Infraestructura Tecnológica

The TICK stack is a collection of products from the developers of the time-series database InfluxDB. It is made up of the following[1]
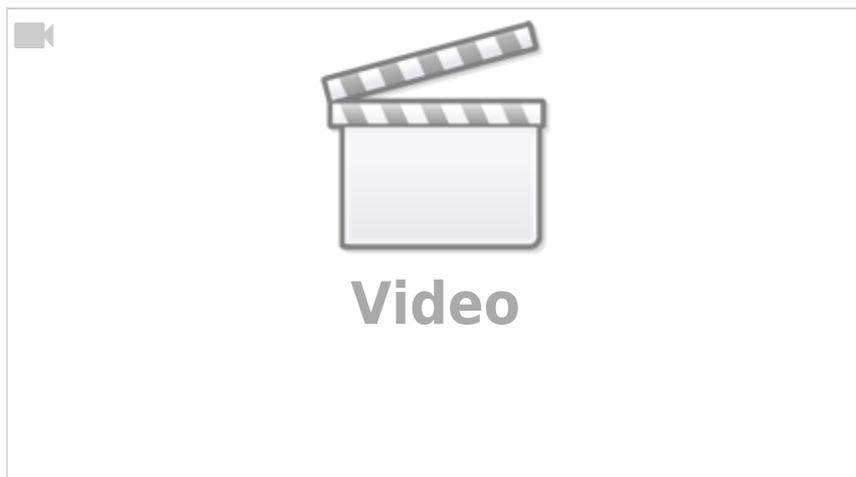
components:

- **Telegraf** collects time-series data from a variety of sources.
- **InfluxDB** stores time-series data.
- **Chronograf** visualizes and graphs the time-series data.
- **Kapacitor** provides alerting and detects anomalies in time-series data.

You can use each of these components separately, but if you use them together, you'll have a scalable, integrated open-source system for processing time-series data.

In this tutorial you'll set up and use this platform as an open-source monitoring system. You'll generate a bit of CPU usage and receive an email alert when the usage gets too high.

https://www.influxdata.com/blog/building-iot-time-series-demo/

https://www.youtube.com/watch?v=woepS38F_90
https://www.influxdata.com/time-series-platform/
https://forums.docker.com/t/docker-and-iptables-configuration-startup/904
https://github.com/CWempe/rest2influxdb/blob/master/rest2influxdb.sh
http://blog.sequenceiq.com/blog/2014/08/12/docker-networking/
https://www.digitalocean.com/community/tutorials/how-to-configure-the-linux-firewall-for-docker-swarm-on-ubuntu-16-04

MQTT

http://platformio.org/lib/show/89/PubSubClient/examples https://pubsubclient.knolleary.net/

http://platformio.org/lib/show/346/AsyncMqttClient https://github.com/marvinroger/async-mqtt-client
http://marvinroger.viewdocs.io/async-mqtt-client/

influx data format → https://docs.influxdata.com/influxdb/v1.3/write_protocols/line_protocol_tutorial/

Convertir CSV en Flash a influx data format para enviar por MQTT

Función strtok: Del manual de linux para strtok

```
EXAMPLE
       The  program  below  uses  nested  loops  that employ strtok_r() to
break a string into a two-level hierarchy of tokens.  The first command-line
argument specifies the
       string to be parsed.  The second argument specifies the delimiter
byte(s) to be used to separate that string into "major" tokens.  The  third
argument  specifies  the
       delimiter byte(s) to be used to separate the "major" tokens into
subtokens.

       An example of the output produced by this program is the following:

           $ ./a.out 'a/bbb///cc;xxx:yyy:' ':;' '/'
           1: a/bbb///cc
                   --> a
                   --> bbb
                   --> cc
           2: xxx
                   --> xxx
           3: yyy
                   --> yyy

   Program source

       #include <stdio.h>
       #include <stdlib.h>
       #include <string.h>

       int
       main(int argc, char *argv[])
       {
           char *str1, *str2, *token, *subtoken;
           char *saveptr1, *saveptr2;
           int j;

           if (argc != 4) {
               fprintf(stderr, "Usage: %s string delim subdelim\n",
                       argv[0]);
               exit(EXIT_FAILURE);
           }
```

```
        for (j = 1, str1 = argv[1]; ; j++, str1 = NULL) {
            token = strtok_r(str1, argv[2], &saveptr1);
            if (token == NULL)
                break;
            printf("%d: %s\n", j, token);

            for (str2 = token; ; str2 = NULL) {
                subtoken = strtok_r(str2, argv[3], &saveptr2);
                if (subtoken == NULL)
                    break;
                printf(" --> %s\n", subtoken);
            }
        }

        exit(EXIT_SUCCESS);
    }
```

Crean servidor NTP de la hora obtenida con el GPS →
https://www.hackster.io/Absolutelyautomation/esp8266-based-wireless-ntp-server-b77926

[1)](#)
https://www.digitalocean.com/community/tutorials/how-to-monitor-system-metrics-with-the-tick-stack-on-ubuntu-16-04

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