

NEXUS
 INTEGRA
 BIG DATA
 PLATFORM



Nexus Integra is a high-performance, extensible and scalable data integration system. Its micro-service architecture, which is based on streaming distributed processing systems (Apache Spark and Apache Kafka), allows advanced processing of large volumes of data in real time and with great variability of information, by persisting in distributed HDFS and SQL databases (Apache Cassandra).

The platform is designed to simplify the development and integration of IoT solutions in order to exploit all the potential from Internet of Things technologies.



Data Centric Architecture

Nexus Integra has been built from a distributed operating system based on DC/OS (datacentre operating system).

DC/OS allows for the management of multiple machines, both in the cloud and locally, from a single web interface. It allows for the deployment

of containers, distributed services and provides mechanisms for network management, service detection and resource management to keep services run running optimally and in a scalable manner.



Nexus Integra IoT platform

01.

STREAM ANALYTICS

The architecture of Nexus enables a very efficient data ingestion, allowing, in parallel, the real-time processing of data from thousands of IoT devices, together with the persistence of the same in databases of different characteristics.

02.

LINEAR SCALABILITY

Storage of large volumes of data in a distributed form. The performance of the system is guaranteed by linear augmentation as new nodes are added to the cluster.

03.

MICRO-SERVICES

Micro-services allow the encapsulation of simpler business functions, which can be scaled, tested, implemented and managed independently.

Technologies

Nexus Integra is built with state-of-the-art technologies:



Nexus Integra has been built from a distributed operating system based on DC/OS (distributed operating system).

How it works

The information obtained from the different communication channels is pre-processed by the data intake module, which standardizes the messages received and then published in messaging queues (Kafka) according to the characteristics of the data source (IoT , Fixed network, etc.).

The messages published in Kafka are consumed by the parallel processes of Spark Streaming, which submits the data to real-time transformations (normalization and calculations of the messages).

In parallel, the messages persist in a distributed NoSQL database, while they are simultaneously published in new Kafka topics to allow real-time analytical calculations to be executed on the data (sensor alarms, leak detection, etc.).

Advantages

Experience

The system grounds on the experience gained during the last 12 years in the processing of the readings of more than 650,000 meters.

Flexibility

An Open Solution that is adaptable to each municipality and technology.

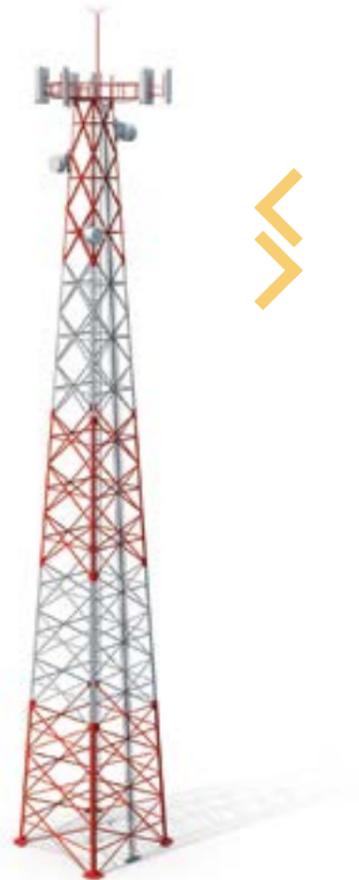
Big Data Capacity

The system has been designed to process large volumes of data in real time and with great variability in information.

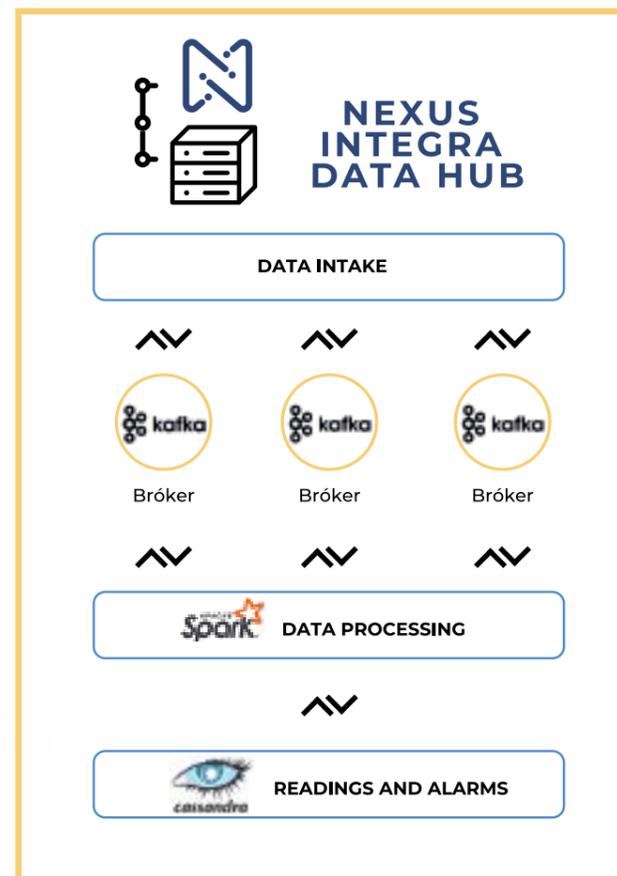
Highlights

More than 6 billion data processed annually

01. IoT DEVICES



02. SYSTEM CORE



03A. ADMINISTRATION CONSOLE



03B. SYSTEM MONITORING

