#06 practical class

TICK stack

COMPUTING SYSTEMS AND INFRASTRUCTURES

(SISTEMAS E INFRAESTRUTURAS DE COMPUTAÇÃO)

Overview

- TICK stack
- Telegraf
- InfluxDB
- Chronograf
- Kapacitor

TICK stack

https://www.influxdata.com

- The TICK Stack is a collection of technologies which capture, monitor, store, and visualize all data in a time series, allowing for informed business decisions in real-time
- TICK stack consists of:
  - Telegraf
  - InfluxDB
  - Chronograf
  - Kapacitor

InfluxDB

- High-performance data store
- Optimized for time series data
- High throughput ingest, compression, and real-time querying
- Provides write and query capabilities with a built-in HTTP API
- Works with InfluxQL, a SQL-like query language for interacting with data
- InfluxDB can handle millions of data points per second
- Downsampling and data retention

Telegraf

- Plugin-driven server agent for collecting and reporting metrics
- Input plugins to gather data from a variety of sources
- Output plugins to send metrics to a variety of other datastores, services, and message queues

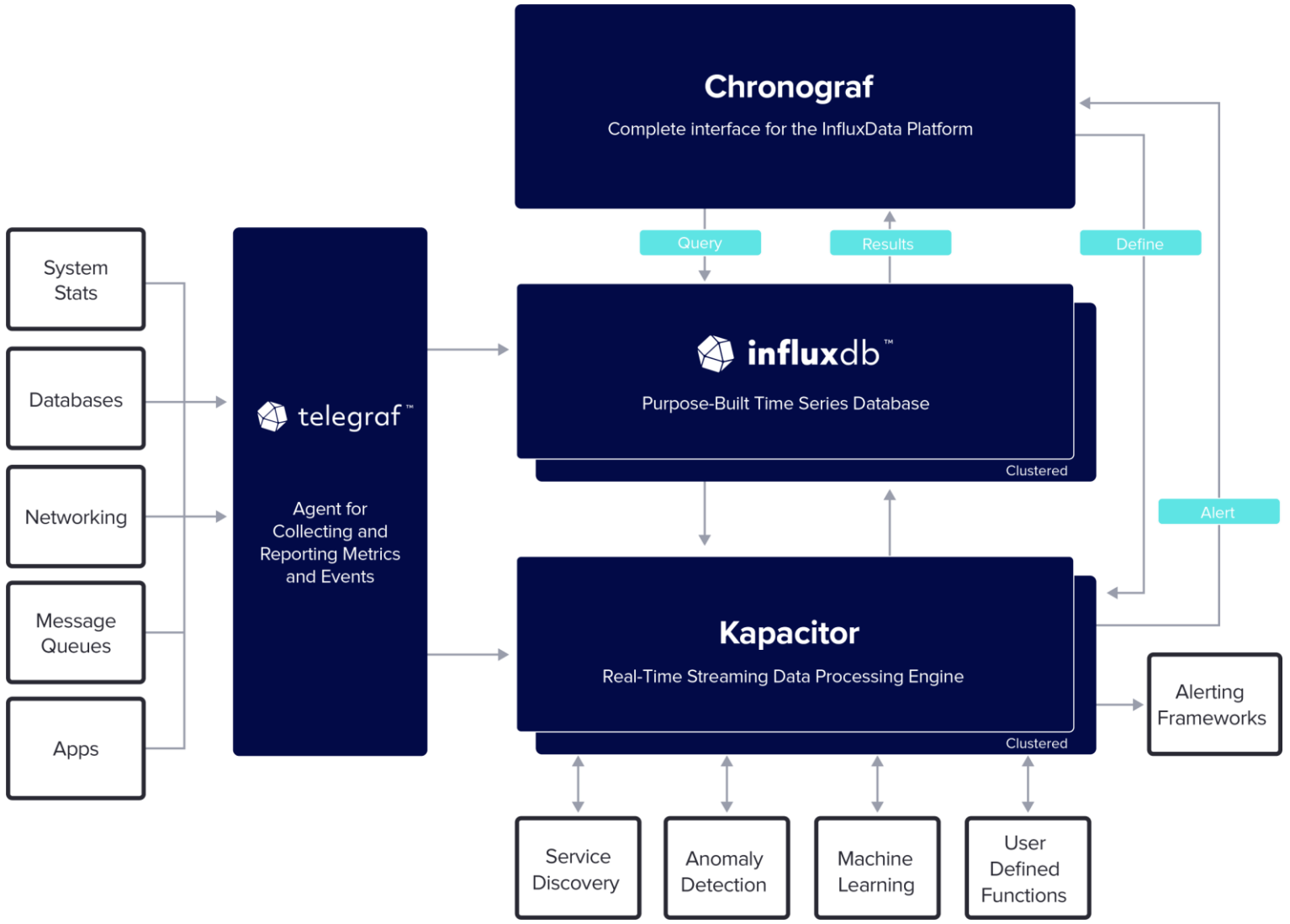
Chronograf

- User interface and visualization engine of the TICK stack
- Facilitates setup and maintenance of the infrastructure
- Allow to rapidly build dashboards with real-time visualizations of the data and to easily create alerting and automation rules

Kapacitor

- Native data processing engine
- Can process both stream and batch data from InfluxDB
- Allows plug-in own custom logic or user-defined functions to process alerts with dynamic thresholds, match metrics for patterns, compute statistical anomalies, and perform specific actions based on these alerts, like dynamic load rebalancing

TICK stack architecture



Deploy InfluxDB 2.x

- Create tick-network
- Run influxdb 2.x docker
- Explore InfluxDB 2.X
  - http:/<VM-IP>:8086

```
docker network create tick-network

docker run -dit --name=influxdb --network=tick-network -p 8086:8086 \
      -v influxdb-data:/var/lib/influxdb2 \
      -v influxdb-conf:/etc/influxdb2 \
      -e DOCKER_INFLUXDB_INIT_MODE=setup \
      -e DOCKER_INFLUXDB_INIT_USERNAME=admin \
      -e DOCKER_INFLUXDB_INIT_PASSWORD=password \
      -e DOCKER_INFLUXDB_INIT_ORG=sic \
      -e DOCKER_INFLUXDB_INIT_BUCKET=pl6 \
      influxdb:latest
```

Deploy Telegraf

- Create a configuration folder
- Create a default configuration file
- Configure input plugin (docker)
- Configure output plugin (influxdb)
- Run telegraf docker

```
docker run --rm telegraf:latest telegraf config > telegraf/conf/telegraf.conf

docker run -dit --name=telegraf --network=tick-network \
      -v /var/run/docker.sock:/var/run/docker.sock \
      -v /root/tick/telegraf/conf/telegraf.conf:/etc/telegraf/telegraf.conf:ro \
            --user telegraf:$(stat -c '%g' /var/run/docker.sock) \
      telegraf

(example to gather docker measurements)
```

Explore TICK stack

- Explore and discuss the docker deployed
- Pay attention to the API tokens
- Check and explore the telegraf.conf provided