

Network Monitoring, Management and Automation

TICK Stack



influxdata[®]

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Introduction

InfluxData provides a Modern Time Series Platform, designed from the ground up to handle metrics and events.



InfluxData's products are based on an open source core.

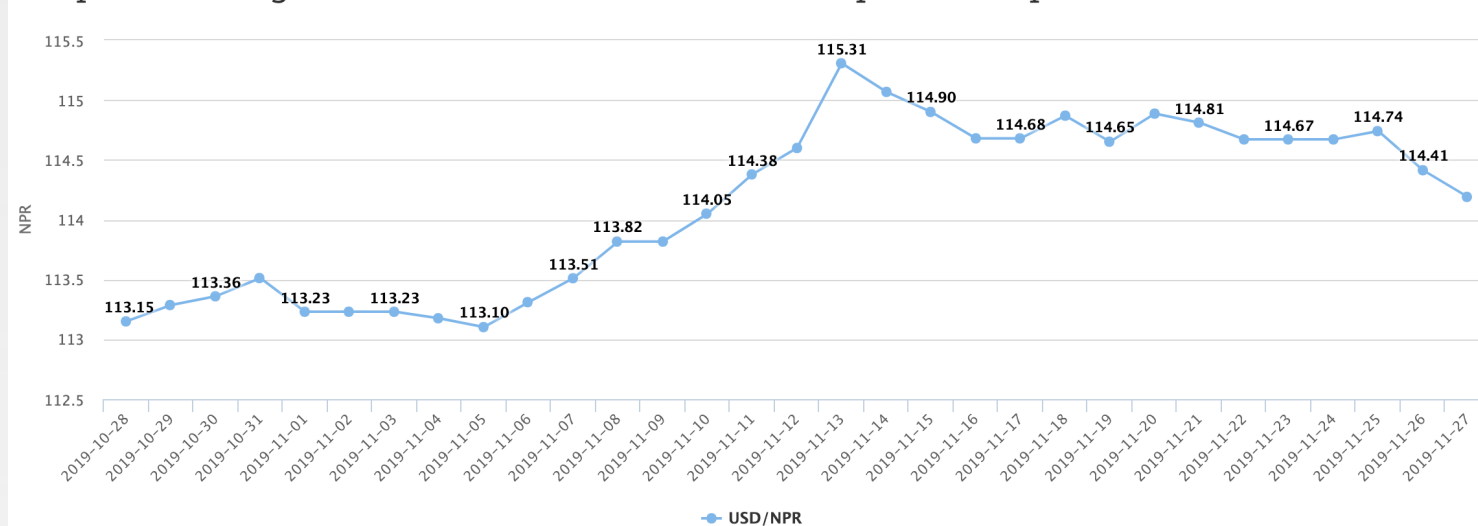
This open source core consists of the projects Telegraf, InfluxDB, Chronograf, and Kapacitor—collectively called the TICK Stack.

What is a Time Series?

A time series is simply any set of values with a timestamp where time is a meaningful component of the data.

The classic real world example of a time series is stock currency exchange price data.

Graph of change in 1 United States Dollar to Nepalese Rupees rate



What Exactly is a Time Series Database?

Time Series Databases typically need to solve two problems:

- **high write throughput:**

- The amount of time series generated by, say, monitoring a fleet of servers can quickly grow from thousands of new values per second to millions of new values per second.
- Inserting that amount of data into a regular relational database, like MySQL and PostgreSQL, quickly knocks over most systems without careful tuning.
- Even then, there are limits to the amount of data a system can accept at any one time.

- **high query rates**

- One aspect of time series data is that new data is almost always more valuable than the old data.
- Again, think of a fleet of servers. Knowing that one server has started to use up all its CPU is much more useful than looking at the evidence even minutes after the CPU spiked.
- The real-time nature of time series makes it necessary to expose new data in queries as fast as possible. Additionally, not every point matters in a time series.

What is the TICK Stack?

An acronym for a platform of open source tools built to make collection, storage, graphing, and alerting on time series data incredibly easy.

The components in the platform are:

- **Telegraf**
collection of time sequential data from a range of sources including IoT devices
- **InfluxDB**
high performance and efficient database store for handling high volumes of time-series data
- **Chronograf**
real-time visualization of InfluxDB data
- **Kapacitor**
monitoring and alerting based on views of InfluxDB data and anomalies contained within those views

Telegraf

A metrics collection agent. Use it to collect and send metrics to InfluxDB. Telegraf's plugin architecture supports collection of metrics from 100+ popular services right out of the box.



InfluxDB

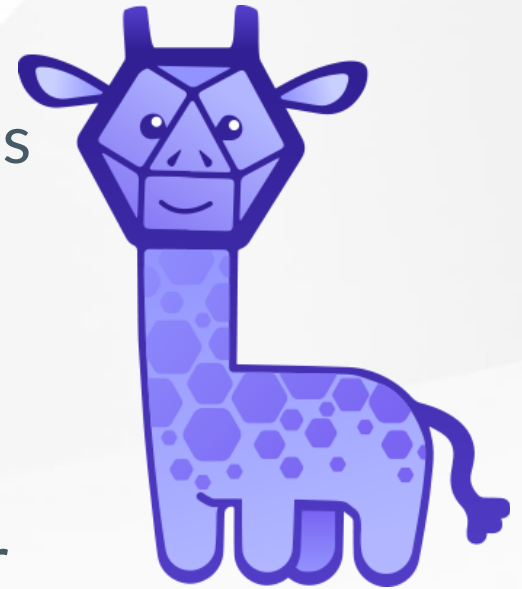
A high performance Time Series Database. It can store hundreds of thousands of points per second. The InfluxDB SQL-like query language was built specifically for time series. Check out the InfluxDB documentation to start learning more.



Chronograf

A UI layer for the whole TICK stack. Use it to set up graphs and dashboards of data in InfluxDB and hook up Kapacitor alerts.

Included smart query builder to aid with rapid query building. Suitable for producing ad hoc visualizations on the fly.

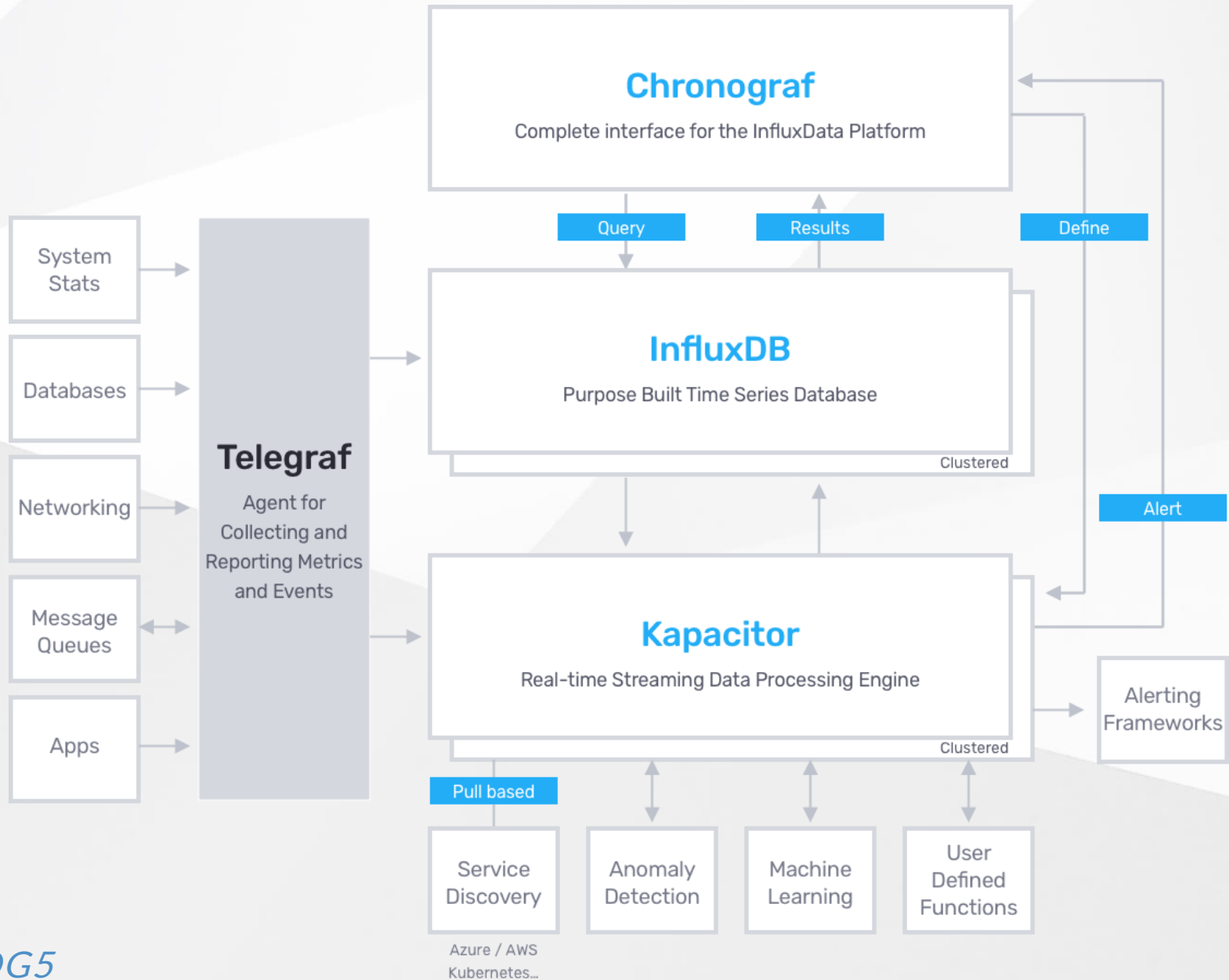


Kapacitor

A metrics and events processing and alerting engine. Use it to crunch time series data into actionable alerts and easily send those alerts to many popular products like PagerDuty and Slack.



TICK Stack Architecture



Alternatives to TICK Stack

- **Prometheus**

- an open-source systems monitoring and alerting toolkit originally built at SoundCloud.
- Since its inception in 2012, many companies and organizations have adopted Prometheus, and the project has a very active developer and user community.
- It is now a standalone open source project and maintained independently of any company.
- <https://prometheus.io/>



- **Sensu**

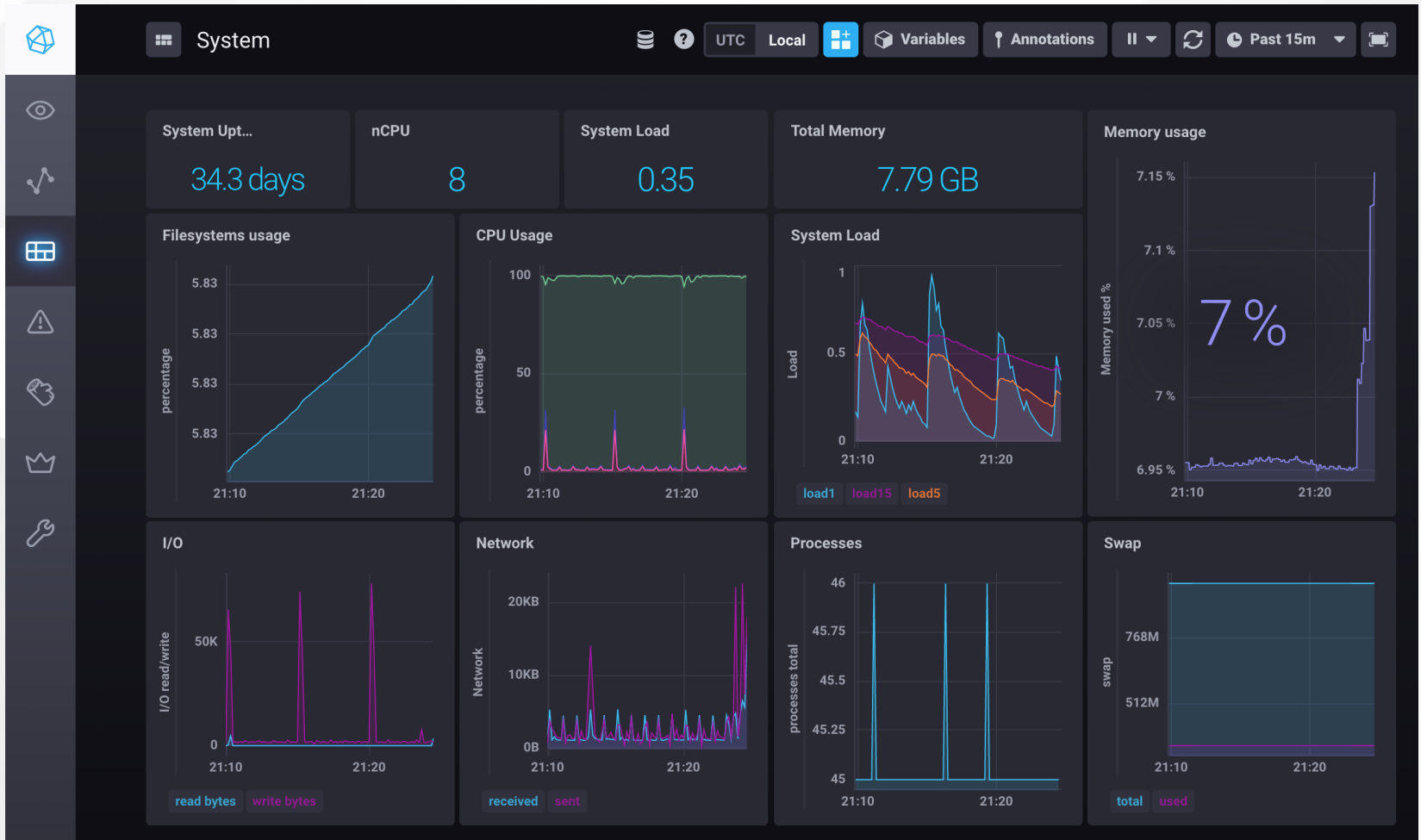
- Sensu is the industry leading solution for multi-cloud monitoring at scale.
- Founded in 2017, Sensu offers a comprehensive monitoring solution for enterprises, providing complete visibility across every system, every protocol, every time
- <https://sensu.io/>



More info and documentation

- <https://www.influxdata.com/>

Demo



<http://noc.lab.workalaya.net:8888/>

