approach and can be easily integrated into their database.
MONITORING	One-click is enough to monitor selected Kubernetes cluster

About Opcito

At Opcito, we believe in designing transformational solutions for our customers, start-ups, and enterprises, with our ability to unify quality, reliability, and cost-effectiveness at any scale. Our core work culture focuses on adding material value to your products by leveraging best practices in DevOps, like continuous integration, continuous delivery, and automation, coupled with disruptive technologies like containers, serverless computing, and microservice-based architectures. We also believe in high standards for quality with a zero-bug policy and zero downtime deployment approach.